THE DEVELOPMENT AND PSYCHOMETRIC EVALUATION OF A MEDICAL PRACTITIONER COMPASSION COMPETENCY QUESTIONNAIRE

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DECLARATION

By submitting this dissertation electronically, I declare that the entirety of the work contained therein is my own, original work, that I am the sole author thereof (save to the extent explicitly otherwise stated), that reproduction and publication thereof by Stellenbosch University will not infringe any third party rights and that I have not previously in its entirety or in part submitted it for obtaining any qualification.

Michelle Visser   Date: March 2020

ABSTRACT

Medical practitioner compassion has been identified as a key construct in healthcare, not only by prominent healthcare stakeholders such as the World Health Organisation, the Health Professions Council of South Africa and the South African National Department of Health, but also by patients and practitioners themselves. Patients want to be treated in a compassionate way during the medical encounter. The concern, however, exists that too many medical practitioners still utilise a biomedical approach, as opposed to a bio-psychosocial approach, when interacting with patients. If the level of compassion competence displayed by medical practitioners is to be purposefully managed it needs to be monitored through measurement. Defining and measuring a behavioural construct like medical practitioner compassion, however, remains a challenge and therefore provides a strong rationale for research in this area. Despite some research done on compassion where the construct is typically described as either a state or trait, inconclusive and varied research results are offered for the construct "compassion", specifically in the healthcare sector. In addition, a psychometrically sound instrument measuring this construct, conceptualised as a multidimensional behavioural competency, seems to be absent, not only in the South African context, but also internationally. This emphasised the need to not only conceptualise medical practitioner compassion from a theoretical perspective, but to also operationalise the compassion construct via a Medical Practitioner Compassion Competency Questionnaire (MPCCQ) and to follow a rigorous empirical investigation into the construct validity of the construct-referenced inferences derived from the dimensions' scores obtained on the MPCCQ.

By addressing this challenge in an attempt to contribute to the improvement of medical practitioner compassion in the South African public healthcare sector, the current study firstly conceptualised and constitutively defined compassion as a behavioural construct. The connotative meaning that the constitutive definition of this construct needed to capture lies in the internal structure of the construct and the manner in which the construct is embedded in a larger nomological network of other related constructs. By dissecting the competency of compassion, insight was gained into the internal structure of the construct, resulting in the identification of six structurally inter-related latent compassion dimensions. The connotative meaning of the competency was finally brought to fruition in the outcome structural model that was proposed.

The research methodology utilised in operationalising the six latent compassion dimensions in terms of their behavioural denotations, consisted of qualitative critical incident technique interviews, where medical practitioners were utilised as co-researchers in understanding their mental models of compassion from a competency perspective. The research findings from the qualitative interviews enabled the researchers to write behavioural anchors that were subsequently re-written as test items for the MPCCQ. Qualitative validation sessions were held with some of the medical practitioners to obtain subject matter feedback on the wording of the items so as to iterate the wording of the items to the final

version of the standardised 37-item competency questionnaire, which was then completed by medical practitioners (n = 234) at the 21ˢᵗ National Family Practitioners Congress held in Cape Town during 2019, at Karl Bremer hospital, Khayelitsha hospital, Tygerberg hospital and at Worcester hospital, all situated in the Western Cape province, South Africa. Subsequently the quantitative data gathered from the questionnaire were analysed with the statistical packages, SPSS 25 and LISREL 8.8. The quantitative findings based on the evaluation of the MPCCQ provided excellent model fit, not only for the measurement model but also for the structural model reflecting the internal structure that was attributed to the multidimensional compassion construct. Even though above expectation good measurement and structural model fit was obtained, it is still recommended that additional test items should be developed for the subscales where lower Cronbach alpha values were obtained and where factor fission was obtained. Most importantly, the MPCCQ showed construct validity, thus clearing the first hurdle necessary to allow the eventual utilisation of this instrument in practice. The study concludes with practical managerial implications and suggestions for further research necessary to allow the confident utilisation of the MPCCQ in practice.

OPSOMMING

Mediese praktisynmedelye is geïdentifiseer as 'n sleutel-konstruk in gesondheidsorg, nie net deur prominente gesondheidsorgbelanghebbendes soos die Wêreld Gesondheidsorganisasie, die Suid Afrikaanse Beroepsraad en die Suid Afrikaanse Nasionale Departement van Gesondheid nie, maar ook deur pasiënte en praktisyns. Pasiënte wil met medelye behandel word gedurende die mediese ontmoeting. Die kommer bestaan egter dat té veel mediese praktisyns steeds 'n bio-mediese benadering gebruik, instede van 'n bio-psigo-sosiale benadering tydens hul interaksie met pasiënte. Indien die vlak van medelye-bevoegdheid wat mediese praktisyns toon, doelgerig bestuur wil word, moet dit deur meting gemonitor word. Die definiëring en meting van 'n gedragskonstruk soos mediese praktisynmedelye bly egter 'n uitdaging en dien dus as sterk rasionaal vir navorsing in hierdie area. Ten spyte van vorige navorsing oor medelye waar die konstruk tipies as eienskap of gemoedtoestand ('state') beskryf word, is die resultate steeds onbeslis en gevarieerd, spesifiek vir die gesondheidsorgsektor. Dit blyk ook dat daar geen psigometriese grondige meetinstrument bestaan wat die konstruk, gekonseptualiseer as 'n multidimensionele gedragsbevoegdheid, in Suid Afrika meet nie, maar ook nie internasionaal nie. 'n Behoefte word dus beklemtoon vir 'n streng empiriese ondersoek asook meting van die bevoegdheid as deel van 'n werksprestasie-ooreenkoms. Mediese praktisynmedelye kan nie net vanaf 'n teoretiese perspektief verstaan word nie. Dit het die behoefte beklemtoon om nie net mediese praktisynmedelye vanuit 'n teoretiese perspektief te konseptualiseer nie, maar ook om die medelye-konstruk te operasionaliseer via 'n Mediese Praktisyn Medelye Bevoegdheidsvraelys (MPMBV) en om 'n nougesette empiriese ondersoek te onderneem na die konstrukgeldigheid van die konstrukgerigte inferensies wat uit die dimensietellings afgelei word, wat van die MPMBV verkry word.

Deur hierdie uitdaging aan te spreek in 'n poging om 'n bydrae te lewer tot die bevordering van mediese praktisynmedelye in die Suid Afrikaanse gesondheidsorgsektor het die studie eerstens medelye as 'n gedragskonstruk gekonseptualiseer en konstitutief gedefinieer. Die konnotatiewe betekenis wat die konstitutiewe definisie van die konstruk moet vasvang is geleë in die interne struktuur van die konstruk en die wyse waarop die konstruk ingebed is in 'n groter nomologiese netwerk van verbandhoudende konstrukte. Deur die medelye-bevoegdheid te dissekteer is insig verkry in die interne struktuur wat daartoe gelei het dat ses struktureel geskakelde latent medelye-bevoegdheidsdimensies geïdentifiseer is. Die konnotatiewe betekenis van die bevoegdheid is ten slotte aan die lig gebring deur die strukturele uitkoms-model wat voorgestel word.

Die navorsingsmetodologie wat gebruik is om die ses latente medelye dimensies te operasionaliseer in terme van hul gedragsdenotasies het bestaan uit kwalitatiewe kritieke insident tegniek onderhoude. Mediese praktisyns is as mede-navorsers benut met die doel om die modelle wat hulle vir hulleself bou ten op sigte van medelye uit 'n bevoegdheidsperspektief te verstaan.

Die navorsingsbevindinge uit die kwalitatiewe onderhoude het die navorsers in staat gestel om gedragsankers te ontwikkel wat vervolgens dan weer omskryf is as toets-items vir die MPMBV. Kwalitatiewe valideringsessies is gehou met sommige praktisyns ten einde terugvoer op die bewoording van die items te verkry om sodoende die bewoording van die items na finale weergawe van die gestandaardiseerde 37-item bevoegdheidsvraelys te itereer, wat daarna deur mediese praktisyns (n = 234) voltooi is by die 21ste Nasionale Familie Praktisyn Kongres in Kaapstad gedurende 2019, by die Karl Bremer hospitaal, die Khayelistha hospitaal, die Tygerberg hospitaal en die Worcester hospitaal, almal geleë in die Wes-Kaap provinsie, Suid Afrika. Daarna is die kwantitatiewe data met die vraelys ingevorder en is geanaliseer met behulp van die statistiese pakkette SPSS 25 asook LISREL 8.8. Die kwantitatiewe bevindinge, gebasseer op die evaluering van die MPMV het uitstekende model-passing gelewer vir beide die metingsmodel asook die strukturele model, wat die interne struktuur wat aan die multidimensionele medelye konstruk toegeskryf is, reflekteer. Ten spyte van bo-verwagting goeie metingsmodelle en strukturele modelpassing, is daar steeds aanbeveel om addisionele toets-items te ontwikkel vir die dimensies waar 'n laer Cronbach alpha verkry is en waar faktorsplitsing waargeneem is. Meer belangrik, is dat die MPMBV konstrukgeldigheid getoon het, en dus die eerste hekkie na die gebruik van die instrument in praktyk suksesvol oorgesteek het. Die studie eindig met praktiese bestuursimplikasies asook voorstelle vir verdere noodsaaklike navorsing ten einde die uiteindelike vrymoedige gebruik van die MPMBV moontlik te maak.

DEDICATION

Für meinem Vater Philipp Ludwig Jäckel

(✶27 September 1949, † 28 Juni 2016)

Die Gedanken an ihn haben mich während der gesamten Schaffenszeit an diesem Werk begleitet.

(This dissertation is dedicated to my father, Philipp Ludwig Jäckel, who was with me in spirit through the entire process.)

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"I am not bound to win, I am bound to be true. I am not bound to succeed, but I am bound to live up to the light I have." – Abraham Lincoln

I would like to thank my two promotors Prof Callie Theron, Department of Industrial Psychology, and Prof Bob Mash¸ Department of Family and Emergency Medicine, for the privilege to learn from them. Their dedication, guidance, experience and support carried me on this long journey. Each offered invaluable advice coming from their respective domains in completing a successful multi-disciplinary study.

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CHAPTER 1

INTRODUCTION AND FORMULATION OF THE RESEARCH OBJECTIVE

1.1 INTRODUCTORY PERSPECTIVES

1.1.1   The Role of Organisations and the Human Resources Function

Organisations are man-made entities that exist within society with the primary objective of supporting and benefitting the economy to enable growth in the longer term for the broader society and eventually the country. An organisation is comprised of a combination of people, business processes and technology which transforms inputs, such as raw material and labour, into outputs (products and services). These products and services should hold value to the community, broader society and add economic value to the organisation that benefits shareholders. Measuring success in these types of organisations are usually done by inspecting key indicators such as organisational profit, return on investment (ROI) and shareholder value. Other indicators, such as environmental impact and social dimensions are becoming more popular.

Organisation profit refers to the financial return on investment and is a very important goal but also a key indicator of organisation success and long-term survivability. The achievement of organisational profit ensures shareholder or owner earnings, but also the reinvestment of profit back into the organisation, thus allowing growth. Moreover, profitability can be interpreted as a barometer of the effectiveness with which an organisation serves society. Any type of organisations, i.e. big, medium or small enterprises, as well as private sector and public sector organisations, should strive to be profitable. So too, would some of these principles apply to non-profit organisations like public hospitals. To take a case in point, public healthcare hospitals should not be seen as charity hospitals or hospitals that do not make money; profit is still needed in these types of hospitals to allow reinvestment into better healthcare modernisation, improvement and providing valuable services. In fact, available healthcare and the delivering of high-quality healthcare services to patients should be strategic objectives of any healthcare system (Andritos & Aflaki, 2015). The extent to which organisations are able to deliver on these key indicators is largely dependent on employees; more specifically the level of work performance of employees.

Work performance can be conceptualised as a structurally inter-linked set of latent behavioural competencies and latent outcome variables. The latent outcomes variables represent the deliverables for which the job exists. The latent behavioural competencies represent the abstract theme in bundles of related behaviours required to achieve the outcomes for which the job exists. The level of competence that employees achieve on the competencies, and indirectly therefore also the level of success that they achieve on the outcome deliverables, depend on a complex nomological network of employee

characteristics (attainments and dispositions) as well as situational characteristics (Theron, 2011). The fact that employee performance is determined opens up the possibility for a function, like human resources management, to contribute to organisational success by enhancing employee performance through various integrated human resource interventions. This possibility is, however, conditional on a valid understanding of the complex nomological network of employee as well as situational characteristics that regulate the level of performance that employees achieve. In order to capitalise on the human factor component in an organisation, work performance of employees should be measured, monitored and enhanced via an integrated array of human resource interventions rooted in valid performance theory to ensure optimal efficiency and effectiveness, not only of the employee, but also of the organisation. Therefore, human resources management is a vital department in an organisation, ensuring alignment of the human resource strategy with the business strategy, contributing to organisational goals through motivated employees, delivering top performance in order to ensure company success (Wärnich, Carrell, Elbert & Hatfield, 2014; Wärnich, 2015). The foregoing argument also applies to hospitals and clinics, rehabilitation establishments and nursing homes.

1.1.2   The Healthcare Sector

The healthcare sector comprises of the public and private sector and can be seen as one of the most important categories of services that is rendered to the public. The main purpose of the healthcare sector is to prevent individuals from contracting diseases and to cure those that have been afflicted by disease. In South Africa the public sector provides medical care to approximately 80% of the population whom are unable to afford private healthcare, in comparison to the private sector that provides medical services to the remaining 20% of the population (Healthcare in South Africa, 2012). The public sector is characterised by short-staffed and under-resourced facilities, older infrastructure and technology, and an overpopulation of patients. These complications have a direct influence on patient health outcomes, especially the quality of care patients receive as well as increased costs for poorly managed illnesses. In contrast, the private sector is more focussed on profits, state-of-the-art facilities, high quality healthcare and the latest medical technologies (Matsebula & Willie, 2012).

The healthcare sector includes amenities such as hospitals, clinics, rehabilitation establishments and nursing homes. Hospitals are noteworthy in the sense that seriously ill and injured patients will be treated here, but also because it is seen as traditional sites, not only of care but also of knowledge production (Turner, 2006). The public hospitals in South Africa are managed by the provincial departments of health. These hospitals do not have a profit driven strategy and in terms of performance outcomes, key indicators would be successful patient care cases and bed-turnover. Despite these outcomes, it can still be argued that public hospitals nonetheless have to strive to maximise the value of the services rendered relative to the investment that is required to render that specific service. Since organisations, such as hospitals and clinics are managed and run by people who need to ensure they are

run effectively and efficiently, it would be beneficial to incorporate a human resources function to assist in this regard. The human capital component in these hospitals, namely specialists, medical practitioners, nurses, other professional, supporting and administrative staff, all need to perform their jobs well and competently in order to serve the patients' needs and achieve outcomes. More specifically, medical practitioners play a vital role in these institutions, not only because they form part of the core staff component but also the fact that their input and decisions determine the content of healthcare in hospitals.

1.1.3   Performance of the Medical Practitioner

The current study conceptualises work performance as a structurally inter-linked set of latent behavioural competencies and latent outcome variables. The role of the medical practitioner is mainly aimed at two primary outcomes: The medical practitioner should prevent people from contracting diseases and the medical practitioner should cure patients that have developed medical problems. It can quite legitimately be argued that these two outcomes present a too limiting description of the outcome domain of a medical practitioner, since there are other, more upstream, outcomes that are instrumental in the achievement of these outcomes, for example trust between practitioner and patient, patient adherence and patient disclosure. It moreover leaves the behavioural tasks that the medical practitioner needs to perform (or competencies on which competence needs to be displayed) to achieve these outcomes, unspecified. Because the performance of the medical practitioner is pivotal in the effective and efficient delivery of health services to society, explicit and formalised processes and structures should exist aimed at enhancing medical practitioner performance. These will, however, only succeed if they are grounded in a valid psychological explanation of medical practitioner performance. Valid descriptions of the psychological mechanism that regulates medical practitioner performance can, moreover, only be developed if the connotative meaning of the – "to-be-explained medical practitioner construct" is clear. In addition, the performance of medical practitioners can only be measured and monitored if it is clear exactly what constitutes medical practitioner performance. In other words, it is necessary to get a conceptual grasp on the connotative meaning of the medical practitioner performance construct. The Health Professions Council of South Africa (HPCSA) stipulates the acts pertaining to a medical practitioner formally, as specified in the Health Professions Act of 1974 as follows (Republic of South Africa, 1974, p. 1):

    i.   The physical medical and/or clinical examination of any person;

    ii.   Performing medical and/or clinical procedures and/or prescribing medicines and managing the health of a patient (prevention, treatment and rehabilitation);

    iii.   Advising any person on his or her physical health status;

    iv.   On the basis of information provided by any person or obtained from him or her in any manner whatsoever;

- diagnosing such person's physical health status;
- advising such person on his or her physical health status;

- administering or selling to or prescribing for such person any medicine or medical treatment;

v. Prescribing, administering or providing any medicine, substance or medical device as defined in the Medicines and Related Substances Act, 1965 (Act No.1 01 of 1965);

vi. Any other act specifically pertaining to the medical profession based on the education and training of medical practitioners as approved by the board from time to time.

A medical practitioner is defined, according to the Health Professions Act, Act No. 56 of 1974 (Republic of South Africa, 1974, p. 6), as a "practitioner of medicine who is registered with the Health Professions Council of South Africa (HPCSA)".

As it is required that most medical practitioners interact and have contact with patients, as illustrated in the listed tasks as specified by the HPCSA, it is necessary to understand the definition of patients. People become patients when they perceive that they have passed a certain point of tolerance for a symptom that they ascribe to a disease or injury and experience as an illness and now seek professional assistance (Pellegrino, 1979)[1]. When medical practitioners treat patients, it is necessary to make a distinction between terms that are commonly used as synonymous, namely disease and illness, since this may have an effect on how the medical encounter is approached. Disease refers to the pathophysiology – abnormal structure and function of tissues and organs, in other words the "thing" that is wrong with the body when one is sick. Illness, on the other hand, refers to the patient's personal experience of the disease, the patient's thoughts, feelings, emotions and behaviour when feeling sick (Longhurst, 1989, p. 79).

Besides the acts pertaining to a medical practitioner, as defined by the HPCSA, O-Net (2015) an international web-based application specialising in occupational information, also describes the tasks of a medical practitioner in the following way: During the medical encounter, the medical practitioner needs to do the following tasks:

- The collection and recording of patient information such as the examination of results and medical history.
- The administration and prescription of treatment or other medical care in order to prevent illness, disease or injury.
- The ordering of test results as well as interpretation thereof, the analysis of patient records and examination of information in order to diagnose the patient's condition.
- The monitoring of the patient's condition and revaluation of the treatment plan if needed.
- Lastly, the explanation of procedures to patients, telling them more about the test results and implications for the medical practitioner.

It does not, however, state the latent outcome variables which a medical practitioner is expected to achieve nor the competencies required. These tasks stipulate a typical job profile of job outcomes. In

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[1] The symptom (or symptoms) could also arise from permanent disabilities or a mental illness rather than a physical illness.

order to assess a medical practitioner's proficiency, his/her competence on a number of competencies and outcome variables would need to be evaluated. Fourie (2015), for instance, conducted a study in which a medical practitioner competency model was developed, identifying medical practitioner competencies as well as medical practitioner outcomes and how these constructs are interrelated to one another. The medical practitioner competency model recognises and acknowledges that the medical practitioner should focus on the "total person" therefore the stresses the importance of a competency like patient centredness for example[2].

Chan, director-general of the World Health Organisation (WHO), stated that education institutions need to influence and improve health professionals' competencies by connecting the disease burden to training needs. The vision of the WHO included, for example, the statement that clinicians should be competent and should provide the highest quality of care to individuals and communities (World Health Organisation Guidelines, 2013). In support of the WHO's viewpoint, the Lancet Commission was launched in January 2010 focussing on the education of health professionals for the 21st century. A framework was established to understand the relationship between the education and healthcare systems. In addition, training and education on specific competencies were identified for the medical practitioner. Patient-centred care was identified as one of the key competencies. Furthermore, a physician competency framework called the Canadian Medical Education Directives for Specialists (CanMEDS), was launched by the Royal College of Physicians and Surgeons of Canada in 2005 with the main focus of describing competencies required by physicians to effectively meet the needs of the patient and the client they serve. The CanMEDS framework allows one to explicitly study and understand the medical practitioner's behaviour on the basis of seven specified roles[3]. Figure 1.1 is an illustration of the different roles as explained in the CanMEDS framework.

Although this framework was drafted for medical specialisation[4], it can be utilised as a basis to influence medical practitioner's behaviour as well. For instance, the CanMEDS also serves as a tool for bedside teaching. As an illustration, from the seven roles explained in the competency framework, one of the key roles in the framework refers to the "communicator" role. This role is defined as: "Physicians are able to establish professional therapeutic relationships with patients and their families", more

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[2]Patient-centredness is defined as the way in which a medical practitioner tries to understand the patient's needs, wants, perspectives and experience by allowing patients to provide inpute and participate in their care thereby enhancing the relationship but also allowing the practitioner to use a more holistic approach when dealing with the patient (McWhinney, 1997).

[3]Roles as referred to in the CanMEDS framework are words which is used to describe the abilites of the whole complete medical practitioner (Frank, 2005). Competencies refer to the "abstract representations of bundles of related observable behaviour, driven by a nomological network of (unknown) constructs (competency potential), which when exhibited on a job, would constitute high job performance and would (probably, depending on situational constraints/opportunities) lead to job success defined in terms of output/the objectives for which the job exists (Theron, 2011, p. 7).

[4] In order to qualify as a medical practioner in South Africa a MBChB degree needs to be obtained at a accredited tertiary institution by the HPCSA. In addition, a compulsory two years internship and a one year community service year needs to be completed. Medical specialisation can occur only after a candidate have registered with the HPCSA as a medical practitioner. Practitioners can further their medical education in a specific area of medicine by completing a residency at an accredited tertiary institution (Mash, Ogunbanjo, Naidoo & Hellenberg, 2015).

specifically this would entail: "communicating using a patient-centred approach that encourages trust and autonomy and is characterized by empathy, respect and *compassion*." (Frank, Snell & Sherbino, 2014, p. 15). The "professional" role also stipulates that: "Physicians should be able to demonstrate a commitment to patients by applying best practices and adhering to high ethical standards". This implies that "physicians are able to exhibit appropriate professional behaviour and relationships in all aspects of practice, reflecting honesty, integrity, commitment, *compassion*, respect, altruism, respect for diversity, and maintenance of confidentiality" (Frank et al., 2014, p. 28).
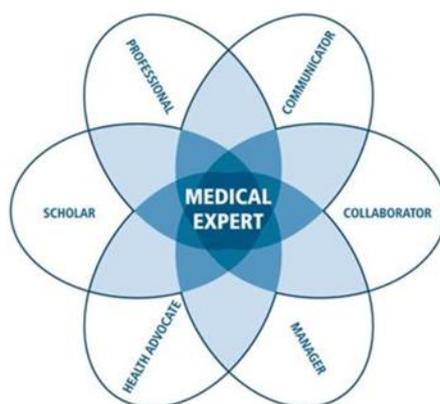
Figure 1.1. The CanMEDS physician competency framework illustrating the roles of health Professionals. Reprinted from the "CanMEDS 2005 Physician Competency Framework" by J. Frank, 2005, Ottawa, *The Royal College of Physicians and Surgeons of Canada*, p. 5. Copyright 2005 by the Royal College of Physicians and Surgeons of Canada.

In addition to focussing on the different roles that a medical practitioner needs to portray when engaging with the patient in an attempt to explicate the connotative meaning of the medical practitioner construct, the approach of the medical practitioner (or the paradigm from which the medical practitioner operates) should also be understood. Paradigm in this context specifically refers to the set of meta-assumptions or suppositions that guide the way in which the medical practitioner engages with the patient during the consultation process, i.e. using a clinical and objective approach. It can be argued that what constitutes success in terms of what needs to be done and what needs to be achieved is rooted in an underlying set of presuppositions regarding the essence of the fundamental concepts that constitute the medical practitioner-patient relationship. Hospitals and medical schools were reorganised in the wake of the French Revolution to set the stage for the clinical methods that are used in medicine as we know it today (Foucault, 1975). Clinical notes that dated back to the 19th century were an unstructured account of the patient's complaints and the medical practitioner's shallow observations. Only in the 1820s, when the Laennec stethoscope was introduced, did medical practitioners started making notes on record of physical signs in the chest. During the 1880s the structure that we recognise today during the consultation process was introduced namely: taking the history of the present complaint, noting of past illnesses, noting any family history, a systems review, communicating a diagnosis and prescribing

treatment. (Stewart & Roter, 1989). This approach is ordinarily known as the *biomedical model*. In this model medical practitioners tend to see patients as cases. By referring to cases rather than patients, an association is made with data which is used for research and for which it is very difficult to feel emotion (Spiro, Curnen, Peschel & St. James, 1993). The "good colon cancer case in ward 23" example, illustrates that there is very little interest in the patient's identity, their fears or anxiety and that the medical practitioner would rather focus on facts, science and data (D. Van Velden, personal communication, January 23, 2012). This phenomenon is also observed in nursing, where a concept called "splitting" is applied to patients (Hinshelwood, 1991, p. 433). Splitting is used by nurses as a defence mechanism against anxiety, where the workload for a specific patient is broken up in specific tasks and the nurse only perform one or two of these tasks, thus avoiding any further contact (Van der Walt & Swartz, 2002). A disadvantage of the biomedical approach is the poor integration of the mental, emotional, social and spiritual dimensions of care which are all important for an integrated healthcare system (Joyner, Shefer -& Smit, 2014). Furthermore, it is reductionist in the sense that health problems are only understood by concentrating on a single dimension of a person, be it their genetics, psyche etc. In other words, a patient is compartmentalised, where the illness is viewed in isolation from the other aspects that surround the person. As Hall (1996, p. 17) stated: "the surrounding elements of culture, social status, or personal, and familial beliefs about illness are not part of that algorithm." In essence the biomedical model is all about science that includes natural science, physics, chemistry and biology (Kriel, 2000). What is more is that some medical practitioners only become comfortable again with patients, starting to interact, after the biomedical approach has been mastered. The reason therefore maybe the need to gain competence and self-confidence on the clinical and technical aspects of practising medicine, before embracing a more holistic approach with patients (Stewart & Roter, 1989).

Another paradigm that medical practitioners use during the medical encounter is the *bio psychosocial* approach. This model includes a three-stage assessment where the medical practitioner will gather information from the patient on the biological aspects, the social setting/context and the psychological profile of the patient (Breaking Bad News, 2015). This method can only be utilised if a dialogue is facilitated between the patient and practitioner allowing the patient to explain his/her illness, allowing both the practitioner and patient to ask questions as well as the receiving of information which is understood by both parties. Research has shown that the trust relationship between the two parties is dependent on the technical competence level of the medical practitioner as well as the intensity of caring (Mastering Shared Decision Making, 2015). This method is thus different from the scientific biomedical model in the sense that a more holistic approach is followed where the patient as a person is also taken into consideration when a clinical diagnosis is being made.

Given the nature of these two previous paradigms, it can be argued that there is still a need for a more comprehensive paradigm, since some dimensions which may be important to patients are not addressed in these approaches. The spiritual (or existential) and moral dimensions of patients are examples of

these additional dimensions. Patients want to find comfort in their medical practitioner being there and providing a safe space in which issues beyond physical concerns can be addressed (Gwyther, 2011). When the effect of an illness is communicated to a patient, it may trigger questions such as: "What are the important things in my life? Have I fulfilled my responsibilities to my spouse, my children, and my parents? How will this illness change my ability to fulfil my responsibilities? What is the purpose of my life and work?" (Stewart & Roter, 1989, p. 29). Holistic care, which includes spirituality, is important to the caring process since it considers spiritual and existential dimensions such as love, hope, meaning and growth. Human beings live in a phenomenological world in which they attempt to create meaning that expands beyond scientific descriptions. Spiritual care and existential questions are, however, often neglected in the medical practitioner-patient relationship. To cure a disease, one would focus primarily on genetics, chemistry and biology, but to heal an illness, one would have to look at the patient's life journey, enabling him/her to find meaning and maintain their self-esteem, purpose and wholeness even when faced with difficulties (Swinton, 2001). In South Africa there is therefore a need that all primary care providers are experienced as competent medical generalists. This implies that the focus is more on people as opposed to procedure or technical approaches during the medical encounter. In other words, there is a need for *medical generalism*. Howe (2013, p. 403) defined a generalist practice as a: "practice which is person, not disease-centred, continuous, not episodic, integrates biotechnical and biographical perspectives and views health as a resource for living, not an end in itself". At the heart of such an approach is the ability to see patients as an integrated whole.

Communication plays a critical role in this latter approach. Authentic communication in which both the medical practitioner and the patient accurately conveys information and accurately understands messages is a prerequisite for achieving the furthest down-stream[5] latent outcome of patient satisfaction. True communication in which the patient is motivated not only to accurately understand the medical practitioner but also to accurately convey information on his/her illness in turn requires some level of trust in the medical practitioner. Patient trust is earned over time through that which the medical practitioner does (i.e. the level of competence that the practitioner displays on a number of competencies). Technical competence no doubt is an important prerequisite for patient trust in the practitioner to develop. It is, however, not enough. Competence on the (second-order) competency of patient-centredness is also required. Patient-centredness illustrates that there are two role-players during the medical encounter and that the viewpoints of both parties should be considered which could differ. One would experience shared control during the consultation as well as the discovery of the patients' viewpoint. Balint, a psycho-analyst working with medical practitioners in clinical settings, was the first researcher to use this term in an article that was published in the United Kingdom in 1969 (Illingworth,

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[5] The medical practitioner performance construct is conceptualised in terms of a structurally interrelated set of latent competencies structurally linked to a structurally interrelated set of latent outcome variables. The level of competence that medical practitioners achieve on the latent medical practitioner competencies therefore diffuse through a structurally interlinked set of leading and lagging latent outcome variables. The current study contends that patient satisfaction is the primary lagging latent outcome variable. At the same time it is important that this line of reasoning in terms of a causal flow should not be understood to deny the presence of feedback loops. Ultimately the stream has no clear source and no clear ending.

2010). She highlighted the idea that medical practitioners should take cognisance of the whole person when making a diagnosis, therefore the doctor should act in a patient-centred manner. This competency is important because it directly or indirectly leads to specific job outcomes for which the medical practitioner is held responsible.

For the patient to accurately convey information on his/her illness requires that he/she commit him-/herself to or engages in the practitioner-patient relationship. Such personal engagement of committing the self is difficult and unlikely to occur if the context is interpreted as psychologically unsafe. The perceived psychological safety is firstly determined by the patient's trust in the practitioner based on the technical competence of the practitioner. The perceived psychological safety is, however, also determined by the patient's trust in the practitioner based on the perceived competence of the medical practitioner at understanding the patient from a holistic perspective which requires the interpretation of verbal and non-verbal cues that enables the medical practitioner to build better rapport with the patient. Typical examples of these cues that need to be identified are the tone of voice, hand and body movements, physical distance, and signs of distress (Fretz, 1966). Thus, it can be argued that a medical practitioner needs to communicate in such a way as to ensure a patient centred approach when dealing with a patient. In a study done by DiMatteo et al. (1993) it was found that patient's perceptions whether a practitioner listened to them or not, were predicted by how well the medical practitioner was able to decode nonverbal cues for instance finger tapping, smiles and tone of voice. Research has shown that medical practitioners should listen to patients with a "third ear" and look at the patient with a "mind's eye" (Hojat, 2007, p. 133). This will allow the medical practitioner to get a grasp on the patient's cultural, social, personal and psychological context. Indeed, effective verbal and non-verbal communication is of utmost importance when a medical practitioner is diagnosing a patient not only for the sake of the interpersonal relationship, but also to equip the medical practitioner to be in a position to show compassion. According to Thomas (1985) the oldest skill in medicine is probably a medical practitioner laying his/her hands on the patient.

Although it has been stated that communication is of vital importance in healthcare, Kirsch (2009) is of the opinion that the communication process between medical practitioner and patient is still not fully optimised. Research has shown that medical practitioners tend to interrupt patients on an average of 18 seconds into the patient's description of the actual problem during the consultation process (Phillips & Ospina, 2017). This brought about that 54% of patient problems and 45% of patient worries were not prompted by medical practitioners nor revealed by patients. A possible reason for this occurrence might be the finding of Ha and Longnecker (2010) that medical practitioners tend to misjudge their skills and abilities in communication. In short, patients were dissatisfied with the poor physician-patient communication whereas medical practitioners on the other hand thought their communication to be acceptable and even excellent in some cases. In addition, 75% of orthopaedic surgeons who participated in a study indicated that their communication was satisfactory, compared to the 21% of patients who

reported acceptable communication with their surgeons (Tongue, Epps & Forese, 2005). The biggest developmental area was identified as patient-centred care, more specifically the time doctors spend with patients, showing care and listening to them. Hence, patient surveys consistently show that patients want better communication with their medical practitioners (Tongue, Epps & Forese, 2005). Canale summarised this, in his American Academy of Orthopaedic Surgeons vice presidential address, by stating that: "the patient will never care how much you know, until they know how much you care." (Ha & Longnecker, 2010, p.42).

Ultimately, a plea for good communication between medical practitioner and patient is necessary, not only to improve the overall healthcare system but also to enhance the medical practitioner-patient relationship. By optimising the communication process during the medical encounter, both parties would benefit. Given that communication is important, the question might arise however, *how* one should communicate with the other party? In healthcare a lot of reference is made to the competency patient-centredness (Hojat et al., 2009; Samalonis, 2007; Self, Schrader, Baldwin & Wolinsky, 1993). In essence patient centredness implies that a medical practitioner needs to show an integrated understanding of the patient's world by exploring the reasons for the doctor's appointment as well as the development of a mutually agreeable management plan for the patient. In fact, medical practitioners need to showcase their verbal and non-verbal patient centred communication skills in order to ensure that patients are educated about prevention and health promotion and that a pleasant relationship is possible between practitioner and patient (Stewart, 2001). In other words, medical practitioners need to communicate clearly by listening attentively to the patient's story (verbally and non-verbally), asking questions, using terminology that is understood by the patient and showing acceptance of the patient as person. Research has shown that poor communication tends to be the rule in some routine medical practices, which is undesirable because of a number of negative effects associated with it. It has been found that patients dealing with negative experiences lead to clinical worsening, also when receiving a negative diagnosis; the impact on the brain is so substantial that it causes real worsening, for example pain increase. As a result, medical practitioners should be sensitive to the effect of inadequate use of words or behaviour (Benedetti, 2013).

The idea that physicians should be schooled in the humanities and behavioural sciences is not a novel concept. William Osler, probably the most influential medical leader and educator of the century, was a strong supporter of this view and did a lot of work to improve it (Osler, 1932). He was widely recognised as a master teacher of bedside manner and examined his patients joyfully, humbly and systematically while conveying his immense knowledge to medical students. Osler (1903, p. 50) insisted that "there should be no teaching without a patient for text, and the best teaching is that taught by the patient himself". He also encouraged higher admission standards for physicians, introduced robust pre-clinical training and early exposure to clinics and wards. This paved the way for medical students to take patient histories, to perform physical examination, and to examine laboratory specimens

(Mueller, 2010). Although he believed in the appropriate bedside manner of a physician, he regarded detached composure as an essential competency that should be cultivated when managing patients. Osler (1932, pp. 3-4) states, "No quality takes rank with imperturbability… Imperturbability means coolness and presence of mind under all circumstances, calmness amid storm, clearness of judgement in moments of grave peril, immobility, impassiveness… the physician who has the misfortune to be without it, who betrays indecision and worry and who shows that he is flustered … rapidly loses the confidence of his patients … Cultivate then, gentlemen, such a judicious measure of obtuseness as will enable you to meet the exigencies of practice with firmness and courage, without, at the same time, hardening the human heart by which we live". What Osler (1932) is trying to say, is that excellent medical practitioners are those that identify with the patient, spends time with the patient in order to understand both the clinical problem as well as the patient's life story, while still maintaining detached calmness and self-control. The medical practitioner should be able to pick up the nuances that creep into the patient's conversation and sympathise. The patient views the medical practitioner as an authority figure and expects accurate and honest decisions and opinions about their health from a scholarly, experienced expert. Indeed, it was William Osler who stated that one should "listen to the patient, he is telling you the diagnosis" (as cited in Jackson, 1992, p. 630).

The preceding discussion argued the importance of a clear conceptualisation of the medical practitioner performance construct both for research aimed at the development and empirical testing of a comprehensive explanatory medical practitioner structural model (or competency model) and for the measurement and monitoring of medical practitioner performance. The aim of the discussion was not to derive a theoretically valid constitutive definition of the medical practitioner performance construct that explicates all the latent competencies and latent outcome variables that constitute the construct. Rather, the aim was to argue that the medical practitioner performance construct should be conceptualised in an extensive manner that formally recognises that the construct comprises more than the narrow technical tasks reserved by the Health Professions Act of 1974 (Republic of South Africa, 1974) for the medical practitioner and comprises more than the outcome of successfully treating a disease. More specifically it was argued that patient-centredness represents an important second-order competency.

Competence on the second-order patient-centredness medical practitioner competency, is a prerequisite for a more holistic approach to medical practice. More specifically a compassionate clinical encounter between medical practitioner and patient may contribute to and enhance a more holistic approach. Compassion is a dimension of the higher-order patient-centredness competency, as referred to in footnote one. In recent years there has been a dramatic interest in this topic. In 2009, Google Scholar reported 37, 500 scholarly citations to publications comprising the word "compassion." (Jazaieri et al., 2014). Not only has interest been shown in the topic, but internationally and locally there has been a call from various institutions to foster compassion.

1.1.4   Compassion as a Medical Practitioner Competency

South African healthcare services are guided by codes of conduct and legislation which specifies how these services should be offered and accepted by both patients and medical professionals. Every person living in the Republic of South Africa has certain rights according to the Constitution of the country. The Constitution stipulates that: "Everyone has inherent dignity and the right to have their dignity respected and protected" (Republic of South Africa, 1996, p. 6). Consequently, all patients and medical staff should be treated with dignity and respect during the medical encounter. In addition, a National Patients' Rights Charter was published by the HPCSA (2008, p. 2), specifying that South Africans should have: "the right to access healthcare services that include – a positive disposition displayed by healthcare providers that demonstrates courtesy, human dignity, patience, empathy and tolerance".

Similarly, the National Department of Health also emphasised the importance of medical professional conduct and better-quality health service for all South African citizens in its strategic plan for 2014/2015 – 2018/2019 (Department of Health, 2014). In order to render a better health service to the community, the Batho Pele principles were recommended as best practice, namely consultation, selling service standards, increasing access, ensuring courtesy, providing information, openness and transparency and lastly redress and value for money. The manner in which to implement these principles in the health sector might be questioned. The Department of Health suggested a practical solution by affirming that treatment to patients should be offered by staff that patients feel comfortable with and experience as trustworthy. Secondly, staff must show "emotional and empathic support to their patients" (Western Cape Government: Health/Healthcare 2030, 2013, p. 66), which can also be interpreted as displaying compassion. It is important to remember that the overall service delivery experience will be in the eye of the beholder, who will be the patient in this case. In addition, the Western Cape Department of Health drafted a healthcare 2030 document with the vision (Western Cape Government: Health/Healthcare 2030, 2013, p. 15): "Access to patient-centred, quality care". In support of this vision Prof Craig Houseman, Head of Department (HOD): Western Cape Department of Health called for the adoption of five core values by which all health professionals in the Western Cape should act, namely care, competency, accountability, integrity, responsiveness and respect. In fact, two of the values listed above could be considered key for a compassionate medical practitioner, namely caring and responsiveness. Volmink from the Faculty of Medicine and Health Sciences, University of Stellenbosch, agrees that health practitioners should be well enough equipped to not only use science-based methodology to prevent, diagnose and address health conditions in the country, but also be equipped via training in the humanities or social sciences to respond to the total, integrated patient (i.e. to become competent on the person-centredness competency). In other words, Volmink, believes that there is more than the biomedical model to medicine and that "universities have a responsibility to promote this shift by developing students' capacity to show compassion…" (Stellenbosch University Faculty of Medicine and Health Sciences Annual Report, 2016, p. 3).

Given the importance of the patients' rights and the way in which these healthcare services should be offered to the public, not overlooking the goal to equip medical practitioners as best as possible; medical practitioner compassion is deemed necessary. In the literature however there seems to be a wide variety of interpretations of the term "compassion". Empathy, sympathy, mindfulness, altruism and care are used interchangeably, although not one of these terms offered as synonyms for compassion accurately describe the competency of compassion, specifically for a medical practitioner. Some of these words may represent person qualities that underpin the competency called compassion, but they all still fail to capture the essence of the actual compassion competency. A universal definition of compassion as a competency in the medical field seems to be lacking. Stanford (2006), whose research was based on religious and ethical thoughts from 2,500 years ago argued that compassion was identified as the fundamental emotion of virtue. The Dictionary of Behavioural Science defines compassion as: "the emotion one experiences when feeling concern for other's suffering and desiring to enhance that individual's welfare. It is different from empathy, which refers to the mirroring or understanding of another's response; from pity, which refers to feelings of concern for someone weaker than the self; and from agape, which refers to the "love of humanity" (Wolman, 1989, p. 159). The Dalai Lama, on the other hand refers to compassion as a "mental quality" that must be developed in order to bring out the desired effect. He defined compassion as: "the wish that others be free of suffering. It is by means of compassion what we aspire to attain enlightenment. It is compassion that inspires us to engage in the virtuous practices that lead to Buddhahood. We must therefore devote ourselves to developing compassion" (Vreeland, 2001, p. 91). Thus, compassion might be seen by many as the "most social emotion" but applying it and operationalising it for the medical practice, still need to be done (Keltner, Oatley & Jenkins, 2014).

All the preceding conceptualisations of compassion regard it as competency potential latent variable (Bartram & Kurz, 2002): A psychological state experienced by an individual. In terms of the preceding conceptualisations it is a quality that individuals possess; it characterises who they are. For the purpose of this study, however, compassion is classified as a behavioural competency and an initial working definition will be[6]:

> Compassion is context-appropriate helping behaviour that is motivated by the desire and
> intent to relieve the suffering of another human being (and all other life forms) rooted in a
> concern for a fulfilling life.

In terms of this conceptualisation compassion is a quality that characterises behaviour. Compassion is displayed on some level of competence.[7] Compassion, at its core, is when insight or appreciation into suffering translates into context appropriate helping behaviour due to a generalised concern for a fulfilling life.

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[6] The connotative meaning of the compassion construct is formally explicated in Chapter 2.
[7] This position does not preclude the possibility of (also) making provision for compassion as a competency potential latent variable.

Literature has shown that technical advancement in the medical profession has added to clinical competence of medical care, but it has also removed the medical practitioner from extended personal contact with patients (Bauer, 2004). Similarly, a decline in compassion in healthcare has been noted during the last decade (Greenberg as cited in Samalonis, 2007, p. 84). Supporting this opinion, studies have shown that medical students become less compassionate and more sceptical during medical training and education (Self, Schrader, Baldwin & Wolinsky, 1993). In fact, a study done on four hundred and fifty-six students who entered the Jefferson Medical College in 2002 showed that there was a significant decline in empathy during the third year of medical school. Ironically this is the time and place where students should be taught what compassion is all about and building blocks should be laid for future conduct (Hojat et al., 2009). In the media there seem to be an awareness relating to the medical profession's failure with regards to a more caring-empathic relationship. Interestingly this is also reflected in growing literature. A significant part of the literature is written by medical practitioners themselves or their families about the concept of compassionate care for patients (Stetten, 1981). In addition, public rebukes of healthcare professionals are at the order of the day: "Uncaring" staff should move aside. In this article it was stated by Health Member of Executive Council (MEC), Sibongiseni Dhlomo, that "hospital staff who are unable to show compassion to patients at KwaZulu-Natal's provincial hospitals and clinics should leave and allow others to do the work" (Uncaring staff must move aside - Dhlomo, 2015). In an article in the Seattle Post-Intelligencer, the following statement appears: "a quiet revolution is brewing in medical education. It is not about cost containment or technological advancements. It is about staying human" (Goodnow, 2000, p. E4). It seems as though Samalonis (2007, p. 84) supports this view when he states that the "medical practitioner has forgotten his/her identity as caring professionals and became too focussed on the bottom line".

The preceding argument, and the research underpinning it (Bauer, 2004; Greenberg as cited in Samalonis, 2007; Self, Schrader, Baldwin & Wolinsky, 1993; Hojat et al., 2009), highlight the importance of the manner in which medical practitioners tend to their patients. It nonetheless seems that patient-centredness in general, and compassion in particular, tends to be neglected in healthcare. This phenomenon asks for corrective action by restoring it to its rightful place in the initial academic training of medical practitioners and subsequently honing medical practitioners' level of competence on this critical competency via continuous assessment, formative feedback and development programmes. Although communication skills are taught in some medical schools, compassion *per se* does not seem to be addressed in any medical curriculum. It is evident that there should be a call for compassion to resurface at the heart of healthcare (Bauer, 2004).

The question as to whether the medical practitioner should display compassion has triggered a lot of debate in the medical field and seems to have different viewpoints. Some medical specialists who are more technology and procedure orientated, for example pathology, orthopaedic surgery and neurosurgery may argue that the display of competence on this competency is not required when the

patient is treated, compared to non-primary care specialities and primary care, for example obstetrics and gynaecology, emergency medicine, family medicine and general paediatrics who may value compassion as much more important when interacting with the patient (Hojat, 2007).

The core task of a medical practitioner is to make an accurate diagnosis based on physical findings, patient symptoms and laboratory reports. In order to consider patients and their problems objectively, emotional detachment is necessary according to some professionals. Bellet and Maloney (1991) is of the opinion, however, that compassion and empathy may facilitate the attaining of medical history which will allow the medical practitioner to make a better diagnosis and draft a management plan. A somewhat more elaborate version of this line of reasoning was put forward earlier in paragraph 1.13. It elaborates on the role that competence on the second-order patient-centeredness competency plays in facilitating authentic communication between the patient and the practitioner via its effect on perceived trust in the practitioner and perceived psychological safety. Compassion is conceptualised as a first-order competency loading on patient-centredness as a second-order competency. It therefore follows that the argument put forward to justify competence on the second-order patient-centredness competency, also applies to the competency of compassion. In essence compassion are thus seen as a medical practitioner tool enabling the practitioner to make a better diagnosis. Nonetheless, professionals supporting both viewpoints have struggled with the fear that getting too close to their patients will weaken their professional judgement.

It could, in addition, be argued that even if compassion was not instrumental in achieving any of the core latent outcomes, for which the position of medical practitioner exists there would still be a case to be made for medical practitioners along with all other people, to display compassion. It would be disappointing if man acted with compassion towards his fellow man only because it served to gain some personal benefit. The current study would want to argue that ultimately medical practitioners, and everybody else in all walks of life, need to display compassion so as to fully realise their full human potential-to fully become who they really are. Maslow originally proposed a five-level hierarchy of needs pyramid to explain human motivation. Maslow's motivation theory rests on three basic premises. He argued that the position of needs in the hierarchy determine the order in which they become salient, that only unsatisfied needs motivate human behaviour and that satisfied needs no longer motivate behaviour. Towards the end of his life Maslow began to question the position that the need hierarchy is capped by self-actualisation, as it does not provide an accurate description of the mechanism that motivates the optimally functioning human being. In the Farther Reaches of Human Nature (Maslow, 1971), published by his family a year after Maslow's death, he describes his conviction that a sixth need level is required that he termed self-transcendence or selfless self-actualisation (Koltko-Rivera, 2006; Venter, 2012). Maslow's argument is that to achieve peak experience, people must shift their focus from self to other. The extended six-level hierarchy of needs pyramid, is shown in Figure 1.2. His fundamental idea is that people move to a focus and concern for other people when they move beyond

self-actualisation to achieve the highest level of human nature. People who move beyond self-actualisation "are, without a single exception, involved in a cause outside of their skin: in something outside of themselves, some calling or vocation" (Maslow, 1971, p. 45). Maslow (1971, p. 45) argued that the self-transcendence is motivated by "being values" that act like (meta) needs. Koltko-Rivera (2006, p. 306) quotes from a public lecture that Maslow delivered in 1967, entitled "The Farther Reaches of Human Nature" in which he explains his thoughts on B-values and self-transcendence:

> The fully developed (and very fortunate) human being working under the best conditions tends to be motivated by values which transcend his self. They are not selfish anymore in the old sense of that term. Beauty is not within one's skin nor is justice or order. One can hardly class these desires as selfish in the sense that my desire for food might be. My satisfaction with achieving or allowing justice is not within my own skin . . . It is equally outside and inside: therefore, it has transcended the geographical limitations of the self. Thus, one begins to talk about trans-humanistic psychology.
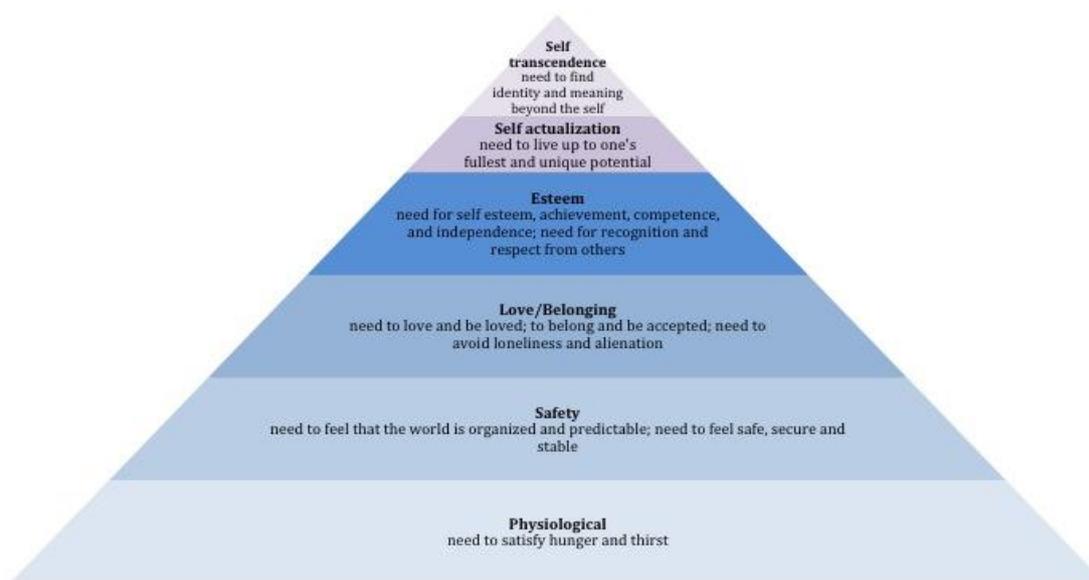
Figure 1.2. Maslow's six-level hierarchy of needs pyramid. Reprinted from "Beyond Self Actualisation (p. 118)" by L. Greene and G. Burke, 2007, JHSA FALL, p. 118. Copyright (2007) by Southern Public Administration Education Foundation.

The satisfaction of these B-values results in what Maslow (1971, p. 109) termed "peak experiences". Although Maslow did not explicitly refer to *compassion* as an expression of a B-value, the current study would want to argue that it could be seen as an expression of "goodness" (Maslow, 1971, p. 138). Maslow (1971, p. 138) interprets these being-values as the characteristics and preferences of "fully human people" or the "far goals" towards which humans individually and collectively ought to strive. Koltko-Rivera (2006, pp. 306-307) summarises the consequences of the addition of the sixth level to Maslow's need hierarchy as follows:

> The implications of this change in Maslow's thought must not be underestimated. The earlier model positions the highest form of motivational development at the level of the well adjusted, differentiated, and fulfilled individual self or ego. The later model places the

highest form of human development at a transpersonal level, where the self/ego and its needs are transcended. This represents a monumental shift in the conceptualisation of human personality and its development. At the level of self-actualisation, the individual works to actualise the individual's own potential; there is thus, at least potentially, a certain self-aggrandising aspect to this motivational stage, as there is with all the stages below it in Maslow's hierarchy. At the level of self-transcendence, the individual's own needs are put aside, to a great extent, in favour of service to others and to some higher force or cause conceived as being outside the personal self. Certainly the image of the best-developed human being that emerges from Maslow's hierarchy is very different, depending on which of these two stages is placed at the top of the motivational hierarchy.

The current study therefore takes the position that, ultimately medical practitioners, and everybody else in all walks of life, need to display compassion so as to fully realise their full human potential-to fully become who they really are.

Landau and Gustafson (1984), are, however, of the opinion that medical practitioners who cultivate empathy and compassion in doctor-patient relationships, undermine their ability to function as wise and kind doctors. They claim that there are some circumstances, in which empathy is virtually impossible for example, in paediatrics, when a heterosexual is dealing with a homosexual or when a male physician cares for a woman in labour or menopause. This opinion is supported by Landau (1993) who states that medical practitioners should give patients enough time to react and ask questions, they should be sensitive, sympathetic, and occasionally be empathetic. But at the same time Landau (1993) is of the opinion that a danger exists if medical practitioners display too much compassion or empathy that it may lead to possible burnout.

Indeed, it can be argued that the risks identified by Landau (1993) are a reality given that medical practitioners also need to achieve certain healthcare outcomes such as the number of patients seen per day, procedures performed and diseases managed. Although this is true, patients still want to be treated like family; they want to feel cared for with all the attention, time and compassion it requires. Therefore, the need for and importance of competence on the compassion competency. The display of compassion enables the medical practitioner to move from the biomedical model to a more holistic patient-centred approach. More accurately stated, a move from a biomedical paradigm to a holistic patient-centered paradigm will invariably result in at least an attempt to display compassion. Patients plead for quality time during medical encounters, yet research has shown that medical practitioners are only able to spend eight minutes on average at each patient's bedside. This reality causes tension for both medical practitioner and patient, since the one dimension is sacrificed in favour of the other (Khullar, 2015).

Human resources management might be a factor to consider in dealing with such dilemmas, since the main focus of human resources management and industrial psychology is to optimise human potential

and behaviour in the workplace, in order to achieve work and business performance. Performance management specifically, is an important intervention in human resources management. Medical practitioner competence can be improved through formative performance assessment in the sense that a performance review indicates which latent outcome variables are below standard and which competencies require development. Diagnosis of the reasons for substandard performance on specific latent competencies, and latent outcome variables in terms of non-malleable and malleable competency potential variables, can assist in the derivation of (flow and stock) interventions (Milkovich, Boudreau & Milkovich, 2008) aimed at enhancing performance. This line of reasoning again points to the importance of developing and empirically testing a comprehensive explanatory medical practitioner@work structural (or competency) model. In short, healthcare services are one of the most important services that are offered to South African citizens. Therefore, the measurement of employee performance, specifically medical practitioner's performance for this study, may be a valuable indicator of the way in which these services are rendered to the patients, thereby allowing one to measure and manage it.

This argument applies to the overall medical practitioner performance construct but then also applies to every individual latent competency and latent outcome constituting the construct. This argument therefore also applies to the latent compassion competency.

1.1.5   The Measurement of Compassion

The measurement of medical practitioner performance specifically on behavioural variables (i.e. medical practitioner competencies) seems to be an area which is still evolving in the medical field. In addition, no evidence could be found relating to any psychometrically sound South African assessment instrument that measures compassion competence as displayed by medical practitioners.

The Health Professions Council for South African (HPCSA) is a professional body that regulates the classification and registration of tests in South Africa. The Psychometrics Committee of the Professional Board for Psychology, a subcommittee of the HPCSA, compiles a list stipulating which tests are classified as psychological tests and which tests are currently being developed/adapted. On the list, there are 206 psychological tests and 93 tests that are being developed/adapted (Government Gazette, 2017). None of the listed assessment instruments were identified as a test that measures the construct of compassion either as a competency potential latent variable or a competency. It needs to be conceded though that the Psychometric Committee only requires psychological tests to be registered with the HPCSA. The HPCSA defines a psychological test as follows:

> The use of a psychometric measuring device, test, questionnaire, technique or instrument that
> assesses intellectual/cognitive ability/functioning, aptitude, interest, personality make-up or
> personality functioning and which may, in terms of its content or responses required, result

in either embarrassment or anxiety to the test-taker, is constituted as being a psychological act. Thus, according to the Health Professions Act, Act 56 of 1974, tests, measures, questionnaires, instruments, etc. that tap psychological constructs must be used, interpreted, and controlled by psychologists (HPCSA, 2010, pp. 1 – 2).

A medical practitioner competency measure does not meet the foregoing criteria and therefore most likely, if it existed in South Africa, would not have been registered with the HPCSA. A search of local literature produced no evidence of an existing South African medical practitioner competency measure. On an international level, there seems to be a limited number of psychometrically sound instruments that measure compassion. Different psychometric test suppliers, for example Psychometrics Canada, the Corporate Executive Board company (CEB), Multi Health Systems (MHS), GL Assessment Limited (the Institute of Psychiatry, London), the Fetzer Institute, Hofgrefe, Psychological Assessment Resources (PAR) and Pearson Clinical were screened in order to look for specific measures on compassion or measures relating to compassion. In addition, tertiary education institutions were also researched, specifically Florida State University (Psychosocial Stress Research Program), Jefferson College of Medicine (Centre for research in medical education and healthcare, Philadelphia), the University Hospital of Cologne, Germany (Centre for Health Services Research) and the University of Glasgow, (General Practice and Primary Care, Division of Community Based Sciences). The research reflected that there are 41 instruments available that measure a facet of compassion or a construct related to compassion like empathy or trust. Of these instruments, 10 have the word *compassion* in the title of the assessment.   Additionally,   there   are   six   instruments   that   measure   compassion   as   a scale/subscale/component, but it is not mentioned in the title of the assessment, namely the Instrumental Caring Inventory, The Disposition Positive Emotions Scale (DPES), Fears of Compassion Scale, Neuroticism, Extraversion, Openness Personality Inventory Revised (psychiatry) (NEO PI-R) Standard, the Santa Clara Brief Compassion Scale (SCBCS) and the Professional Quality of Life Scale (ProQOL). Eighty- three percent of the 41 listed instruments interpret compassion as a disposition that characterises the person, i.e. competency potential variables. Only twelve percent of the instruments conceptualise compassion or a dimension of compassion as a competency, whereas two percent of the instruments interpret it as a performance outcome.

The psychometric properties of some of these instruments have been analysed. The Internal Caring Inventory, for example returned reliability coefficients of .71 to .73 for the compassion subscale, which is below the cut-off value of .80[8] (Nunnally, 1978). Another instrument called the Compassion Satisfaction and Fatigue Test, displayed an alpha reliability coefficient of .87 for the compassion fatigue subscale and a reliability coefficient of .90 for the burnout subscale (Bride, Radey & Figley, 2007). The

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[8] Nunnally (1978, p. 245) argues that "instruments with purpose reliabilities of .70 or higher will suffice in the early stages of research. It can be argued that increasing reliabilities beyond .80 is often wasteful. At that level correlations are attenuated very little by measurement error." He, however, then continues by arguing that "in contrast to standards in basic research, in many applied settings a reliability of .80 is not nearly enough" (Nunnaly, 1978, p.245).

Professional Quality of Life test (ProQOL) reported the following alpha reliability coefficients: .87 for the compassion satisfaction subscale and .80 for the burnout subscale (Stamm, 2005). The data illustrates that the tests are reliable measures, however none of these instruments measure compassion for a medical practitioner *per se*.

Therefore, this leads to the conclusion that a South African measure of compassion is required specifically for accessing the behavioural performance construct compassion among South African medical practitioners. To develop such a South African compassion competency measure for medical practitioners, however, requires that the construct be clearly conceptualised. Moreover, the confident use of such a South African compassion competency measure requires psychometric evidence on the reliability of the measures and the construct validity of the construct-referenced inferences that are derived for its dimension scores.

1.2 RESEARCH-INITIATING QUESTION

The research-initiating question setting the current research study in motion consequently is the three-pronged question:

- What is the connotative meaning of medical practitioner compassion interpreted as a competency?
- What is the denotative meaning of the compassion construct? and
- Does the MPCCQ provide reliable and construct valid measures of the medical practitioner compassion construct as constitutively defined?

1.3 RESEARCH OBJECTIVE

The broad objective of this study is threefold: Firstly, to develop a constitutive definition of compassion for medical practitioners, and secondly, to develop an instrument[9] for the measurement of compassion as displayed by medical practitioners and, thirdly to empirically psychometrically evaluate the reliability of the measures and the validity of the construct-referenced inferences derived from the scale[10].

From this broad research objective, more specific operational research objectives were derived for this study:

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[9] For the purpose of the current study the design and development of a self-rating instrument measuring medical practitioner compassion is planned. Future intentions, however, include the development of a multi-rater version of the instrument allowing medical practitioners to also be rated by peers, subordinates and patients on compassion as a medical practitioner competency. Reference is made to this ideal in subsequent sections in the dissertation – see p. 188.

[10] Ideally the current study would have wanted to include the evaluation of bias in the construct-referenced inferences. That would, however, have escalated the scope of the research beyond that which could be reasonably accommodated in a single study.

1. To develop a structural model that will illustrate the internal structure of the performance construct *compassion* and that will illustrate the manner in which the latent competency *compassion* is structurally embedded in a larger nomological network of latent outcome variables for which the medical practitioner is held accountable;

2. To propose a `constitutive definition of the performance construct *compassion* that will clarify the connotative meaning of the construct;

3. To develop an experimental version of the MPCCQ to measure the level of competence that South African medical practitioners display on the performance construct *compassion* by explicating the denotations of the construct carrying this specific constitutive definition;

4. To screen the items of the experimental version of the MPCCQ via item and dimensionality analysis and to delete or rewrite items that do not provide valid and sufficiently sensitive measures of the dimension of the construct they were earmarked to measure; and

5. To evaluate the construct validity of the MPCCQ by evaluating the fit of the measurement model implied by the design architecture of the instrument and the constitutive definition of the construct.

6. To evaluate the construct validity of the MPCCQ by evaluating the fit of the structural model implied by the internal structure of the construct.[11]

1.4 STRUCTURAL OUTLINE OF THE DISSERTATION

Chapter One presents the introductory perspectives of the present study. The rationale is presented, followed by the research initiating question and the objectives which is separated into more specific operational research objectives of the study.

The current study aims to develop an instrument to *measure* - the *construct compassion* as a latent *competency,* displayed by medical practitioners. Chapter Two consequently discusses constructs, measurement, competencies and compassion. The history and relevance of constructs are presented followed by the theory and logic of measurement. A review of the literature concerning competencies is presented followed by a conceptualisation of competency modelling. Subsequently, a literature review follows concerning the conceptualisation of the competency construct *compassion*. The development of the theory for the medical practitioner compassion competency dimensions is described. Arguments for the use of the six dimensions are discussed as illustrated in a compassion competency structural and measurement model. Finally, the cultivation of compassion in healthcare is discussed as this has important implications for the use of the model in a South African context.

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[11] Ideally the current study would also have wanted to evaluate the construct validity of the MPCCQ by evaluating the fit of the structural model implied by the constitutive definition of the construct that reflected the manner in which the compassion construct is embedded in a larger nomological network of latent variables. This would have, however, required the development and validation of a second latent outcome questionnaire which would have have escalated the scope of the research beyond that which could be reasonably accommodated in a single study.

Chapter Three explains the qualitative research methodology utilised for the first part of the research. An interpretive paradigm is selected in order to enable the researcher to understand *compassion* in healthcare from a medical practitioner's viewpoint. Data gathering techniques include a critical incident technique interview. The sampling strategy and sample group is explained by means of a table which shows how participant selection would occur in the study. Thus, participants representing the five core disciplines in healthcare as well as working on different levels of care in the healthcare system would be required. Finally, the data gathering process and the finalisation of the MPCCQ is described.

Chapter Four highlights the quantitative research methodology utilised for the second part of the research study. An evaluation research design is chosen for the study given the focus of the study, namely, the development of and validation of a measuring instrument. Overarching substantive research hypotheses are identified, which are translated into several operational hypotheses. Subsequently, the sampling procedure is discussed, where more detail is given on the survey completion stage of the study. The target population, sample group and size are explained with the help of a table showing the number as well as on what level and from which core discipline participants are selected. Next, the development of the MPCCQ is discussed, by referring to the format as well as the manner in which the data analysis for the questionnaire is managed i.e. item analysis, dimensionality analysis, using structural equation modelling and discriminant analysis.

Chapter Five explains the importance of research ethics for this study.

Chapter Six and Chapter 7 reports the results of the study. Chapter Six discusses the qualitative results, whereas Chapter 7 presents the quantitative results. A discussion of these results is presented in both chapters.

Chapter Eight presents limitations of the study, recommendations as well as the conclusion.

1.5   SUMMARY

The objective of this chapter was to unfold a funnel-structured argument aimed at motivating the need for the current research study. The essence of the argument can be summarised as follows: Organisations exist to serve society. The work performance of their employees determines the extent to which they succeed at this. The human resource function for this reason attempts to enhance employee work performance. This is possible to the extent that it is clear what constitutes performance and to the extent that the nature of the psychological mechanism that determines the performance levels of employees is validly understood. Organisations in the healthcare sector play an important role in the wellbeing of society. The work performance of their employees determines the extent to which they successfully serve society. Medical practitioners represent a pivotal category of employees in

organisations in the healthcare sector. The performance levels achieved by medical practitioners should therefore not be left to take its own course, without intervening, but should rather be the focus of conscious, purposeful attempts to monitor and enhance performance. This, however, is only possible if it is clear what constitutes medical practitioner performance, if performance can be validly measured and if the person-centred and situational determinants of performance and the manner in which they structurally combine, to determine performance, are validly understood. The current study in general conceptualised performance as a set of structurally interrelated latent behavioural competencies that structurally map onto a set of structurally interrelated latent outcome variables. It was subsequently argued that patient-centredness is an important specific second-order competency, mandated by a holistic approach to healthcare that formally recognises that patients are more than clinical disease (or syndrome) cases. It was, in addition, argued that compassion is an important but neglected and undervalued specific first-order competency mandated by a holistic approach to healthcare. The level of competence achieved by medical practitioners on the compassion competency, should therefore not be left to take its own course, without intervening, but should rather be the focus of conscious, purposeful attempts to monitor and enhance performance on this performance dimension. This, however, is only possible if it is clear what constitutes compassion, if compassion can be validly measured and if the person-centred and situational determinants of compassion and the manner in which they structurally combine, to determine the level of compassion displayed, are validly understood. The objective of the current study focused on the first two of these prerequisites. Specific sub-goals were formulated and a brief overview of the structure of the proposal was given.

CHAPTER 2
LITERATURE REVIEW

The objective of the current research study is to develop and validate an instrument that can be used to measure the level of competence that medical practitioners achieve on the latent competency compassion, as a latent dimension of the medical practitioner performance construct. The ensuing discussion will clarify the nature, place and role of constructs in science, examine the question how constructs as abstract, "in the head" variables can be measured, define competency as a construct and explicate the connotative meaning of *compassion* as a specific competency.

2.1 CONSTRUCT

2.1.1 Introduction

At the beginning of the twentieth century, Whitehead (1911, p. 248) stated that "in creative thought common sense is a poor master". It seems that science and common sense do differ significantly and most of the disagreement is around the words "systematic" and "controlled". In science, the terminology "conceptual schemes" and "theoretical structures" indicate definite meanings, also scientists test theories and hypotheses empirically and systematically, whereas non-scientists also test hypotheses but more selectively. In addition, scientific research looks for relationships among phenomena and will utilise control mechanisms when doing research to improve systematic reporting, whereas laymen will look for relationships, which will probably be more loose and uncontrolled.

As Kerlinger and Lee (2000) put it, scientists work on two levels, they study theory, derive hypotheses and constructs and do observations. During scientific research there will be back and forth movement between these two specific levels. The two levels links to the main objective of research which is to describe empirical phenomena in the world we live in and to establish theories and principles through which empirical phenomena can be explained and predicted (Torgerson, 1958). Babbie and Mouton (2001) differentiate between World 1 and World 2. World 1 refers to the world that we live in. World 2 refers to the world of construct hypotheses and theories created by man to describe and explain events in World 1[12]. One might wonder how it is possible to arrive at such theories explaining and predicting empirical phenomena. Understanding theory might be the starting point. One need to understand the foundation of theory, which lies in constructs, the building blocks of theory. Kerlinger and Lee (2000) define a theory as a finite set of constructs, their constitutive definitions and "proven"[13] statements about the nature of the structural relationships between the constructs as an explanation of some phenomenon

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[12] Babbie and Mouton (2001) also identify a World 3 that represents the world of meta-theory
[13] Proven should be interpreted here as referring to statements that have survived an opportunity to be falsified. Strictly speaking relational statements of the basic for *if ξ then η* cannot be proved. Hence the quotation marks.

in World 1[14]. Bacharach (1989, p. 498) believes that theory is a "system of constructs … in which the constructs are related to each other by propositions". It is important to note though that constructs cannot be seen as substitutes for theory, on the contrary they are a key component in the process of building theory. At the same time, ironically, "proper concepts are needed to formulate good theory, but we need a good theory to arrive at proper concepts" (Kaplan, 1964, p. 501). In other words, the constitutive meaning of constructs, in part, lies in the manner in which theory embeds them in a larger explanatory nomological network of constructs.

The second level on which scientists work and operate, is illustrated by Babbie's (2013) viewpoint that observation should be seen as a very important component of science. It can be classified as an inactive activity; thereby some scientists prefer to use the word *measurement* instead. Measurement is defined as: "deliberate observations of the real world for the purpose of describing objects and events in terms of the attributes composing a variable" (Babbie, 2017, p. 127).

It should be noted that some reservation might be experienced since it is sometimes questioned how science can measure facets of human social existence. In order to try and address some of the possible solutions to this question as well as the broad research objectives of this research study, it is important to clarify research related terminology, also to understand the origin of the concept called constructs and the significance thereof.

Besides the theoretical argument that a construct should be understood and explained before it is operationalised, it is also important to understand the context in which this construct operates. By extension, medical practitioner performance is a valuable function in society. How well these practitioners serve society, depends on their performance. Compassion is an important medical practitioner competency due to its instrumentality in realising essential outcomes for which they can be held accountable. To allow the monitoring of the level of competence that medical practitioner's display on this competency, an instrument is required that provides a reliable measure of the compassion construct from which construct valid and unbiased inferences can be derived on a medical practitioner's standing on the construct. Compassion has been presented as a behavioural (opposed to a person) construct or competency. To achieve the broad overarching substantive research objective and the more specific operational research hypotheses as described in Chapter 1, clarity should be obtained on the criteria that should be mobilised to determine whether a construct like compassion was successfully measured by the to-be developed MPCCQ. To logically explicate and define these criteria clarity is in turn required on the essence of psychological measurement. Insight into the essential nature of psychological measurement is also a prerequisite to guide the practical development of the MPCCQ.

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[14] Hypotheses are by implication a finite set of constructs, their constitutive definitions and "unproven" statements about the nature of the structural relationships between the constructs as an explanation of some phenomenon in World 1.

Clarity on the essence of psychological measurement as well as clarity on the criteria that should be mobilised to evaluate the success of measurement in turn, depend on the nature of constructs.

Thus, in the subsequent literature review the concept of constructs will be clarified in trying to understand the complex nature of a phenomenon like compassion. Secondly, in order to develop an instrument, the concept of measurement specifically in the social and behavioural sciences will be elucidated and explained. The mechanism utilised to dissect the construct of compassion in order to be able to measure it will be explored by utilising the methodology of competency modelling. Lastly, the reflections and findings of a critical investigation in trying to understand the abstract construct of compassion, will be argued, especially when trying to define the construct in a specific setting like medicine.

First, however the concept of constructs will be discussed followed by the concept of measurement.

2.1.2   What is a construct?

2.1.2.1 Concepts

Humans distinguish themselves from other, lower-level animals in terms of their abstract thinking capacity and in terms of their self-consciousness. As a consequence, humans consciously experience themselves and the environment they live in. Human beings are continuously receiving extensive amounts of information about themselves and the world around them. In order to make sense of all the information we receive through our different senses, sensations are categorised into different categories, where a common theme is abstracted for the specific sensations. A label is then created for the abstract common theme via a word or term. Human beings are able to do this because of their abstract thinking capacity. From these concepts, perceptions are formulated. One could just imagine the impact of raw experience received without the ability to organise it in one's mind. Margenau (1950, p. 72) is of the opinion that in order to "become complete and integrated, one needs to move from the sensory and spontaneous to the rational and reflective". During this transition, reason seems to play an important part since one needs to make sense of the overload of data that show a tangled web of connectedness.

In his Principles of Psychology (1890, p. 462) William James describes the experience a baby has of himself and his surroundings in the absence of order-creating concepts "as one great blooming, buzzing confusion". A grouping of these perceptions or experiences is called a *concept*. A concept is the abstract theme that is extracted from a bundle of specific sensations placed in a single category because of the shared theme. In order to allow communication with regards to concepts, individuals will label a concept with a word (term). Thus, concepts are the abstract themes that characterise observable "World 1" sensations and experiences. To take it a step further; the process of categorising and labelling (i.e.

abstracting the common shared theme) information is then called *conceptualisation* (Schuerman, 1983, p. 12). Similar to Schuerman's viewpoint on concepts, De Vos, Strydom, Fouché and Delport (2011) described a *concept* as the abstractions that are formed by generalising from particulars that are viewed or experienced as similar.

When one observes a multitude of behaviours and events that denote compassion, a person will develop his/her own mental image of what the common theme shared by the multitude of behaviours and events represents in general, but also what it has in common with other occurrences. The process of creating such a mental image about the common theme shared by the multitude of behaviours and events categorised under the label of compassion is called *conception*. "The process of coming to an agreement/understanding about what the common shared theme encompasses, is called *conceptualisation* and the resultant abstract in-the-head idea is called a *concept*" (Babbie, 2013, p. 126). The need for a *concept* like *compassion* develops when one observes numerous behaviours displayed by individuals towards other people and animals that share a common underlying theme. To make meaningful sense of events that occur in the world around us and our experience of these events we search for and define the common underlying themes in these events and experiences. When words or terms are associated with these abstract, in-the-head ideas underlying the multitude of directly observable events and experiences it allows us to explain events and experiences in terms of relationships that exist between them and to communicate these explanations without having to refer to the multitude of directly observable events and experiences.

The difficulty lies in the fact that a person cannot communicate the mental images or concepts as such. They have to be represented by a word, a term or a sign. The (connotative) meaning of the word, term or sign thus firstly lies in the *constitution* of the mental image or abstract idea. The Afrikaans question "wat *beteken* die woord 'compassion'?" beautifully captures this dimension of meaning of a concept. The (denotative) meaning of the word, term or sign, however, also lies in the array of directly experienced behaviours, events and sensations that the mental image or abstract idea refers to. To successfully communicate the mental image or abstract idea that is represented by the word, term or sign, needs to be a shared association. In addition, successful communication also requires agreement on the content of the category of directly experienced behaviours, events and sensations from which the mental image or abstract idea was distilled. Thus, conceptions as well as observations that are related to those specific conceptions are verbalised through the word, term or sign associated with them (Babbie, 2013).

A concept like *compassion* cannot be observed directly, since it does not physically exist. The behaviours, events and sensations that the concept denotes or stands for, do exist physically though. In other words, concepts are "mutual agreement about mental images (conceptions). The conceptions we have, summarise collections of seemingly related observations and experiences. Although the

experiences and observations are real, at least subjectively, conceptions, and the concepts derived from them, are only mental creations" (Babbie, 2013, p. 128). Therefore, a word such as *compassion*, is empirically speaking only a collection of letters. The meaning that is allocated to the word is the meaning that we as individuals agree to give to the word. Only after it has been accepted that a word such as *compassion* has a shared meaning, one can start explicating the meaning of the concept.

Even though the term concept and constructs can be viewed as similar in meaning, it is important to take note of the distinction between the two, especially for research purposes.

2.1.2.2 Constructs

In the literature various definitions are given for a *construct*. Nunnally and Bernstein (1994, p. 85) define a construct as "an abstract representation of the latent attribute intended to be measured, and reflects a hypothesis (…) that a variety of behaviors will correlate with one another in studies of individual differences and/or will be similarly affected by experimental manipulations". In addition to Nunnally and Bernstein's definition, Kerlinger and Lee (2000, p. 40) defined a construct as "being definable in certain related concepts that makes it possible to generalise from particulars to other related observations of a particular concept". So too, the researchers De Vos et al (2011, p. 29) are of the opinion that a construct is "deliberately being invented or adopted from ordinary language".

In essence, a construct can be defined as an intellectual construction of the mind (Guion, 1998), a "cognitive building block, a link between nature and reason" (Margenau, 1950, as cited by Theron, 1999, p. 35) a cognitive variable that has been adopted for a specific scientific purpose (Kerlinger -& Lee, 2000). A construct is a concept and does not exist in isolation. Everything that has been stated regarding concepts therefore also apply to constructs. Constructs are, however, more narrowly defined. Kerlinger and Lee (2000, p. 40) explain that a construct "has the added meaning … of having been deliberately and consciously invented or adopted for a special scientific purpose." The "special scientific purpose" that Kerlinger and Lee (2000, p. 40) refer to is to construct and empirically test explanatory structural models that serve as theoretical explanations of observable phenomena. Constructs are therefore deliberate intellectual constructions that are created to be entered into a nomological network where they are structurally linked in a specific manner so that the structural relations describe the working of a psychological mechanism that regulates the levels of the constructs that constitute the phenomenon of interest. There is a referential relationship with other constructs as well as with the phenomena the construct is supposed to represent. The possibility of creating original constructs is very slim, since constructs are the result of designing creatively and building upon established constructs. These established constructs are again in relationship to other existing constructs, thus an ongoing web of referential relationships. Psychologists refer to this semantic network of conceptual connections to other former constructs as a nomological network (Cronbach & Meehl, 1955). Ultimately constructs therefore

enable scientists to describe empirical phenomena and establish principles through which the empirical phenomena can be explained (Babbie, 2013).

Although there is an aspiration by researchers that concepts and constructs will be the enabling factor in describing phenomena, there are some formal metaphysical requirements of constructs that must be adhered to. Margenau (1950) is of the opinion that adherence to these criteria will ensure that constructs are acceptable to science. The requirements are:

- Causality: "constructs shall be chosen as to generate causal laws" (Margenau, 1950, p. 96).

- Extensibility of constructs: "constructs, we recall, enter into two types of relations: with nature and with other constructs. Hence they should be extensible in these two ways" (Margenau, 1950, p. 93). Constructs will develop several connections to nature and also direct connections to "indirectly connected constructs" (Theron, 1999, p. 35).

- Logical fertility: "constructs shall be formulated as to permit logical manipulations. … the constructs shall obey logical laws" (Margenau, 1950, p. 82).

- Multiple connection: "constructs admissible in science must be multiply connected; they may not be insular or peninsular; sets forming an island universe must be excluded" (Margenau, 1950, p. 87).

- Permanence and stability: "the constructs generated in explanation of a set of immediate experiences must, so long as the theory of which they form a part is accepted, be used with utmost respect for their integrity of meaning in all applications" (Margenau, 1950, p. 90).

- Simplicity and elegance: "When two theories present themselves as competent explanations of a given complex of sensory experience, science decides in favour of the "simpler" one (Margenau, 1950, p. 96).

In science it is well known that a researcher wants to know exactly what he/she is actually measuring. In the field of behavioural sciences this may be difficult, since concepts have no objective or correct meaning. It only has the meaning that the researchers have agreed upon for the specific purpose or context. It does not imply that a construct such as compassion cannot be measured, constructs actually "help us organize, communicate about and understand things that are real. They help us to make predictions about things" (Babbie, 2013, p. 129).

Because constructs are created to construct explanatory structural models they have to be defined in a manner that explicates the essence of the abstract idea that they represent. Explanatory structural models cannot be constructed from components that do not carry a specific meaning. Because constructs are created to be used in empirically testable explanatory structural models, it implies that they have to be defined in a manner that also permits their experimental manipulation or their measurement (Kerlinger and Lee, 2000). Constitutive (theoretical) and operational definitions are used in science to facilitate communication in such a way that it allows a researcher to say things more clearly.

Mouton and Marais (1985) identified two dimensions of meaning of constructs, namely:

- A connotative dimension; and
- a denotative dimension.

John Stuart Mill made a distinction between these two dimensions of meaning during 1852 in his "System of Logic" research, paving the way to make it common practice for current research (Mouton & Marais, 1990, p. 126).

The connotative dimension refers to the abstract idea that constitutes the construct. The connotative meaning firstly lies in the internal structure of the construct. The construct comprises of one or more latent dimensions. The connotative meaning lies in the identity of this/these latent dimension[s] and, if the construct comprises more than one dimension, the manner in which the dimensions are correlatively or structurally related to each other. The connotative meaning secondly lies in how the construct is positioned relative to other constructs in a nomological network of latent variables and its function in this network[15]. The explication of the connotative meaning of a construct is therefore a never-ending process of refinement as research expands insight into the manner in which a construct is embedded in an expanding nomological network. The process of conceptualisation will explicate the connotative meaning of the construct. The connotative meaning is captured in a constitutive definition of the construct (Kerlinger & Lee, 2000). A constitutive definition provides an intellectual grasp on a construct. A constitutive definition should therefore make clear what the essence of the abstract idea is; what the composition (or structure) of the intellectual construction is (Sykes, 1982). A constitutive definition will (or should) firstly explicate the internal structure of the construct by defining the latent dimensions comprising the construct and the manner in which they are correlatively or structurally related to each other. A constitutive definition will secondly describe how the construct is structurally related (and not related) to other constructs (Kerlinger & Lee, 2000). To take a case in point, (crystallised) intelligence will be defined as a construct comprising latent dimensions like verbal, numerical and spatial ability that is structurally related to academic performance, and highest academic qualification and income (albeit not directly) but that is not influenced by gender or race but influenced by access to opportunity. Margenau (1950) is of the opinion that this should be done for all constructs in scientific theory since this allows the researcher to get an intellectual grasp on the construct as well as defining a valid constitutive definition. In order to develop a satisfactory constitutive definition of a construct, it is important that the definition captures all the vital characteristics and properties (or latent dimensions) of the abstract idea under study that are implied by the use of the construct in explanations and descriptions. Circularity should be avoided, in other words, not using outcome variables or antecedents as part of the definition. Furthermore, the definition should be parsimonious, namely capturing the critical characteristics of the phenomena under study (Suddaby, 2010).

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[15] Hence the earlier quote taken from Kaplan, (1964, p. 501).

In the view of Theron (1999, p. 35) the denotive meaning of a construct can be defined as the "array of concrete phenomena (i.e. objects, events, behavioural acts) indicated by the construct as constitutively defined. The explication of the denotative meaning of a construct is thus contingent on the explication of the connotative meaning." The denotative meaning therefore lies in that which the construct denotes; in the array of directly experienced behaviours, events and sensations that the mental image or abstract idea was abstracted from. The denotative meaning of a construct is explicated through an operational definition. The operational definition describes the observable indicators of the abstract idea (in other words, the construct) in which the construct expresses itself, or the situations/events that affect the construct. De Vos et al. (2011, p. 34) define operational definitions as "making the denotations of concepts explicit". In other words, the construct will be linked to recognisable behaviours, events and sensations in the societal world, provided that there is a clear link between the indicators of the construct and the construct. The behavioural and experiential indicators in which the level or nature of the construct manifests itself are used to develop measured operational definitions (Kerlinger & Lee, 2000). The situations and events that affect the level the construct are used to develop experimental operational definitions (Kerlinger & Lee, 2000). Measured and experimental operational definitions are formulated in order to gain an empirical grasp on the construct (Lord & Novick, 1968). Despite the importance of an operational definition, Kerlinger and Lee (2000) are of the opinion that no operational definition can express the full connotative meaning of a construct.

In essence, therefore, the meaning of a construct such as *compassion* will be found in the connotative meaning (i.e. the latent dimensions that constitute *compassion* and the manner in which they are structurally and/or correlationally related to each other and the manner in which the latent dimensions are embedded in a larger nomological network of other latent variables) and the denotative meaning of compassion (i.e. the behaviours in which the *compassion* construct expresses itself observably and the situations that trigger *compassion*). Through conceptualising, clarity is found on the connotative meaning of the construct or the "in the head variable" *compassion*, thus trying to understand what it is made up of and how it fits into a larger nomological network of other related constructs. In addition to conceptualising, operationalising will allow a researcher to identify the relevant behavioural and behavioural denotations of the construct *compassion*, thus allowing the indirect measurement of the construct through its observable denotations. *Compassion* cannot be easily experimentally operationalised. It is not really practically possible to manipulate the level of *compassion* displayed by medical practitioners by experimentally manipulating situations or events that affect the level of the construct. By utilising both conceptualisation and operationalisation the full meaning that the current research study attaches to the meaning of the construct of *compassion* will evolve. It is important though, to understand that a construct like *compassion* has no ultimate interpretation. There is no universal dictionary in which the meaning of compassion is defined. It is a man-made abstract idea that is assigned a specific meaning for a specific explanatory and/or descriptive purpose.

2.1.3   The role of constitutive definitions in defining constructs

A constitutive definition allows a researcher to understand the connotative meaning of the construct being studied. The connotative meaning of a construct lies not only the internal structure of the construct, but also in the manner in which the construct structurally relates to other constructs. An important requirement would be that the constitutive definition chosen/developed for the construct is viewed as valid. When a researcher identifies critical elements or latent dimensions of the construct, the structural (i.e. causal) and/or correlational relationships that exist between the latent dimensions and he/she identifies the relationship that the construct has with other constructs, it is recommended that the principles of "clarity, parsimony and precision" are followed (Suddaby, 2010, p. 351). This may assist in trying to secure a valid definition. In addition, and in support to Suddaby's argument, Langley (1999) recommends that researchers should also strive for accuracy (comprehensiveness) and generality, when dealing with constructs. It should be noted though, that is it not possible to evaluate the validity of the constitutive definition against an entry into a universal explanatory dictionary. The explanatory system of a construct should be verified empirically (Margenau, 1950).

Construct clarity ensures better communication due to the fact that it is possible to define the core of an abstraction. This will allow one to differentiate it from other comparable abstractions. Furthermore, construct clarity will support with the practical presentation of theory, since there is no uncertainty about the specific construct being studied nor the underlying characteristics or latent dimensions. Construct clarity can even improve creativity in the sense that a well-designed and articulated construct, taking into consideration the related characteristics of the phenomena, can highlight the connections to and differences from related phenomena. In other words, new possible relationships, related constructs and related theories can thus be explored because of the clear construct that stimulates new insight (Suddaby, 2010). By extension a set of constructs with formal connections form a model. This model will become a theory, when subjected to empirical testing by connecting the constructs through operationalisation to the experiential world by rules of correspondence and the model survives an opportunity to be refuted and its empirical data. Although it is true that a model may become theory given robust empirical testing, Torgerson (1958, p. 5) believes that "A model does not become a scientific theory until a sufficient number of its terms possess such operational or epistemic definitions".

2.2   MEASUREMENT

2.2.1   Introduction

Torgerson (1958, p. 1) stated that the main objective of science "is to establish, through laws and theories, general principles by means of which the empirical phenomena can be explained, accounted for and predicted". Measurement is only a technique that permits the tool of mathematics to be applied

to science. It is important to note, however, that measurement is not an end itself, it allows an individual to measure phenomena, but at the same time the context of the phenomena and purpose thereof should also be accounted for. In other words:

> Its scientific worth can be appreciated only in an instrumentalist perspective, in which we ask what ends measurement is intended to serve, what role it is called upon to play in the scientific situation, what functions it performs in inquiry. (Kaplan, 1964, p. 171)

It should be noted that there are notable differences in the procedures used to measure constructs in the social and behavioural sciences compared to the measurement procedures used in the physical sciences. The objective of positivistic science (Babbie & Mouton, 2001) is to develop theory (Kerlinger & Lee, 2000), to derive, implement and run practical interventions from theory in terms of which man's material existence can be improved (Babbie & Mouton, 2001) and to obtain formative and summative feedback on the success of these interventions. Data or information is required on the constructs comprising explanatory hypotheses to empirically test hypotheses so as to develop theory, to run interventions derived from theory and to formatively and summatively evaluate the intervention.

Without measurement statistical analysis would not be possible. Statistical analysis in research allows the researcher to give an exact description of the phenomenon that is being studied. The guesswork is taken out of the research and an objective description of the phenomena is given. The researcher also needs to follow a definite procedure and way of thinking, and need to report the results in a meaningful way that can be understood by the reader. From the results, general conclusions can be drawn as well as predictions can be made. More specifically, because measurement conveys information in a quantitative rather than a qualitative format it permits mathematical reasoning with the obtained information. This allows the testing of hypotheses on the value of a parameter by calculating the probability of the sample observation conditional on parametric assumption made under the null hypothesis. Such reasoning is not possible if information would have been obtained in a qualitative format (Guilford & Fruchter, 1978). Whether it is permissible to generalise observations made at the level of a sample to the population can therefore not be determined when information on the sample is obtained qualitatively (i.e. via words). In essence statistics allows the researcher to analyse phenomena, and to analyse factors that underlie complex behaviour and events (Guilford and Fruchter, 1978).

Still, some physical science scientists may argue that measurement in psychology is not measurement at all. In certain cases, it might be true that the definition of measurement as interpreted by the physical sciences does not apply to some of the practices in psychology generally known as measurement. Consequently, a better understanding of measurement in behavioural sciences is necessary. In the following section measurement and the reason why it is possible as well as the logic behind measurement will be discussed.

2.2.2   The nature of measurement

2.2.2.1 History

Literature has shown that there is a wide variety of opinions among philosophers about defining measurement, since the nineteenth century. Some of the authors agree that measurement will include some interaction with a concrete system. The main aim of the interaction would be to represent some aspects of the specific system in abstract terms, for example representation in the form of numbers (Zalta, 2015).

Aristotle (Barnes, 1984, p. 9) was one of the first researchers to make the distinction between quantities and qualities in research. He explained quantities by means of numbers, surfaces, lines or time, in other words, phenomena could be explained as "one thing is not more than four-foot than another" (Barnes, 1984, p. 10). In comparison to quantities, Aristotle was of the opinion that qualities allow for degrees. An example would be: "one thing is paler than another" (Barnes, 1984, p. 17). It is evident that these findings influenced the debates that have been going around for many years especially around the question as to why measurement is possible. Psychologists and mathematicians in particular, continued debating the possibility of measurability in psychology. During the 1860's there was an important turning point with the publication of Gustav Fechner's "Elements of Psychophysics" (Fechner, 1966). Interestingly Fechner, who was described as a physiologist, physicist, psychophysicist, experimental aesthetician and philosopher founded experimental psychology incidentally. With his well know publication on psychophysics Fechner described a technique of measuring the intensities of sensation which received a lot of criticism but ironically also extensive support (Howes, 1966).

A committee of the British Association for the Advancement of Science was instructed to debate this issue in the 1930's and to resolve it.   The committee had representatives from Mathematical and Physical Sciences (one grouping) and Psychology (another grouping).   The instruction was to "determine if it was possible to measure human sensation" (Stevens, 1946, p. 677). After seven years of discussions and debates, the committee proposed a Sone Scale of Loudness by Stevens and Davis that measured the subjective nature of an auditory sensation on a scale. Surprisingly this scale complied with the formal properties of scales, such as those scales used to measure length. For nearly a century these debates continued and were regarded as enriching for the philosophy of measurement. Key researchers, such as Campbell (1920) and Stevens (1946; 1975) also participated in these debates. Campbell was opposed the measurability of sensation and stated that there should be "an empirical concatenation operation for fundamental measurement" (Ferguson et al., 1940, p. 347).   In fact, Campbell stated that none of the psychophysical regularities that have been discovered can be regarded as universal laws as required for derived measurement.

Stevens, on the other hand, held the position that "any consistent and non-random assignment counts as measurement in the broad sense" (Stevens, 1975, p. 47). He did not support the viewpoint that relations among numbers should mirror qualitative empirical structures; rather that "measurement scales should be regarded as arbitrary formal schemas and adopted in accordance with their usefulness for describing empirical data".

Despite the listed definitions and the claims made by researchers and the heterogeneity of ideas about the topic, there are still differences on the ontology, epistemology and semantics of the word measurement. Therefore, the debate continues…

In trying to shed some light on this topic, the following section will differentiate between related terms that are important and relevant when developing measurement instruments.

2.2.2.2 Definitions

2.2.2.2.1   **Measure**

Thorndike and Lorge (1944, p. 115) stated that the word *measure* is "one of the most common words in printed English". The term *measure* can be defined as the act of determining the proportions, duration or magnitude of a thing/phenomenon, but also as the instrument that is used to enable the process; this will include the units in which the instrument is categorised and the results obtained from the process. The attempt to differentiate between the numerous meanings and application of the word *measure*, needs to formally take into considerations the various parts of speech classification in which the word *measure* can be used in English. For instance, the noun *measure* will refer to the end result that is acquired by a measurement procedure or to the measuring instrument itself, whereas the verb *measure* refers to the action of measurement. From this argument the question arises as to what the difference is between *measure* and *measurement*.

2.2.2.2.2   **Measurement**

Edwards and Bagozzi (2000) believed that the score which is generated by the measurement procedures can be called a *measure,* whereas the actual instrument to gather data or the act itself of collecting data is not seen as a measure but rather as a *measuring instrument* and *measurement* respectively. The current study endorses the semantic distinction made by Edwards and Bagozzi (2000). With regards to *measurement*; as the act of describing the level or nature of a specific (latent) variable, a single definition for which there is unanimous agreement, does not exist. In the literature there seems to be two distinct schools of thought. On the one hand, researchers define measurement more strictly, by requiring that

measurement must be restricted to the assignment of numerals to objects or events that vary in magnitude and to which the mathematical operation of addition (and therefore also subtraction, multiplication and division) can logically be applied. In terms of the stricter, more conservative stance on measurement, the act of measurement is only allowed "where there exist operations upon the events similar to the arithmetic operations upon the numbers" (Jones, 1971, p. 352). On the other hand, measurement is also defined less strictly by others. This school of thought believes that numbers can be assigned to events by different sets of rules.

An example of the first school of thought perspective was the definition proposed by Campbell during the 1920s when he stated that:

> Measurement is the assignment of numerals to represent properties by a fundamental process that involves establishing methods for judging equality and for adding objects with respect to the property. Whether a property is measurable then rests entirely upon experimental inquiry. (Campbell, 1920, p. 352)

According to Campbell's (1920) interpretation these variables must fit the specifications of true quantitative variables that can vary in magnitude in order to be measured. This alone would not be sufficient though; the measurement procedure will also require that a unit of measurement be created and that the measurement procedure should be compatible with the specific unit. This is particularly prevalent in the field of science. This definition, however, gained a lot of criticism especially from behavioural scientists as it was considered to be too restrictive. In behavioural sciences there are many attributes (of individuals, objects or events) under study that do not allow the operation of addition or the determination of equality. Thus, in terms of Campbell's definition: most attempts at measurement in psychology will not be recognised as measurement. Stevens (1946, p. 677) on the other hand, modified the proposed definition by Campbell, by stating that: "*measurement* is the assignment of numerals to objects or events according to rules." Krantz, Luce, Suppes and Tversky (cited in Murphy & Davidshofer, 2005, p. 73) define measurement in a similar fashion as:

> Measurement is the process of assigning numbers to objects in such a way that specific properties of objects are faithfully represented by properties of numbers.

Subsequently, more definitions with regards to *measurement* followed with Jones (1971, p. 336 – 337) defining measurement similar to Campbell (1920) more narrowly and strictly as:

> A purposive acquisition of information about the object, organism, or event measured by the person doing the measuring. It is a determination of the magnitude of a specified attribute of the object, organism, or event in terms of a unit of measurement. The result of the measurement is expressed by a numeral. The classification of attributes, either qualitative or quantitative, is distinguished from the measurement of attributes, which must be quantitative.

An important point raised by the Jones (1971) definition is that objects, persons or events are not measured per se, but rather some attribute that characterises the object, person or event. Last but not least is the definition by Guilford and Fruchter (1978, p. 21) stating that measurement is "the assignment of numerals or numbers to objects and events according to logically acceptable rules". When viewed from the perspective of the behavioural sciences all the foregoing definitions should be criticised for formally acknowledging that numerals or numbers are not assigned to attributes of persons in accordance with specific assignment rules directly.[16]

Despite the correlations and similarity that have been seen among some of the above-mentioned definitions, research has shown that there is a still difference between the meanings of the word *measurement*. In fact, it has only become acceptable to measure certain attributes in recent decades, for instance with the presentation of L.L. Thurstone's paper titled "Attitudes can be Measured" in 1928 a lot of disagreement was verbalised. This disagreement unfortunately, still persists in contemporary times (e.g. Barrett, 2018).

Stevens (1946) argued that the rules in terms of which numerals are assigned to objects or events can differ in their degree of sophistication. The main difference between the definitions of Campbell and Stevens is that Stevens (1946) argued that procedures in terms of which relative rudimentary operations are prescribed by the numeral allocation rule should still be regarded as measurement, whereas Campbell (1920) argued that operations involving the determination of the equality of differences in the level of a variable, should be seen as measurement.

Stevens (1964) argued that measurement is possible because to some degree an isomorphism exists between the characteristic of the attribute of an object or event (or person) being measured, and the numerical system. This isomorphism (or similarity in form) between the characteristics of attributes of objects or events and the attributes of the numerical system allows the numerical system to be used as a model to represent the attribute under investigation. A model is an analogue representation that is permissible because of some degree of correspondence between the model (the numerical system) and that which is being modelled (i.e. the attribute of the object, person or event). The purpose is to develop arguments in terms of the more familiar model and then to apply the conclusion that is derived in terms of the model to that which is modelled. The important *proviso,* however, is that the argument is not allowed to utilise operations that rely on characteristics of the model that are not shared with that which is being modelled (i.e. the "to be measured attribute of the object, person or event"). Mathematical operations can therefore be carried out in terms of the numerical system provided these operations do not rely on characteristics of the numerical system that do not correspond to characteristic of the attribute

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[16] Both these aspects, but especially the latter aspect will be comprehensibly discussed in paragraph 2.2.4.

being modelled (i.e. measured)[17]. Guilford and Fruchter (1978, p. 98) summarise the above argument very well:

> Mathematics exists entirely in the realm of ideas. It is a logic-based system of elements and relationships, all of which are precisely defined. It is a completely logical language that can be applied to the description of nature because the events and objects have properties that provide a sufficient parallel to mathematical ideas. There is isomorphism [similarity of form] between mathematical ideas and phenomena of nature. Even if the description of nature in mathematical terms is never completely exact, there is enough agreement between the forms of nature and the forms of mathematical expression to make the description acceptable. Once we have applied the mathematical description, we can follow where the mathematical logic leads and come out with deductions that also apply to nature.

The numerical system always possesses all three of the following characteristics (Theron, 1999):

- Identity/uniqueness (the number 1 is different/has a different identity from the number 13 or any other numeral);

- Rank-order (the number 16 is greater than the number 15, etc.);

- Additivity (one numeral plus another numeral create a new unique amount)

The variable or attribute of an object or event that is being measured possesses one or more of these characteristics; thus only identity, or identity as well as rank-order, or identity, rank order and additivity. The characteristics of the numerical system always allow the execution of all of the following specific operations with numerals, namely (Stevens, 1946):

- Determination of identity or classification;

- Determination of rank-order;

- Determination of the equality of intervals (i.e. determining distances/differences between numerals); and

- Determination of the equality of ratio's (i.e. determining the proportion between numerals).

The characteristics possessed by the attribute or variable of an object, person or event that is being measured allow for one or more of the above-mentioned operations, but not necessarily all the operations. It is these operations that are used in the measurement rule that regulates the assignment of numerals to an attribute of an object, person or event which Stevens (1946) definition of measurement refers to.

The operations that are allowed to be carried out with the numerals assigned to the attributes of objects, persons or events are determined by the degree of correspondence between the characteristics of the

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[17] This was essentially the basis of the argument presented earlier that measurement offers the advantage of generalising from sample to population via quantitative statistical inferences on the value of parameters; something that would not have been possible if information on attributes characterising objects, persons or events had been obtained qualitatively.

numerical system and characteristics of the attribute being measured. The characteristics possessed by the attribute which is being measured therefore places a limitation on the operation on which the numeral allocation rule regulating the assignment of numerical values is based, and this rule places a limitation on the characteristics of numerals that may be taken into account as well as on the operations/calculations that may be done with the assigned numerals (Stevens, 1946; Theron, 1999).

If the attribute in question possesses all three characteristics there are therefore no restrictions on the operations that can be performed on the attribute when viewed from the requirement that the known characteristics of model may be used in argument only to the extent that they correspond to characteristics of the attribute being measured. The operations utilised in the assignment rule, and therefore also the operations which may permissibly be performed on the allocated numerals, are however, restricted by the ability of the assignment rule to detect the absolute absence of the attribute. The critical question is therefore whether the assignment rule allows for an absolute zero. If the assignment rule is such that a numerical assignment of zero indicates the absolute absence of the attribute, it is permissible to determine equal ratios. Measuring the length of an object on a millimetre calibrated tape measure for example, or measuring the temperature of an object on a Kelvin-Scale would place no restrictions on the operations that can be performed with the allocated numerals.

On the other hand, if the rule according to which numerical values are assigned, does not take into account the absolute absence of the attribute being measured/modelled it would not be permissible to determine equal ratios, because the numerical value zero on this scale is merely an arbitrary zero point. Measuring the temperature of an object on a Celsius- or Fahrenheit-Scale would serve as an example (Stevens, 1946)[18].

A specific level of correspondence therefore exists between the operations that can be performed with the attribute that is measured and the operations on which the numeral assignment rule is based. This level of correspondence is determined in turn by the level of correspondence in the characteristics of the numerical system and the characteristics of the attribute being measured. The type of measurement scale used, is dependent on the level of correspondence in the operations that can be performed with the attribute that is measured and the operations on which the numeral assignment rule is based. The highest possible measurement level that can be attained when measuring a specific attribute of an object, person or event, is determined by the operations that can be performed with that attribute because it places a constraint on the operations on which the numeral allocation rule may be based which in turn restricts the operations that may be performed with the assigned numbers. The operations that can be performed

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[18] If an object A has a temperature of 10 degrees Celcius and another object B a temperature of 20 degrees Celcius it would not be permissible to conclude that the one object is twice as warm as the other. If it was the corresponding Farenheit temperatures of 50 and 68 should have conveyed the same concludion. It is however permissible to infer that the difference in temperature between objects A, B and C are equally large (given that object C has a temperature of 30 degrees Celcius [or 86 Farenheit] given the equality in distance between the assigned numerals.

with that attribute in turn depends on the characteristics of the attribute being measured[19]. Stevens (1946 p. 677) describes this idea as follows:

> The isomorphism between the properties of the numeral series and certain empirical operations which we perform with objects permits the use of the series as a model to represent aspects of the empirical world. The type of scale achieved depends upon the character of the basic empirical operations performed. These operations are limited ordinarily by the nature of the thing being scaled and by our choice of procedures, but, once selected, the operations determine that there will eventuate one or another of the four scales.

The operations that may be performed with the assigned numbers also restricts the statistical measures that may permissibly be calculated from the allocated numerals and the transformations that may permissibly be performed on the allocated numerals. Four measurement scale levels were distinguished by Stevens (1946) based on:

- The operations on which the numeral allocation rule are based, which in turn restricts the operations that may be performed with the assigned numbers;
- the statistical measures that may permissibly be calculated from the assigned numbers;
- the transformations that may permissibly be performed on the assigned numbers.

Statistical measures are permissible if they require calculations that are based on operations that may permissibly be performed with the allocated scale values. A transformation is permissible if it does not distort information that may be legitimately inferred from the scale values (Theron, 1999).

2.2.3   Different measurement scales

The field of measurement has been significantly influenced by the way in which Stevens (1946) introduced the concept of measurement. His ideas filtered through to the concept of measurement in the behavioural sciences, since the field of psychology and education frequently deal with human individuals or groups making it difficult to clearly quantify the attributes of a person when interpreting measurement as strictly as suggested by the physical sciences. Based on the argument outlined in the preceding section he conceived four different types of scales to be utilised when dealing with measurement, namely the nominal scale, the ordinal scale, the interval scale and the ratio scale. Stevens (1957) also later proposed a fifth scale, namely the logarithmic interval scale.

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[19] It is acknowledged thatoperation on which the numeral assignment rule is based need not necessarily be the highest operation that can be performed with the attribute given the characteristics of the attribute.

2.2.3.1 Nominal Measurement and Nominal Scales

Nominal scales represent the most basic form of measurement. The word "scale" in nominal scales may cause confusion since a "scale" suggests a continuum and order, which is not the case for nominal scales[20]. Dictionaries typically define scales as "that which discriminates". This definition validates the use of the term scale when referring to nominal scales. In nominal scales numbers are used as labels for certain groups or items, for example by the numbering of medical practitioners for the identification of the people or the numbering of certain types or classes, where each member of a class/grouping is assigned a numeral. To take a case in point, all the family physicians will be allocated the same numerical label, whereas the paediatricians will all be allocated a different numerical label (Stevens, 1946). On a nominal scale numbers are merely used as a label/symbol to differentiate between cases that differ on an attribute (like area of medical specialisation for example).

From a statistical point of view, it is not possible to do a wide range of meaningful computations with nominal measures, since the attribute being measured (e.g. area of medical specialisation) only permits the operation of classification (or determination of identity) because it only has the characteristic of identity but not the characteristics of rank-order and additivity. The determination of identity is therefore the only operation that is allowed with the assigned scale values. Numerals are different in the sense that numbers have a unique value/identity and belong to a logic system. With regards to computations it is possible to count the number of cases in each category; in other words, determining the frequency or the most numerous case, namely the mode. It is also possible to test hypotheses that analyses the distribution of cases among the different classes (Guilford & Fruchter, 1978). In the case of a nominal scale a very liberal transformation of the assigned scale values is permitted. Any unique one-to-one substitution of values is permitted that preserves the allocation of numerals with unique identities to unique categories/classes of a characteristic.

2.2.3.2 Ordinal Measurement and Ordinal Scales

The ordinal scale is characterised by a numeral allocation rule based on rank-ordering. Rank-ordering implies that the attribute or variable being measured lies on a continuum and that the determination of rank-order is the most advanced operation that can be performed with the attribute. The determination can therefore be made that the level of a variable for one object, person or event is higher or lower than the level of the same variable for another object, person or event. A typical example would be to place three girls in order of beauty; Sam, Anna and Kim. Sam is rated the most beautiful and is assigned number 3, whereas Anna is assigned number 2 and Kim number 1. The assumption cannot be made that the difference in beauty between Sam and Anna is the same as the difference in beauty between Anna

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[20] Both Campbell (1920) and Jones (1971) would not regard measurement on a nominal scale level as measurement but rather classification.

and Kim despite the fact that the differences between the three allocated scale values are the same. Neither can it be inferred that Anna is twice as beautiful as Kim. The limited level of correspondence that exists between the operations that can be performed with the attribute/variable beauty and the operations that can be performed with the numerical system restricts the operations that are permitted with the allocated scale values to rank-ordering. The only available information is about serial arrangement. Calculations like subtracting or adding are not permitted because they required the determination of the equality of intervals, which is an operation that cannot be performed with the variable beauty, because it lacks the characteristic of additivity.

Ordinal scales may be transformed through any monotonic increasing function because it maintains the original rank-ordering of the objects, individuals or events based on their standing on the attribute being measured (Stevens, 1946).

The type of statistics to be used on ordinal scales includes all those that may be permissibly calculated on nominal scale values plus the calculation of percentiles, percentile ranks, quartiles and the median. Most of the instruments used to measure psychological constructs, strictly speaking, result in ordinal scales. Despite this, psychologists tend to use ordinal scales quite commonly and effectively (Kerlinger & Lee, 2000). An assumption frequently made is that the resultant ordinal scales approximate interval scales thereby legitimising the use of a larger variety of statistical procedures (Guilford & Fruchter, 1978).

2.2.3.3 Interval Scale

The interval scale requires the operations that have to be performed in the case of both the nominal and ordinal scales, especially the rank-ordering operation, but it in addition requires the determination of the equality of differences in the attribute being measured. This is possible if the 'to-be-measured attribute' possesses the characteristic of additivity. The key inference that can be derived from the scale values assigned on an interval scale, is that numerical distances on the interval scale symbolises equal distances in the attribute being measured. An example of a true interval scale would be the measurement of temperature in Centigrade and Fahrenheit. By using the interval scale, an random zero point is decided on for both scales and a numerical value on the centigrade scale, for example, would be transformed into another value on the Fahrenheit scale by means of the equation: $x' = ax + b$[21]. Thus, "equal intervals of temperature are scaled off by noting equal volumes of expansion" (Stevens, 1946, p. 679).

In the behavioural sciences the utilisation of the interval scale is seldom possible since it is extremely difficult to devise a method of determining the equality of differences on the psychological construct being measured. In the physical sciences there are more concrete examples, such as the measurement

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[21] Celcius © can be linearly transformed to Farenheit (F) throught the equation F=32 + 1.8C.

of temperature (on a Fahrenheit or Celsius scale) and the measurement of calendar time/year. For both these measures there are an arbitrary zero point. Permissible statistical operation allowed for this scale would be determining the mean, standard deviation, rank-order correlation, the calculation of the product-moment correlation (Guilford & Fructer, 1978; Stevens, 1946), multiple regression, exploratory factor analysis (EFA), confirmatory factor analysis (CFA) and structural equation modelling. As indicated previously, an assumption frequently made in the behavioural sciences, is that the ordinal scales that result from the use of the instruments used in the behavioural sciences approximate interval scales, thereby legitimising the use of the aforementioned statistical procedures (Guilford & Fruchter, 1978). In the absence of this assumption, behavioural science research, when interpreted from a positivistic paradigm, will be severely constrained and limited.

2.2.3.4 Ratio Scale

The ratio scale is the most commonly used by scientists in the physical sciences. This scale has an absolute zero that has empirical meaning and also requires the operations that have to be performed in the case of the nominal, ordinal and interval scales but it in addition requires the determination of the equality of ratios between the characteristic being measured. This is possible if the 'to-be-measured' attribute possesses the characteristic of additivity and it is possible to devise a numeral assignment rule that can detect the absence of the attribute (i.e. no length, no weight). When an object gets a zero rating on a ratio scale, there is basis for saying that the object does not have the characteristic being measured.

All statistical analysis procedures are possible for example multiplication and division since there is a natural zero point. Permissible statistical analyses would also include coefficient of variation[22] that is not permissible with interval scale measures. A ratio scale measuring inches can be linearly transformed to the measurement in feet. In the physical sciences there is a further distinction between two types of ratio scales where a fundamental scale characterises height and weight, whereas a derived scale would represent elasticity and density (Stevens, 1946). In the behavioural sciences one might find it common that most psychological measures do not even approximate ratio scale data.

2.2.3.5 Logarithmic interval scale

During the late 1930s, Stevens was working on the theory of scales; he acknowledged that invariance rules allowed for another scale on the same level as the interval scale, but struggled to convince himself that if he knew a/b=b/c=c/d=… it was helpless to progress further. A suggestion was to convert the logarithms and express the equated rations as log a – log b = log b – log c = log c – log d, etc. Furthermore, the values of the letters a, b, c etc. had to be restricted to positive numbers and this allowed

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[22] The coefficient of variation represents the ratio of the standard deviation to the mean.

then to set up an interval scale in logarithms. As a result, the following formula was developed: $x´ = kx^\eta$, where k and n are constants that could be positive values. At that stage Stevens was uncertain, however, if science would use such as scale based on equated ratios and secondly what to call the scale (Stevens, 1957).

In due course, Stevens finalised the fifth scale and called it the logarithmic interval scale. These scales are typically utilised when a researcher is working with a large number of quantities, for example sound intensity, earthquake strength, measured on a Richter scale, or the pH of solutions. The logarithmic interval scale is based on orders of magnitude. In other words, "psychological values separated by equal units of dispersion on the stimulus scale stand in a constant ratio to each other" (Stevens, 1957, p. 175).

A diagram with the different scales together with the group of transformations permitted by each scale was proposed by Stevens (1957). As illustrated in the diagram in Figure 2.1, a ratio scale is possible when empirical operations are available to create both types of interval scales.
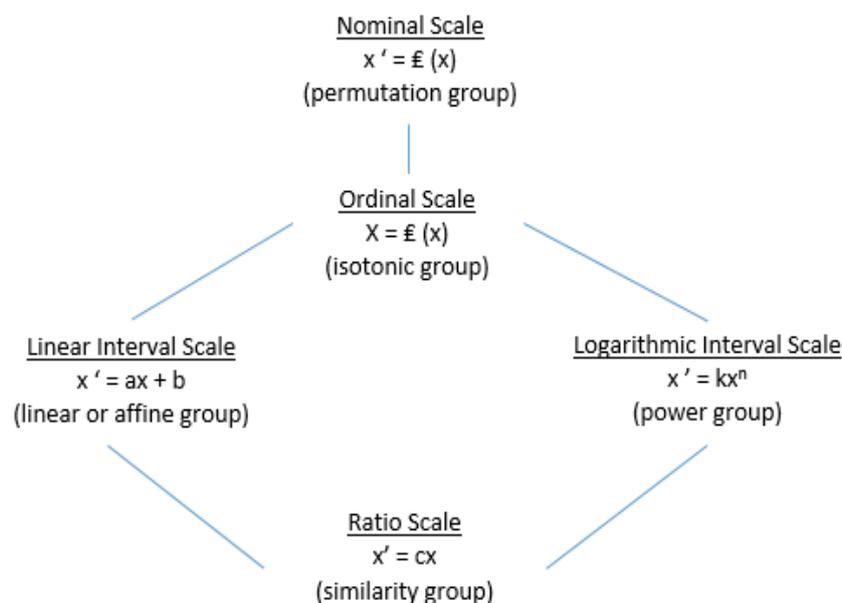
Figure 2.1: Hierarchy of scales as illustrated by S.S. Stevens, 1957, from "On the Psychophysical Law", *The Psychological Review*, 64(3), p.177. Copyright (1957), American Psychological Association.

2.2.4   Measurement of psychological constructs

In his original definition Stevens (1946, p. 277) proposed that measurement should be defined as:

Measurement, in the broadest sense, is defined as the assignment of numerals to objects or events according to rules.

To make the Stevens (1946) definition of measurement acceptable to the social sciences the term "person" could be added to the definition. This adapted Stevens definition is, however, still not fully satisfactory to Industrial Psychology in as far as it is not the object, individual or event as such that is measured, but rather an attribute of the object, individual or event. The Stevens definition can again be adapted to reflect this reality and therefore now states:

> Measurement is the assignment of numerals to a characteristic or attribute of an object, individual or event according to certain rules.

This adaptation of the original Stevens (1946) definition, is however, still unsatisfactory in that it fails to acknowledge the problem that they do not recognize the fact that those human attributes that are of interest to Industrial Psychology are constructs and are therefore per definition not directly observable and therefore also not directly quantifiable.

Rather than assigning numerals directly to the attribute, the numerals are assigned to behavioural indicators of attributes of persons. Constructs are operationalised in measurement by defining how behavioural denotations in which the standing on the construct visibly expresses itself will be elicited by (test) stimuli. These stimuli either elicit a live behavioural denotation that visibly expresses the test-taker's standing on the construct or dimension of the construct (e.g. a measure of fluid intelligence) or it elicits a visible response that reflects the recall of the historical display of live behavioural denotation that visibly expresses the test-taker's standing on the construct or dimension of the construct (e.g. a measure of personality or leadership competence). In other words, a psychological measurement procedure will prompt a sample of behaviour by allowing the individual for example to be exposed and respond to standardised stimuli under standardised conditions. The measurement hypothesis is that the underlying construct of interest will be indirectly observed by means of the testee's reaction to the stimulus sample. Formulated procedures will clarify which elicited behaviour should be observed and recorded. Since the behavioural response to the stimulus sample is hypothesised to be dependent on the test-taker's standing on the construct under study, it should be viable to indirectly gather quantitative information on the individual's standing on the construct from the observed scores obtained by a testee. It is important to note that a measurement instrument, such as a psychometric test, does not measure the total person, but only a specific attribute of a person. As argued in the preceding paragraphs, specific characteristics of the attributes of the person would be represented by specific characteristics of numbers. The characteristics of the attribute targeted by the measuring instrument limit the operations that can be performed with the attribute and thereby limit the operations on which the numeral assignment rule is based. The operations on which the numeral assignment rule is based in turn limit the operations that may permissibly be performed on the assigned numerals. The logic underpinning measured operational definitions fundamentally rests on the operation of rank-ordering. Achieving a higher level of measurement, would however, have been preferable because of the analytical freedom

that it brings with it. Therefore, reflection on the level of measurement is of the utmost importance during the development of measurement instruments (Murphy & Davidshofer, 2005).

Defining a measurement instrument seems to be a challenge though, since there are different viewpoints regarding this in the literature. The International Test Commission (ITC) published the ITC Guidelines on Test Use (2013, p. 13), stating that, "any attempt to provide a precise definition of a test or of testing as a process is likely to fail as it tends to exclude some procedures that should be included and include others that should be excluded." The ITC proposed that statements representing the domain of testing should rather be used than a formal definition. Some of these statements read:

- Testing includes a wide range of procedures for use in psychology, occupational and educational assessment.
- Testing may include procedures for the measurement of both normal and abnormal or dysfunctional behaviours.
- Testing procedures are normally designed to be administered under carefully controlled or standardised conditions that embody systematic scoring protocols.
- These procedures provide measures of performance and involve the drawing of inferences from samples of behaviour.
- They also include procedures that may result in the qualitative classification or ordering of people (e.g., in terms of type).

Nevertheless, Guilford (1954, p. 1) was of the opinion that researchers gather facts and observations from nature, thus referring to it as the "procedures for psychological measurement". In addition to Guilford's viewpoint, another more elaborate definition was developed by Owen and Taljaard stating that:

> A psychological test as "a purpose-specific evaluation and assessment procedure used to determine characteristics of people in areas of intellectual ability, aptitude, interest, personality profile and personality functioning. It consists of a collection of tasks, questions or items aimed at eliciting a certain type of behaviour under standard circumstances, from which scores with acceptable psychometric characteristics are inferred according to prescribed procedures. (Owen and Taljaard, 1988, p. 11, 21)

The definition of Owen and Taljaard also supports the viewpoints of Stevens with regards to measurement. A more recent definition by Anastasi and Urbina (1997, p. 4) defines a psychological test as: "an objective and standardised measure of a sample of behaviour". Closely related to this definition, is the definition provided by the Society of Industrial and Organisational Psychology of South Africa (SIOPSA). The society describes an assessment instrument as "any method or device used to evaluate characteristics of a person" (SIOPSA & The Psychological Society of South Africa, 2005, p. 69). From the definitions it is evident that a researcher needs some kind of measure/device as a standardised set of stimuli in order to take a sample of the individual's behaviour. In addition, all psychological tests can

be compared to tests in any other science, since observations need to be made during the research process. The observations are normally made from a small sample of the specific individual's behaviour. Still the challenge remains to define these terms in exact definitions, especially if one should look at the relationship between tests, testing and assessments (Foxcroft & Roodt, 2013).

Against the backdrop of preceding logic underpinning psychological assessment Theron (1999, p. 38) proposed the following further amendment to the original Stevens (1946) definition of measurement:

> Measurement is the assignment of numerals to an indicant of a property of an individual according to certain rules.

In addition to the listed definitions of measurement, Kaplan (1964) argued that measurement could be explained by classifying measurement of phenomena according to three classes. The first class is described as the things that is observable directly for instance, the colour of a fruit such as an apple. The second class is subtler and is defined by indirect observables. For example, if a person would make a cross (X) next to "male" on a questionnaire, an indirect observation can be made that this person's standing on the variable gender is male. The third and final classification, according to Kaplan (1964), consists of constructs. These constructs cannot be observed directly or indirectly and is described as theoretical creations. Intelligence is an example of such a construct. An individual will be required to do an IQ test, consisting out of multiple different questions. The IQ is established mathematically from the observations of the answers that are given to the questions. The current study would, however, question Kaplan's (1964) position. The current study would argue that colour, gender and intelligence are all constructs created by man's fluid intelligence. None of them are directly observable. All of them carry a specific connotative meaning that needs to be explicated so as to allow an intellectual grasp on the abstract idea represented by the signs of the written word (or the sound) colour, gender (in contrast to sex and sexual orientation) and intelligence. All of them indirectly express themselves in observable denotations. All of them are indirectly measured via their denotations.

To develop an instrument to measure the performance construct *compassion* as it is displayed by medical practitioners, it will be necessary to first explicate the connotative meaning of the construct. As previously argued, this will require explicating the internal structure of the construct in terms of its latent dimensions but also explicating the manner in which the construct is embedded in a larger nomological network of latent variables. This constitutive definition of the *compassion* construct will be depicted as a structural model. To explicate the denotative meaning of compassion, specific behaviours and sensations in which the various latent dimensions that constitute *compassion* express themselves, need to be identified. The manner in which specific denotations are, in terms of the measured operational definition of compassion, hypothesised, to reflect the level of competence that medical practitioners

display on specific latent dimensions of *compassion,* will be depicted as a measurement model[23] (Diamantopoulos & Siguaw, 2000).

The measurement model will form the basis of the architecture of an instrument to measure the *compassion* construct as constitutively defined. To determine whether this instrument provides a construct valid measure of the *compassion* construct as constitutively defined, the measurement and structural models will have to be fitted to empirical data. The concept of measurement, specifically as it applies to the measurement of psychological constructs has been clarified in the preceding text. The processes aimed at ensuring that the *compassion* construct is measured as constitutively defined, and the criteria that are used to evaluate the extent to which these processes succeeded, are subsequently discussed against this background.

2.2.5 Opposing views on measurement definitions

Stevens' viewpoint attracted a lot of criticism, especially from researchers such as Anderson (1961), Boneau (1961), Gaito (1960),) and Lord (1953). His viewpoint emphasised that there exists a precise relationship between the level of measurement and the permissible statistical operations that may be performed. Gaito (1960), was of the opinion that the proposed classification of psychological scales by Stevens contributed significantly to the field of psychophysical and measurement theory, but contested the application of this classification since it led to a lot of misunderstanding. Misunderstanding was experienced regarding the use of various statistical techniques and Gaito (1960) was of the opinion that too much emphasis was placed on the usefulness of nonparametric techniques especially for psychological research.

In addition to Gaito's criticism, Churchman (1966, p. 254) also criticised Steven's viewpoints on measurement by stating that

> Measurement is not merely the assignment of numbers to phenomena according to a rule; such a description ignores the empirical methodology completely. Measurement also includes all the operations required to calibrate and control. Measurement is essentially teleological, not merely structural. Its purpose is to provide a wide use of important information; the structure of this information is important, of course, but so are all of the control operations required to transmit the data so that it can meaningfully be applied in other places at other times. Furthermore, one cannot decide whether a given measurement process provides information of a certain structural kind without knowing the calibration and control method.

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[23] Stated differently the measurement model will reflect the psychological mechanism that is hypothesised to determine the responses to the MPCCQ. This reformulation is important because it more clearly allows for a broad, general compassion factor to be hypothesised in addition to a number of correlated, and more specific, narrower dimensions of compassion.

In other words, Churchman was worried about the fact that Stevens might underestimate the importance of the control operations and control methods when engaging with measurement. Churchman was uncomfortable with the possibility that the whole theory of measurement could be entrenched in a classification of scales, as suggested by Stevens. Thus, a shallow viewpoint of the measurement system will be cultivated. Finally, Handy (1970) insisted that the context in which measurement is done should not be underrated. The context can influence the way the measurement is administered thereby influencing the end result.

Ironically, measurement can also be meaningless. For instance, if there are no definitions for sets of objects being measured, no mathematical rule is applied consistently and the rules of assignment have not been tied to "reality" (Kerlinger & Lee, 2000, p. 627), one might find that measurement results do not show any significance. Therefore, it is of utmost importance to understand the logic of measurement in order to choose the right definitions, scales, tests and rules.

In this research study, the arguments of Stevens will be utilised as the foundation for measurement development. The reason therefore can be found in the fact that Stevens does not limit a researcher in terms of abiding to specific supplementary rules of arithmetic, but rather allowing a researcher to utilise some rules when numerals are assigned to objects or events. In addition, if the measurement scales of Stevens are utilised, especially in the social and behavioural sciences, it will allow the researcher to observe differences in a construct like compassion for example, thus indicating differences in the construct as such. This will be dependant, however, on the type of scale utilised.

The preceding discussion indicated that to obtain a construct valid measure of compassion as a construct, its connotative meaning should be explicated. Compassion is not interpreted as a disposition but rather as a behavioural competency. To assist in explicating the connotative meaning of compassion as a competency, the concept of competency and competency modelling are therefore discussed in the subsequent section.

2.2.6   Processes needed to ensure successful psychological measurement

Besides the importance of conceptually understanding and defining the concepts measurement and measurement instrument, it is important to take note of the processes that are needed to make the indirect psychological measurement succeed. In this instance, reference is made to the importance of processes of *standardisation* and *item analysis*. Concerning *standardisation*, it is argued, given the indirect nature of psychological measurement, that differences/variance in the observed score (X) could be due to differences in various factors. The ideal, nonetheless, is that differences/variance in the observed test scores should only be attributable to differences/variance in the 'to-be-measured' construct (ξ or η). Secondly, it is apparent from the indirect nature of psychological measurement that an empirical grip

will not necessarily be obtained on the whole of the to be measured construct (i.e., all the dimensions of the construct) via the stimulus sample in as far as the behavioural response to the stimulus sample is not necessarily determined by all the dimensions of the construct. What the psychometrist thus strives for, but which is not entirely possible in real life, is to control all extraneous variables which could have an effect on the test performance but which are not relevant to the purpose of the measurement, so that the variance in the observed test scores can be explained only in terms of the variance in the to be measured construct. The following categories of irrelevant variables, which can potentially cause non-relevant variance in the test scores, can be identified (i.e. variance in the scores (X) can be caused by variance in these variables other than the latent variable or construct of interest):

- Stimulus variables;

- Non-relevant person characteristics (constructs);

- Scoring/quantification variables. For the test developer the challenge is to control these various sources of extraneous variance. Control can be interpreted to refer to:

  o The removal of an irrelevant variable so that the variable no longer influences test behaviour anymore and the variable consequently no longer causes variance in test scores; and/or

  o Keeping an irrelevant variable constant so that the variable still has an influence on test behaviour but this influence is the same for all testees and the variable thus no longer causes variance in test scores.

The requirement of *standardisation* refers to a process by which an attempt is made to attain the ideal that variation in test scores can be interpreted only in terms of the to be measured construct and not in terms of non-relevant variables. Standardisation is an attempt to control specific categories of variables (categories 1 and 3 mentioned above) by attempting to keep these variables constant over different measurement occasions. Thus, standardisation is the control of irrelevant variables in terms of the second meaning of the concept of control. A standardised test is defined as: a test for which the testing procedure, instructions, apparatus, evaluation procedure and scoring procedure are specified/prescribed in its test manual, and which contains norms.

The conditions under which a test is administered, the instructions the testees receive, the time the testee is allowed for doing the test, and the nature of the testing material all have an effect on the test behaviour of the testee, and through this on the results obtained by the testee who did the test. The manner in which the testee's responses are evaluated and quantified also influences the final score of the testee. If these aspects were allowed to vary with regard to testers, places and times, it would clearly not be possible to attach meaning to the obtained differences in test results in an unambiguous manner; the variance in the test scores could now be explained, in part or even completely, in terms of the variance in these non-relevant aspects. Factors concerning standardisation that immediately comes to mind would be: Test-taking instructions, time limits for the specified test, the scoring procedure as well as the test guidelines

given for score interpretation. The rules and regulations with regards to the person responsible for the test administration as well as the application of the measurement should be clear and specific. Different skill level requirements for test administrators would cause confusion with the implementation of the same measurement procedure. In addition, care should be taken when deciding on the physical location where the testing will be done, taking into account noise levels, lighting, temperature etc. Indeed, the test administration process should be standardised, implying that test conditions remain invariant. A very important point concerning standardisation that is sometimes overlooked, is the fact that some test items become obsolete or archaic over time. Thus, standardisation would also imply the development of new items that discriminate at approximately the same level as the outdated items. This would also entail the updating of the original norm groups for score interpretation (Murphy & Davidshofer, 2005).

Standardisation included the calculation of construct-referenced norms. Psychological test scores, in isolation, are meaningless. That is no meaningful inference regarding the test-taker's standing on the construct of interest can be derived from an isolated test score. The relative standing of a test-taker on the construct of interest can only be inferred by comparing the score achieved by the test-taker to the scores obtained by a representative norm sample of test-takers taken from the target population for which the test was developed. To assist in the location of the relative position of the 'to-be-interpreted' score in the normative distribution the scores are transformed to various norm scales (e.g. percentiles, z-scores, stens, stanines for example). The norms developed for the test than standardises the construct-referenced interpretation of the test scores (Anastasi & Urbina, 1997; Murphy & Davidshofer, 2005).

Besides standardisation, the other important process used in striving towards achieving the ideal referred to above, is the process by means of which the items that were developed for the test are evaluated through *item analysis*. Item analysis is a process which precedes standardisation and which attempts to control non-relevant human characteristics by trying to deprive them of the opportunity to influence test behaviour. Item analysis in addition, attempts to identify insensitive items that do not discriminate between the levels of the construct of interest. Item analysis thus constitute control of non-relevant variables in terms of the first meaning of the term "control". Through item analysis poor items are identified by means of a variety of item statistics and removed from the experimental instrument (Theron, 1999).

It is important to identify criteria that allows the researcher to demonstrate success when utilising these two processes of standardisation and item analysis.

The extent to which the processes of standardisation and item-analysis succeeded in controlling extraneous variance in the observed test scores is described by evaluating the *objectivity* of the measurement procedure, *the reliability* of the observed scores, the *construct validity* of the construct-referenced inferences derived from the observed scores and (measurement) *bias* in the construct referenced inferences. *Objectivity* in this context refers to the extent that the test-taker, the test

administrator and the test scorer can influence the test result. Standardisation contributes to enhance the objectivity of a measurement procedure. Relative to measuring procedures in the physical sciences, measurement procedures in the behavioural sciences have relatively lower objectivity especially in as far as the test-taker has the opportunity to influence the test result through faking.

Measures are considered reliable to the extent that variance in the measures are brought about by systematic sources of variance rather than by sources of random error variance (Nunnally & Bernstein, 1994). Both standardisation and item analysis attempt to control sources of random error variance by holding non-relevant sources of variance in test-taker responses constant and by removing items that do not respond in harmony with the remaining items of the scale.

Reliability is a necessary but not sufficient requirement for *construct validity*. *Construct validity* can be defined as the extent to which variance in the observed scores are produced by the systematic source of variance that the measuring instrument was developed to reflect. If a large proportion of the variance in observed scores have been produced by random error sources of variance, a large proportion of the variance in the observed scores cannot be due to the systematic source of variance that the instrument aspires to reflect. Conversely, if a large proportion of the variance in observed scores have been produced by systematic sources of variance, a large proportion of the variance in the observed scores need not necessarily be due to the systematic source of variance that the instrument aspires to reflect. Construct validity can alternatively be defined as the extent to which inferences on test-takers' standing on the construct, carrying a specific connotative meaning, that the instrument aspires to reflect, are permissible. The connotative meaning lies in the internal structure of the construct and the manner in which the construct is embedded in a larger nomological network of constructs. The internal structure that is attributed to the construct (i.e. the number of latent dimensions and the manner in which they are conceptualised to be correlationally related) in conjunction with the design intention underlying the instrument (i.e. the manner in which items have been earmarked to reflect specific latent dimensions) imply a measurement model. The internal structure that is attributed to the construct can in addition imply a structural model if the constitutive definition interprets a specific causal dynamic to exist amongst the latent dimensions comprising the construct. The manner in which the construct is conceptualised to be embedded in a larger nomological network implies a further structural model. The inferences derived from the observed scores on the construct the instrument was developed to measure, can therefore be considered construct valid (i.e. permissible) if:

- The measurement model implied by the internal structure that is attributed to the construct in conjunction with the design intention underlying the instrument, fits the data obtained on the MPCCQ at least closely;
- The unstandardised factor loadings λ_{ij} of the items of the MPCCQ on the latent compassion dimensions they were designated to reflect, are statistically significant ($p < .05$);

- The completely standardised factor loadings λ_{ij} of the items of the MPCCQ on the latent compassion dimensions they were designated to reflect are large ($\lambda_{ij} \geq .50$);

- The unstandardised measurement error variances associated with the items of the MPCCQ are statistically significant ($p < .05$)[24];

- The completely standardised measurement error variances associated with the items of the MPCCQ are small ($\theta_{\ddot{o}ii} < .75$); and

- The inter- latent compassion dimension correlations (ϕ_{jk}) are statistically significantly ($p < .05$), small ($\phi_{jk} < .90$) and all squared inter-correlations (ϕ^2_{jk}) are larger than the average variance extracted (AVE) associated with latent compassion dimensions j and k.

And if:

- The comprehensive model implied by the internal structure of the construct fits the data obtained on the MPCCQ at least closely;

- The unstandardised path coefficients γ_{ij} and β_{ij} are statistically significant ($p < .05$);

And if:

- The comprehensive model implied by the manner in which the construct is embedded in a larger nomological network of constructs fits the data obtained on the MPCCQ at least closely;

- The unstandardised path coefficients γ_{ij} and β_{ij} are statistically significant ($p < .05$);

In order to evaluate the construct validity of the construct referenced inferences derived from the dimension scores on an instrument via studies on the measurement and structural models, the substantive assumptions made about the internal structure of the construct, as well as the relationships that the construct has with other constructs in a nomological net, need to be clearly explicated.

Further evidence on the construct validity of a specific instrument as a measure of a specific construct can be generated via the multitrait-multi-method (MTMM) approach to investigate convergent and discriminant validity (Angner, 2008; Campbell & Fiske, 1959; Nunnally & Bernstein, 1994). Campbell and Fiske (1959) argued that if different measures construct validly, measure the same construct they should significantly ($p < .05$) and substantially correlate with each other. Convergent validity should therefore be demonstrated (Bagozzi, Yi & Phillips, 1991). At the same time construct valid measures of unique, and essentially unrelated, constructs should not correlate high, even when measured with the same method. Discriminant validity should therefore be demonstrated (Bagozzi et al., 1991). A MTMM matrix results from this line of reasoning. Figure 2.2 illustrates a MTMM when three relatively

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[24] Even though measurement error is undesirable it, nonetheless, would be unrealistic to expect construct valid measures of the medical practitioner compassion construct to be free of measurement error.

independent traits are measured via three different assessment techniques (Webcentre for Social Research Methods, 2018).
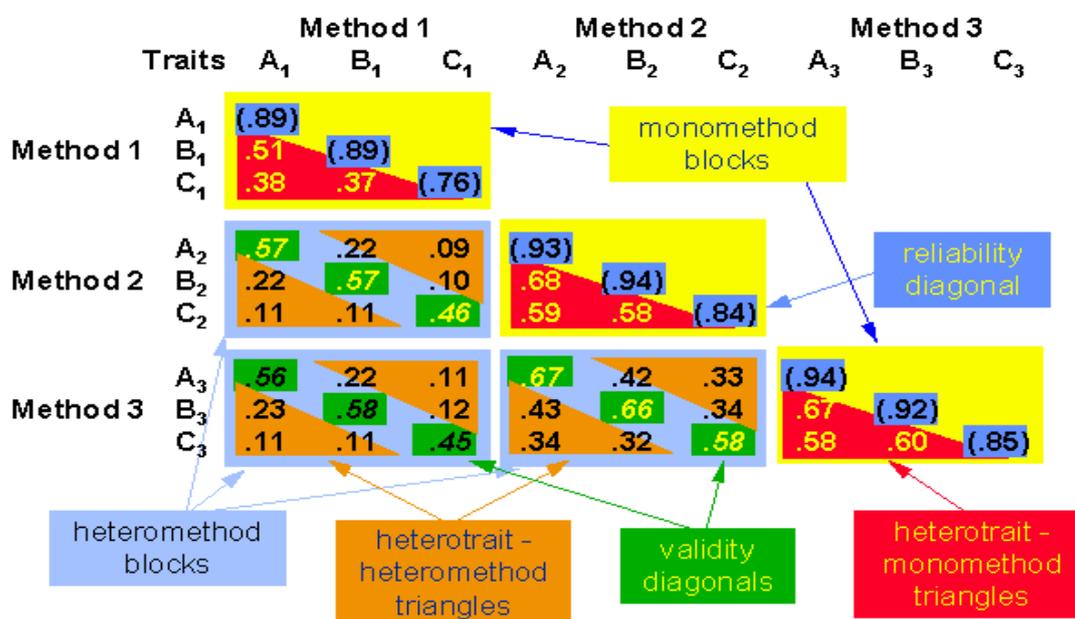
Figure 2.2. The Multitrait-multimethod matrix. Reprinted from the "Multitrait-Multimethod" by W.M.K. Trochim, 2006, The Research Methods Knowledge Base. Copyright @2006, William M.K. Trochim.

Campbell and Fiske (1959) proposed specific qualitative decision-rules or criteria for inferring convergent and discriminant validity from MTMM matrices that one permits the inference of convergent and discriminant validity and hence construct validity, namely:

- Reliability coefficients in the main diagonal should consistently be the highest in the matrix.
- Correlations between the same construct measured by different methods should be high (convergent validity).
- Correlations between the same constructs measured by different methods should be higher than correlations between different constructs measured by the same method (discriminant validity) and by different methods.
    - Correlations in a validity diagonal in a specific heteromethod block should therefore be higher than (a) the correlations in the relevant heterotrait-monomethod triangles, and (b) the correlations in the same row and same column in that block (heterotrait-heteromethod triangles).
    - The correlation between two constructs measured by two different measures should therefore be lower than the correlation between the two constructs when measured with the same method and the correlation between the same construct measured by different methods should be higher than the former two types of correlations.

The Campbell and Fiske (1959) criteria can be evaluated via confirmatory factor analysis by fitting a correlated traits and correlated methods measurement model (Bagozzi, et al, 1991; Lance, Noble & Scullen, 2002) in which the method and traits factors are not allowed to correlate[25].

Measurement bias occurs if the construct-referenced inferences are affected by group-membership (Dunbar, Theron & Spangenberg, 2011; Schmitt & Kuljanin, 2008; Vandenberg & Lance, 2000). More specifically measurement bias exists if (Dunbar et al., 2011):

- The instrument does not measure the same construct across (gender, race, language, cultural) groups; or
- The instrument measures the same construct but not in the same manner across groups.

The former refers to construct bias and the latter to item bias (Dunbar et al., 2011; Vandenberg & Lance, 2000). Construct bias exists if the factor structure that is required to explain the inter-item covariance matrix differs across groups (Dunbar et al., 2011; Vandenberg & Lance, 2000). Item bias exists if the regression of the item response X_i on the latent dimension of the construct it reflects differs across groups in terms of intercept and/or slope and/or residual variance (Dunbar et al., 2011; Vandenberg & Lance, 2000)[26]). Measurement bias can be evaluated via multi-group confirmatory factor analysis (Dunbar et al.; 2011 Vandenberg & Lance, 2000).

The concepts objectivity, reliability, construct validity and measurement bias are descriptive terms, which provide descriptions from different perspectives of the extent to which the test developer has succeeded in the endeavour to control non-relevant variables (i.e. of the extent to which the two processes, item analysis and standardisation, have been successful).

2.3. COMPETENCIES

2.3.1 Introduction

Chapter One argued that there is an acute need to understand the construct *compassion* since it is an important competency comprising the performance construct of a medical practitioner. Secondly, a need was identified to develop a psychometrically sound instrument that measures the construct *compassion* in medical practitioners. The critical need to understand, monitor and manage *compassion* as an important medical practitioner competency is, however, seemingly not well recognised by managers in the health services sector or by medical practitioners. This is illustrated by the way in which performance management agreements are designed and developed in the public healthcare sector.

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[25] The fitting of such a measurement model assumes a data set containing n test takers and $_{t_i x p}$ observed variables where t_i refers to the number of items in each measure and p the number of methods.

[26] If differences in the intercept and/or slope and/or residual variance regression of the item response X_i on the latent dimension of the construct it reflects, exist this would imply uniform item bias, non-uniform item bias and/or error variance item bias.

To take a case in point, the performance agreements for a specialist as well as the head of a clinical unit in family medicine in the public health sector, highlights specific performance areas such as clinical service delivery, quality assurance and training. More specifically, since the focus of this study is on medical practitioners, the required key performance areas for a medical practitioner is: - clinical service delivery, clinical technical management, support of family physician (specifically for the facility and sub-district management team) as well as training. Admittedly none or limited specifications are given with regards to the competencies that need to be displayed for the roles allowing for only task-related measurement of medical practitioner performance (Department of Health, 2011). Consequently, a competency like compassion may not be valued as important by medical practitioners, since it is not included in the staff performance management system (SPMS) documentation. Medical practitioners will probably do what is required of them according to the set criteria as specified in the four key performance areas since performance increases and bonuses are dependent on the annual performance rating in the public sector.

In the subsequent section, the contentiousness of the competency movement as well as the semantic confusion that surrounds concepts related to competencies and competency modelling will be discussed. To further clarify the connotative meaning of competencies, the conceptual building blocks of competency models and competency frameworks will also be introduced.

2.3.2   Competencies

The study focusses on the conceptualising and measurement/operationalising of *compassion* interpreted as a competency. In an attempt to explicate the connotative meaning of the competency *compassion,* one first needs to clarify the connotative meaning of a competency. The manner in which the connotative meaning of the construct *compassion* will be explicated will be by developing a structural model that would illustrate the internal structure of the construct and by causally embedding the latent dimensions of the construct in a larger nomological network of antecedents and consequences. The manner in which competencies are conceptualised affect both these aspects, but is especially important with regards to the latter aspect. The conceptualisation of competencies is therefore a prerequisite to allow the development of a constitutive definition that will clarify the connotative meaning of the *compassion* construct as highlighted in the study objectives in Chapter One[27].

The concept of competencies has gained a lot of popularity in the literature the last couple of years, despite the fact that there is still disagreement about the definition (Shippmann et al., 2000). An area in human resource management well known for competency-based approaches, is the selection and assessment domain, where individual differences are identified, defined and measured against work-

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[27] It is acknowledged that the argument presented in Chapter One, by necessity already had hinted at the connotative meaning of *compassion* in the manner in which the construct had been used in the argument to justify the research objectives.

related constructs that are required for successful job performance. This approach has gained remarkable popularity (Lievens, Sanchez & De Corte, 2004) in the field of human resources management; but also has led to a number of practitioners using the approach with no psychology background nor any training in the scientific method of measurement (Kurz & Bartram, 2002).

Constructing a standard definition for the term competency, remains a challenge, since there seem to be conceptual confusion. Shippmann et al. (2000, p. 707) is of the opinion that "even among a fairly homogeneous expert population", there is still a lack of consensus because the term is utilised in multiple domains. Currently there seems to be three schools of thought dominating the field, namely, the perspective from the United States of America (USA) defining competencies as "attributes" related to job success (thus, personal attributes that determine behaviour) compared to the perspective from the United Kingdom (UK) defining competencies as "bundles of behaviour" that relate to job success (Theron, 2015). By extension, the second school of thought, as reflected in the UK, defines competencies as the behaviours related to job success[28]. More specifically, Kurz and Bartram (2002, p. 229) defines a *competency* as "a set of behaviour patterns that the incumbent needs to bring to a position in order to perform its tasks and functions with competence." In other words, in terms of the UK conceptualisation competencies are behaviours that employees display, for example someone demonstrating good communication skills. Competencies are not defined as something that an individual will possess, for instance saying that an individual has the ability to communicate. SHL (now called CEB), defines competencies as "sets of behaviours that are instrumental in the delivery of desired results or outcomes" (Bailey, Bartram & Kurz, 2001, p.5). Competencies are "behavioural actions which if done well, result in superior job performance" (Boyatzis, 1982, p. 23). Superior job performance, here refers to performance defined in terms of outcomes. The USA position in contrast define job success (or job performance) in terms of what the UK would term competencies.

The third school of thought as presented by the United States Office of Personnel Management defines a competency as "a measurable pattern of knowledge, skill, abilities, behaviours, and other characteristics that an individual needs to perform work roles or occupational functions successfully" (Rodriguez, Patel, Bright, Gregory & Gowing, 2002, p. 310). Actually, this school of thought straddles the previous two definitions and defines competencies in terms of both person characteristics and behaviour. The current study rejects this latter position as overly broad. This denies one the explanatory, descriptive and diagnostic benefit that the conceptual distinction between characteristics of the employee and behaviours of the employee holds.

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[28] Allthough both the USA and UK conceptualisations define competencies as something that is related to job success, they differ in terms of the manner in which they conceptualise job success. The USA conseptualisation of competencies interpret job success in terms of behaviours whereas the UK conceptualisation interpret job success in terms of outcomes.

For the purpose of the current study, the viewpoint from the UK will be adopted and more specifically the definition from Bartram (2006) will be assumed, namely that competencies are defined as the abstract theme that the collection of observable behaviours have in common that constitutes the behavioural construct and influence the performance outcomes. A competency is therefore a construct or latent variable. Rather than defining it as a person construct, the current study defines it as a behavioural performance construct. A note of caution should be highlighted, however, since an employee might have the ability to illustrate the required level of competence on the competency that will result in superior job performance (defined in terms of outcomes), but the question remains if the employee will want to illustrate the required level of competence on the job competency (Spangenberg, 1990). The employee's potential to display competence on the competencies that behaviourally constitute performance and that determine the latent outcomes that constitute performance is constituted by his/her standing on a vast nomological network of person characteristics that include abilities, needs, values, traits, dispositions and psychological states.

In some cases, there are constructs that might be conceptualised either as competencies, or as determinants of the level of competence achieved on competencies, for example constructs like energetic and persuasiveness. Both these constructs could be conceptualised as a person characteristic that the person possesses to a certain degree or as a competency on which the person displays at a specific level of competence. The researcher is of the opinion that in such cases preference should be given to competency conceptualisations. Treating constructs like these (as well as more clear-cut competencies like communication and planning) as person characteristics and to define them as the ability to be persuasive, energetic, to communicate or plan constitutes pseudo explanations. That which enables and motivates one to display competence at persuasion, communication and planning and to display energy, comprises a nomological network of person characteristics that need to be made explicit if insight is to be gained in why the level of competence on these competencies vary across individuals.

The measurement of competence at work refers to the assessment of performance in the workplace against set workplace standards. Competence and competencies do not refer to the same construct. It is important to have a clear distinction between these two concepts in order to eliminate ambiguity. *Competence* is "about mastery in relation to specified goals or outcomes" (Bartram & Kurz, 2002, p. 235) or as Beaumont (as cited in Bartram, 2006, p. 3) defined it: "the ability to apply knowledge, understanding and skills in performing towards the standards required in employment". Thus, competence refers to the extent to which a standard has been surpassed. The standard can be set on the outcomes and the competencies depending on the manner in which competencies is defined. When competencies are defined as behavioural performance constructs competence refers to the exceedance of specific standards set on the competencies.

When evaluating competence, the focus would be on achievement, thus implying a backward-looking perspective. Whereas competencies can be both backward-looking while simultaneously looking forward, for instance using a 360-degree feedback instrument on an employee, but also looking for employee competency potential. In summary, employees will demonstrate their competence in the workplace, by applying their competencies in a goal-directed fashion.

In conclusion, competencies are important behavioural determinants with regards to performance outcomes. Competencies are also complex in the sense that, when an employee should show high levels of competence and successful outcome attainment, it is because of the working of an extensive nomological network of competency potential as well as situational factors that determine the level of competence achieved on the competencies and ultimately on the performance outcomes. By illustrating how the compassion competency is captured in a competency model would assist in clarifying the connotative meaning of the construct but also the role of competency potential, performance outcomes and situational variables when observing *compassion* as a competency.

2.3.3   Competency potential

As illustrated in the definition of competencies embraced by the current study, behaviour is the key component of competencies. In order to be able to explain variance in the level of competence on the competencies or behaviour, the unique factors that cause the level of behavioural competence need to be understood as well as the outcomes that are affected by the level of competence displayed on specific competencies and how these feed back onto the determinants of the level of behavioural competence achieved. Industrial psychologists show an interest in the explanation and predictability of behaviour, consistent patterns of action and response affinities or tendencies and the explanation and predictability of outcomes that result from the behaviour. The level of performance achieved varies across employees. The variance in performance is not the outcome of a random event but rather the outcome of the deterministic working of a complex nomological network of latent variables characterising the person of the employee, and the environment in which the employee operates. The explanation and prediction of variance in the competency domain of performance lies in a valid understanding of the complex nomological network of latent variables characterising the person of the employee and the environment in which the employee operates. What is more, the work performance outcomes comprising a domain of the performance construct are met more effectively by some people than others. The answer lies in part in the level of competence achieved on the work-related competencies. The explanation and prediction of variance in the outcome domain of performance lies in a valid understanding of the manner in which the competencies causally map onto the latent outcome variables and how these map onto each other in a leading and lagging causal relationship. The explanation for difference in the extent to which employees achieve outcomes considered relevant to their jobs, however, also in part lies in

environmental main effects and the interaction between the competence achieved on competencies and environmental characteristics.

Competency potential can be described as the "individual attributes that are necessary for someone to produce the desired behaviours and outcomes" (Bartram & Kurz, 2002, p. 250). Latent variables like specific personality traits, specific values, specific abilities, knowledge on specific topics, specific skills and other characteristics that individuals possess, constitute competency potential. If an employee should demonstrate optimal standing on the competency potential latent variables underpinning specific competencies, the required behaviours for the specified competencies should be displayed, increasing the likelihood of the accomplishment of the required performance outcomes[29]. Competency potential can be separated into two broad categories, namely dispositions and attainments (Bartram, 2005).

2.3.3.1. Dispositions

Dispositions refer to the relatively more stable non-malleable person attributes, like for example specific aptitudes (e.g. mechanical aptitude) and specific ability (e.g. numerical ability). For the purpose of this study it can be argued that medical practitioners need fluid cognitive ability, complex thinking and psychomotor abilities. A second example of a disposition is a person's *personality*. As an illustration, Pretorius, Basson and Ogunbanjo (2010) did a study where 44 family medicine vocational trainees at the Medical University of Southern Africa completed a personality questionnaire in order to determine the personality traits that contribute to the well-being of a medical practitioner. Some of the most prominent primary factors that were shared among the participants were warm-heartedness, high levels of tendermindedness, suspiciousness, high strength of self-sentiment, superego strength and group dependency.

A third example of dispositions is motives and values. One needs to understand the motives that underlie certain behaviours, given the specific context. For medical practitioners it may be asked if there is a need for power, money or the achievement of ethical goals. Maslow (1971) argues that behaviour is aimed at satisfying unfulfilled needs. Values on the other hand are more deeply internalised and determine the valence of the competencies and the outcomes that behaviour is instrumental in achieving (i.e. the evaluation of outcomes as good or bad are based on values). Values may reflect dimensions such as honesty, altruism, security, that serve to evaluate behaviours like treating patients well, creating a stable work environment or embracing innovation and the outcomes that they result in.

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[29] The formulation acknowledges that an optimal standing on the latent competency potential variables do not guarantee performance because of the main and interaction effect of latent variables characterising the situation in which the employee operates. More specifically situational latent variables can moderate the effect of latent competency potential variables on the level of competence achieved and also moderate the effect of the level of competence displayed on latent competencies on the latent outcome variables.

The last and final example of dispositions are interests. A person's interests are a key determinant in choices of work and the extent to which the employee will get satisfaction from working in one function compared to another. Interest also seem to be a good predictor of overall performance in closely related jobs. Medical practitioners may experience the value and importance of interest when they need to make decisions regarding further specialisation as well as the area of specialisation.

It is a well-known practice for industrial psychologists to try and understand behaviour. Dispositional explanations of behaviour have a long history in social and personality psychology. Examining the extent to which people act in accordance with their traits and attitude is a popular field of study. In other words, industrial psychologists strive to understand how competency potential variables and the structural relations between them casually map onto competencies. Grasping these dynamics allows one to comprehend how human behaviour is determined, with the effect that behaviour in the workplace can be influenced or controlled, thus impacting the work outcomes.

2.3.3.2. Attainments

An accurate way of describing attainments would be to label it as "backward looking" learning accomplishments that now characterise the employee. Attainments are therefore malleable attributes of individuals developed through learning. Medical practitioners need specific and explicit knowledge which includes "declarative and procedural knowledge" in order to function effectively as a medical practitioner. In other words, the prescribed knowledge inherently required in order to fulfil the job. In addition, "tacit knowledge" is also required. Another way of explaining tacit knowledge could be the practical understanding of knowledge (Bartram, 2004, p. 8).

Experiences and qualifications are a second example of attainments. Medical practitioners in South Africa need to graduate with a MB ChB degree which is offered at a tertiary institution that is accredited by the Undergraduate Education and Training Committee of the HPCSA. At the start of studying medicine, students need to register with the HPCSA as a medical student. After graduation the medical student registers with the HPCSA as a Student Intern (MB ChB) and is then placed as in intern at an accredited hospital by the Department of Health. The intern needs to do an internship of two years which is a structured process that needs to be followed as prescribed by the HPCSA. After completion of the two-year period, the intern registers with the HPCSA as a Medical Practitioner (Community Service) and is now required to do an additional one-year community service year at a hospital as selected by the HPCSA. Only after completion of the prescribed career path, the medical practitioner can register as an Independent Medical Practitioner (Mash, Ogunbanjo, Naidoo & Hellenberg, 2015b). Figure 2.3 gives an illustration of the career path of a medical practitioner.
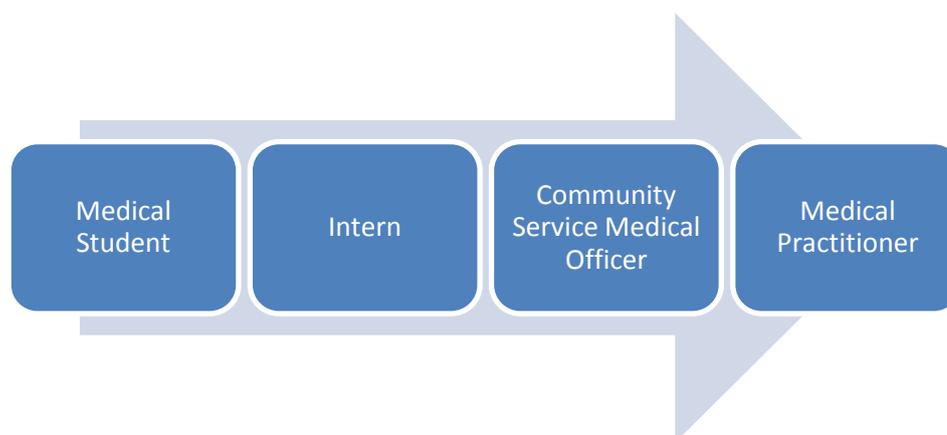
Figure 2.3.   Career path for a medical practitioner. Reprinted from "The contribution of family physicians to district health services: A national position paper for South Africa" by R Mash, G Ogunbanjo, S.S Naidoo and D. Hellenberg, 2015b, *South African Family Practice*, 57(3), p. 60. Copyright @ 2015 The Authors.

In order to obtain the necessary qualification, the students attend theoretical teaching blocks, and in some universities, they are also allowed to do clinical skills training already from their second year. Some of the medical schools in South Africa, however, still reflects the Flexnerian model, where entrants receive a solid training in biology, chemistry, physics, anatomy, physiology, pharmacology, pathology and microbiology. Flexner, the world's first medical educationist, argued in his 1910 report that medical practitioners should be regarded as scientists who should treat each patient-doctor encounter as a scientific enquiry. Medical students were overwhelmed with detail facts and data that were required of courses in basic science as it was expected of them to rely solely on memory (Seggie, 2010). Ever since the focus changed a little bit and pioneers of medical curriculum reform, such as Limburg in Maastricht (the Netherlands), Newcastle (Australia) and the University of McMaster have introduced problem-based learning (PBL) in the medical curriculum, teacher-centredness of learning is reduced whereas student-centeredness was increased. In short, problem-based learning allows medical students to be active students, who work collaboratively in trying to solve problems. Whereas more conventional teaching methods would focus on information gathering, assigned resources and examinations; problem-based learning focusses on problem-solving, information management and progressive learning (Maastricht, 2017). In South Africa, early clinical contact is supported to gain experience in community and rural based settings since that tends to be where the challenges are in the South African context. In summary, the attainments of a medical practitioner are technical and specific in nature; which is also regulated by the HPCSA. In other words, if one should qualify as a medical practitioner, it can probably be accepted that a universally recognised standard and requirement were met in terms of experience and qualifications.

In the field of medicine there might be different competency potential profiles necessary to ensure job performance and success depending on the setting where the medical practitioner is employed. In the

private sector, for example, more favourable working conditions, supported by a lower medical practitioner/patient ratio, patient-doctor relationships will require a different set of motives, personality traits, values and cognitive abilities (i.e. competency potential) compared to the public health sector. In the public health sector the challenging infrastructure, limited supplies, stressful working conditions and numerical imbalance of medical practitioners compared to patients, will require a specific competency potential profile in order to ensure successful job performance. Future research is recommended to determine if there are differences in the competency potential profiles of medical practitioners operating in different contexts and how this affects the delivery of performance outcomes through competencies. A multi-group structural invariance study (Theron & Spangenberg, 2016) would be ideal to examine this question.

2.3.3.3. Psychological states

The position by Bartram (2005), that competency potential can be adequately summarised in terms of dispositions and attainments, should be questioned. The current study would want to contend that by solely focusing on the inclusion of dispositions and attainments as job competency potential latent variables, an incomplete picture of the nature of the psychological mechanism, regulating the level of competence that employees achieve on the competencies and the latent outcomes variables is achieved. The current study would want to propose that *psychological states* should also be included in the competency potential domain. Psychological states are relatively transient psychological conditions that characterise the employee at a specific point in time. In the literature it is generally recognised that employee engagement (Bakker & Demerouti, 2007) psychological ownership, (Pierce & Jussila, 2011) psychological empowerment, (Spreitzer, 1995) organisational commitment, (Knippenberg & Sleebos, 2006) job satisfaction, (Wefald & Downey, 2009) and burnout (Maslach, 1976) are psychological states that play a significant role in determining job performance. This is, however, not generally acknowledged by the competency modelling school of thought. Moreover, the current study would want to argue that these psychological states arise and are maintained, at least in part, from the level of performance that employees achieve. Porter and Lawler's (1968) interpretation of the expectancy theory on motivation for example, argues that the psychological state of job satisfaction flows from job performance but at the same time also determines performance through its feedback effect on the expectancies and valences associated with performance and with performance outcomes. This line of reasoning could be interpreted to mean that psychological states should rather be interpreted as latent outcome variables. The current study would regard this as a false conclusion since the latent outcome variables form part of the job performance construct and thus should be restricted to the results that the employee is expected to deliver. The current study would rather want to suggest that the position that psychological states affect performance as transient latent competency potential variables but are also affected via feedback loops from the competency and outcome domains to the competency potential domain.

2.3.4   Performance outcomes/results

The way in which an organisation performs is dependent on the performance outcomes delivered by its employees. In the final analysis jobs exist to achieve specific outcomes. In order to define successful job performance requires more than identifying the competencies on which competence should be displayed. The performance outcomes that should be achieved on a job and the standard of performance that should be reached should also be clearly identified. Campbell, McCloy, Oppler and Sager (1993, pp. 40 – 41) define performance as: "what the organisation hires one to do, and do well". They thereby define performance in terms of the level of competence that is achieved on the competencies that constitute performance. Bernardin and Beatty (1984, p. 12) in contrast define performance in terms of either outcomes and behaviours although they place the emphasis on the former.

> Performance: those outcomes that are produced or behaviours that are exhibited in order to perform certain job activities over a specified period of time.

The current study follows the lead set by Myburgh and Theron (2014, p. 30) in defining performance in a manner that straddles the definitions of Campbell et al. (1993) and Bernardin and Beatty (1984) and therefore comprises both competencies and outcomes:

> Performance is the nomological network of structural relations existing between an interrelated set of latent behavioural performance dimensions [abstract representations of bundles of related observable behaviour] and an interrelated set of latent outcome variables valued by the organization and that contribute to organizational goals.

Koopmans et al. (2011) add to these definitions by stating that work performance as a construct cannot be directly measured since it is abstract in nature. Strictly speaking therefore, one should therefore refer to latent competencies and latent outcome variables. In the current study *performance* is operationally defined as the scalable behaviours and outcomes that are relevant to the organisation's goals (Viswesvaran & Ones, 2000).

Well-defined performance outcomes (along with the latent competencies) should be developed for each specific job by using a well-researched technique such as a job analysis. The job analysis technique is systematic in nature and will enable the company to gather information about the content, context and human requirements of the job (Wärnich, Carrell, Elbert & Hatfield, 2014). Another technique called competency modelling, however, can also be utilised. Competency modelling is a more complex and dynamic technique used to gather data on the context, behaviours and outcomes of a specific job in order to make inferences about the personal characteristics of the job. Regardless of the two distinct techniques, some researchers still perceive competency modelling as synonymous with job analysis (Shippmann et al., 2000). In some cases, a blended technique is even advocated where job analysis and competency modelling are recommended in addressing the individual capabilities required for job success which is linked to broad business strategy. In fact, Scott and Reynolds (2010) are of the opinion

that a blended technique would address organisational needs better, in the sense that it is more varied, sophisticated and interrelated. Despite the different viewpoints on either or both these two methods, Stevens (2012) is of the opinion that the job analysis and competency modelling methods may actually be more similar in practice than portrayed in theory. As McClelland (1973, p. 7) has stated: "If you want to test who will be a good policeman, go find out what a policeman does. Follow him around, make a list of his activities, and sample from that list in screening applicants." Thus, understanding the context in which the person works, the required job tasks and the person itself may influence and assist in identifying important behaviour underlying superior performance (Lubbe & Barnard, 2013).

The ideal work situation would be where performance outcomes of each job are aligned with the organisation's strategy and goals. In other words, the organisation values the difference employees make in the company by achieving their contracted job outcomes, since that mobilises the organisation to achieve its overall strategy effectively and efficiently. When an employee does not achieve the expected performance outcomes, it may be an indication that the employee did not satisfactorily display the required level of competence on the competencies causally underpinning the latent outcome variables required by the job. In some cases, the underperformance can be influenced by external situational variables, which are usually beyond the control of the employee, for example medical practitioners needing to treat patients with limited resources. In other cases, however the underperformance is cause by deficiencies in competency potential.

Under-performance, however places additional strain on current employees to over-deliver, as well as the risk that the organisation may lose some profit directly or indirectly. In addition, under-performance in the field of medicine may have devastating consequences for the health of the population. That is why it is so important to investigate what the performance outcomes of a medical practitioner's job should be. This will allow one to develop a partial competency model where competencies and job outcomes are linked and as such describe successful job performance for a medical practitioner.

In South Africa, the explicit formulation of performance outcomes for medical practitioners are neglected. What needs to be achieved is described in behavioural terms rather than measurable outcomes. To take a case in point, in the performance management agreement for medical practitioners drafted by the Department of Health (Department of Health, 2011, Annexure A, p. 4), performance outputs are specified under each key performance area. For example, clinical service delivery will be explained by means of the following deliverables: The holistic treatment of patients according to the HC 2020 strategic principles, the performance of relevant and appropriate surgical procedures, cost-effective quality care (especially lab and medical costs) and medico-legal work. In addition, key performance areas are weighted according to the level of importance for the medical practitioner's role, however, limited or no attention is given to the latent outcome variables that a medical practitioner needs to be held accountable for. To take a case in point, if a medical practitioner should engage

compassionately with the patient during the medical encounter, latent outcome variables will be influenced, for example patient satisfaction. To put it another way; it can be logically argued and empirically shown that competence at displaying *compassion* is systematically related to leading outcomes that a medical practitioner needs to achieve. This in effect would assist in attaining the lagging outcomes of patient well-being and satisfaction.

The research done by Fourie (2015, p. 37) is a step closer to remedying this shortcoming. Nine specific latent outcome variables that a medical practitioner should be held accountable for, was proposed. Specific structural relations were moreover hypothesised between the latent outcome variables for a medical practitioner. A structural model was developed (see Figure 2.4) that illustrates the structural linkages hypothesised between the latent outcome variables that were argued to hold relevance for a medical practitioner. The structural model depicted in Figure 2.4 has, however, as yet not been empirically tested.
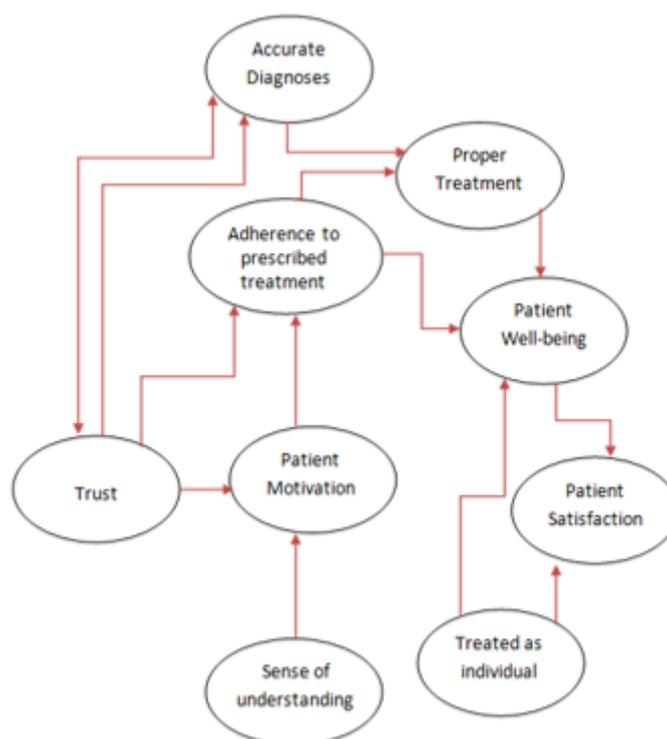
Figure 2.4: Medical practitioner outcome structural model. Reprinted from "The Development of a South African Medical Practitioners Competency Questionnaire" by M. Fourie, 2015, *Master Thesis – Stellenbosch University*, p. 33. Copyright (2015), Stellenbosch University.

Definitions for the medical practitioner latent outcome variables as proposed by Fourie (2015, p. 38) are listed in Table 2.1.

Table 2.1

Definitions for the Outcome Variables of a Medical Practitioner

No.	Outcome Variable	Definition
1.	Trust in the practitioner	The extent to which the patient feels they can rely on and have confidence in the medical practitioner, his or her abilities, diagnosis and intentions (Gruber & Frugone, 2011).
2.	Accurate diagnosis	The extent to which the medical practitioner accurately identifies a sickness or injury by evaluating the signs and symptoms, along with the patient's medical history.
3.	Proper treatment	The extent to which the medical practitioner prescribes the best and most effective remedy for the diagnosed sickness or injury by taking the person's medical history in to account.
4.	Adherence to prescribed treatment	The extent to which the patient accurately adheres to the prescribed medicine and prescribed treatment instructions.
5.	Patient motivation	The degree to which the patient believes the treatment will lead to success and are motivated to complete it.
6.	Sense of understanding	The degree to which the patient understands the medical problem, the ethiology of the problem and the manner in which the treatment will relieve the problem.
7.	Patient well-being	The extent to which the patient experiences a good physical, mental and social condition.
8.	Treated as individuals	The extent to which the patient feels that he or she is treated fairly and as a human being, and not merely as a number, by being listened to, taken serious, and be accepted by the medical practitioner who gives the patient the opportunity to have an active role in decision making regarding the treatment.
9.	Patient Satisfaction	The extent to which the patient feels gratified by the medical service he or she received.

To summarise; for an organisation to be effective, every department, division and section should know exactly what results and objectives to attain (and the competencies on which competence should be displayed to achieve these latent outcome variables as well as the latent competency potential) variables on which a specific standing is required to achieve the required level of competence on the competencies. In other words, ideally clarity should be obtained on the competency model as it applies to each and every job in the organisation. Furthermore, it should be stated clearly how the competencies and outcomes are aligned with the overall strategy, vision and mission of the organisation/sector. In order to evaluate performance of a medical practitioner holistically, one should take into account the key behavioural performance areas (e.g. competencies) in conjunction with the expected outcomes or latent outcomes for the specific position.

2.3.5   Situational Variables

The level of competence that is achieved on competencies not only depend on individuals standing on latent competency potential variables but also on latent variables characterising the environment in which these individuals operate. *Situational variables* affect human behaviour in the sense that it influences the individual's encoding process of the environment (i.e. it influences an individual's

perception of environmental characteristics), the person's expectancies, the subjective value that an individual place on the stimuli, as well as response patterns. The difficulty with situational variables is the fact that situations are not uniformly encoded, in addition uniform expectancies regarding desired behaviour is not achieved nor the development of a learning environment that is necessary for the successful construction of behaviour required to achieve performance success (Mischel, 1973). In addition, research has shown that there is an uncertainty among individuals concerning appropriate behaviour when situations are very structured compared to unstructured situations allowing an individual to respond in any way which would be regarded as appropriate. When a situation requires individuals to respond in only one way, it reinforces individuals to respond in the specific required way by using powerful treatments. When weaker or trivial treatments are utilised in reinforcing behaviour, noteworthy individual differences would be observed (Mischel & Staub, 1965).

The role that the complex social setting in which individual behaviour occurs plays in the psychological mechanism that regulates behaviour should not be underestimated, since person–environment interactions are never static. Barker (1963) is of the opinion that a specific social setting, thus situational variables, can prescribe or limit the expected behaviour of individuals in specific roles. To take a case in point, in church or at school, constricting limits are imposed on the range of possible behaviours compared to other situations where the range of possible behaviours is broader; and where individuals are allowed to select behaviours that they regard as appropriate. In studies done on psychiatric patients, Ellsworth, Forster, Childers, Gilberg and Kroeker (1968) found that accurate predictions of patient adjustment after hospitalisation depended on knowledge of the environment in which the patient would live. Specifically, the availability of family support structures and possible job opportunities were found to be valid predictors of patient adjustment. Ironically, in-hospital behaviour or measured person variables were not seen as important (Fairweather, 1967).

Indeed, individuals are continuously influencing situational variables surrounding them, while simultaneously being affected by these variables in a two-way interaction process. Individuals do not only react to specific conditions but can also select and modify conditions through his/her own cognitive capability and effort. Cognitive social learning, a well-known approach in psychology, recommends that an individual's behaviour is studied in a particular interaction with specific environmental conditions. In other words, describing a medical practitioner's behaviour with patients, taking into account the situational variables such as limited time due to doctor-patient ratios, inadequate infrastructure, shortage of staff etc. Thus, the nature and effect of a medical practitioner's behaviour would depend partially on the specific interaction between the practitioner and the (interpreted) situation (or psychological condition) that he/she is working in. Mischel (1973. p. 279) summarised it in the following way: "Person's behaviour changes the situation of his life as well as being changed by them".

The foregoing line of reasoning would suggest that in the development of an explanatory hypothesis on the nature of the psychological mechanism, that regulates the level of competence achieved on the competencies and the standard achieved on the latent outcome variables explicit provision should be made for the inclusion of situational variables that affect competencies, competency potential and outcomes. The effect of situational variables on the level of competence achieved on competencies, and the standard achieved on latent outcome variables need, should however, not be restricted to main effects but could also include interaction effects. Latent situational variables can therefore interact with latent competency potential variables to affect the level of competence achieved and can interact with competencies to affect the level of performance achieved on latent outcome variables. Moreover, the level of latent situational variables need not directly influence competencies and outcomes (either as main or in, interaction with other latent variables) but their effect may in numerous instances be affected by the perception or psychological interpretation of the objective characteristics of the situation. This interpretation in turn is most likely dependent on specific characteristics of the person that perceives/interprets.

When considering work performance, one needs to refer to the variables that characterise the *context* of the job and the organisation in which the job needs to be performed, for example objective characteristics like job enrichment, span of control, centralisation of authority, formalisation of communication but then also derived psychological interpretations like organisation *culture* and *climate*. The organisation's culture "provides a framework setting out appropriate and rewarded attitudes and behaviour, by focusing on values and beliefs" (French, Rayner, Rees & Rumbles, 2011, p. 229). Organisation climate on the other hand refers to "the prevailing atmosphere in an organisation, as perceived by its members". To put it another way, climate is the affective dimension of the organisation's culture. In public healthcare, the *culture* as determined by the leadership practices and structures of the Department of Health is more formal in nature, since the medical practitioners are addressed by title, uniforms need to be worn, strict policies and procedures must be adhered to and there is a definite hierarchy in terms of structure. The way in which it is operationalised in different settings (i.e. rural areas, urban areas, tertiary hospitals, regional hospitals, district hospitals, community health centrums and clinics) may influence the way employees experience the organisation culture. To take a case in point, medical practitioners working in a district hospital in a rural area may experience a more informal culture, since the team is relatively smaller. Similar stress and challenges are experience by the whole team on a continuous basis, therefor interaction also tends to be more informal. By contrast, a tertiary hospital's culture may be more formal in nature since the setting is bigger, more employees, more speciality areas, different roles as well as the fact that patients have probably been referred to the hospital, since all the specialists are situated at the tertiary hospital.

The organisation *climate* on the other hand might also be influenced by the specific setting. Tertiary hospitals are probably described as more distant and impersonal compared to community health

centrums where patients might be known by their names. The ideal situation would be where the culture and climate are aligned and supportive of the vision, mission and organisation strategy. In order to create the synergy, all the aspects of the work environment should be understood by all the employees of the organisation (Boyatzis, 1982).

In the South African healthcare sector, the situational variables play a pivotal role, especially in the public sector. Medical practitioners are subject to a prescribed system in which they need to operate. Frustrations like poor working conditions combined with scarcity of essential resources, inadequate infrastructure, and high patient numbers, to name a few, is the norm. Even primary care services that are offered to the public at clinics and community centres struggle to deliver a quality service (Mash, Malan, Von Pressentin & Blitz, 2015a). These dysfunctional work-related conditions have a negative influence on medical practitioners' performance, as it leads to physical and emotional exhaustion that eventually results in high levels of burnout and depression (Rossouw, 2011). In a study done by De Villiers and De Villiers (2004) a conceptual model called the, Skills Boat, was developed, where the experiences of medical practitioners working in rural district hospitals in the Western Cape were investigated. Some of the situational variables that were identified were remoteness, fragmentation of services, deficient medicine, malfunctioning PHC (Public Healthcare) system and shortage of equipment. In a more recent study by Mash, Govender, Isaacs, De Sa and Schlemmer (2013), staff members (n = 154) from five different community health centres in the Western Cape Area, South Africa, had to identify their personal values, the current organisational values and the desired organisational values. Typical responses for the current organisational values were confusion, blame, manipulation, power, hierarchy, long hours, not sharing information and cost reduction. The staff members, however, indicated that there was a need for transparency, teamwork, shared decision-making, fairness, leadership development, accountability, professionalism and staff recognition. In many cases the challenges are system related that cannot necessarily be changed by an individual, since organisational design interventions would be necessary. What is of interest, however, is one's reaction to these challenges since it would be influenced by the person characteristics (competency potential) that will affect the coping strategies used by medical practitioners.

To conclude, there is a complex interaction effect between situational variables and the other listed components of the proposed competency model, namely competency potential, competencies, performance outcomes and competence. Situational variables affect competence shown on a specific job, at the same time the interaction between situational variables and competency potential also affect competencies displayed, whereas situational variables exert a main effect on performance outcomes as well as in interaction with the level of competence on competencies.

2.3.6   Organisational/Sector Strategy

The *organisational*/sector *strategy* will determine the direction the organisation/sector wants to follow. This may also take the form of a mission or purpose statement, supported by specific objectives (Boyatzis, 1982). For example, the Western Cape Department of Health published their vision, namely "Access to person-centred quality care" as well as their mission statement, values and strategic goals assisting them in achieving the vision, in a document called the Annual Performance Plan 2017 – 2018 (Western Cape Government of Health, 2017, p. 9). From the strategic objectives, it is clear that a person-centred care approach is recommended during the medical encounter thus contributing towards effective health and wellness in the Western Cape. The Department of Health is thus dictating that a biomedical approach is not the ideal approach to follow during a medical practitioner-patient interaction. The organisational/sector strategy first and foremost is aimed at achieving specific outcomes that are formulated as objectives and secondly how to achieve these outcomes.

In order to achieve the organisation/sector objectives it is necessary for employees to show competence not only in their key performance areas, but also the competencies required for the specific role dictated by the strategy. It is important to note that organisation strategy is influenced by the organisation's strengths and weaknesses as well as other factors such as "organizational culture, life stage, market, customers, employee relations, presence of a union, and strengths and weaknesses of its management" (Campion et al., 2011, p. 231).

The abovementioned factors listed, link to the situational variables that define work circumstances under which employees need to show competence. The variables describing the work circumstances or alternatively situational variables, can also moderate the impact of competency potential on the competence level of employees. In other words, certain jobs within a very specific work environment may require a specific competency potential profile in order to ensure work performance.

2.3.7   Competency Frameworks

A competency framework provides a "rational, consistent and practical basis for understanding people's behaviour at work as well as the like hood of succeeding in certain roles and in certain environments." (Bartram, 2012, p. 2). When a competency framework is defined by desired observable workplace behaviour, a basis is set for understanding the competencies that constitute performance, but also a more refined understanding of the factors underlying overall job performance, namely competency potential (Bartram, 2005). In addition to Bartram's definitions, Assessment and Development Consultants (A&DC) is of the opinion that a competency framework allows an organisation to define the competencies and behaviour that is required from their employees (A&DC, 2017). The competencies can be specified at a specific level, function or department but should be aligned with the business

strategy of the organisation. HRSG, a consultancy firm specialising in competency-based talent management from Canada, also specifies that a competency framework can be labelled as a competency system which is implemented in an organisation (HRSG, 2017). The competency framework should incorporate the organisation goals, the competency architecture, the competencies as well as the competency models. A clear-cut definition for competency frameworks is, however, lacking, since terminology like competency frameworks and competency models tend to be used interchangeably. Theron (2011) is of the opinion that competency frameworks, more often than not, represent nothing more than a list of competencies. In some cases, however, structural relations between competencies would be indicated that constitute success.

The competency framework defines the nature of the components of the model and stipulate how the components relate to each other. It also stipulates how the components relate to other constructs that do not sit inside the framework, for example technical job performance outcomes such as feedback from employees regarding service delivery. The competency framework is evidence-based and not solely based on content analysis of specific jobs or alignment of competencies with organisation values. Typically, a subject matter expert or focus groups consisting of subject matter experts would be required to assist with the development of such a framework. In essence the competency framework enquires deeper into the meaning of the description itself (the competency description). To take a case in point, a set of behaviours like "adapting and coping" will be scrutinised through several layers of the competency components that make up the set of behaviours. An example of such a competency framework is the Universal Competency Framework of SHL (SHL, 2007).

In the past, competency dictionaries were popular in organisations. These dictionaries would consist of 60 or more competencies from which employees could choose a sub-set of what was considered the most important for a specific job profile. In addition, Spencer and Spencer (1993) defined competency dictionaries as the presentation of "competencies in generic form, in scales designed to cover behaviour in a wide range of jobs, and to be adapted for many applications". By defining competency dictionaries in such a way, a more generic approach is taken which implies that all competencies would not be relevant to all jobs. This may be problematic when doing recruitment, selection and performance appraisals since differentiating levels of critical competencies are necessary for these operations. Secondly, the competency dictionary may not address unusual or unique combinations of competencies required for certain jobs. To take a case in point, an organisation development consultant needs to interact frequently with line managers, which is often a conflicting situation. The competencies required for such a role would be a combination of high self-control combined with modest levels of conceptual thinking and high levels of influencing skills in order to address the conflict. Ultimately competency dictionaries are described as generic competencies that are required by a wide range of employees functioning in different public or private sector organisations. Within time, employees started referring to competency frameworks, where the focus was more on a specific competency framework customised

for a certain organisation where the framework is aligned to the organisation strategy and goals. In many instances, however, competency frameworks were mistakenly referred to as a collection of competencies (Spencer & Spencer, 1993).

2.3.8   Competency Models

Competency frameworks, as discussed previously, presents as a mere collection of competencies, which could include hierarchical structures describing how broad competencies are defined and broken down. The value of such a framework can be questioned, however, since the complex interaction between person characteristics, situational characteristics, behaviour and consequences of behaviour also needs to be understood for each and every job in an organisation (Theron, 2011). In human resources management, key operational functions include recruitment, selection, career counselling and performance management. In order to fulfil these functions effectively, accurate descriptions of performance outcomes, demonstrated work-related behaviour, required skills, abilities and the context in which the employee needs to achieve performance is required. In other words, a competency model is needed for every critical job in an organisation to allow the operationalisation of human resources functions.

One of the first competency models was, the Competence at Work model by Peter Saville and Roger Holdsworth Limited (known as SHL), illustrating the central role of work competency in linking person and environment characteristics to effectiveness (Kurz & Bartram, 2002).
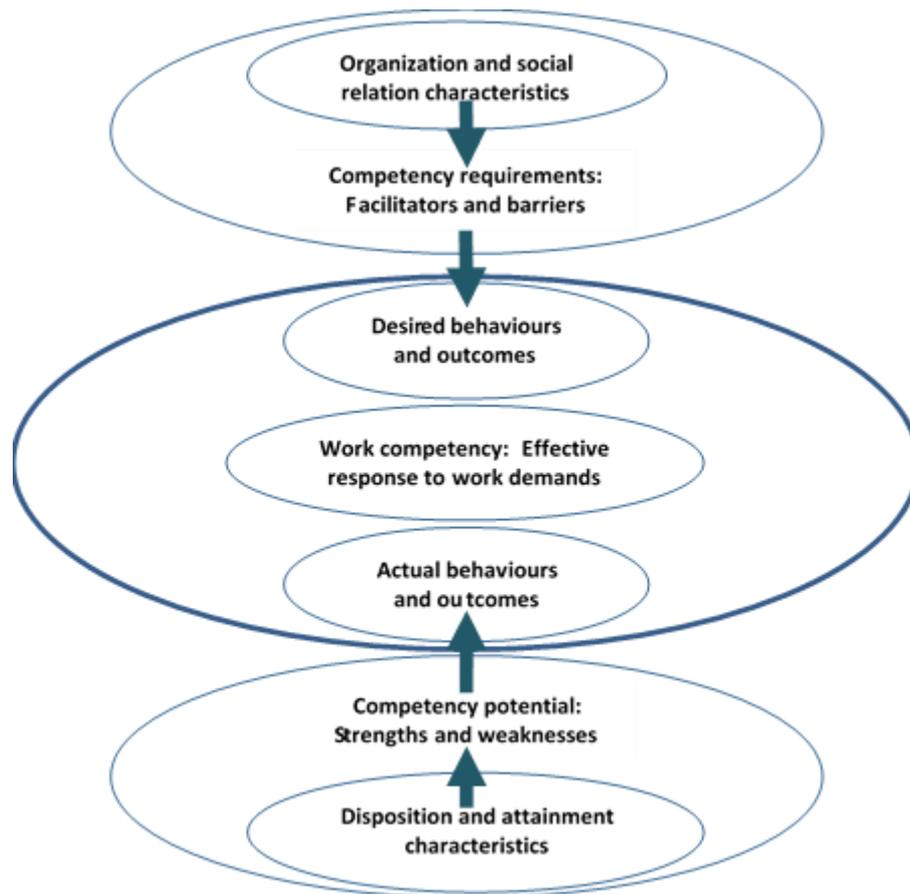
Figure 2.5. The SHL competence @ work model. Reprinted from "Competency and individual performance: Modelling the world of work" by R. Kurz and D. Bartram, 2002, *Organisational Effectiveness: The Role of Psychology*, p.250. Copyright (2004) @, the SHL Group plc.

The main focus of the competency at work model is the fact that organisations are also interested in competency potential variables. The model, shown in Figure 2.5, makes a distinction between the characteristics of the organisation and its expectations regarding performance dictated by vision and strategy (i.e. an ideal set of competencies, outcomes) and the characteristics of the employee and the level of performance that these characteristics permit and competency potential. The situational characteristics can either make the execution of the strategy easier or more difficult versus what the employee in reality actually delivers based on competency potential and situational characteristics.

The SHL approach to competency modelling differentiates between four domains of latent variables that are required to describe and explain the work performance of employees. Causal linkages are moreover implied between these domains. The SHL approach specifically differentiates between a domain of latent outcome variables causally influenced by a domain of latent competencies that are causally affected by a domain of latent competency potential variables and a domain of latent situational characteristics (Bartram, 2005). This is illustrated in Figure 2.6. In terms of the SHL interpretation of a competency model the manner in which the individual components causally link within each domain

and across domains are, however, not explicitly described. Rather the components within each domain are only listed.
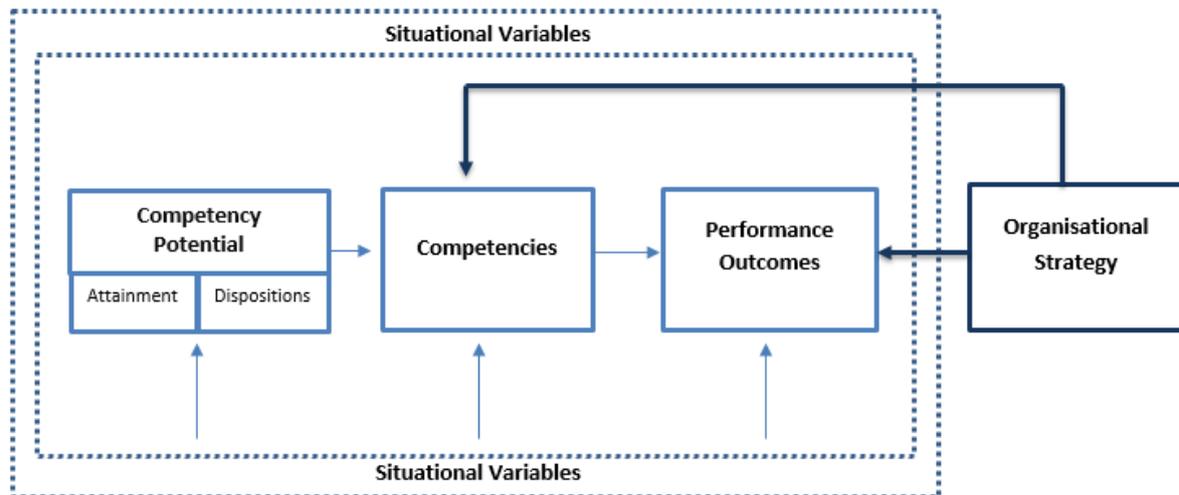
Figure 2.6. Schematic presentation of SHL's adapted competency @ work model. Reprinted from "SHL Competency@Work Model" by Saville and Holdsworth, 2000, *SHL Newsline*, p.7. Copyright (2000) @ SHL Group plc.

Theron (2011) suggests that by combining SHL's interpretation of a competency model with structural equation modelling this shortcoming can be circumvented. A *competency model* can be defined as a four domain structural model that depicts the manner in which a structurally interrelated set of latent outcomes are causally affected by a structurally interrelated set of latent competencies, and how these in turn are causally affected by a structurally interrelated set of latent competency potential variables and a structurally interrelated set of latent situational characteristics (Theron, 2011). Theron (2011) argues that under this interpretation it becomes possible to formally acknowledge that employee work performance is complexly determined. Employee performance is complexly determined in the sense that (Cilliers, 1998):

- Many latent variables are simultaneously at work to determine employee work performance;

- These latent variables are richly causally interconnected;

- Latent interaction effects moderate the effect of latent competency potential variable on latent competencies and the effect of latent competencies on latent outcome variables[30]; and

- Feedback loops from latent outcome variables to latent competency potential variables and latent situational variables occur.

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[30] Latent interaction effects introduce non-linear effects to the model. These non-linear effects are, however, till linear in the equation. It is acknowledged that a core characteristic of complex systems is that the components are non-linearly related to each other in a manner that cannot be reduced to a linear equation with product and powered terms (Cilliers, 1998).

The consequence of these characteristics is that understanding of variance in employee performance lies in the whole of the nomological network of structurally interrelated latent situational variables, latent competency potential variables, latent competencies and latent outcome variables. To dissect the whole is to lose some of the meaning (Cilliers, 1998). For the purpose of the current study the definition of Theron (2011) is utilised.

Competency modelling refers to the development and empirical testing of a competency model. What this entails are clearly dependent on one's definition of a competency model. *Competency modelling* is a reasonably new technique in the field of industrial and organisational psychology, whereas the building blocks of a competency model such as the concepts of a competency and competence etc. are not new at all. David McClelland (1973, p. 13) did some research on intelligence and aptitude testing in schools and published an article with the title of "Testing for Competence rather than for Intelligence". In this article the impact of testing in schools was explicitly stated by saying that it "is doing the worst damage in that area by falsely leading people to believe that doing well in school means that people are more competent and therefore more likely to do well in life because of some real ability factor." In other words, McClelland suggested that high job performance was not only predicted by academic aptitude and knowledge, but also through other personal characteristics along with situational variables that affect the level of competence achieved on specific competencies. Success is not defined in terms of who you are (i.e. in terms of your characteristics) but in terms of what you do and achieve through what you do. What you do and achieve is determined by who you are in interaction with characteristics of the situation you find yourself in but the two should not be equated to each other. McClelland's (1973) argument is echoed in the distinction made by Binning and Barrett (1989) between a construct- and a content-orientated approach to selection.

Besides the contribution of McClelland by highlighting some of the original roots for competency modelling, Theron (2011) proposed that *competency modelling* can be described as a process of developing and empirically testing a competency model defined as a four-domain structural model. This interpretation of a competency model and competency modelling is currently restricted to Stellenbosch University. As far as the researcher is aware no comprehensive four-domain competency model in this sense has been proposed and empirically tested thus far. Hattingh (2017) has proposed a three-domain medical practitioner competency model based on the partial competency model proposed by Fourie (2015). Neither of these models have been empirically tested though. De Goede (2007), Burger (2012), van Heerden (2013), Prinsloo (2013) and Mahembe (2013) all worked on the development, elaboration and empirical testing of a 3-domain affirmative development learner competency model. The definition of competency modelling is, however, sometimes misinterpreted. Schmieder and Frame (2007, p. 85) define competency modelling as a "method of collecting and organizing job information and worker attributes into broad competencies, that are necessary for effective performance". This definition reflects the first school of thought as previously discussed under competencies namely that the USA

defines competencies as attributes. In other words, a competency model would consist of employee attributes. Bartram (2005) on the other hand, defined a more comprehensive definition of competency modelling by stating that critical person characteristics, as well as behaviours are important to achieve job success. The model will allow one to evaluate people in the workplace, ultimately linking it to organisational performance.

The SHL performance at work model could be used in conjunction with Theron's (2011) interpretation of a competency modelling, as a template from which a medical practitioner competency model can be developed. The SHL four-domain structural model shows how workplace performance comprising a structurally interrelated set of competencies (which includes *compassion*) and latent outcome variables, is complexly determined by a structurally interrelated set of latent competency potential variables as well as a structurally interrelated set of latent situational variables. A comprehensive medical practitioner competency model in the foregoing sense that fitted empirical data and where the hypothesised structural model path coefficients were found to be statistically significant presents an extremely powerful human resource management tool to:

- Guide the recruitment of new medical practitioners for the public healthcare sector;
- Guide the selection of new medical practitioners for the public healthcare sector via content and/or construct orientated approaches to selection;
- Guide performance management interventions; and
- Coordinate and integrate the various human resource management interventions into a coherent whole where one intervention reinforces the effect of the others.

Therefore, a competency model, represented as a structural model for medical practitioners is needed in which the organisation strategy interrelates with the performance outcomes of each job in the organisation as well as the competencies required for each role, in this case the medical practitioner's role. In other words, performance outcomes are structurally inter-related with medical practitioner competencies (i.e. behaviours), which are structurally inter-related with competency potential (i.e. person characteristics) and lastly all three domains are structurally interrelated with situational variables (i.e. lack of resources, doctor-patient ratio etc.). Figure 2.6 is an example of an adapted schematic presentation of the performance at work model of SHL for medical practitioners[31].

Ideally, a four-domain structural model as proposed by Theron (2011) would be beneficial in getting a clearer understanding of the different variables, taking into account the complexities underlying medical practitioner performance. In healthcare a three-domain model was developed for the classification of learning outcomes for a medical curriculum. The model was described by Harden, Crosby, Davis and

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[31] Each of the four domains in the model (situational variables, competency potential, competencies and outcomes) should be interpreted as a sub-structural model of structurally interrelated latent variables (situational variables, competency potential, competencies and outcomes).

Friedman (1999) as a three-circle prototype as illustrated in Figure 2.7, which can be based on three dimensions of the work of a doctor.
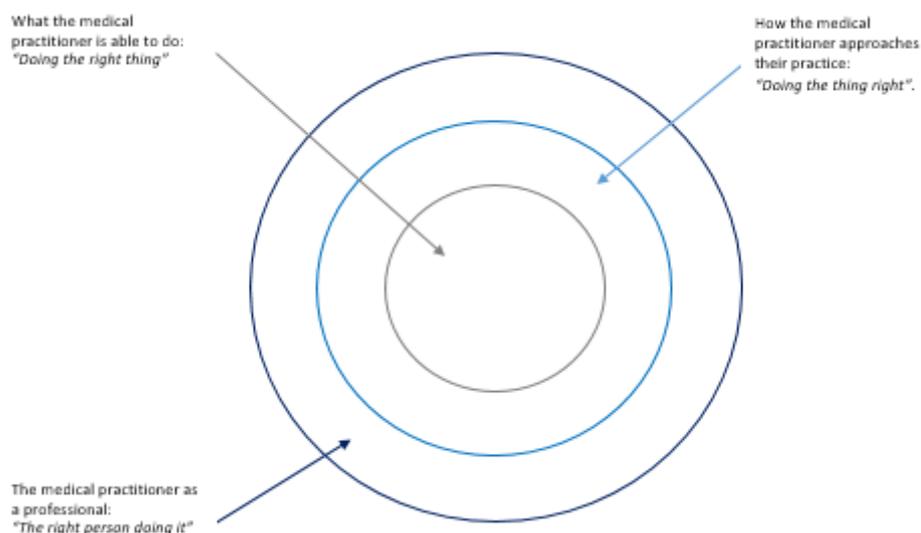
Figure 2.7 The three-circle model for outcome-based education. Reprinted from "AMEE Guide No14. Outcome based education: Part 5 – From competency to meta-competency: a model for the specification of learning outcomes" by R. M. Harden, J. R. Crosby, M. H. Davis and M. Friedman 1999, *Medical Teacher*, 21(6), p. 547. Copyright (1999), Carfax Publishing.

The inner circle characterises what the doctor is able to do, in other words the key performance areas of a doctor, i.e. physical examination. The middle circle represents the way in which the doctor approaches the inner circle, for example showing respect for co-workers. Lastly, the outer circle characterises the development of the personal attributes of the individual (i.e. attainments), such as "motivation, self-control and career choice" (Harden, 1999, p. 548). This model does show similarities with the adopted competency at work model of SHL for medical practitioners in the sense that seven core competencies are identified for doctors, labelled as "doing the right things". Secondly, three variables are identified in terms of how the doctor approach their practice, in other words additional competencies that the medical practitioner needs to display and lastly two variables linked to the doctor as a professional; that is competency potential.

The challenge remains that the model was originally developed for medical *learning* outcomes, as well as the way in which the outcomes were detailed. Limited or no behaviour indicators are listed, for example: Communication is listed as a key performance area, namely "what the doctor is able to do" and is defined as: "the doctor is proficient in a range of communication skills, including written and oral, both face-to-face and by telephone. He or she communicates effectively with patients, relatives of patients, the public and colleagues" (Harden, 1999, p. 550). The competency of compassion is not

mentioned in the learning outcomes and communication is described as an overarching term required for medical practitioners.

2.3.9 Application of Competency Frameworks and Models in Healthcare

2.3.9.1. Medical Practitioner Competency Frameworks

Defining competency frameworks in the field of medicine is still evolving, as can be illustrated by the following definitions: "when competencies are grouped together for a particular profession, they may be referred to as professional accreditation standards or, in some cases, as competency frameworks" (Thistlethwaite, 2014, p. 870). Another definition by the National Interprofessional Competency Framework of Canada (CIHC Competencies Working Group, 2010, p. 8) defines a competency framework as: "a framework that relies on the ability to integrate knowledge, skills, attitudes, and values in arriving at judgements". This definition aligns with the CanMEDS perspective in the sense that both recognises personal traits and abilities; both these two frameworks, however, do not connect the competencies to optimal patient outcomes.

As a result, it can be argued that the USA/Canada convention interpret competencies as attributes. In other words, the first school of thought regarding competencies, whereas the current study utilises the second school of thought as incorporated by the United Kingdom where competencies are described as "bundles of behaviour" that relate to job success. The CanMEDS competency framework definition is: "a guide to the essential abilities a physician needs for optimal patient outcomes" (Frank, 2005, p. 1).

Several studies have been conducted internationally to classify competency frameworks for multiple disciplines, such as pharmacy practice, nurses, dentists and occupational therapists (Association of Canadian Faculties of Dentistry, 2017; Association of Canadian Occupational Therapy Regulatory Organizations, 2017; Canadian Nurses Association, 2010). The competency framework creates a blueprint for optimal performance in a given area of practice (Thistlethwaite, 2014). These frameworks can be classified into two categories, namely uniprofessional (i.e., profession-specific) competency frameworks and interprofessional competency frameworks (i.e., among professions). Globally, uniprofessional competency frameworks will include qualification standards as well as the interprofessional competencies. For the practice of medicine, there are a few uniprofessional competency frameworks available from the United States, Canada, the United Kingdom and Australia. The majority of these frameworks focus on the learning outcomes of medical schools, however, whereas others merely focus on the training curriculum of resident physicians. Some examples include "Tomorrow's Doctors" which was published by the UK General Medical Council (GMC) in 1993, The Scottish Doctor published in March 2000 and the CanMEDS, a product from the Royal College of Physicians and Surgeons of Canada which was published in 1996 (Scottish Deans' Medical Curriculum

Group, 2007). In addition, Brown University in North America, described learning outcomes of the medical curriculum as a list of nine abilities (Smith & Dollase, 1999) whereas the Accreditation Council for Graduate Medical Education (ACGME) in the USA identified six domains of general competencies for postgraduate students (resident physicians).

In essence, the Scottish Doctor competency framework is a learning outcome framework for medical schools. The focus of this framework is to build a foundation necessary to become a competent and reflective practitioner, by highlighting the outcomes and essential elements like what the doctor is able to do, how the doctor approaches his/her practice and the doctor as a professional. Along the same lines, Tomorrow's Doctor is an academic framework used for medical education, with themes relating to the doctor as a scientist, a scholar, a practitioner and professional. Within each theme, the development of the inherent skills, behaviour and knowledge is explained that will be required from students when they graduate (Scottish Deans' Medical Curriculum Group, 2007). The CanMEDS competency framework is slightly different in the sense that it targets the resident physician and focusses on key roles of a medical specialist. These roles are further explained by uncovering key competencies and enabling competencies as well as milestones for each role. Cognisance should be taken, however, that competencies in this context is written from a state and trait perspective, thus the first school of thought as discussed previously. Besides the international frameworks, a framework for the primary care doctor and the family physician has been developed in South Africa – known as the Stellenbosch Doctor. This framework focusses on the necessary knowledge, skills and attitudes necessary for a primary care doctor or family physician to function autonomously in the primary healthcare sector (Van Velden, 2012). It should be noted though that the listed knowledge, skills and attitudes are also written from a strait and trait perspective and not a competency-based perspective.

In addition, there are only a few interprofessional competency frameworks available which the Institute of Medicine defines as: "a set of core competencies that all health clinicians should possess, regardless of their discipline" (Greiner, 2003, p. 27). By extension the WHO supports this statement by declaring that: "It is no longer enough for health workers to be professional. In the current global climate, health workers also need to be interprofessional" (Health Professions Networks Nursing and Midwifery, Human Resources for Health., 2010, p. 36). Correspondingly the WHO also published a Framework for Action on Interprofessional Education and Collaborative Practice, confirming its support for interprofessional education. The concepts of interprofessional education and collaborative practice can be easily misunderstood and should be clarified. Some health workers tend to have a preconceived idea that good communication and agreement defines collaboration, whereas the WHO explicitly states it as the "occurrence of two or more individuals from different backgrounds with complementary skills interacting to create shared understanding that none had previously possessed or could have come to on their own." (Health Professions Networks Nursing and Midwifery, Human Resources for Health., 2010, p. 36). In essence it is about originality, creation and synergy. Besides the WHO's perspective, the

Lancet Commission also reinforced the idea that health professionals must be able to provide team-based care to patients (Frenk et al., 2010).

In other words, the interprofessional competency frameworks aim to develop a common lens through which the different disciplines can understand, define and apply team-based practises. The most well-known interprofessional frameworks are: the Interprofessional Capability Framework from the United Kingdom, published in 2004, the National Interprofessional Competency Framework published in Canada, 2010; the Core Competencies for Interprofessional Collaborative Practice from the United States of America, dated 2011 and lastly, the Interprofessional Capability Framework from the University of Curtin, published in Australia, 2011 (Thistlethwaite, 2014). The majority of these competency frameworks identify either three or four domains like team functioning, role clarification, client-centred service etc. Each domain is then further explained by means of a competency statement, with some descriptors explaining the competency. In addition the Interprofessional capability framework (Combined universities interprofessional learning unit) and the Interprofessional capability framework (Curtin University, Australia) also have level descriptors, enabling the evaluator/educator to firstly train the health workers on these standards and secondly to rate the behaviour of the health worker on different levels, i.e. level 1 = novice, level 2 = intermediate and level 3 = practice level (Brewer, 2011; CIHC Competencies Working Group, 2010; Interprofessional Education Team, Faculty of Health and Wellbeing, Sheffield Halam University, 2010).

The uniprofessional framework will typically include the interprofessional framework, whereas the interprofessional framework focusses predominantly on collaborative teamwork. Interestingly, none of the uniprofessional competency frameworks except for the CanMEDS, highlights the importance of compassion for a medical practitioner. In the CanMEDS it is stated in the "professional role" that medical practitioners need to be compassionate and caring with regards to their commitments to patients. In addition, the "communicator role" also illustrates that medical practitioners should communicate with patients with the necessary compassion, empathy and respect.

It seems as if a competency framework, specifically for medical practitioners in practice may be vital for the field of medicine in order to understand the profile and performance construct of a medical practitioner. Insight into the medical practitioner's profile may also assist and benefit medical education, highlighting the important behavioural constructs that a medical curriculum could potentially focus on.

It may be questioned as to why the competency frameworks for healthcare are presented. Since the connotative meaning of the construct *compassion*, not only lies in the internal structure of the construct but also the manner in which it is embedded in a larger nomological network of constructs, cognisance should be taken of other relevant constructs that may influence compassion as a medical practitioner competency and how the level of competence that is achieved on this competency, affects other latent

competencies and especially latent outcome variables. Correspondingly competency models in healthcare should also be dissected in order to understand how compassion is influenced by other relevant latent competencies and latent competency potential latent variables and how it directly and indirectly affects "downstream" latent competencies and especially latent outcome variables.

2.3.9.2. Medical Practitioner Competency Models

If it is assumed that the level of performance that a medical practitioner achieves on outcomes and competencies, it is *not* the outcome of a random event but rather determined by a complex nomological network of person characteristics and situational characteristics then the key to rational and purposeful attempts to enhance performance is a valid understanding of the identity of these determining latent variables. Not only a valid understanding of the identity of the latent variables is required[32], but also the manner in which the variables are structurally related to each other and to the competencies and outcomes that constitute medical practitioner performance. The objective of the current research is not to explicate the medical practitioner competency model as a whole, but rather to conceptualise the connotative meaning of one specific competency. Since the connotative meaning lies not only in the internal structure of the *compassion* competency but also in the manner in which the *compassion* competency is embedded in a larger nomological network of outcomes, competency potential and situational characteristics, at least some of the latent outcome variables should also be accounted for. Therefore, the current research will zoom in and explicate a small part of the larger medical practitioner competency model.

2.4 COMPASSION

2.4.1 Introduction

A medical practitioner sitting next to his patient's side devoted and committed to his patient - this image inspired the painting done by Sir Luke Fildes in 1887, called "The Doctor" and shown in Figure 2.8.

The illustration represented in Figure 2.8, gives the reader an idea of the challenges faced by medical practitioners during the 1800s as well as the important role that medical practitioners played and still plays in the healthcare sector. During the 18th century medical practitioners based a large part of their diagnoses on the patient's story; the physical examination was restricted to pulse taking and little examination of the excreta (Barrett, 2010, Treuherz, 1987)

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[32] This is typically what a competency model based on the SHL interpretation of a competency model would provide.

Figure 2.8. Painting by Sir Luke Fildes – The Doctor 1887. Reprinted from "What Sir Luke Fildes' 1887 painting, *The Doctor,* can teach us about the practice of medicine today", by J. Moore, 2008, *British Journal of General Practice*, p. 210. Copyright (2008), British Journal of General Practice.

The painting by Sir Luke Fildes is commonly used to portray the behaviour of a good doctor (Moore, 2008). A medical practitioner lecturing to his students wrote:

> What do we not owe to Mr. Fildes for showing to the world the typical doctor, as we would all like to be shown – an honest man and a gentleman, doing his best to relieve suffering? A library of books in our honour would not do what this picture has done and will do for the medical profession in making the hearts of our fellow man warm to us with confidence and affection. (Treuherz, 1987, p. 1647).

The essence of the painting lies in the message it conveys on the quality of the relationship between patient and medical practitioner. The painting has also been labelled as "compassionate men of science" (Barrett, 2010, p.105). Medical practitioners need to achieve certain healthcare outcomes and in order to achieve these outcomes, competence on certain competencies need to be displayed. *Compassion* is one such competency - a very important competency as illustrated by the painting. The doctor is steadfast in trying to ensure his patient's recovery, trying to relieve the suffering, knowing what his patient is probably going through. An inspiration of professional devotion…

In modern medicine the development of a compassionate relationship between medical practitioner and patient is compromised due to the influence of financial, logistical and practical considerations. If the basis of medical care is grounded in compassionate care, which is what it should be according to Halifax (2008), then the relationship should not be negatively affected. Even though there has been some movement away from a biomedical approach towards a biopsychosocial approach during medical encounters, there still seems to be a need for medical practitioners to display compassion when dealing with patients. The question might arise as to how this could be done? Gawande (2014) is of the opinion that staff should not only be nurtured in displaying compassion, but the hospital environment should also represent a caring, compassionate environment. The benefits in terms of improved healthcare and

quality of life will outweigh the costs involved for the healthcare system and probably in the end also the patient if more compassionate acts could be observed supported by a considerate environment.

The medical practitioner is in the ideal position to manage the terrifying and dehumanizing experiences patients are subjected to at times in modern medical settings and systems. The healthcare system seems to focus on a disease cure system where the medical practitioner may believe that their function is to cure rather than care. The human body is compared to a machine with replaceable parts and it seems as if it has been forgotten that "abdominal pain can come from life as well as from the gallbladder" (Rakel, 2000, p. 441). Rapid technological advances and research mobilises medical practitioners to do so much for their patients clinically. Ironically, medicine is no longer characterised by a medical practitioner sitting next to a patient showing compassion, it is more about communicating results from a computer monitor or reading results from laboratory findings. The challenge is to utilise technology in rendering a better service to the patient, by applying it to the care of the patient. Thus, the problem is not necessarily uncaring medical practitioners, but an overreliance on technological knowledge at the expense of compassion. A distancing effect[33] between medical practitioner and patient is thus created, where the medical practitioner may find it difficult to identify with the subtle ranges of emotions patients may experience. Without the recognition of patient emotions, the medical practitioner's display of *compassion* is inhibited. Puchalski (2008, p. 2) sums it up: "with the best technology has to offer, my patients may be cured, but in the absence of compassion, there will be no healing".

One of the most well-known historical leaders in medicine namely Hippocrates, was of the opinion during the 4th century B.C. that "the patient, though conscious that his condition is perilous, may recover his health simply through his contentment with the goodness of the physician."(as cited in DiMatteo, 1979, p. 14). Research has shown that there are interpersonal dynamics involved when a medical practitioner engages with a patient during a clinical encounter. The moment of connectedness between the two role-players, according to Matthews, Suchman & Branch (1993, p. 973) is:

> …often marked by physiological reactions such as gooseflesh or a chill; by an immediacy of awareness of the patient's situation (as if experiencing it from inside the patient's world), by a sense of being part of a larger whole; and by a lingering feeling of joy, peacefulness, or awe. Such moments seem to be therapeutic for the patient and the clinician alike.

The connection between the two, will probably allow for a totality in understanding the patient and illness that is greater than the sum of its parts. Most research, however, seems to focus on the effect and dynamics from the patient's side when receiving compassion compared to the situation of the medical practitioner displaying compassion.

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[33] The distancing effect (from the German Verfremdungseffekt) is a theatrical and cinematic device "which prevents the audience from losing itself passively and completely in the character created by the actor, and which consequently leads the audience to be a consciously critical observer." (www.worldreference.com)

There are many debates about the claim that medical practitioners literally do not have time to engage in compassionate relationships with patients. While the argument that medical practitioners face a huge work load is undoubtedly true, it should on the other hand be noted that, interestingly, research has shown that "40 seconds of compassion" could reduce the anxiety that patients may experience in clinical settings, (Fogarty, Curbow, Wingard, McDonnell & Summerfield, 1999). In essence, the concern is that the argument of limited time in medical settings which is characterised and driven by time, controls and efficiency may incorrectly be used as an excuse not to act compassionately. The researcher is of the opinion that less focus should be given to time as a barrier and maybe one should ask whether medical practitioners comprehend and understand the construct called *compassion*? Are medical practitioners aware of the glimpses of behaviour that tells and shows compassion and can the link be made between compassionate behaviour and the resultant positive medical outcomes?

2.4.2   What is Compassion?

2.4.2.1 Different perspectives and definitions for compassion

Compassion is derived from the word *patior,* literally meaning "to suffer with". It originates from the Latin root *com + pati*, com meaning *with, together* and *pati* meaning to *bear*, *suffer*. In other words, "co-suffering" (Onions, Friedrichsen & Burchfield, 1966). When translated to Afrikaans *compassion* becomes (amongst others) *medelye* consisting of *mede* meaning *with, together* and *lye* derived from the word *lyding* meaning *suffering*. Indeed this was the message that Sir William Osler (1939, p. 126), a well-known historical medical leader and educator, wanted to communicate by stating that a medical practitioner should have a "clear head and kind heart, his work is arduous and complex, requiring the exercise of the very highest faculties of the mind, while constantly appealing to the emotions and finer feelings". By extension Osler's perspective may imply that medical practitioners should act competently in the clinical setting while at the same time also acting in a compassionate way, sharing the patient's grief and trying to understand what the sickness means to the patient.

Besides the description given by Sir William Osler, a number of definitions are presented for the construct *compassion,* however, very few originate from the healthcare sector. Some researchers prefer not to use definitions and rather use word association such as love, tenderness, caring and empathy to describe the feeling or act of compassion[34]. What is important though, is to note that *compassion* is not a synonym for empathy nor sympathy. Those researchers who do propose formal definitions for the construct, tend to interpret it from different perspectives. In the subsequent section the different perspectives from which *compassion* is defined will be discussed.

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[34] In conceptualising the construct compassion authors also differ in their opinion whether it should be defined as a latent competency potential variable that characterises a person or as a competency that characterises the behaviour of a person.

One such a perspective is a *state theory* where compassion is described as an emotion a person might experience as a caring emotional response to the suffering of another (Post, 2002). These emotions are generally short-lived and context–specific responses (Ekman, 1992). Other schools of thought describe compassion as a *trait*. Emotional traits are characteristics by general style of emotional responses that prevail despite the context or time. An example of such a trait is kindness. Gilbert (2010b) believes that the core of *compassion* lies in a basic kindness. In kindness where an individual is conscious about his/her own suffering as well as the suffering of others. In addition to the state and trait theories, compassion is also described from a *cognitive perspective*, i.e. an aptitude; a *biological or neuroscientific point of view* and lastly a more *Western psychological perspective*. This perspective is reflected in the belief that *compassion* consists of a cognitive, an affective, a conative and a behavioural component, and thus constitutes a complex psychological construct.

Rooted in the different perspectives from which compassion can be explained, there are a wide range of definitions available. Hence, no integrated summary is presented in which different perspectives are aligned with different compassion definitions. In the subsequent section, Table 2.2 provides a proposed representation of definitions grouped by perspectives to give clarity on the construct *compassion*.

Table 2.2.

A Summary of Different Compassion Definitions and the Perspective from which it Originates

Author	Definition	Perspective
Blum (1980)	A feeling and not an attitude.	Affective State
Shaver, Schwartz, Kirson & O'Connor (1987)	A composite of sadness and love.	Affective State
Batson (2011)	An emotion.	Affective State
Lazarus (1991)	Compassion … is not a sharing of another person's emotional state, which will vary depending on what the other person's emotional experience seems to be, but an emotion of its own … In *compassion*, the emotion is felt and shaped in the person, feeling it not by whatever the other person is believed to be feeling, but by feeling personal distress at the suffering of another and wanting to ameliorate it. The *core relational theme* for compassion, therefore, is *being moved by another's suffering and wanting to help.*	Affective State
Post (2002)	Compassion … is love in response to the other in suffering; sympathy … is love in response to the other who suffers unfairly.	Affective State
Ekman (2003)	A distanced experience by another's distress.	Affective State
Vosloo (2011)	A complex and intense set of emotions related to the suffering of another human being, which motivates a person to take action to relieve the other person of suffering.	Affective State
Goetz, Keltner & Simon-Thomas (2010)	The feeling that arises in witnessing another's suffering and that motivates a subsequent desire to help.	Affective State
Merriam-Webster (2014)	Having empathy for the suffering of another and additionally having a desire to lessen that person's suffering.	Affective State
Gruen & Mendelsohn (1986)	In essence, sympathy and empathy can be viewed as two separate constructs; these two constructs are not entirely independent from cognition or emotion. Where these two constructs overlap, the construct called compassion will be found, thus consisting of moderate elements of both intellectual attributes as well as emotional states of mind.	State perspective and cognition
Higgs & Higgs (2015)	Not only as a feeling of empathy but also as a personal engagement in voluntary efforts to relive others' suffering and to act out our fellow feeling with all persons, not simply with those are, either by their own efforts or by virtue of their good fortune, already flourishing or at least getting along fairly well.	State perspective changing into a trait perspective
Goleman (2016))	The act of compassion begins with full attention, just as rapport does. You have to really see the person. If you see the person, then naturally, empathy arises. If you tune into the other person, you feel with them. If empathy arises, and if that person is in dire need, then empathic concern can come. You want to help them, and then that begins a compassionate act. So I'd say that compassion begins with attention.	State perspective changing into a trait perspective

Table 2.2.

A Summary of Different Compassion Definitions and The Perspective from which it Originates (continued)

Author	Definition	Perspective
Lama, as cited in Vreeland (2001)	Compassion (Karuna) is a basic quality of human beings rooted in the recognition of and desire to alleviate suffering, and gives rise to prosocial behaviours.	Trait Perspective
Nussbaum (2001) & Haidt (2003)	A source of principled moral judgement.	Trait perspective
Gilbert (2010b)	Compassion lies in basic kindness. Kindness where an individual is conscious about his/her own suffering as well as the suffering of others. This awareness is then coupled with the desire and determination to relieve the suffering.	Trait perspective
Sprecher & Fehr (2005)	Compassionate love is an attitude towards other(s), either close others or strangers or all of humanity; containing feelings, cognitions, and behaviours that are focused on caring, concern, tenderness, and an orientation toward supporting, helping, and understanding the other(s), particularly when the other(s) is (are) perceived to be suffering in need.	Western Psychological Perspective
Goetz, Keltner & Simon-Thomas (2010)	Compassion consists out of a cognitive, affective and behavioural component, thus a complex psychological construct.	Western psychological perspective
The Centre for Compassion and Altruism Research and Education (CCARE) at Stanford University (2015)	A process that unfolds in response to suffering. It begins with the recognition of suffering, which gives rise to thoughts and feelings of empathy and concern. This, in turn, motivates action to relieve that suffering.	Western psychological perspective
Compassionate, Collaborative Care Model and Framework (2015)	Compassion is the recognition, empathic understanding of and emotional resonance with the concerns, pain, distress or suffering of others coupled with motivation and relational action to ameliorate these conditions.	Western psychological perspective

Table 2.2 illustrates that *compassion* can be defined from many different perspectives, where some researchers prefer to label it as a virtue that characterises individuals whereas others see it as an instrumental action (i.e. a competency aimed at specific outcomes). Whether *compassion* is conceptualised as a (transient or enduring) characteristic of a person or whether it is conceptualised as a characteristic of the behaviour of a person, it expresses itself in behaviour aimed at alleviating suffering. Whether such behavioural acts are seen as behavioural denotations of *compassion* as a latent competency potential variable or as a competency, these behaviours in which *compassion* manifests itself do seem to bring about multiple transformations in the mind and spirit of those at whom these behaviours in which *compassion* expresses itself are directed. The recipient of compassion might show better understanding of themselves, but also allowing self-respect, self–responsibility and self-support. Compassion, however, not only benefits the suffering person but also the person who is compassionate and/or displays compassion. Compassion affirms the conviction that to become who we truly are we need to transcend ourselves and be there for others. This line of reasoning link back to the argument presented earlier to justify the need to monitor and develop compassion in terms of Maslow's (1971)

selfless-self-actualisation motive. Authentic compassion will affect the giver and the receiver for the better, "whenever the bell tolls, it really does toll for us, too" (Higgs & Higgs, 2015, p. 629)[35].

A different perspective in defining *compassion* is, however, given by Hojat (2007) who believes that one should rather analyse and investigate the two constructs *empathy* and *sympathy* before one tries to define *compassion* so as to differentiate the latter construct from the other two related constructs. *Empathy* and *sympathy* are very important constructs in the description and explanation of interpersonal relationships and are key constructs in understanding *compassion*. *Sympathy* originates from the Greek word *sym* meaning "being with" and *pathos* meaning "suffering or pain" (Black, 2004, p. 580). *Empathy* on the other hand is derived from the ancient Greek word *empatheia* meaning "physical affection, passion, partiality". Two German researchers namely, Lotze and Vischer (Titchener, 2014) adapted the term to the German word *Einfühlung* meaning "feeling into" which is a very descriptive label for *empathy*[36]. The main difference between *sympathy* and *empathy* is that cognitive information processing happens when one shows *empathy* compared to emotional mental processing when showing *sympathy* (Brock & Salinsky, 1993). When applying these two constructs in the medical setting clinical outcomes can be hindered should the medical practitioner join in the patient's emotions for example. This would be a typical example of *sympathy*. Starcevic and Piontek (1997) is of the opinion that medical practitioners must be able to feel the patient's emotions to a limited degree, only to ensure better understanding of the patient's situation. Professional judgement, though, may never be hindered, thus a person can separate him/herself from a patient, but still "recognize him/herself in that person" (Decety & Jackson, 2004, p. 85). In essence, *sympathy* and *empathy* has to be viewed as two separate, qualitatively distinct but still but related, constructs. Where these two constructs overlap, the construct *compassion* will be found, thus consisting of moderate elements of both cognitive attributes as well as emotional states of mind (Gruen & Mendelsohn, 1986). Figure 2.9 is a graphic presentation of this theory.

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[35] Hemingway in his book *For Whom the Bell Tolls* uses a quote from the work of the poet John Donne (using Donne's original spelling) in the book's epigraph, in which reference is made to the practice of funeral tolling:

> No man is an *Iland*, intire of it selfe; every man is a peece of the *Continent*, a part of the *maine*; if a *Clod* bee washed away by the *Sea*, *Europe* is the lesse, as well as if a *Promontorie* were, as well as if a *Mannor* of thy *friends* or of *thine owne* were; any mans *death* diminishes *me*, because I am involved in *Mankinde*; And therefore, never send to know for whom the *bell* tolls; It tolls for *thee*.

[36] An Afrikaans translation of empathy, although not as popular as *empatie*, according to Bosman, Van der Merwe & Hiemstra's (1984) Bilingual dictionary, is *invoeling* and also *navoeling*. Sympathy translates to *meegevoel*.
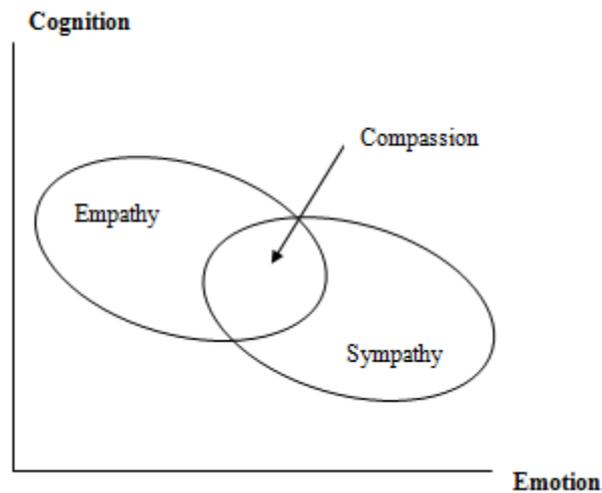
Figure 2.9. Empathy and sympathy as related to cognition and emotion. Reprinted from "*Empathy in Patient Care. Antecedents, Development, Measurement and Outcomes*", p. 11, by M. Hojat, 2007. Copyright (2007), Springer.

In addition to the research done by Hojat (2007), it was found that there is a moderate correlation between the two constructs *empathy* and *sympathy* (r= .45, p < .01). The correlation indicates that the overlap between the two constructs is approximately 20% (coefficient of determination: $r^2 = 0.45^2 =$ .2025). The degree of overlap will need to be explained by doing more research. Furthermore, it has been found that when an individual act in an empathic manner, the causal behavioural motivation is probably altruistic, whereas showing sympathy will be egoistically motivated. Altruistic motivated behaviour is typically identified by a person who wishes to reduce another person's suffering without the expectations of receiving rewards. On the other hand, egoistically motivated behaviour is characterised by a person that wishes to reduce their own levels of stress, to receive recognition or to avoid hostile feelings (Coke, Batson & McDavis, 1978). These two constructs, however, do not function independently from one another.

In order to define a working definition for *compassion* in the healthcare sector it is necessary to review the different perspectives from which definitions were written as well as the context for which it was written. From research it is clear that there are many different perspectives from which compassion can be defined. One specific perspective, however, has not been used namely to define compassion in healthcare from a competency viewpoint. This novel perspective will be described in the subsequent sections.

2.4.2.2 Different orientations towards compassion

In defining and conceptually dissecting *compassion*, it is necessary to also take cognisance of the different orientations towards compassion. The orientations an individual hold towards compassion refers to the person towards which the compassion is directed. A distinction is made between having compassion for others, receiving compassion from others and self-compassion (Gilbert, 2009; Gilbert, 2010b; Neff, 2003).

The first orientation of having compassion for others seems to be present in most cultures as well as most spiritual customs according to Moses (2002). Ironically, compassion is not always expressed, since some individuals may experience fear of compassion for either themselves or from others or even for others (Gilbert, 2010a). When an individual decides and makes a judgement call not to show compassion, it may be that the other party is not deserving of the compassion for example wrongdoers breaking the law or the individual chooses not to demonstrate compassion based on personal reasons (Gerhardt, 2010).

The second orientation is described as receiving compassion from others. In this orientation an individual need to become comfortable receiving attention from a compassionate individual, being the focus of his/her attention and try to improve relationships with this individual. An example of this orientation would be where a patient receives compassion from a medical practitioner.

Self-compassion is the third orientation and is defined as

> Being open to and moved by one's own suffering, experiencing feelings of caring and kindness toward oneself, taking an understanding, non-judgemental attitude toward one's inadequacies and failures, and recognizing that one's own experience is part of the common human experience. (Neff, 2003, p.87)

Interestingly it has been found that self-compasssion correlates positively with the following personality traits: happiness, wisdom, optimism, personal initiative, curiosity, agreeableness, extroversion and contentiousness (Neff, Rude & Kirkpatrick, 2007).

The current study would want to argue that the different orientations to compassion should not be interpreted as independent alternatives but rather as interrelated prerequisites for each other. The current research study would therefore want to argue that it would be easier to display compassion to others if one is open to and moved by one's own suffering and if one is willing to accept compassion from others.

In trying to get an intellectual grasp on the construct *compassion* it is important to decide which orientation/s one needs to focus when clarifying the construct. Some researchers may be of the opinion

that one cannot isolate a specific orientation at the expense of another. For the purposes of the current research study, the focus will be on the orientation *having* and *displaying compassion for others*; more specifically – medical practitioners showing compassion to patients during a medical encounter in the public healthcare sector. One of the different perspectives on compassion that specifically focusses on the orientation of expressing compassion towards others is the perspective offered by religion[37]. In other words, one should also take note of the perspective brought by religion when trying to conceptualise the construct *compassion*.

2.4.3   Understanding Compassion from a Religious Perspective

It seems as if most religions do expect their followers to display compassion. The Eastern traditions, especially Mahayana Buddhism, which is better known as the school of the Dalai Lama, places a lot of value on the power of compassion. There is a belief that compassion is the "heart and essence" of this religion (Shen-yen, 1999, p. 111). For centuries there have been written about the healing properties of compassion. The Dalia Lama stated that one should focus on compassion if a person wants to be happy with his/her life. Buddhists define compassion (*Karuna*) as "a basic quality of human beings rooted in the recognition of and desire to alleviate suffering, and gives rise to prosocial behaviors" (Lama, as cited in Vreeland; 2001, p. 91). In other words, an individual's wish to relief others who are suffering. In addition, it is believed that the mere act of showing compassion will give rise to prosocial behaviour. Nairn (1997, p. 14) explains compassion as follows:

> Erbarming maak die kern van die Boedha se leer uit. Erbarming is die vermoë om met onderskeid en op 'n gepaste manier hulp te verleen; dit is nie 'n sentimentele gevoel nie. Dit is vitale, aktiewe kennis van wat in 'n gegewe situasie gepas is. Erbarming begin daarmee dat ons eerstens oop is met onsself, met ons innerlike ervaring, en sodoende onsself aanvaar. Dan pas ons hierdie oopheid toe op die wêreld om ons, op individue, gebeure en op situasies. Erbarming is 'n toestand van allesomvatende besorgdheid wat in die gemoed van die verligte mens ontstaan. 'n Besorgdheid waarvoor alle lewensvorme en alle wesens gelyk is. Dit kan net gebeur in 'n gemoed wat heeltemal oop is, 'n gemoed wat nie deur voorkeuse, oordele, onverdraagsaamheid of kompartementalisering ingeperk word nie.

To take a case in point, the closer a medical practitioner is to a patient, the more unbearable the patient's suffering will be for the medical practitioner. The closeness referred to in the example is the obligation and concern that a medical practitioner may have for a patient.

An important aspect highlighted by Buddhism's interpretation of compassion is the importance of understanding the suffering of a specific individual in a specific context when responding to suffering (rather than an understanding of suffering as an abstract concept). Suffering is a perception of a person

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[37] It is thereby not implied that religion would not also also hold the other two orientations as important as well.

at a particular time from a particular point of view (Shen-yen, 1999). Displaying compassion requires a phenomenological appreciation of that perception of the suffering person from their unique point of view. In other words, the medical practitioner treating the patient must show an understanding of the nature of the specific patient's specific suffering. Sometimes it is necessary to reflect on one's own experiences with regards to suffering. The medical practitioner cannot deny the suffering of the patient, for the patient the suffering is direct and real. Understanding this reality, the expectation is that a medical practitioner should strive out of compassion to alleviate the patient's suffering. Thus, *compassion* is unconditional, no gratitude, incentive or love in return is required. *Compassion* is not self-centred and it does not mean and imply to control. In Buddhism it is the belief that if one should show compassion to others, oneself will also benefit from this behaviour. By rendering a service to others, giving from oneself to others in trying to alleviate their suffering, the process of compassionate behaviour will cause one to improve oneself and give rise to spiritual maturity[38].

Suffering can be described on three different levels (Shen-yen, 1999). The first level is identified as the suffering of suffering, where it seems natural that a person will feel sympathy for another person who noticeably suffers from a distressing illness. The second type of suffering is called the suffering of change. This level is described by people who may experience worldly success that other people may interpret with respect or resentment. The Buddhist perspective is based on the assumption that pleasure and wealth can be viewed as temporary and that a natural end is inevitable; this will cause suffering at the end. The third level of suffering is referred to as the more philosophical type of suffering since the perspective is given that all people form part of a recurrent cycle. This cycle is characterised by negative thoughts and emotions – thus, a person's existence can be labelled as suffering. It is important that a person becomes aware of the three levels of suffering in one's own life before trying to observe and analyse others.

Buddhism has identified exercises and mental practices that were developed exclusively to train a person's mind in compassion. The metaphor that is used to convey the importance of meditation training is that of playing a musical instrument, the more an individual practices the more skilful the person becomes. In addition, each and every individual's brain is biologically designed in such a way that individuals respond to the care and kind-heartedness of others under normal circumstances. If an individual should think about compassion, focussing on kindness for example for oneself as well as to other individuals, certain areas of the brain and body is stimulated that are advantageous to an individual's health and wellbeing. Increasing evidence has shown that compassion can be viewed as a skill, in other words a person can be trained on this skill and that the practising of this skill influences a person's neurophysiological and immune system (Davidson et al., 2003; Lutz, 2008).

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[38] This line of reason again resonates well with Maslow's (1971) placement of self-transendance or selfless selfactualisasation at the pinnicle of his motivational hierarchy.

Shakyamuni Buddha was a practitioner who believed in compassion, he practised compassion throughout his life not only to alleviate his own suffering but also to understand and support others who may have an unavoidable destiny. Shakaymuni was of the opinion that people in general seem to limit their love and support to their own families and immediate communities. Ironically compassion does not have any boundaries.

In Buddhism three levels of *compassion* is identified. The first level is characterised by giving bare necessities for those in need. As an example, would be giving food, clothing and necessities to people who live in extreme poverty. The second level of compassion is described as equality of compassion and can be described by the following narrative (Shen-yen, 1999, p. 118):

> A Buddhist wife was killed by a taxi in a hit-and-run accident. Witnesses wrote down the licence plate number of the taxi, and the driver was caught by the police and prosecuted. The judge asked the taxi driver whether he saw the woman or not. And the taxi drive replied, "Yes, I did"
>
> The judge asked: "Why did you hit her? Was it an accident?"
>
> The driver very honestly said, "I saw the lady but I had the right of way and she was supposed to let me pass by. When she did not, I was annoyed and I wanted to scare her by tapping her. I did not know that she was killed when I took off." The judge decided that this was an intentional killing, so the taxi driver was sentenced to a long prison term. The driver had a wife and children who were completely dependent on his income. When the husband of the dead woman discovered this, he helped the driver's family by taking them food, money, and whatever else they needed to survive. Beyond that, he visited the jail to see the driver, comforting him and advising him to recite Buddha's name and to practice regret. The husband's friends were shocked and said, "How can you help the family of the man who killed your wife?" The husband answered, "The taxi driver acted out of ignorance, but I cannot be ignorant. The heart of Buddhist is compassion, so it is natural for a Buddhist to have compassion, especially for those in need. The family was starving, so I saw it as my duty to help them." This is an example of equality of compassion, the second level. Eventually this man left, lay life to become a monk and continue his practice.

In the third level of compassion there is no conscious sense of oneself, of other individuals or of compassion as such. This level is characterised by being in the state of selflessness where compassion is manifested naturally. Another narrative is utilised in order to explain this level (Shen-yen, 1999, p. 120):

> In the Sung Dynasty (960-1279), there was an eccentric Ch'an master called Jigong, whose formal name was Daoji. He was famous in the city where he lived, and even in distant parts of China. His biography has not been translated in English, but Tibetans know about him and equate him with the eccentric Tibetan Buddhist master Milarepa.

Unlike most bhiksus, Master Jigong never lived in a monastery nor had any other fixed place of adobe. Instead, he roamed around the city. In winter he wore a thin, ragged robe, similar in style to the one I wear, but he didn't have a shirt or pants or underwear to wear under his robe, or socks or shoes, or a hat for winter. However, he was quite happy. There was an official in the city, who admired him and became his devotee. One winter's day, Master Jigong passed the residence of this official, who, upon seeing him dressed in a rag with nothing underneath, asked, "Master, it is cold out. Shouldn't you put on more clothing?" Jigong said, "Yes, yes, I should." Why don't you put on a hat? At least wear pants and a shirt under your robe and put on some shoes," said the official. "Yes, yes, I should," Jigong responded. "So, why don't you?" asked the official. "I don't have anything to put on," said Jigong. The official took pity on Jigong and said, "I will give you cloth to make clothing so you can live through the winter. How much fabric do you need?" Jigong said, "Well, I need quite a lot. I would like to have two hats so that I can change and alternate on different days. I need to have shirts and pants to wear under my robe, and, of course, underwear. Fine cotton would be better than ordinary fabric and it should be double-padded so it is really warm. I need fabric for my shoes. So I need quite a lot." The official gave Jigong a whole roll of cotton fabric. Jigong looked at the roll of fabric and said, "What am I going to do with this? I don't have money to pay to have clothes made, and I myself don't know how to sew. I think I need some money, too. Lots of it." The official said, "I will give you another roll of fabric and you can exchange it for sewing." Jigong left the official's house lugging two heavy rolls of fabric. He got to a bridge where beggars congregated. Seeing him, they said "Jigong, what have you got there? What do you need all that fabric for? All of us need clothes. Give some to us." Jigong smiled and said, "Sure, take what you need.". The gang of beggars quickly split the fabric up and Jigong was left with nothing. He walked away happily in his ragged robe, still with no underwear, no pants, no shoes, no hats, and no shirts. Sometime later the official saw that Jigong was still wearing nothing, but his ragged robe. The official asked, "What happened to your new clothes?". Jigong said, "What new clothes?" "The ones you had made from the fabric I gave you." "Oh, the fabric. The fabric was given to the beggars" said Jigong. "They had nothing to wear and were very pitiable. Worse than me. So I need some more fabric. Do you have any?". The official said, "I will give you more, but this time you have to make clothing for yourself," and he gave Jigong two more rolls of fabric. Jigong once again set out lugging two rolls of fabric. This time, before he even reached the bridge all the beggars in town heard the news that he had more fabric and came running to beg for it. Again, Jigong happily gave it all away. Jigong dared not pass by the official's residence anymore. When the official heard the news that the mad monk had been giving away fabric again, he thought to himself, "Jigong is really something. I gave him four rolls of fabric, and he did not keep any for himself, but gave them all away. He is indeed a fool. Therefore, I won't try to help him anymore. This door of charity will be closed to him from now on."

From the narrative it is clear that Ch'an Master Jigong's behaviour illustrated compassion. After giving away his earthly belongings to those in need without showing any sense of loss or reward, he remained

content. Ironically most individuals showing compassion, however, tend to be conditional. The narrative has illustrated that it is indeed difficult to realise unconditional compassion. Literature (Dalai Lama, 2014; Master Shen-yen, 1999) has shown that insight and wisdom is an important determinant of compassion since it plays a critical role in guiding the process. If there is no insight and wisdom, one would only be able to show sympathy and worldly love that are conditional constructs. The insightful and unconditional nature of compassion is also stressed in the quote taken from Nairn (1997).

As His Holiness the Dalai Lama XIV (Lama, n.d.) said: "Compassion is not religious business, it is human business; it is not luxury, it is essential for our own peace and mental stability; it is essential for human survival." In the words of the Dalai Lama (n.d.) (2014, p. 1),

> We are visitors on this planet. We are here for one hundred years at the very most. During that period, we must try to do something good, something useful, with our lives. If you contribute to other people's happiness, you will find the true meaning of life.

The Buddhist perspective reinforces the importance of self-acceptance, which will allow one to enter meditation resulting in absolute calmness. This position is also reflected in the foregoing quote from Karel Schoeman's translated version of Nairn's (1997) Tranquil mind. In understanding Buddhist meditation it is important to describe its origin.

Buddhism is based on the belief that life in the world as we experience it on earth, can be experienced as unsatisfactory because it does not address our main needs, namely: Harmony, happiness and comfort. Most people are so involved in trying to achieve their short-term human goals that they have identified for themselves that they sometimes tend to forget to think about the greater perspectives of their lives. One might try to answer questions like, what are we doing with our life; do we contribute by delivering something valuable on the longer term (Nairn, 1997)? In order to bring calmness to one's mind, taking into account some of the everyday processes of aggression, anxiety and worries, meditation might be a way to manage oneself better in order to relax and focus. According to literature most people do not know how to get to this level of calmness. Self-acceptance is a pre-requisite for meditation. It starts with the brain; all memories and feelings must be accepted. To take a case in point, a medical practitioner must accept him-/herself unconditionally to be able to accept a patient unconditionally as he/she portrays him/herself. The medical practitioner must examine the patient, after which a diagnosis is made and then medication is prescribed if necessary. The example illustrates what acceptance means. When there is acceptance, there seems to be much more flexibility in one's mind and heart.

Meditation is about being comfortable working with our own conscientiousness in subsequent phases in order to ensure a state of insight and spontaneous freedom as well as total liberation. The final stage is characterised by actualisation of the individual's sacred potential. The most critical element necessary to ensure successful meditation is mindfulness which is based on pure attention.

The problem with "pure attention" is the phenomenon that it is so simple that when one experiences pure attention and nothing significant happens, one might think it is a waste of time and energy. Practising pure attention, however requires very specific skills, since you as a person need to be psychologically present as well as "staying with" whatever happens in or around you, without adding or taking things away from the actions in and around you. In short, "meditation is to know what is happening when it is happening, despite what it is" (Nairn, 1997, p. 48).

Despite having compassion for others in Buddhism, there is also a construct called *great compassion* that should be noted. Great compassion is described as having the intention to protect all human beings from suffering (Gyatso, 1988, p. 69). The underlying assumption is that if individuals would try to broaden their scope of compassion, the possibility is there that within time, compassion can be developed spontaneously for all human beings. Another example that is often used in Buddhism is to compare great compassion to a mother's love and care for her baby in distress. A mother's behaviour and thoughts will reflect the concern she may have over her baby. With this experience, great compassion is cultivated, allowing a person to show compassion for the well-being of others.

Understanding compassion from a religious perspective by only elaborating on Buddhism would not suffice, since it would promote a one-sided perspective. In order to address this, other religions should also be discussed. Wuthnow (1991) supports this opinion, by stating that different religions differ in their understanding of *compassion*. To take a case in point, the Christian religion focuses on serving God. In other words, one would not help another person to make one feel better about him/herself, but rather the motivation underpinning the attempts to alleviate suffering, is to serve God. This might be questioned, however, since it can be interpreted that the Bible instructs an individual to act compassionately – thus faith and religion provides the motivation to act compassionately towards others. A well-known Bible verse that is often used to illustrate this point is verse 18 in Leviticus 19, namely: "Love your neighbour as you love yourself" (Bybelgenootskap van Suid-Afrika, 1987, p. 134). The Bible also describes Jesus, who is God's Son, as Somebody who is concerned about the virtues of compassion. The story of the Good Samaritan, in Luke 10, can be used to illustrate compassion. In the story a Levite and priest walked past a man that was battered and robbed by robbers; only a Samaritan was moved by the incident and took appropriate care of the injured man[39]. Snodgrass (2008) is of the opinion that *compassion* moved the Samaritan to take action and assist the injured man[40]. In other words, compassion exists in each and every individual; just waiting to be used and developed (Noddings, 1984). What is important, is that compassion needs to be put into action. Thus acting compassionately

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[39] The Samiratan showed *insight* into the suffering of the injured man and did what was *necessary and appropriate under the given circumstances* to alleviate his suffering.

[40] The current research would prefer to rephrase that and say that the Samiratan displays competence on the compassion competency. His stopping and interrupting his journey, devoting time, finding accommodation and care, paying for accommodation and care constitute denotations of the latent compassion competency.

towards others. In essence the Christian religion believes that God created individuals with the capability to show compassion to their neighbours and fellow human beings (Cornelius, 2013).

Besides the Christian belief, the concept of compassion is also evident in Islam. In the *Qur'an* key words such as *rahmah*, *ihsan'adl*, and *hikmah* are frequently repeated. The word *rahmah* means compassion and mercy and is used more than 326 times in the Qur'an. A more specific definition is: "softening of the heart towards one who deserves our mercy and induces us to do good to him/her" (as cited in Engineer, 2001, p. 18). A Muslim would typically by reciting the phrase *Bi Ism-i- Allah al-Rahman al-Rahim* (i.e. in the name of Allah Who is Compassionate and Merciful) when embarking on daily activities and before reading the Qur'an (Engineer, 2001, p. 12). The Qur'an also tends to place a lot of emphasis on the more fragile side of society, like poor people, orphans and widows. Different ways of assisting the oppressed is highlighted, which is all based and grounded in compassion. It is believed that an individual cannot show compassion if he/she does not show sensitivity to the suffering of others (Engineer, 2001). Individuals who are powerful and arrogant need to be more sensitive towards others, since greed tends to overpower them, thus are they considered as most uncompassionate. A true Muslim, is a person who acts with equal love and compassion to all other human beings, despite their faith and religion. In other words, compassion is not only meant for fellow Muslims, but all human beings. The critical aspect of compassion is that it should "move" Muslims hearts when observing the suffering of other individuals, thus motiving them to help those in need. Fundamentally, compassion is central to the teachings of Islam.

The Jewish tradition is characterised by a complex body of teaching, since there is a focus on two contrasting perspectives with regards to medicine and medical ethics. On the one hand, there is a belief that victims of contagious diseases for example should be handled with compassion and dedicated service, whereas the other side emphasises self-protection and even flight if there could be a risk of becoming infected by the ill. In the Jewish religion, God is viewed as the fundamental source of healing, but medical efforts by medical practitioners are also considered practical forms of assistance in the curative process.

In rabbinic teaching, Jews are taught to assist when a person is sick, not only by visiting and assisting the patient, but also by attending to his/her material needs. The sick person needs to know that he/she will not be abandoned in the moment of pain and suffering. Interestingly, the Jewish community has established associations such as the society for *bikkur holim* whose mission is to attend to the ill and the needs of dying patients. In addition, Rabi Ellen Jaffe-Gill highlights the importance of compassion in Jewish law, also the fact that there is a lot written about the topic compassion in the Hebrew Bible (Green, 1988).

In essence it seems as if *compassion* plays an important role in most religions. A lot can be learned from how the construct is operationalised in different religious convictions and what the requirements are for one to show compassion. Most of these principles can be applied to compassion in healthcare for example. Medical practitioners, who include a spiritual history when diagnosing patients, actually emphasise the practise of compassion. By doing this, the practitioner learns how to incorporate the patient's spiritual fears into the healing plan (Puchalski, 2001).

Besides different religions that support the practice of compassion, there are also some institutions that have been established to promote an awareness of compassion. Some of these establishments are subsequently discussed.

2.4.4 Institutionalising and Formalising Compassion

A Charter for Compassion was developed in 2009 under the guidance and leadership of Karen Armstrong and a non-profit Technology, Entertainment and Design (TED) group. *Compassion* is not a new idea, all religious, spiritual and philosophical traditions have some link to compassion. Armstrong (2013) have found that *compassion* is the significant thread that can be seen in all these religious, spiritual and philosophical traditions. The Charter for Compassion was established with a specific golden rule, namely "do unto others as you would have them do unto you" (Armstrong, 2011, p. 6). The Charter aims to "move, remind and guide" people towards displaying compassion. In order to operationalise these aims, the Charter makes a few assumptions about compassion, i.e. compassion is seen as central to all religions, and secondly the golden rule namely: "treat all others as we wish to be treated ourselves" is a core principle of compassion[41]. Thirdly, the focus of compassion should be on how people relate to other's suffering. In other words, other-centred and not ego-centred. For Amstrong (2011) it is necessary that individuals engage in the active doing of compassion and as opposed to simple verbal exercises.

In the African context compassion is viewed as one of the values of Ubuntu (Broodryk 2006; 2010a; 2010b; Du Plooy, 2014). What is common between both concepts Ubuntu and compassion is however the emphasis on community, responsibility and praxis. A former president of South Africa, namely Nelson Mandela, summarised the importance of compassion for the country in the following way: "Our human compassion binds us the one to the other – not in pity or patronizingly, but as human beings who have learnt how to turn our common suffering into hope for the future" (Nelson Mandela Foundation, 2000).

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[41] The current study is to some degree uneasy about the Charter's emphasis on the principle that we should treat all others as we wish to be treated ourselves. It seems to introduce an investment orientation into the connotative meaning of compassion. Treat others well and they will treat you well. The Buddhist perspective on compassion earlier strongly emphasised the unconditional nature of compassion. Treat others in need well even if they will not treat you well.

Furthermore, a Center for Compassion and Altruism Research and Education (CCARE) was developed at the Stanford School of Medicine in 2008. The concept originated from Dr James Doty, a Stanford neurosurgeon, entrepreneur and philanthropist. The key focus of the centrum, is to understand compassion, the human mind and emotion from the field of neuroscience, psychology and medicine. Thus conducting scientific studies of compassion and altruistic behaviour as well as hosting conferences on these topics (CCARE, 2008). Interestingly, the vision of CCARE states that compassion training should be taught in medical schools and hospitals.

In addition to the operationalisation of the construct *compassion*, The Schwartz Centre for Compassionate Healthcare and the Arnold P. Gold Foundation in cooperation with the Josiah Macy Jr. Foundation and the Bucksbaum Institute for Clinical Excellence at the University of Chicago drafted recommendations from a conference that was held in Atlanta, Georgia during 2014. The recommendations that were drafted was based on a conference that was held with the title "Advancing Compassionate, Person- and Family-Centred Care through Interpersonal Education for Collaborative Practice". The importance of compassion was highlighted, as well as the integration of compassion in health professional education and clinical care. The role-players that participated in the working group were clinicians, patients, health professional educations, funders and administrators. The role-players agreed that compassionate, collaborative care (referred to as the "Triple C"), should be viewed as critical if healthcare wants to achieve what they call the "Triple Aim", thus improving health, improving the experience of care and controlling costs. In addition, it is also stated that the Triple C should be set as the standard of care in healthcare and healthcare systems. As a result of the organised meeting, a Compassionate, Collaborative Model and Framework was described (Compassionate, Collaborative Care Model and Framework, 2014). Figure 2.10 illustrates the Compassionate, Collaborative Model. Lown (2014) stated that the model integrates concepts from cognitive, social and neuroscience in trying to get better clarity on the constructs of empathy and compassion. The proposed process model of compassion, thus shows the processes that is hypothesised to underlie the display of compassion and even through some of the processes as shown in the figure may precede or stimulate other processes, many of these processes are also influenced in a non-linear way. The process hypothesised in Figure 2.10 holds important implications for latent variables that should be included in a comprehensive compassion competency model.
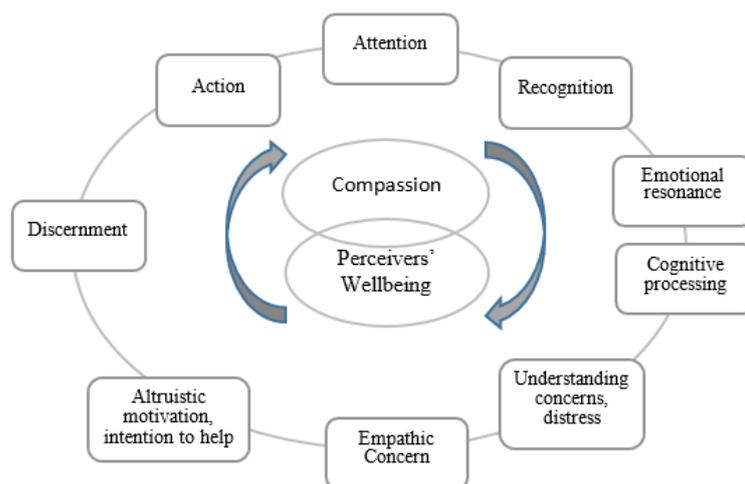
Figure 2.10. Compassion, collaborative model and framework. Reprinted from "Compassion, Collaborative Care Model and Framework". by B. Lown, S. McIntosh, K. McGuinn, C. Aschenbrener, D. Baldwin, C. Chou, H. Durrah, M. Irons, A. King and J. Schwartzberg, 2014, *Compassion, Collaborative Care Model and Framework: Advancing Compassionate, Person – and Family Centred Care through Interprofessional Education for Collaborative Practice*, p. 5. Copyright @ 2014, the Author(s).

2.4.5 Compassion Described as a Competency

In the preceding paragraphs it was argued that compassion is defined and described from many different perspectives and orientations. None of these approaches, however, describe compassion from a competency viewpoint. Before one could argue that compassion can be defined as a competency, it is necessary to revisit the manner in which constructs and competencies were conceptualised earlier. A construct is an abstract concept. Constructs are necessary in the sense that it forms the building blocks of explanatory hypotheses in the form of structural models and eventually theory, thus allowing a researcher to build theory to explain events observed in World 1 (Babbie & Mouton, 2001) by empirically testing the hypotheses developed from constructs. These constructs represent abstract characteristics of individuals, of their behaviour and of the situation in which they operate. The constructs, therefore, are either competency potential latent variables or latent competencies or latent situational variables. The connotative meaning of the construct (i.e. the essence of the abstract idea) lies in the internal structure of the construct and in the manner in which the construct under study is positioned relative to other constructs in a nomological network (Theron, 1999). The connotative meaning is explicated through conceptualisation by making explicit the internal structure and the manner in which the construct is embedded in a larger nomological network. Researchers are able to empirically test explanatory hypotheses on phenomena in World 1 (Babbie & Mouton, 2001) by operationalising the constructs via the observable denotations in which the construct under study manifests itself in World 1 (Babbie & Mouton, 2001).

The word *compassion* (spoken or written), is a sign that represents a construct. Hearing or reading the word *compassion* begs the questions *what does the speaker or the authors have in mind* when using this sign and *what in World 1 does the sign refer to*. The question is therefore firstly, what are the latent dimensions that constitute the construct, how are these latent dimensions structurally or correlationally related to each other and how is the construct embedded in the bigger network of related constructs in which compassion for healthcare lies. The question is therefore secondly what are the denotations of the construct (i.e. the behavioural acts or behavioural indicators), illustrating the standing of medical practitioners on the *compassion* construct during a medical encounter with a patient.

Compassion can represent either an abstract characteristic of a medical practitioner or an abstract characteristic of their behaviour or even both. *Compassion* can, therefore, either be conceptualised as a competency potential latent variable or as a latent competency or both[42]. The current research study holds the position that *compassion* can be conceptualised both as a competency potential latent variable and as a latent competency and ultimately has to be conceptualised and operationalised as both if the ideal of a comprehensive medical practitioner competency model is to be realised.

The current study, however, choose to focus on the conceptualisation and operationalisation of *competency* as a latent competency. In this study *compassion* is conceptualised as an abstract characteristic of the manner in which a medical practitioner acts towards a patient and not as a state or a trait characterising the person of the practitioner. *Compassion*, in this study, is therefore interpreted as the abstract theme shared by a bundle of related medical practitioner behaviours. The specific behaviours included in this bundle are the denotations of competence (or lack of competence) on the competency *compassion*. *Compassion* is conceptualised as a latent competency that (directly and indirectly) influences specific latent job outcomes that a medical practitioner is held accountable for. In short, if the behavioural actions that denote competence on the competency compassion are done well by a medical practitioner, it will in part constitute successful job performance in the healthcare sector, and contribute to the achievement of specific healthcare outcomes (Boyatizis, 1982) that also form part of the medical practitioner performance construct.

A schematic presentation of a Medical Practitioner Competency Model is shown in Figure 2.11. The model allows one to conceptualise the dynamic interplay between latent variables in a competency model for medical practitioners. For the purpose of this research study, the focus is on the competency segment of the model since *compassion* is described as a medical practitioner competency in the healthcare sector.

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[42] It is acknowledged that having the same term refer to both a competency potential latent variable and a competency is to invite conceptual confusion.
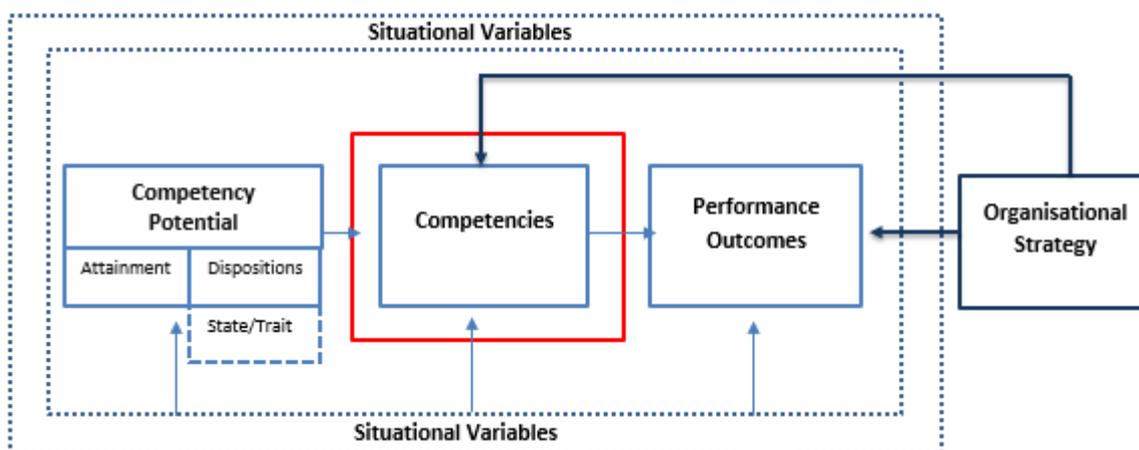
Figure 2.11. Schematic presentation of a medical practitioner competency model with the focus on compassion as a competency.

Based on the review of the compassion literature the initial constitutive definition that was offered in paragraph 1.1.4 is amended to capture the connotative meaning of *compassion* as a competency:

> Recognising someone's suffering, conveying an insider phenomenological *understanding* of someone's suffering, expressing the unconditional *desire to alleviate* the suffering rooted in demonstrated *authentic affection and care* for the individual and *implanting tangible contex-appropriate action* to alleviate the suffering.

The foregoing first two attempts at a constitutive definition of compassion as a competency, clearly reflects that compassion is conceptualised as a multidimensional construct. The proposed internal structure of *compassion* as a multidimensional latent competency, is described in Figure 2.12. Competence on the competency compassion requires that a medical practitioner should first of all recognise the suffering of a patient and this will probably flow from a medical practitioner's other-directedness. Only then will a medical practitioner be in a position to show compassion. The act of displaying compassion will imply showing a phenomenological understanding (co-suffering/medelye), displaying authentic affection and care, displaying the unconditional desire to lessen the patient's pain and taking context appropriate tangible steps to lessen the suffering.

The foregoing first attempt at a constitutive definition of *compassion* as a competency indicates that the internal structure of the construct comprises the following five latent competency dimensions:

1. Recognition of the suffering
2. Showing a phenomenological valid, insider, understanding of the suffering
3. Displaying authentic affection and care
4. Displaying the desire to lessen the pain
5. Taking context appropriate tangible steps to lessen the suffering

Moreover, specific structural linkages are thought to exist between these five latent competency dimensions currently constituting the compassion competency construct. The proposed structural linkages reflecting the essence of the compassion competency construct are depicted in Figure 2.12.
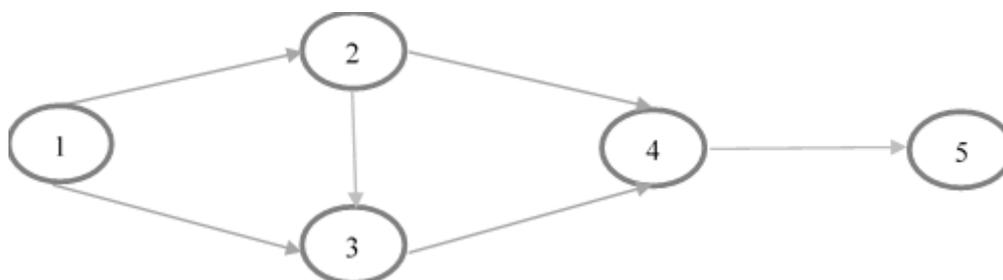
Figure 2.12. The proposed internal structure of compassion as a competency[43].

Note: 1 refers to recognition of the suffering, 2 refers to showing a phenomenological valid, insider, understanding of the suffering, 3 refers to displaying authentic affection and care, 4 refers to displaying the desire to lessen the pain and 5 refers to taking context appropriate tangible steps to lessen the suffering

To fully explicate the internal structure of the compassion competency, the theoretical arguments underpinning each of the specific structural linkages that are thought to exist between these five latent competency dimensions currently constituting the construct need to be explicitly described. In addition, the adequacy of the proposed psychological mechanism comprising compassion as a competency needs to be evaluated by determining whether the combined theoretical argument points to non-ignorable omissions in the psychological mechanism. Since the current study conceptualised compassion as a competency, all latent dimensions of the compassion construct should also be conceptualised as competencies.

It is acknowledged that to fully explicate the connotative meaning of the compassion construct the latent competency potential antecedents of compassion and the latent outcome consequences of compassion should also be identified as well as the manner in which they structurally combine with the structurally interlinked latent compassion dimensions.

2.4.5.1 Emotion Recognition

Compassion as a medical practitioner competency implies a patient that is suffering. How should suffering be interpreted? Should disease and pain be regarded as synonymous with suffering? The current study would want to argue that they are not. Disease and pain are unavoidable medical conditions that all humans are inflicted with from time to time. These should be treated as effectively

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[43] It is acknowledged that the proposed internal structure of compassion as a competency could be challenged and criticised for its omission of important latent competency potential variables that the narrower, more specific competencies impact on. Many if not all of the proposed structural linkages therefore are mediated by one or more latent competency potential variables like motivation to alleviate the recognised suffering, a phenomenologically valid picture, trust in the medical practitioner, acceptance of the medical practitioners influence, etc.

and efficiently possible. Suffering in contrast, refers to a psychological interpretation of the disease or pain that rebels against the disease or pain. To display compassion, suffering needs to be recognised where and when it occurs. Suffering is more often than not, not explicitly verbalised. It needs to be recognised via the negative emotions suffering evokes. The negative emotions that suffering evokes are, however, also relatively seldom explicitly verbalised. To take a case in point, many patients do not want to reveal their emotions during the medical encounter since there is a general belief that the medical practitioner's role is not to help with emotional concerns (Ryan et al., 2005).

In order to describe recognition of emotion as a competency the underlying construct namely emotion is explained. The origin of emotion can be traced back to the research of Darwin, who was one of the first researchers, who claimed that animals had emotions. One way in which these animals communicated their emotions was through facial expressions. These findings were written up in a book called The Expression of Emotion in Man and Animals during 1872. Ekman followed in Darwin's shoes by studying emotions expressed by human beings in 1965. He travelled to Japan, Argentina, Brazil and Chile where he showed pictures of different expressions to individuals. Interestingly Asians and South Americans understood the pictures in the same way Americans did. Ekman was worried that the Western influence or television might have played a role in these findings, distorting the results. Thus, Ekman travelled to the highlands of New Guinea, showing tribespeople the exact same pictures, knowing that the tribespeople never had seen television or a Westerner before. The results indicated that the tribespeople interpreted the pictures in exact the same way as the previous research participants, thus a universal language crossing the borders of culture and origin. The findings of Ekman supported Darwin's findings proposing that facial expressions were universal (Ekman & Friesen, 1975). The research influenced the way in which emotions are analysed and portrayed. Individual's emotions are seldom explicitly communicated, it is more about expressing emotions through certain cues (Pink, 2005). Ekman continued the research on emotions and found that seven basic human emotions had definite facial signals. The emotions that were identified are: Anger, sadness, fear, surprise, disgust, contempt, and happiness. The complexity of the construct emotion should not be underestimated, however; emotion is three-faceted in the sense that it is expressed in behaviour, it involves activation in the autonomic nervous system and experiential introspection is needed to ensure that a person becomes aware of own emotions in order to represent the experience of emotion during interaction (Keltner, Oatley & Jenkins, 2014). A definition by Izard (2010, p. 365) illustrates how emotion is prompted:

> Functions of emotion: 1. Interrupts/changes processing and focuses attention and direction of responses. 2. Motivates cognition and action and provides emotion information (including evolutionarily conserved communicative signals) to guide and coordinate the engagement of the individual in the physical and social environment for coping, adaptation, affiliation, and well-being.

Another definition of emotion by Campos, Walle, Dahl, and Main (2011, p. 27) illustrates the relatedness of emotion and behaviour as well as the importance of the environment on the construct emotion.

Working definition of emotion: 1. Registration that an event is important; 2. The attempt by the person to *establish, maintain, change or terminate the relation between the self* and the environment on those matters that are important to the person.

The approach taken in the current research, is to utilise the working definition of emotion from Campos et al. (2011) and Izard (2010) since it allows the researcher to understand the concept from a competency perspective. A conceptual grasp, however, needs to be obtained as to what emotion recognition as a dimension of compassion entails, in other words, gaining a phenomenological valid understanding of the patient's emotion by recognising the emotional state of the patient. This insight will allow the medical practitioner to communicate his/her understanding of the suffering to the patient.

In this study, emotional recognition is defined as *the extent to which the medical practitioner recognises the emotional state of a patient when and where it occurs as an emotional cue profile pointing to an unresolved problem that causes suffering, by making a conscious effort not to dismiss the emotion; but to identify and understand the verbalised cues and the non-verbal behaviour related to the emotion.*

2.4.5.2 Gaining and Communicating Empathetic Understanding

Compassion is an attempt to appropriately respond to the recognised suffering of a patient in a given context with the aim of reducing the suffering. To display compassion is to do something definite that is motivated by the desire to alleviate the suffering experience by a specific individual under specific circumstances. This act, however, is dependent on specific competency potential variables that need to be developed via a number of qualitative distinct actions. The current study argued earlier that to respond with appropriate purposeful, tangible, suffering-relieving action requires the medical practitioner firstly to recognise the suffering but then also requires the medical practitioner to develop a phenomenological valid, insider understanding of the suffering and to communicate that understanding unconditionally. Developing and communicating a phenomenological valid understanding of the patient's suffering and communicating it to the patient develops trust in the medical practitioner which in turn allows the patient to feel psychologically safe which increases the likelihood that the patient will not hide any pertinent information from the medical practitioner. More importantly, however, when viewed from the perspective of creating the preconditions for successfully alleviating suffering, developing a phenomenological valid, insider understanding of the patients suffering allows the medical practitioner to develop empathy for the patient and to express this as caring kindness. Moreover, developing a phenomenological valid, insider understanding of the patient's suffering is necessary to react context appropriately to the suffering.

Schneidermann (2002, p. 627) stated that "the better we understand them (the patients), the closer we come to discovering the true state of affairs, and the more likely we will be able to diagnose and treat

correctly". The medical encounter should be characterised by the essential element called, understanding (Makoul, 2001). It may be defined as the medical practitioner trying to stand in the patient's shoes, without losing touch of one's own personal professional role and responsibility. Thus, the importance of including the word "understanding", rather than feeling, in the definition of empathy when dealing with patients during medical encounters (Hojat, 2003).

During the medical encounter, it is necessary that the medical practitioner communicates his/her understanding of the patient's suffering. A medical practitioner, who has empathic understanding of a patient, but does not communicate that understanding, will probably not be perceived as empathic (Bylund & Makoul, 2005). Mutual understanding by medical practitioner and patient allows for a feedback loop to be developed enhancing the empathic engagement. Not only should the patient confirm the medical practitioner's understanding, but the medical practitioner should also use the understanding requirement in order to make a better diagnosis and proposing a better treatment plan. Thus, the current research study regards competence on the competency *gaining and communicating empathic understanding,* as a necessary, but insufficient, requirement that needs to be satisfied before the purposeful act of contextually appropriately attempting to alleviate the suffering, can be displayed. Stated differently: G*aining and communicating empathic understanding* is a theoretically valid latent dimension of the multidimensional compassion competency.

Research has shown that patients in general who are dissatisfied about communication during the medical encounter do not follow advice that has been given by medical practitioners (Hadlow & Pitts, 1991; Smith, Ley, Seale & Shaw, 1987). This highlights the importance of communication between medical practitioner and patient, since understanding would contribute to the effectiveness of the medical care rendered to the patient. Misunderstanding can be contributed to the communication during the medical encounter, more specifically the vocabulary since healthcare terms have a clinical and lay meaning. It is important that medical practitioners try to understand patient's concerns (Brandes, 2017).

In addition to understanding health concerns, medical practitioner's also need to understand their patient's health beliefs (Street & Haidet, 2010). Health beliefs can be categorised as the origin of a disease and how the disease can be managed with different remedies and medicine. The better the medical practitioner tries to understand the patient and his/her beliefs regarding the illness, the easier it is to identify possible gaps with regards to own thinking compared to what the patient actually beliefs. Patient understanding would allow the medical practitioner to propose treatment decisions that may be better suited to the patient's expectations. It would also enable the medical practitioner to make easier health behaviour predictions, such as patient medication compliance and lifestyle choices. In addition to these health outcomes some research has also shown higher patient satisfaction, patient trust and patient commitment to prescribed treatment when medical practitioner and patient reach a shared understanding on certain issues such as a treatment plan and the meaning of the diagnoses in laymen's

terms (Epstein & Street, 2007; Roter & Hall, 2006). It is difficult for medical practitioners to have a full understanding of patients' perspectives; thus the need for more active participation from both sides during the medical encounter where the medical practitioner asks questions, observes, comprehends and listens carefully while the patient needs to state his/her preference, share worries and also ask questions. Regardless of the actions that both role-players need to perform during the medical encounter, cognisance need to be taken of the reality in which medical practitioners operate, especially the environment and its inherent time pressures. There is literally not enough time to take long medical histories and engage in lengthy discussions. Thus, enough time should be allowed where the patient would share information through subtle verbal and non-verbal cues for which the medical practitioner should be attentive.

It has been found that medical practitioners who have longer relational histories with patients compared to practitioners who had few or no previous visits from patients, are associated with patients who are more prepared to talk about psychosocial issues of an uncomfortable nature (Street & Haidet, 2010). Moreover Street and Haidet (2010) illustrated how active patient participation was labelled as one of the key predictors of medical practitioner understanding. The study also indicated that medical practitioners tend to miscalculate the intensity to which patients perceive meaning in their medical conditions. In other words, how patients saw value in other medication or felt they had control over their medical condition. As a result, it can be argued that there seems to be a gap in terms of how medical practitioners perceive the interaction with patients compared to how patients actually view the interaction. To take a case in point, a study was done where both physician and patient had to write a post-session report of a clinic visit in which they were involved (Rohrbaugh & Rogers, 1994). Examples of the clinical events that happened during the clinic visit, were the prescription of drugs, the ordering of tests, the provision of counselling, performing a treatment procedure etc. The results indicated a noticeable discrepancy between medical practitioner's perceptions concerning what happened during routine clinical visits compared to patient's viewpoints. "The most interesting, and perhaps important finding is that the overall level of discordance in patient-physician perceptions was related to aspects of physician's problem assessment" (Rohrbaugh & Rogers, 1994, p. 128). The researcher is of the opinion that the result is probably due to lesser attention that has been given to the psychosocial dimension during the medical encounter as well as inflated self-confidence in understanding and assessing patient problems accurately. Therefor an emphasis needs to be placed on how important understanding between medical practitioner and patient needs are during a medical encounter (Hall, Stein, Roter & Rieser, 1999).

In a study by Eksteen and Mash (2018) patient satisfaction was measured with a medical interview satisfaction scale during consultations in the primary care setting. Somewhat surprisingly, given the decline in compassion in healthcare, results indicated high patient's satisfaction, especially in the areas of rapport building and understanding the patients concerns and fears. The concern exists that the reason for these results is that many patients that utilise the public healthcare sector facilities in South Africa

(many of these patients come from a low socio-economic background) hold low expectation levels, and that too many patients are pleased just to see a physician[44]. In trying to shed some light on the reason for the high patient satisfaction, more research was done in order to unpack the actual consultation with the patient. Christoffels and Mash (2018) recorded adult consultations in the primary care setting. The consultations were scored using the Stellenbosch University Observation tool, which is based on the Calgary Cambridge guide. Sixteen skills such as "identifies and confirms the patient's problem", "encourage patient contribution", were assessed resulting in ten of the sixteen skills not being performed in more than half of the consultations. In other words, medical practitioners lacked some of the necessary skills required for consultations and did not follow a person-centred approach. The high levels of patient satisfaction, do not serve to justify the mediocre consultation performance and neither do they serve as an excuse not to deliver a virtuous service to these patients.

In addition to the explanation of the medical practitioner understanding construct it is also important to dissect medical practitioner empathy, since both these two constructs are integrated into the competency of "gaining and communicating empathic understanding". Empathy is labelled as one of the most important competencies of a medical practitioner and a key component of staying human during a doctor-patient consultation. Modern medical practitioners are, however, criticised for not showing empathy. One reason might be the medical school education where medical practitioners learn how to focus on the body and the medical case, rather than the person. In addition, research has also shown that a medical practitioner who has been ill him/herself might be more empathic when dealing with a patient. Interestingly clinical medicine is known as "cynical medicine" in some hospitals.

The concept empathy in healthcare originates as far back as the days when Hippocrates, a famous medical leader, and Sir William Osler practiced as medical practitioners. A statement about empathic patient care, that is attributed to both these two individuals claims that "it is as important to know what kind of man (sic) has the disease, as it is to know what kind of disease has the man" (Ray, 2004, p. 30). Medical history shows that the narrative of the patient is just as important as the actual illness the patient may experience. The manner in which the medical practitioner will obtain an accurate diagnosis is through empathic patient care.

Defining the term "empathy" is controversial, since there is no consensus on one specific definition. The Greek term for "empathy" means "sympathetic understanding of another person or an object" (Klein, 1966, p. 1556)[45]. A more elaborate definition of empathy is given by Koch (1959, p. 184):

> The state of empathy, or being empathic, is to perceive the internal frame of reference of
> another with accuracy, and with the emotional components and meanings which pertains

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[44] It is acknowledged that if this concern is warranted it constitutes a serious and tragic indictment against the public health sector in South Africa. It is especially the powerless, marginalised and disenfranchised members of society that deserve to be the focus of compassion.

[45] Earlier (p.90) it had been indicated that the term *empathy* is derived from the ancient Greek word *empatheia* meaning "physical affection, passion, partiality".

thereto, as if one were the other person, but without ever losing the "as if" condition. Thus
it means to sense the hurt or the pleasure of another as he sense it, and to perceive the causes
thereof as he perceives them, but without ever losing the recognition that it is as if I were hurt
or pleased, etc. If this "as if" quality is lost, then the state is one of identification.

In addition, to the listed definitions, some researchers tend to define empathy from various other
perspectives, for example, a cognitive perspective, an emotional perspective or a combination of
different perspectives. Kohurt (1971) is one such a researcher who defines empathy from a cognitive
perspective, believing that an individual should understand the emotion and experience of another before
it is possible to show empathy. The Jefferson Medical College also describes empathy from a cognitive
perspective and highlights the importance of cognition when interacting with patients (Hojat et al.,
2002b, p. S58). The focus is not necessarily on emotions as can be seen from the definition: "Empathy
is a predominantly cognitive (rather than emotional) attribute that involves an understanding (rather than
feeling) of experiences, concerns and perspectives of the patient, combined with a capacity to
communicate this understanding".

When viewing empathy from a cognitive perspective, it is perceived that empathy emerges from
cognitive information processing for example reasoning and evaluation. In addition, it seems as if
empathy can be improved by education, since the definition is written from a cognitive perspective. In
contrast Eisenberg (1989) and Lazarus (1991) states that empathy is an emotional state of mind and that
a medical practitioner for example should share the emotions and feelings that the patient is
experiencing. Indeed, Baron-Cohen (2003, p. 2) also supported this viewpoint in defining empathy in
patient care as ascending "out of a natural desire to care about others".

A third group of researchers describes empathy from an affective and cognitive perspective (Davis,
1983; Gladstein, 1983). The cognitive perspective is about taking the perspective of the patient into
account; whereas the affective perspective focusses on the way in which a medical practitioner responds
to the patient emotionally. In support of Davis and Gladstein's viewpoints on empathy, Hojat et al.
(2002a) refers to empathy as the ability of medical practitioners to show insight and understanding in
the patient's perception of his/her experience as well as communicating this insight to the patient, thus
showing support. The Merriam-Webster (2014. p.1) Dictionary also defines empathy as "the ability to
understand and share the feelings of another person". In support of the third group of researchers'
viewpoint, Ekman is of the opinion that there are three ways in which an individual can empathise with
others. The differences between the three different forms illustrate how difficult it can be to respond to
another person's pain, since one need to correctly identify the correct behaviour. On the contrary, the
right approach can easily move one to compassionate behaviour. The first form is known as "cognitive
empathy" or "perspective taking". This means that one tries to know what the other person is feeling
and what they might be thinking. It is a useful technique in motivating people or when negotiating with
people. The next form is called "emotional empathy". In the brain there are cells called mirror neurons

which are fired when one person observes another person's emotional state, creating a resonance of that state inside one's own mind. One physically feels what the other person is feeling as if those emotions were contagious. The downside of emotional empathy is, however, that one might lack the necessary skill to address one's own troubling thoughts and emotions. This can lead to psychological exhaustion and burnout. Medical professionals often protect themselves against this kind of behaviour by trying to detach themselves from their patients. The last form of empathy is called, "compassionate empathy". According to Ekman, this is a skill that can be acquired. It illustrates that everyone is connected. With this kind of empathy one can understand and feel another's dilemma, one also spontaneously feel moved to help if needed (Goleman, 1995).

Thus, empathy is described as the capability of the medical practitioner to understand the patient, but not necessarily join the feelings of the patient. The General Medical Council (GMC) responsible for overseeing the medical education curriculum in the United Kingdom is of the opinion that any "good doctor" should be able to demonstrate empathy (GMC, 2009).

A different way of describing empathy was offered by Gianakos (1996, p. 135) who defined empathy as imagining the experience of changed roles. He defines empathy as: "the ability of physicians to imagine that they are the patient who has come to them for help". Pink (2005) also supports this viewpoint that an individual should imagine him/herself in another's shoes, feeling and seeing what the individual is experiencing. It seems as though individuals show empathy spontaneously and that it is not necessarily an act that is actively considered. Hojat (2007, p. vii) is of the opinion that empathy allows one to project feelings where it is possible for an individual to feel the emotion of another or at least placing one into the other person's shoes, in other words "I might be you". When a patient goes for a CAT scan for cancer of the pancreas for instance, it is relatively easy for a medical practitioner to identify the cancer, compared to listening to the patient's narrative about his/her abdominal pain. This seems to be a problem, since there is a perception that medical practitioners have so little time. Some medical practitioners are of the opinion that they do not get paid for being nice to patients, nor do they even have the time to talk to fellow colleagues, let alone their patients. Time is of the essence, and comes at a premium. Conversations, however, help to develop empathy; the medical practitioner focusses on the patient, trying to understand his/her needs. Even though empathy can be defined from different perspectives for the medical profession, the competency approach is followed for the purposes of the research study. In healthcare it would imply that an empathic medical practitioner would need to understand the patient's inner feelings and experiences as a separate individual. If the medical practitioner would dare to feel with the patient or enter into those feelings of another person, it will move into the direction of sympathy. Aring (1958) thus, argues that the act of appreciating another person's feelings without "joining" them, can be classified as empathy. In a recent textbook by a medical practitioner in practice, empathy is defined as "the ability to understand the patient's experience and feelings accurately; it also includes demonstrating that understanding to the patient" (Coulehan & Block,

2006, p. 23). In order to get a better grasp on the construct empathy, it could be advantageous to analyse the underlying behaviour as well as relevant examples of behaviour. Colliver, Willis, Robbs, Cohen and Swartz (1998) asked patients about medical students portraying empathy towards patients and what the behaviour consisted of. Empathic medical students, portrayed the following behaviour: They were more likely than others to put the patient at ease, they reassured the patient with an appropriate touch, and they made sure the patient understood directions.

Interestingly, research has shown that there is a correlation between medical practitioners' empathy and clinical performance in medical settings (Del Canale, Louis, Maio, Wang, Rossi, Hojat & Gonnella, 2012). One such a study was done in Parma, Italy; where the scores of a validated assessment of medical practitioner empathy was compared with the clinical outcomes of patients with diabetes mellitus during 2009. There were 20,961 adult patients who participated in the study. The criteria for participation was that the patients had to have type 1 or type 2, diabetes mellitus and should have been enrolled with any one of the 242 primary care medical practitioners for the entire year of 2009. The 242 primary care medical practitioners had to complete a Jefferson Scale of Empathy, a 20-item validated measure of empathy in the context of medical education and patient care. After the assessment, medical practitioner scores were compared with the occurrence of acute metabolic complications of hospitalised patients, i.e. the hyperosmolar state, diabetic ketoacidosis and coma as identified by the ICD-9-CM codes for patients. The results indicated that the medical practitioner's empathy rating is significantly associated with the clinical outcomes of the patients. In other words, higher medical practitioner empathy scores were significantly associated with a lower rate of acute metabolic complications. Literature does not seem to offer extensive empirical evidence, showing the connection between medical practitioner empathy and objective noticeable patient outcomes. In the literature there seems a belief that especially primary care practitioners should be able to act empathic. Ironically every patient has a right to be treated in such a way, thus empathy is important in any medical encounter, despite the medical practitioner's speciality (Del Canale et al., 2012). In addition, it was found that medical specialists who choose to work in people-orientated specialities, using personal qualities like social skills, likeability, emotional intelligence and sensitivity, tend to receive higher empathy ratings compared to their counterparts who follow specialities in procedure or technology orientated fields. Besides the different empathy scores obtained in different areas of speciality in medicine, studying medicine and launching into a medical career is normally characterised by a lot of enthusiasm and idealism in terms of how patients will be cured and cared for by young medical students. Ironically, statistics have shown that 75% of medical students become more cynical about their studies as well as the profession as they advance through the medical curriculum. It seems as if emotional detachment and clinical neutrality is promoted within the medical curriculum. Research has shown that a there is a significant decline in empathy scores on the Jefferson Scale of Physician Empathy (JSPE), when the assessment was administered at the beginning and at the end of the third medical school year. The third year of medicine is normally associated with exposure to clinical work. Consequently, research also indicated that

empathy continued to decline during residency training (Hojat et al., 2004; Hojat et al., 2009). The reasons for the erosion of empathy could be ascribed to patient and environmental dimensions, time pressure and a lack of role-models. Ironically role-models seem to be scares and few (Kramer, Ber & Moore, 1987).

Earlier research was reported (Cristoffels & Mash, 2018; Eksteen & Mash, 2018) that indicate that there was a tendency amongst patients that utilise the public healthcare system in South Africa not to expect compassion from the medical practitioners that treat them. This is a disturbing trend. Although one would expect medical practitioners to display compassion even when (and especially when) it is not expected, this trend nonetheless needs to be researched further to allow the research-based derivation of interventions aimed at enhancing a patient-centred high quality medical service expectation amongst patients that utilise the public healthcare system in South Africa.

In essence, there seems to be a need for systematic training in the humanities since patients want medical practitioners to act with empathy, sympathy and compassion. Interventions that could be utilised to enable medical students to enhance empathy during medical encounters may include role models, shadowing a patient, studying literature and art, experiencing hospitalisation and improving their narrative skills. Interestingly Wilkes, Milgrom and Hoffman (2002) did a qualitative study in which it was reported that medical students' empathy increased when they themselves had hospitalisation experiences. Unfortunately, it cannot be expected that medical students in training will automatically acquire empathic skills during their clinical training (Hornblow, Kidson & Ironside, 1988).

In this study, gaining and communicating empathic understanding is defined *as the extent to which the medical practitioner develops an understanding of the patient's story of the illness and suffering that assists the medical practitioner in his/her decision-making. Communicating his/her understanding of the patient's lived experience of the illness and suffering by showing insight and appreciation of the feelings, concerns and perspectives of a patient by perceiving the patient's internal frame of reference accurately through reflection. Shaping the management plan by the patient's understanding of the illness and suffering. Probing for further information to ensure greater insight; identifying how treatment would relieve the medical problem. Putting oneself in the shoes of another.*

2.4.5.2.1 The shadow-side of showing empathy

Notwithstanding the support for showing empathy in medical settings as shown in the literature, there are also researchers who believe that empathy might not be necessary. Maybe tending to tip to the extreme point of the scale, with regards to medical practitioner-patient interaction, Freud (1958) was of the opinion that medical practitioners should put aside their emotional and sympathetic support in order to achieve better clinical and therapeutic outcomes. In support of this argument, Koenig (2002) stated

that the avoidance of emotional feelings may better physician objectivity, when making clinical decisions. This may be one of the key reasons why medical practitioners are advised not to treat family members since subjective emotional feelings may impede clinical objectivity (Aring, 1958).

Furthermore, modern medical education seems to focus on clinical neutrality, medical practitioner detachment and computer-based diagnostic and therapeutic technology. Medical students indicated that a demanding medical curriculum, sleep loss and constant pressure as well as the fear of making mistakes and a hostile environment contributed to their changing view about the medical practitioner-patient interaction (Tavakol, Dennick and Tavakol, 2012). It seems as if the bureaucratic side of medicine outshines the human side.

In the study by Tavakol et al. (2012, p. 308) ten students in their fourth and fifth year of study were asked to participate in an interview of 50 to 70 minutes where the students were asked about their perception and experience on empathy in the medical setting. Examples of interview questions were: "Can you tell me how you see empathy in the context of patient care?", "Can you tell me how you deal with the emotional state of a patient?", "Can you tell me how empathy can be enhanced during medical education?". From the research it is shown that some medical students tend to show sympathy rather than empathy. In dealing with the emotion, the medical students will tend to adopt distancing strategies, because it might help the students reduce the negative emotions they might experience with these stressful situations. Examples of distancing strategies are depersonalisation and intellectualisation. It should also be noted that additional stressors may play a part in the emotion the medical student is experiencing, for instance long working hours resulting in a lack of sleep, experiencing sadness at extended patient suffering as well as different personality types with regards to medical practitioner and patient. During the interviews, one participant also indicated that surgery might be a barrier since these specialists tend to follow the biomedical model for medicine. The participant stated the following in support of his/her viewpoint: "Cut them with steel, take out the bad bit, sew them back up, congratulations, job done, and send them on their way" (Participant 10, Year 5, male). In essence, the participant felt that it was improbable to expect that a surgeon should show empathy with a patient. Another participant stated that the environment or context could be a potential barrier, by saying that: "If you've got a team with a doctor who doesn't like the kind of thing, then the rest of them tend to follow suit. And I think it's difficult for medical students to express or take into account the emotions of a patient if they're in an unsupportive environment" (Participant 3, Year 4, male).

Research has shown that there is a bigger awareness of empathy in medical care, especially for medical practitioners. Medical care leaders are arguing that the profession should have an all-embracing focus of "detached concern to empathy" (Pink, 2006, p. 168). Medical practitioners do not only communicate empathy by verbally stating comments about a patient's feelings, but it is also about the medical practitioner's tone of voice, the pauses that are utilized and the overall attunement to the emotional style of the patient. Interestingly the field of nursing is rated as the most ethical profession in the United

States according to the annual Gallup survey. The nurses seem to show an emotional intelligent care that cannot be automated nor outsourced (Pink, 2006, p. 171). In order to show empathy, the skill should be mastered to know when one should show detachment compared to showing attunement. A person needs to recognise that one is interacting with a person who feels emotions that may affect one's own emotions. A person should be able to ascertain another person's mental state, be attuned to the larger picture as well as the context from which the person comes or operates in. There should not be any expectations with regards to lawfulness, since experiences that makes a person happy today, might not have the same affect tomorrow.

2.4.5.3 Caring with kindness

Compassion is an attempt to appropriately respond to the recognised suffering of a patient in a given context with the aim of reducing the suffering. To display compassion is to do something definite that is motivated by the desire to alleviate suffering experience by a specific individual under specific circumstances. According to Buddhist belief (Nairn, 1997) compassion in this sense should be displayed towards all living things. When directed at plants and animals the effectiveness of the act of compassion is (in many instances but not all) not dependent on the cooperation of the plant or animal. The current study would, however, want to argue that in the case of humans the act of compassion as a purposeful, tangible attempt to alleviate suffering needs to be accepted by the person that it is directed at. This line of reasoning then begs the question what psychological state(s) in the man who fell prey to the robbers would constitute sufficient prerequisites to accept the Samaritan's purposeful attempt to alleviate his suffering[46]? The current study would want to hypothesise that *trust in the medical practitioner* is a necessary psychological state that should exist in the patient to be able to accept the purposeful, tangible attempt to alleviate suffering. Rousseau, Sitkin, Burt and Camerer (1998, p. 395) defined trust as follow:

> … a psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behavior of another.

Mayer, Davis and Schoorman (1995, p. 712) define trust as:

> … the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor.

Schoorman, Mayer and Davis (2007) argue that trust is not a dispositional or trait-like characteristic of an individual, but rather a psychological state that characterises an individual in a specific relationship. Trust, therefore, varies across relationships as a function of both parties in the relationship. Mayer et al. (1995) propose that the level of trust an individual holds (e.g. a patient) towards another person (e.g. a

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[46] But a Samaritan, as he traveled, came where the man was; and when he saw him, he took pity on him. He went to him and bandaged his wounds, pouring on oil and wine. Then he put the man on his own donkey, brought him to an inn and took care of him. The next day he took out two denarii and gave them to the innkeeper. "Look after him," he said, "and when I return, I will reimburse you for any extra expense you may have." (Luke 10:33-35).

medical practitioner) depends on the perceived trustworthiness of the second party (i.e. the medical practitioner). Mayer et al. (1995) in addition, propose that the perceived trustworthiness of a party is constituted by the perceived ability of the party, the perceived benevolence and the perceived integrity. The current study would want to argue that the perceived benevolence of a medical practitioner depends on the competence that he/she displays on the caring with kindness competency. The level of competence that the medical practitioner displays on the caring with kindness competency is therefore, in terms of this line of reasoning, hypothesised to indirectly affect the willingness of the patient to accept the act of compassion as a purposeful, tangible attempt to alleviate suffering, mediated by the perceived benevolence of the medical practitioner and trust in the medical practitioner.

Kindness refers to the deed of acting with care, being gentle and helpful (Oxford Dictionaries Editorial Team, 2018). Showing kindness and comfort to a patient, could imply that a medical practitioner reaches out to touch a patient on the forearm for example. Many medical practitioners hesitate about the occurrence of this, however, since the reflection might be interpreted that the medical practitioner wants to engage more than the patient; the medical practitioner may compromise his/her clinical detachment or such an act may indicate insincerity. Although research has shown that medical practitioners who present reaction; indirectly show that they care about their patients; some medical practitioners fear doing just that. Bluetow (2013) is of the opinion that any patient wants to have a medical practitioner who genuinely cares. In reality most medical practitioners do care, and kindness is reflected in sincere benevolence implying that there should be an element of unselfishness. A medical practitioners' kindness to a patient should be genuine – in order to be genuine, a medical practitioner should take care of him/herself. Faust (2009, p. 298) defines kindness as "a way of helping without necessarily feeling the emotional engagement required of compassion or empathy". Thus acting in a caring way without connecting emotionally. Bluetow (2013) cautions against the use of this definition since this type of behaviour might be interpreted as insincere. If a medical practitioner shows an act of kindness, an opportunity opens up for both parties to join in the clinical relationship. The connectedness of the role-players can in actual fact be linked to the African concept of Ubuntu, an individual's humanity depends on the individual's connectedness to others. Bluetow (2013) describes a medical practitioner's kindness as Ubuntu. The physician shows kindness without cognitively thinking about the act, while being aware of his/her own liability in reaching out to a patient.

Despite the key requirement of medical practitioner kindness when dealing with patients, certain factors that may inhibit the behaviour should also be taken note of. In private practice a culture would probably be introduced where competition, targets and performance regulation are highlighted. The implication would be that medical practitioners would have to set specific targets, thereby reducing the time and capacity to show kindness to patients. On the other hand, however, the same intensity but a different type of stress is experienced by medical practitioners in the public health sector in the sense that limited resources are available compared with non-conducive situation variables affecting the performance of

practitioners. Besides the aggravating circumstances that makes it difficult for medical practitioners to show kindness during medical encounters, there is still evidence to show that kindness helps healing (Bethune, 2011; Heath, 2012).

True kindness allows medical practitioners to be kind to all types of patients; even those for whom doctors do not care much for. Even though the act of kindness alone would not ensure the wellbeing of a patient with a severe diagnosis such as a breast lump for example; it is never out of place and transforms the cold and clinical medical routine of diagnosis. It can assist in softening the blow of giving bad news to patients and in many times "it can be all that is required in many of the fifty per cent of consultations classed by GP's as trivial, thereby sparing the patient (and health services) medicalisation of his or her problem by unnecessary prescription or referral" (Pickering, 1997, p. 117). Indeed, one does find that medical practitioners are time-bound and worried about the implications of such an act with regards to longer consultation hours. Ironically, the act of showing kindness can be achieved in less time that is required for a medical practitioner to write a prescription (Pickering, 1997, Faust, 2009).

In addition to the explanation of the medical practitioner kindness construct, it is also important to dissect medical practitioner care, since both these two constructs are integrated into the competency of "caring with kindness". The verb "care" has a number of different meanings (Oxford online dictionary, 2018). As a verb, the term "care" can firstly refer to that act of *experience and showing concern or interest in or attach importance to something or someone*. Secondly, more specific variations of this theme are *to experience, express and show affection for someone or something* and to express a preference (or dislike) or a(n) (un)willingness to do or have something. As a verb, the term "care" can secondly refer to the act of *looking after the wellbeing and providing for the needs of someone or something*. Both interpretations clearly apply to the manner that a medical practitioner is expected to act towards his/her patients. The question for the current study, however, is whether both of these interpretations should be mobilised when conceptualising compassion as a multidimensional behavioural construct. Previously it was argued, that under the banner of compassion a medical practitioner should be:

- Displaying authentic affection and care; and
- Taking context appropriate tangible steps to lessen the suffering

The two meanings of the verb "to care for" therefore both apply but apply as distinct competencies.

The word "care" specifically in healthcare includes many different denotations, namely longer consultation times for a medical practitioner to listen to a patient, shorter waiting lists, adequate treatment, respectful medical practitioners and accessibility to up-to-date technology. Ironically compliance with all these denotations does not necessarily mean true medical practitioner care has been demonstrated to the patient. When taking it from a medical outcome perspective, achievement of the

listed denotations might be seen as highly effective outcomes whereas patients who experience little attention from hurried medical practitioners as well as long waiting times may describe the outcome as negative and ineffective. As a result, some researchers have decided to split the definition of care for medical practitioners into technical care and interpersonal relationships. Technical care refers only to the facilities and services offered to patients, whereas, interpersonal relationships focus more on the demonstrated treatment that medical practitioners offer patients (Pickering, 1997).

Another way of describing care is by looking at the description of Tronto (2013), where the word care entails that one reaches out into something other than the self and that there would be some kind of action. When a person is in a position when care is needed, there is always some vulnerability. One does not always think about caring in this sense. Tronto is of the opinion that those in position of power is identified by duties such as caring about and taking care of, compared to care giving and care receiving which is left to the less powerful. As an illustration, the medical practitioner is taking care of the patient even though the nurses and physiotherapists are the actual providers of the hands-on-care. Despite the difference between medical practitioner care and cure it seems as if the act of demonstrating authentic affection and care plays a critical role in the act of showing compassion to a patient. When described in this sense, the focus thus moves from a cure to a care-based perspective with regards to compassion.

What is more, is that care is also defined from a compassionate and collaborative perspective. During a conference which was held in Atlanta in 2014, namely "Advancing Compassionate, Person – and Family-Centred Care through Interprofessional Education for Collaborative Practice" a task team developed a definition for care from such a perspective. The collaborative perspective specified the following requirements for an individual to be able to show care: Firstly, an individual needs to be able to experience compassion after which he/she will act on it. Secondly, an individual should have the ability to communicate and collaborate with patients and/or family according to their needs. Thirdly, communication should be transparent among all professionals dealing with the patient, thus collaborative communication. Lastly, an individual taking care of the patient should show resilience (Compassionate, Collaborative Care Model and Framework, 2014).

It is difficult to define medical practitioner care in the healthcare setting, since many complex medical conditions are best managed by interdisciplinary teams. In addition, the complexity and individuality of a disease also complicates the type and level of care a patient may need. The delivery of quality care does not just happen automatically, a lot of effort and work is required to take care of a patient (Riggare, 2015). In order for medical practitioners to provide patients with personalised care, they need to be able to discover how worried that patient, is for example, and how much information the patient would be able to absorb and receive. Research has shown that medical practitioners tend to misinterpret patients' anxiety levels (Söllner, DeVries, Steixner, Lukas, Sprinzl, Rumpold et al., 2001; Fröjd & Von Essen, 2006). In a study that was done with patients who had carcinoid tumours experience, medical

practitioner care was defined as, not only treatment of the disease, but also keeping the patient in a good mood. The results indicated an important link between patient satisfaction with care but also psychosocial function of patients with carcinoid tumours. In essence, it can be argued that quality care should be based on the patient's needs; thus identifying the level and amount of information the patient requires and would be able to deal with but also trying to determine the anxiety level of the patient (Fjörd, Lampic, Larsson & Von Essen, 2009).

A framework for showing care was developed Lipp, Riolo, Rialo, Farkas, Liu and Cisneros (2016) that stipulates how a medical practitioner could interact and engage with a patient. The framework identifies three focus areas, namely behavioural, attitude and interpersonal skills. Typical examples of the behavioural component are: when a medical practitioner asks a patient permission before touching or entering his/her personal space; when a medical practitioner positions him/herself in relation to the patient (closeness and posture) and lastly, when a medical practitioner introduces other relevant multidisciplinary team members present.

Another way of trying to define care in healthcare, is to understand how the patient, as the receiver of medical practitioner behaviour, may experience the act. By using Leventhal's self-regulatory theory, a useful framework is identified when trying to understand how patients react when susceptible to symptoms of illness. As an illustration, sudden pain may cause a patient to feel concerned, trying to make sense of the condition, asking questions whether it is curable, the duration and what the symptoms will be. The medical practitioner can play an influential role especially during the medical encounter, trying to reassure the patient about their treatment options and their specific illness (Leventhal, Nerenz & Straus, 1982). Should the medical practitioner request diagnostic tests and surgery for example, physical care is illustrated. Advising patients to follow a healthier lifestyle and diet would be examples of behavioural care. Figure 2.13 illustrates the framework in more depth.
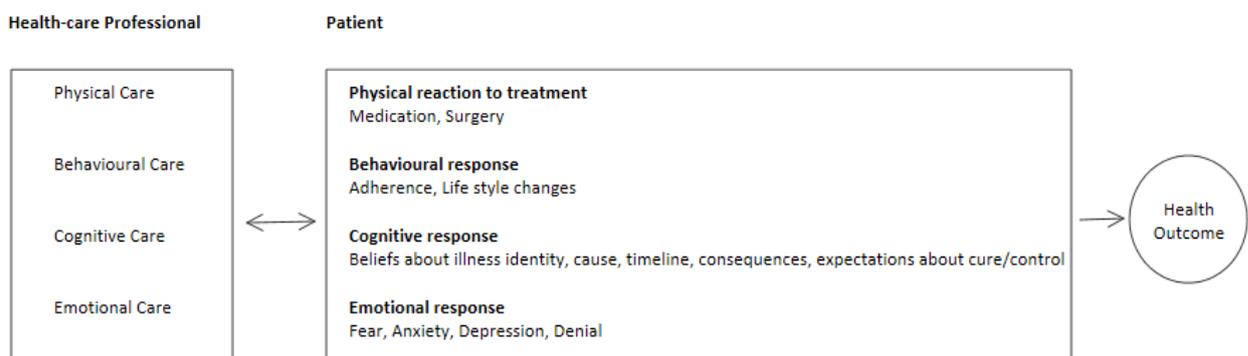
Figure 2.13: A framework for healing and the biopsychosocial consultation. Reprinted from "Self-Regulation and the Mechanisms for Symptom Appraisal" by H. Leventhal, Z. D. Nerenz and A. Straus, 1982. In D, Mechanic (Ed.), *Psychosocial Epidemiology, Volume Three: Symptoms, Illness Behaviour and Help Seeking*. p. 55. Copyright (1982), Neale Watson.

In essence, the medical practitioner needs to illustrate a holistic approach during the medical encounter, supporting the biopsychosocial consultation process. During the consultation the medical practitioner needs to show competence in the competency care. Typical examples would be showing support to the patient, telling the patient the possible prognosis, as well as the simple act of giving an accurate label to the illness experienced by the patient.

In this study caring with kindness is defined as *the way in which the medical practitioner reaches out to patients with kind-heartedness during the medical encounters where both parties need to join to ensure connectedness; by giving attention to patients; listen and support them; acknowledging the patient's vulnerability, show genuine concern and interest in the patient by acting responsibly and by being dedicated and having the courage to be appropriately involved with the patient. Focus on the quality of the engagement, the quality of the medical practitioner's concern and the nature of the medical practitioner's commitment to the patient.*

2.4.5.4 Mindfulness

Compassion is an attempt to appropriately respond to the recognised suffering of a patient in a given context with the aim of reducing the suffering. To display compassion is to purposefully do something definite that is appropriate for the nature of the suffering and the context to alleviate the suffering experience by a specific individual under specific circumstances. To succeed at alleviating this suffering it needs to be recognised where and when it is encountered. Moreover, the nature of the suffering needs to be phenomenologically validly understood. The current study would want to argue that to be competent at *recognising suffering* and to be competent at *gaining and communicating empathetic understanding* competence on the *mindfulness* competency is a necessary but not sufficient prerequisite. This argument was not reflected in the initial constitutive definition of the compassion competency. "Mindfulness is present moment awareness" (Ludwig & Kabat-Zinn, 2008, p. 1350). In other words, concentrating on the important aspects of an experience in a non-judgemental style. Adding to the current definition, Buchholz (2015, p. 1327) also stated that one is "paying attention to the present moment experience with openness, curiosity, and a willingness to be with what is". The definition of Buchholz may also imply that a person showing mindfulness needs to be comfortable with "unfinishedness", and an imperfect understanding of the patient's situation (Friere, 1998). The authors Kohls, Sauer and Walach (2009, p. 229), decided to take it a step further by dissecting mindfulness into two distinct components, namely "presence" (attending to the present moment) and "acceptance" (non-judgemental attitude). The preceding argument debated the importance of competence on this competency in the medical setting. In the event where the medical practitioner shows a lack of competence on the mindfulness competency, the danger of misunderstanding and delusion, increases (Williamson, 2003). Transparency and two-way communication are needed for both parties to ensure that the medical practitioner develops a phenomenologically valid appreciation of the patient's suffering

in context so as to allow an appropriate response at alleviating the suffering (which would include but not be restricted to effective treatment and recovery from the illness). Ironically some authors describe mindful practice as "non-wanting", thus the lack of reacting towards a specific situation, whereas other authors describe it as "wanting to reduce the suffering" of another (Buccholz, 2015; Friere, 1998; Williamson, 2003). The latter view is also regarded as the point of reference for the current study.

Even though the origin of mindfulness lies in Buddhism (Nairn, 1997), it can be personalised and utilised in other settings. In fact, Buddha considered himself a physician in the sense that he argued that mere conviction and rational thinking would not suffice as reasons to mitigate suffering, instead the practice of mindfulness would allow one to directly challenge the suffering by surpassing it. In addition, Kirby (2016) is of the opinion that mindfulness should allow one to become aware of one's own thoughts, thus mobilising a person to take control of one's overactive mind if needed.

Mindful practice allows medical practitioners to act with compassion, technical competence and insight. When working in a mindful way, medical practitioners are constantly busy with critical self-reflection that mobilise them to listen attentively to patient's stories. There are many arguments about the trainability of mindfulness, some experts have the opinion that it cannot be taught explicitly, but a role model in the medical setting can influence students to model the behaviour. Epsten (1999) believes that mentoring should be regarded as the adequate tool to use when teaching medical practitioners about mindfulness.

Bernstein (1981, p. 215) associated the occurrence of mindfulness in medicine with "musicians, whose task is to perform and listen at the same time, attending simultaneously to the technical challenges, emotional expression, and overall theoretical structure of music". Table 2.3 is an example of the characteristics necessary for mindful practice. It is important that a medical practitioner is actively observing him/herself, the patient as well as the patient's problem during the medical encounter.

Table 2.3

The Characteristics of a Mindful Practice

	Characteristics
1.	Peripheral vision
2.	Pre-attentive processing
3.	Critical curiosity
4.	Courage to see the world as it is rather than as one would have it be
5.	Willingness to examine and set aside categories and prejudices
6.	Humility to tolerate awareness of one's areas of incompetence
7.	Connection between the knower and the known
8.	Compassion based on insight
9.	Presence

The ultimate goal of mindfulness in medicine is "compassionate informed action in the world, to use a wide array of data, make correct decisions, understand the patient, and relieve suffering" (Epsten, 1999, p. 833).

In this study mindfulness is defined as *the way in which the medical practitioner focuses on and fully lives in the present moment; registering sensations in a non-judgemental and undistorted manner; grasping what is not clearly seen; registering the current moment accurately.*

2.4.5.5 Compassion action orientation

Compassion is an attempt to appropriately respond to the recognised suffering of a patient in a given context with the aim of reducing the suffering. The current study would want to argue that the recognition of suffering and a phenomenological valid, insider understanding of the nature of the suffering should result in the development of a state of empathy and a state of sympathy in the medical practitioner. The experience of these states is important in the sense that they motivate the display of competence on the caring with kindness competency. But a display of caring with kindness is not sufficient to alleviate suffering. A context-appropriate purposeful, tangible act needs to be performed aimed at reducing the suffering. The suffering of the man who fell prey to the robbers would not have been alleviated unless the Samaritan, who recognised his suffering, who seemed to have an accurate understanding of the suffering , who seems to experience empathy and a desire to help, who displayed caring with kindness, had not acted in the purposeful, definite manner that he did. To display compassion is to purposefully do something concrete to alleviate suffering experienced by a specific individual under specific circumstances that is appropriate for the nature of the suffering and the context. Passivity in many spheres of life is a problem that allows problems, wrongdoing and suffering to continue despite of being aware of them and despite begrudging them. Kuhl and Beckmann (1994) is of the opinion that purposefully doing something would be seen as taking and initiating action; making appropriate decisions and persevering on objectives despite obstacles. It is important to note that the competency called compassion action orientation, especially in the medical setting is quite complex. In the literature (Diefendorff, Hall, Lord & Strean, 2000; Kuhl & Beckmann, 1994) reference is made to the preoccupation, the hesitation and the volatility dimension of compassion action orientation. The *preoccupation* dimension refers to the degree to which a person shows impaired ineffectiveness or detaches from events that might interfere with the task at hand. Secondly, the *hesitation* dimension refers to the degree to which a person initiates action and moves forward on a task compared to being distracted, thus hesitant to initiate action. Lastly, the *volatility* dimension refers to the ability of the individual to persist and stay focused on the task at hand compared to individuals who become distracted by other interesting or necessary tasks. Thus, a key question would be: How does one ensures optimal compassion action orientation among medical practitioners in practise given the effect and reality of certain dimensions on the construct (Diefendorff et al., 2000; Kuhl & Beckmann, 1994)?

The medical setting requires medical practitioners to calculate a plan of action every day for each one of their patients. The plan would typically consist of different strategies which may result in different outcomes where moral values still need to be adhered to and clinical safety should be preserved. An ideal situation would be where a patient's expectations are managed by providing education during the consultation session to ensure maximum efficiency of the proposed intervention. In other words, medical practitioners need to show an action orientated approach (Borrell-Carrió, Estany, Platt, MoralesHidalgo, 2015). The same argument holds for showing medical practitioner compassion. A patient's suffering would only be alleviated if a practitioner understands the patient's context and then do something about the problem, thus moving over to action.

In this study action orientation is defined as *the extent to which the medical practitioner initiates tangible action that is appropriate in the given context aimed at alleviating suffering, not looking the other way, not expecting help to come from somewhere else. Relieves emotional distress; meets with the family if needed; relieves the suffering of the person and does not only provide treatment; assists in making sense of the suffering, assists in finding meaning in the suffering in wanting to relieve the patient's suffering by taking action.*

2.4.5.6 Investing the self

Compassion is an attempt to appropriately respond to the recognised suffering of a patient in a given context with the aim of reducing the suffering. To succeed at this suffering, it needs to be recognised where and when it is encountered. Moreover, the nature of the suffering needs to be understood phenomenological valid. To attain this insider insight, the medical practitioner needs to unconditionally live in the moment of the encounter. To attentively live in the moment of the patient-practitioner encounter and to attain the insight, the current study would want to argue that the medical practitioner needs to psychologically invest the self in the encounter. This argument was not reflected in the initial constitutive definition of the compassion competency. Kahn (1990, p. 692) describes his conviction that people at work vary in the degree to which they invest the self in the various work roles they have to perform, as follows:

> Researchers have given less attention to how people occupy roles to varying degrees—to how fully they are psychologically present during particular moments of role performances. People can use varying degrees of their selves, physically, cognitively, and emotionally, in the roles they perform, even as they maintain the integrity of the boundaries between who they are and the roles they occupy. Presumably, the more people draw on their selves to perform their roles within those boundaries, the more stirring are their performances and the more content they are with the fit of the costumes they don.

Kahn (1990, p. 694) introduced the constructs of *personal engagement*[47] and *personal disengagement* to capture the idea that people vary in the extent to which they invest the self in what they are doing at work

> The terms developed here to describe these calibrations of self-in-role are personal engagement and personal disengagement. They refer to the behaviors by which people bring in or leave out their personal selves during work role performances. I defined personal engagement as the harnessing of organization members' selves to their work roles; in engagement, people employ and express themselves physically, cognitively, and emotionally during role performances. I defined personal disengagement as the uncoupling of selves from work roles; in disengagement, people withdraw and defend themselves physically, cognitively, or emotionally during role performances.

The current study argues that the medical practitioner should show competence at *personal engagement* in the patient-medical practitioner encounter. This is also true for the patient. The focus here is on the medical practitioner. The medical practitioner needs to give, to invest, and to surrender the true/authentic self to the task of alleviating the suffering of the patient. The medical practitioner needs to psychologically reach out in the encounter, authentically display his/her real identity, thoughts and feelings and not psychologically, defensively, hold back to respond in a detached, quasi-robotic manner (Kahn, 1990; 1992). Kahn (1990) identified three psychological conditions that need to be satisfied to allow the medical practitioner to personally engage in his role, namely, the medical practitioner should feel psychologically safe, should experience the role as psychologically meaningful and should feel that he has adequate psychological resources to commit in the engagement.

In the current study investing the self is defined as *the extent to which the medical practitioner invests his/her self into the role of alleviating suffering.*

2.4.6 Conceptualising the internal structure of the compassion construct

The process of dissecting of the compassion construct into latent dimensions, has found it psychologically necessary to also incorporate *mindfulness* and *investing the self* into the construct. The initial constitutive definition of the construct did not acknowledge these two dimensions. Moreover, the initial definition suggested that it was important that the medical practitioner should express the unconditional desire to alleviate the suffering. The process of dissecting the compassion construct into latent dimensions has not found it psychologically necessary that the practitioner should express this desire as such. The desire to alleviate the suffering is, however, no doubt an important competency potential latent variable, that directly and indirectly determines the level of competence that the medical

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[47] Kahn's (1990) interpretation of (*personal) engagement* as a psychological act of investing the self in a role should be distinguished from the currently more popular view that *engagement* is a psychological state that is characterised by the three latent dimensions of vigour, dedication, and absorption. The state of engagement is to some degree comparable to what Kahn (1992) refers to as *psychological presence*.

practitioner achieves on the first-order competencies comprising the compassion construct. The original constitutive definition of the compassion construct is therefore revised to read:

Recognising someone's suffering, attentively living in the moment of the patient-practitioner encounter, investing the self in the role of alleviating the suffering, developing and conveying an insider phenomenological *understanding* of someone's suffering, demonstrated *authentic affection and care* for the individual and *implanting tangible context-appropriate action* to alleviate the suffering.

In the preceding section, it was argued that the internal structure of compassion consists of six dimensions, namely *interpretation of emotions and recognising suffering gaining and communicating empathic understanding, caring with kindness, mindfulness, compassion action orientation and investing the self.* These can be interpreted as first-order competencies loading onto a higher-order competency *compassion.* The constitutive definitions of the first-order compassion competencies are given in Table 2.4

Table 2.4

Definitions of First-Order Medical Practitioner Compassion Competencies (Dimensions)

Dimension	Definition
Compassion Action Orientation	In this study compassion action orientation is defined as *the extent to which the medical practitioner initiates tangible action that is appropriate in the given context aimed at alleviating suffering, not looking the other way, not expecting help to come from somewhere else. Relieves emotional distress; meets with the family if needed; relieves the suffering of the person and does not only provide treatment; assists in making sense of the suffering, assists in finding meaning in the suffering in wanting to relieve the patient's suffering by taking action.*
Caring with Kindness	In this study caring with kindness is defined as *the way in which the medical practitioner reaches out to patients with kind-heartedness during the medical encounters where both parties need to join to ensure connectedness; by giving attention to patients; listen and support them; acknowledging the patient's vulnerability, show genuine concern and interest in the patient by acting responsibly and by being dedicated and having the courage to be appropriately involved with the patient. Focus on the quality of the engagement, the quality of the medical practitioner's concern and the nature of the medical practitioner's commitment to the patient.*
Emotion Recognition	In this study emotional recognition is defined as the extent to which the medical practitioner recognises the emotional state of a patient when and where it occurs as an emotional cue profile pointing to an unresolved problem that causes suffering, by making a conscious effort not to dismiss the emotion; but to identify and understand the verbalised cues and the non-verbal behaviour related to the emotion.
Gaining and Communicating an Empathic Understanding	In this study gaining and communicating empathic understanding is defined as the extent to which the medical practitioner develops an understanding of the patient's story of the illness and suffering that assists the medical practitioner in his/her decision-making. Communicating his/her understanding of the patients lived experience of the illness and suffering by showing insight and appreciation of the feelings, concerns and perspectives of a patient by perceiving the patient's internal frame of reference accurately through reflection. Shaping the management plan by the patient's understanding of the illness and suffering. Probing for further information to ensure greater insight; identifying how treatment would relieve the medical problem. Putting oneself in the shoes of another.
Investing the Self	In the current study investing the self is defined as *the extent to which the medical practitioner invests his/her self into the patient-practitioner relationship; the extent to which the practitioner does not remain distant;, the extent to which the practitioner gives him-/herself to the patient; the extent to which the practitioner commits him/her self to the relationship.*

Table 2.4

Definitions of First-Order Medical Practitioner Compassion Competencies (Dimensions) (continued)

Dimension	Definition
Mindfulness	In this study mindfulness is defined as *the way in which the medical practitioner focuses on and fully lives in the present moment; registering sensations in a non-judgmental and undistorted manner; grasping what is not clearly seen; registering the current moment accurately.*

The connotative meaning of compassion can thus be explicated by describing the correlational and structural relations between the latent dimensions that constitute compassion. The current study conceptualises *compassion* to comprise six moderately positively correlated latent dimensions. Moreover, the current study conceptualises the *compassion* construct as comprising specific structural relationships between the latent first-order compassion competencies. As already indicated in Figure 2.12 displaying competence on specific first-order competencies is considered a prerequisite to display competence on other, more downstream, first-order competencies. The psychological mechanism that regulates the level of competence that medical practitioners display on the compassion action orientation competency can, however, not be described by referring only to the first-order competencies that constitute compassion. Therefore, the same *caveat* that was raised earlier under footnote 43 again applies to this attempt to explicate the internal structure of the compassion construct.

Compassion is an attempt to appropriately respond to the recognised suffering of a patient in a given context with the aim of reducing the suffering. To display compassion is to do something definite that is motivated by the desire to alleviate suffering experience by a specific individual under specific circumstances. This act, however, is dependent on specific competency potential variables that need to be developed via a number of qualitative distinct actions. To respond with appropriate purposeful, tangible, suffering-relieving action requires the medical practitioner to develop a phenomenological valid, insider understanding of the suffering and to communicate that understanding unconditionally to the patient. Developing and communicating a phenomenological valid understanding of the patient's suffering is, however, only possible if firstly the suffering is recognised by the medical practitioner that is competent at recognising and interpreting the emotions of the patient. If suffering is not recognised where and when it occurs, the medical practitioner cannot develop a phenomenological valid understanding of the patients suffering. Suffering is more often than not, not explicitly verbalised. It needs to be recognised via the negative emotions that the suffering evokes. The negative emotions that suffering evokes are, however, also relatively seldom explicitly verbalised. It is therefore hypothesised that:

Hypothesis 2

Competence on the *interpretation of emotions and recognising suffering* competency positively influences the level of competence achieved on the *gaining and communicating empathic understanding* competency.

To recognise the suffering and to attain the required insider insight the medical practitioner needs to unconditionally live in the moment of the encounter with the patient. The medical practitioner, therefore, needs to display competence on the mindfulness competency. It is therefore hypothesised that:

Hypothesis 3

Competence on the *mindfulness* competency positively influences the level of competence achieved on the *gaining and communicating empathic understanding* competency.

Hypothesis 4

Competence on the *mindfulness* competency, positively influences the level of competence achieved on the *interpretation of emotions and recognising suffering* competency.

To attentively live in the moment of the patient-practitioner encounter, to recognise the suffering and to attain the phenomenological insight needed to appropriately respond to the suffering the medical practitioner needs to psychologically invest the self in the encounter. The practitioner needs to take the risky step to commit/give the authentic self to the patient. Competence on the self-investment competency is therefore seen to be a prerequisite for gaining a phenomenological valid insider understanding of the patient's suffering. It is therefore hypothesised that:

Hypothesis 5

Competence on the *investing the self* competency, positively influences the level of competence achieved on the *mindfulness* competency.

Hypothesis 6

Competence on the *investing the self* competency, positively influences the level of competence achieved on the *interpretation of emotions and recognising suffering* competency.

Hypothesis 7

Competence on the *investing the self* competency, positively influences the level of competence achieved on the *gaining and communicating empathic understanding* competency.

Gaining a phenomenological valid insider understanding of a patient's suffering, enables the medical practitioner to display competence on the caring with kindness competency. It is therefore hypothesised that:

Hypothesis 8

Competence on the *gaining and communicating empathic understanding* competency, positively influences the level of competence achieved on the *caring with kindness* competency.

Caring for a patient with kindness, also motives the medical practitioner to go over into action, thus displaying a compassion action orientation approach. It is therefore hypothesised that:

Hypothesis 9

Competence on the *caring with kindness* competency, positively influences the level of competence achieved on the *compassion action orientation* competency.

These structural relations are summarised in the partial medical practitioner compassion structural model shown in Figure 2.14 (see blue lines).
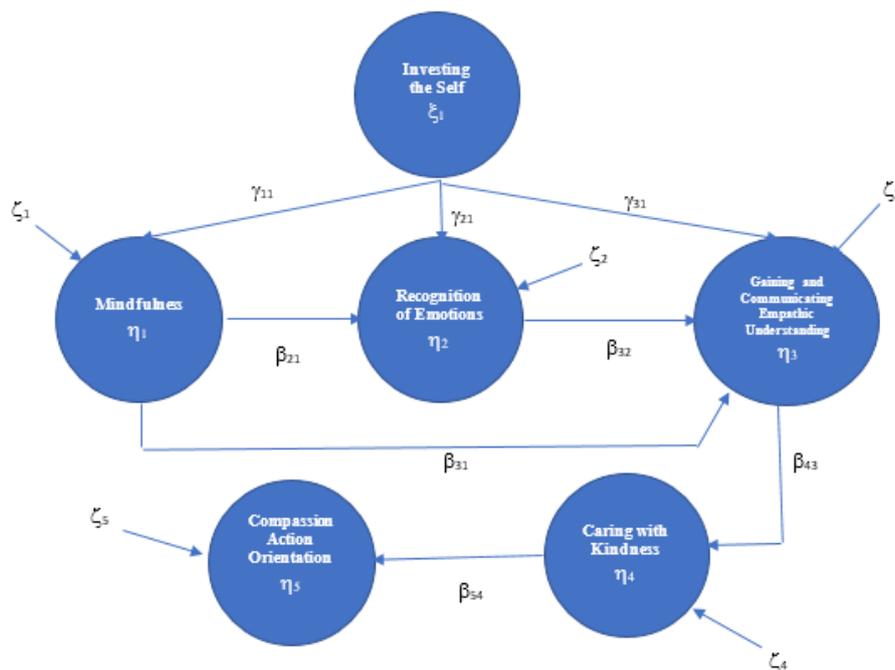
Figure 2.14: Partial medial practitioner compassion structural model reflecting the internal structure of the multidimensional compassion construct.

2.4.7 Embedding the compassion construct in a larger nomological network

In addition to understanding the internal structure of the compassion construct it is also necessary to take note of the larger nomological network in which compassion is embedded in order to more fully[48] explicate the connotative meaning of the construct. The level of competence achieved on competencies affect the standard achieved on latent outcome variables that are directly and/or indirectly dependent on specific competencies. Moreover, the level of competence achieved on competencies directly and/or indirectly depend on specific latent competency potential variables that characterise the medical practitioner and the patient and latent variables that characterise the context. In other words, the connotative meaning of compassion is further conceptualised by the explication of the structural

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[48] It is acknowledged that the explication of the connotative meaning of a construct is a process that is never completed. As explanatory research refines the insight in the manner in which the compassion competency and its constituent parts are embedded in a larger nomological network, the nomological network becomes more densely populated with latent variables and structural linkages and so the connotative meaning of the construct becomes richer and deeper.

relations between the latent compassion dimensions and latent performance outcome variables and between latent competency potential variables and the latent compassion dimensions.

To display compassion, is to attempt to appropriately respond to the recognised suffering of a patient in a given context with the aim of reducing the suffering. According to Buddhist belief (Nairn, 1997), compassion in this sense should be displayed towards all living things. When directed at plants and animals the effectiveness of the act of compassion is generally not dependent on the cooperation of the plant or animal. In the case of humans, however, the act of compassion as a purposeful, tangible attempt to alleviate suffering needs to be accepted by the person that it is directed at, for it to be effective. The current study hypothesised earlier that *trust in the medical practitioner* is a necessary psychological state that should exist in the patient to be able to accept the purposeful, tangible attempt to alleviate suffering. Trust in the medical practitioner refers to the psychological state in the patient comprising a willingness to be vulnerable to the actions of a specific medical practitioner rooted in positive expectations about the intention and behaviour of that practitioner as well as the resultant outcomes (Mayer et al., 1995; Rosseau, 1998; Schoorman et al., 2007). Mayer et al., (1995) propose that the level of trust a patient will have in a specific medical practitioner depends on the *perceived trustworthiness* of the specific medical practitioner. Mayer et al., (1995) in addition propose that the perceived trustworthiness of the medical practitioner is constituted by the *perceived ability* of the practitioner, the *perceived benevolence* and the *perceived integrity*. The current study previously argued that the *perceived benevolence* of a medical practitioner depends on the competence that he/she displays on the *caring with kindness* competency. The level of competence that the medical practitioner displays on the caring with kindness competency is therefore in terms of this line of reasoning hypothesised to indirectly affect the *willingness of the patient to accept the act of compassion* as a purposeful, tangible attempt to alleviate suffering, mediated by the *perceived benevolence of the medical practitioner* and *trust in the medical practitioner*. It is therefore hypothesised that:

Hypothesis 10

Competence on the *caring with kindness* competency, positively influences the patient's *perceived benevolence of the medical practitioner.*

Hypothesis 11

The *perceived benevolence of the medical practitioner,* positively influences the patient's *trust in the medical practitioner.*

Hypothesis 12

The patient's *trust in the medical practitioner,* positively influences the *willingness of the patient to accept the act of compassion.*

Compassion does not leave those involved unaffected. This is true, both for the patient and the medical practitioner. The current study would want to argue that the privilege to be granted the opportunity to alleviate the suffering of another provides the level of *meaning* experienced by the medical practitioner.

The current study would moreover want to argue that the privilege to be granted the opportunity to alleviate the suffering of another directly evokes *gratitude* in the medical practitioner but that the effect of compassion action orientation on gratitude is also mediated by *meaning*. The *gratitude,* in turn, is argued to positively impact on *humility*. It is therefore hypothesised that:

Hypothesis 13

Competence on the *compassion action orientation* competency, positively influences the level of *meaning* experienced by the medical practitioner.

Hypothesis 14

Competence on the *compassion action orientation* competency, positively influences the level of *gratitude* experienced by the medical practitioner.

Hypothesis 15

The effect of competence on the *compassion action orientation* competency on the level of *gratitude* experienced by the medical practitioner, is mediated by the level of *meaning* experienced by the medical practitioner.

Hypothesis 16

The level of *gratitude* experienced by the medical practitioner positively influences the level of *humility* experienced by the medical practitioner

"Gratitude motives altruistic and affectionate behaviour" (Keltner, Oatley & Jenkins, 2014, p. 220). It is the connection between receiving and giving, and it is also motivating. Thankful people know that much goodness happens independently of their actions. To understand who we are and where we are in life without the contribution of others, is humility. Gratitude implies humility. One should be able to place oneself in the position of a recipient, to become aware of one's dependence on others. Gratitude obligates one to reciprocate the giving behaviour but not necessarily to the giver. Hence, gratitude serves as the "moral memory of mankind" (Emmons, 2007, p. 4).

In addition to Emmons' explanation of gratitude, Haidt (2005) defined a feeling called "elevation", which is experienced as a warm, inspiring feeling that people feel when they see unexpected acts of human compassion, kindness and courage. This feeling influences people to return the behaviour, helping others and becoming a better person himself or herself. Given the context of the study and the intent to define gratitude from a competency perspective, the definition of Roberts (1991, p. 330) seems appropriate, namely:

> Gratitude is not goods delivered in response to payment. It is a response to a gift … Gratitude, as a response to a gift, is also a form of generosity, of graciously crediting the other for something that was not strictly owed.

Research has shown that there are many different motivators that influence medical practitioners' performance, but a key question that needs to be asked is whether medical practitioner gratitude for what their work allows them to achieve enthuse their performance (Buetow & Aroll, 2012; Glannon & Ross,

2002). Also, whether medical practitioner gratitude enables them to regain authentic meaning for their profession? Typically, medical practitioners would not show gratitude for the mere prospect of practising medicine, despite the fact that the profession is labelled as a service industry. In addition, patients grant medical practitioners the privilege and responsibility to allow them, especially medical students in teaching hospitals, to practice medicine on them, thus benefitting the student and possibly future patients and not necessarily the patient him/herself (Glannon & Ross, 2002). The argument may seem contradictory, since the perspective from the patient is normally chosen to understand the construct gratitude; whereas gratitude also needs to be understood from a medical practitioner perspective. It is argued, however, that medical practitioner gratitude is necessary to cultivate humility, in other words "to help anchor control and meaning in their work, and to moderate the negative effects of materialistic strivings" (Buetow & Aroll, 2012, p. 2064). By cultivating gratitude, medical practitioners are more aware and sensitised about the benefits of being a doctor which enables them to commit to helping behaviour and compassion.

Medical practitioner gratitude is expressed through actions which can be noted either explicitly or implicitly during medical encounters. The mere act of receiving the opportunity from patients to practice medicine increase gratitude which may mobilise medical practitioners to show more patience during a consultation for example, or to calm a worried patient by touching his/her hand during a consultation without asking consent. An implicit example would be where a medical practitioner is allowed to visit a patient at his/her home, thus permitting entry into a personal space. Glannon and Ross (2002, p.69) redefined this relationship by stating that: "we can call the patient who allows medical students to participate in care a hero as distinct from the donor who is a saint". Indeed, one can argue that medical practitioners who experience gratitude during a medical encounter would probably have a spontaneous desire to help patients; conversely without gratitude this deed becomes a duty and a responsibility (Roter & Hall, 2006).

Another important competency potential dimension, besides *gratitude* that is structurally linked to the compassion competency dimension, is *meaning*. Victor Frankl a well know psychiatrist was arrested by Austrian authorities in Vienna during the winter of 1942 while he was busy developing new theory with regards to psychological well-being. He and his wife, Tilly, anticipated the detainment, thus his wife decided to sew the manuscript of the book Frankl was busy writing, in the lining of his coat before they were dispatched to Auschwitz. In the concentration camp, however, his clothing was confiscated with the implication that he never saw his manuscript again. Over the next three years, Frankl recreated his research by writing notes on little pieces of paper he could collect and in 1946 when allied forces liberated the concentration camps, Frankl was able to finalise his book called "Man's Search for Meaning" which was labelled as one of the most lasting works of the last century (Pink, 2005, p. 217).

Frankl's book draws from his own experience in the concentration camps, where he had to do humiliating labour, was managed by merciless guards, received little food and fought for survival. He

also studied the experiences of his fellow prisoners and their mental states. Frankl argued that an individual's main drive is not to gain pleasure or avoid pain but rather to have a meaningful life. How does one find meaning in unimaginable setting of a concentration camp for example? The approach Frankl followed, was called "logotherapy", where "logos" is a Greek word for "meaning". He showed individuals that it is possible to have meaning in spite of suffering. It is, however, not required for one to suffer before one can find meaning. As Frankl wrote (Pink, 2005, p. 217): "I understood how a man who has nothing left in the world, still may know bliss, be it only for a brief moment, in the contemplation of his beloved".

For most medical practitioners it is possible to do extremely meaningful work, without them ever experiencing a sense of meaning. The underlying reason for this, is that objectivity can make a medical practitioner blind for such experiences. When things go wrong, when one needs to operate in times of crisis, meaning can be a source of strength. It helps one to withstand difficult times. This is not done by distracting medical practitioners from their problems or pain, but rather reminding them of their integrity – who they are, what they are doing and how they are adding value (Remen, 1999).

To take a case in point, Remen (1999) was a medical student who was invited to a formal dinner where one of the professors at their medical school was honoured before retirement. A small group of students went to talk to him, since he was the role model everyone wanted to become. A question was asked with regards to anything that he would like to tell the young students at the beginning of their careers as doctors. He answered them, by saying that he was no wiser now and that he did not know anything more about life then he knew when he started his career. For Remen, forty years passed working as a medical practitioner and only now does she understand what the professor meant. She was of the opinion that the lecturers failed her by not recognising the need to strengthen the humanness of each medical practitioner and not assisting the students to find meaning in the everyday work that they do. After forty years of being a medical practitioner, one should feel thankful for living the life of service (Remen, 1999).

It is important that medical practitioner's find meaning in the work they do, otherwise feelings of disinterest, burnout and indifference may occur. Gazica (2014) argued that meaningful work can be considered advantageous for medical practitioner's health, life and job outcomes. It serves as a "buffer" against external challenges, such as a difficult working environment and limited resources by guarding a doctor's wellbeing, thus allowing for a more engaged medical practitioner who experiences job satisfaction. Medical practitioners who do meaningful work seems to be more committed to their careers to such an extent that they are also more efficient than colleagues who are not pursuing it (Duffy, Bott, Allan, Torrey & Dirk, 2012).

"Human suffering is what gives meaning and purpose to the medical profession, a task that cannot be distorted by profit" (Souba, 2002, p. 140). As an illustration, one would often hear of medical practitioners who would discuss a "great case" enthusiastically. The energy and delight of learning are clearly visible, but also the gratitude for being allowed the opportunity to use their skills and knowledge to care for patients. This gratitude provides meaning since medical practitioners give a little bit of themselves in caring for patients, by showing compassion. There is a perception, however, that medical practitioners spend more of their time seeing patients with the effect that less of their time is spent with individual patients, probably due to challenging situation variables, such as availability of medical supplies and dealing with an unpleasant working environment. By extension, many medical practitioners have indicated that their work is regarded as less fulfilling due to the fact that personal expectations are not met coupled with feelings of frustration. Indeed, one cannot compare the rendering of a medical service to a corporate business.

Indeed, a medical practitioner's work as a calling would imply that patients are placed at the centre of the patient-practitioner encounter suggesting that doctors would display the necessary interpersonal competencies to the wishes, beliefs and expressed preferences of the patient. Patients would probably notice this and feel more comfortable sharing information with the medical practitioner, thus contributing positively to the trust relationship between practitioner and patient. Stewart (2001, p. 445; 2003, p. 3) defines patient-centredness as "a change from a disease focus to the whole patient's feelings and experiences and a shift from the doctor controlling the relationship, communication and decision-making to involving patients." Thus, it can be argued that those medical practitioners who experience meaning in their jobs when interacting with patients would probably lead to positive patient centred outcomes (Fourie, 2015).

Fourie (2015) identified a set of ten latent outcome variables that the medical practitioner working in the public sector should be held accountable for. Figure 2.15 depicts the partial medical practitioner competency model she proposed. The current study with its interest in the compassion competency is really focussing on a facet of what Fourie (2015) termed the *patient centeredness* competency. The structural model depicted in Figure 2.14 describing the internal structure of the multidimensional compassion competency can therefore replace the *patient centredness* competency in Figure 2.15. Fourie (2015) hypothesised that *patient centredness* currently directly influences the patient's:

- Trust in the medical practitioner;
- Feeling that he/she was treated as an individual;
- Satisfaction with medical service; and
- Motivation to adhere to treatment.
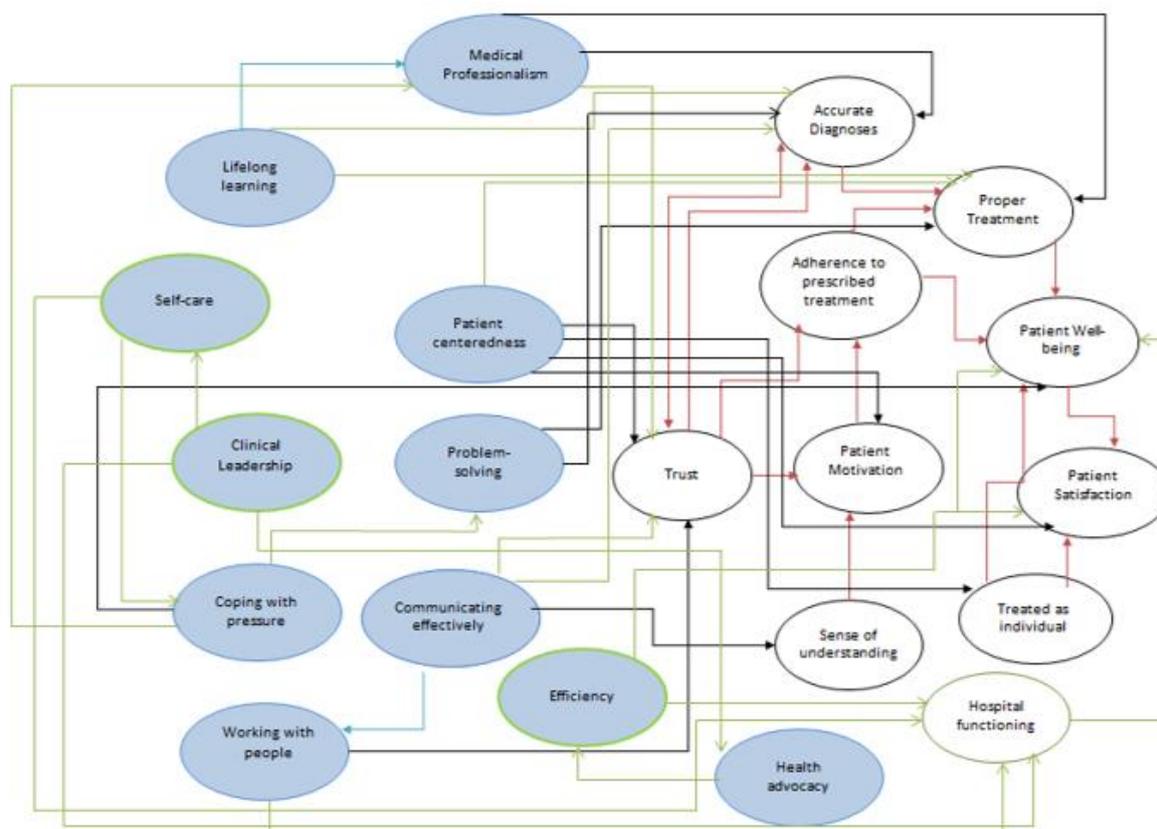
Figure 2.15. Partial medical practitioner competency model. Reprinted from "The Development of a South African Medical Practitioner Competency Questionnaire" by M. Fourie, 2015, Master Thesis, *Stellenbosch University*, p. 168. Copyright (2015), Stellenbosch University.

Note: The green arrows represent the hypothesised structural paths between the competency latent variables; the black arrows represent the hypothesised structural paths between the competency and outcome latent variables; and the red arrows represent the hypothesised structural paths between the outcome latent variables

This then, begs the question how the latent variables comprising the structural model depicting the internal structure of the multidimensional compassion competency should be structurally grafted onto these four latent outcomes in the Fourie (2015) partial competency model. Hypotheses 8 and 9 posit that *caring with kindness* indirectly affects *trust in the medical practitioner* through its effect on *the perceived benevolence of the medical practitioner*.

Fourie (2015, p. 34) defines *treated as an individual* as:

> The extent to which the patient feels that he or she is treated fairly and as a human being, and not merely as a number, by being listened to, taken seriously, and being accepted by the medical practitioner who gives the patient the opportunity to have an active role in decision-making regarding their treatment

The current study would hypothesise, that the level of competence that the medical practitioner displays on the *gaining and communicating empathic understanding* competency positively influences the extent to which the patient feels that he/she is *treated as an individual* and not merely a medical case. It is necessary for a medical practitioner to show affection during a consultation session, since this would contribute to the patient's experience of being treated as an individual. Most patients don't want cold

and cynical care during the consultation session; rather there should be some type of emotional component attached to the care (Faust, 2009). Kindness is about the way in which help is offered to the patient; typically acts of gentleness, concern, helpfulness and respect would illustrate kind care to a patient. It is therefore hypothesised that:

Hypothesis 17

Competence on the *gaining and communicating empathic understanding* competency, positively influences the extent to which the patient feels that he/she has been *treated as an individual.*

Fourie (2015, p. 34) defines *patient satisfaction* as:

The extent to which the patient feels gratified by the medical service he or she received.

Patient satisfaction should most strongly be influenced by the extent to which the medical treatment improved the patient's wellbeing, as a function of the extent to which the patient adhered to the treatment prescribed by the medical practitioner. This is acknowledged by the structural linkages hypothesised by Fourie (2015) and shown in Figure 2.15. The current study would, however, hypothesise that *patient satisfaction* is also directly affected by the level of competence that the medical practitioner displays on the *caring with kindness* competency and indirectly by the level of competence that the medical practitioner displays on the *gaining and communicating empathic understanding* competency via its effect on the extent to which the patient feels that he/she has been *treated as an individual*. The structural linkage between *treated as an individual* and *patient satisfaction* is acknowledged by Fourie (2015). It is therefore hypothesised that:

Hypothesis 18

Competence on the *caring with kindness* competency, positively influences the level of *patient satisfaction.*

Fourie (2015, p. 34) defines *patient motivation* as:

The degree to which the patient believes the treatment will lead to success and is motivated to complete it.

Fourie (2015) hypothesised that competence on the *patient centredness* competency directly affects patient motivation and indirectly via trust in the medical practitioner. The current study chooses not to hypothesise a direct structural linkage between any latent dimension of the compassion competency and patient motivation but rather hypothesise a mediated path from *caring with kindness* to *patient motivation* via *perceived benevolence* and *trust in the practitioner*.

In addition to hypothesising the structural linkages between the compassion competencies and the four latent outcomes as identified by Fourie (2015), the current study would also hypothesise that gratitude, a compassion competency potential, is structurally linked to medical practitioner satisfaction. A proposed definition for medical practitioner satisfaction is:

The degree to which the medical practitioner experience fulfilment by caring for a patient and the consistent achievement of work-related goals.

The prospect of practising medicine is made possible by the willingness of patients to allow medical practitioners to take care of them. This in effect implies that medical practitioners should actually show gratitude and respect for the fact that they have been given this opportunity (Glannon & Ross, 2002). Practitioners who act thankfully and seek for opportunities to "'give back" would probably experience higher levels of medical practitioner satisfaction. It is therefore hypothesised that:

Hypothesis 19

Medical practitioners' standing on the *gratitude* competency potential, positively influences the level of *medical practitioner satisfaction.*

Lastly, it is also hypothesised that *meaning* is structurally linked to *medical practitioner satisfaction.* As a duty and an obligation, a medical practitioner is bound to act in a patient's best medical interest. Medical practitioners know, however, that medicine cannot be managed like an auto repair shop – in other words diagnosing and fixing patients. Ultimately it is about making a difference in a patient's life, thus contributing to the greater good (Glannon & Ross, 2002; Souba, 2002). Medical practitioners who experience meaning in their jobs, would feel as if they are part of something bigger than themselves; resulting in medical practitioner satisfaction. It is therefore hypothesised that:

Hypothesis 20

Medical practitioners' standing on the *meaning* competency potential, positively influences the level of *medical practitioner satisfaction*

It can thus be argued that the structural relations between the six identified compassion dimensions and the five identified medical practitioner performance outcome variables play a critical role in understanding the connotative definition of compassion. In other words, how compassion is embedded in a bigger nomological network.   The postulated structural model, displaying the hypothesised structural relations between compassion dimensions and performance outcome variables identified is portrayed, as green lines, in Figure 2.16. In addition, Table 2.5 give a summarised version of the formal definitions of the medical practitioner performance outcome variables as displayed in the medical practitioner compassion structural model.
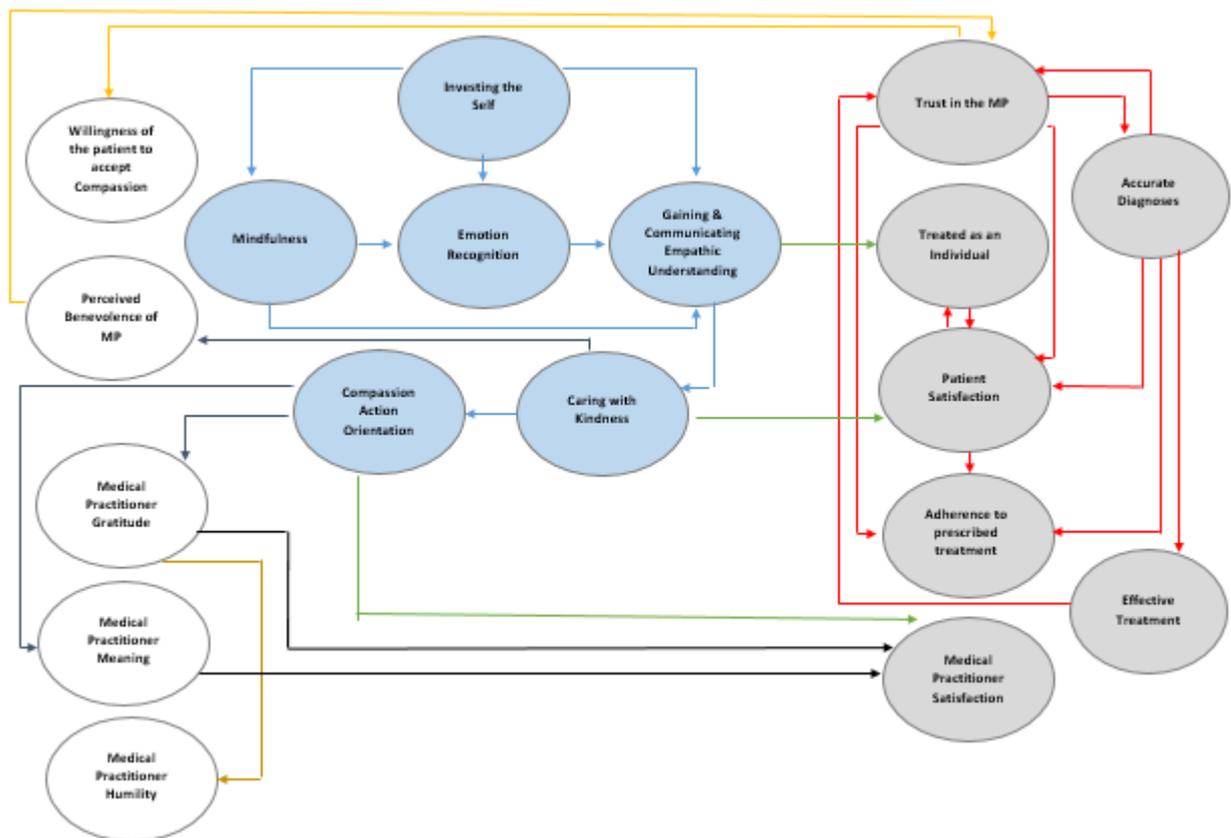
Figure 2.16: Medical practitioner compassion, competency potential and outcome structural model
Note: Circles in white represent compassion competency potential latent variables, circles in blue represent latent compassion competencies and circles in grey represent latent compassion outcomes. Arrows in red represent hypothesised causal paths between latent outcome variables. Arrows in green represent hypothesised causal paths between latent competencies and latent outcome variables. Arrows in black represent hypothesised influences on the compassion competency potential latent variables.

Table 2.5

Definitions of Medical Practitioner Outcomes

Outcome	Definition
Accurate Diagnoses	The extent to which the medical practitioner accurately identifies a sickness or injury by evaluating the signs and symptoms, along with the patient's medical history (Fourie, 2015, p. 33)
Adherence to Prescribed Treatment	The extent to which the patient accurately adheres to the prescribed medicine and prescribed treatment instructions (Fourie, 2015, p. 34).
Effective Treatment	The extent to which the medical practitioner prescribes the best and most effective remedy for the diagnosed sickness or injury, by taking the person's medical history into account (Fourie, 2015, p. 34)
Medical Practitioner Satisfaction	The degree to which the medical practitioner experience fulfilment by caring for a patient and the consistent achievement of work-related goals
Patient Satisfaction	The extent to which the patient feels gratified by the medical service he or she received (Fourie, 2015, p. 34).

Table 2.5

Definitions of Medical Practitioner Outcomes (continued)

Outcome	Definition
Treated as an Individual	The extent to which the patient feels that he or she is treated fairly and as a human being, and not merely as a number, by being listened to, taken seriously, and being accepted by the medical practitioner who gives the patient the opportunity to have an active role in decision-making regarding the treatment (Fourie, 2015, p. 34).
Trust in the Medical Practitioner	The extent to which the patient feels they can rely on and have confidence in the medical practitioner, his or her abilities, diagnosis and intentions (Gruber & Frugone, 2011, as cited in Fourie, 2015, p. 33).

Besides the conceptualisation of the structural relations between the six compassion dimensions and the five medical practitioner performance outcome variables, cognisance should also be taken of the dynamic interplay between the medical practitioner performance outcomes per se. In the subsequent section, attention is given to the performance outcome variables of the Medical Practitioner Competency Model as shown in Figure 2.17 (see red lines). The performance outcomes are critical sources of information in the sense that it allows one to make inferences about possible competencies for the medical practitioner.
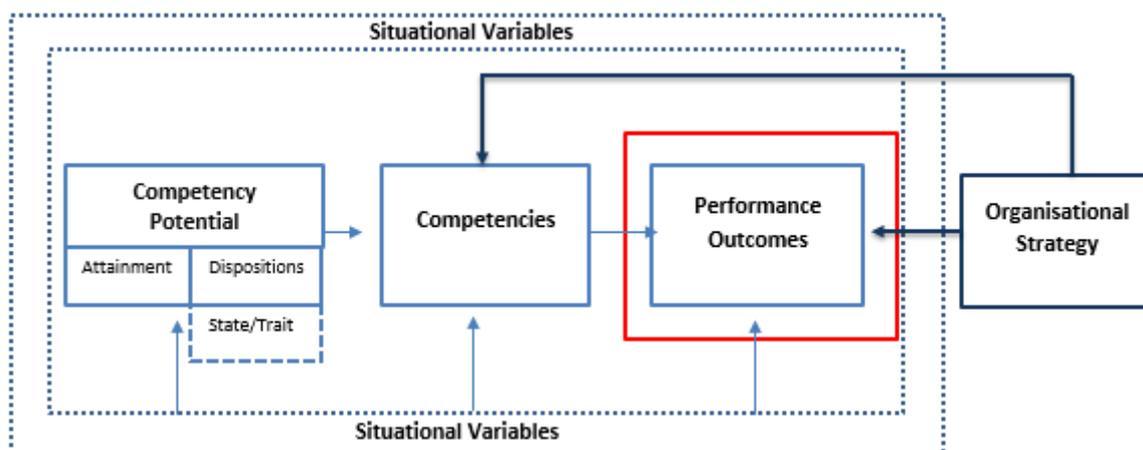
Figure 2.17: The importance of performance outcomes as part of a medical practitioner competency model

By studying the dynamic interplay between performance outcome variables, it is hypothesised that *accurate diagnoses* as a performance outcome is structurally linked to *trust* in the medical practitioner. One of the core responsibilities of a medical practitioner is to diagnose a sick patient, by determining what causes the problematic symptoms. When a patient is informed about the actual diagnoses, trust in the medical practitioner would be influenced since the patient's uncertainty about the illness has been addressed. In other words, the mere act of accurately naming the illness would affect the level of trust between patient and medical practitioner (Wood, 1991). It is therefore hypothesised that:

Hypothesis 21

Competence on the *accurate diagnoses* as a performance construct, positively influences the level of *trust* in the medical practitioner.

Consequently it can be hypothesised that an *accurate diagnosis* is structurally linked to *patient satisfaction,* since the practice of medicine is classified as a service industry, medical practitioners need to deliver high quality healthcare services to patients which may influence patient satisfaction; likewise an organisation also needs to deliver exceptional customer service to clients in order to create customer satisfaction. Patient satisfaction in healthcare, refers to the patient's perspective whether he/she received a good service. By accurately diagnosing an illness, a medical practitioner is influencing the patient's perception about the service rendered, thus affecting the patient's satisfaction level (Scotti, Jersey & Behson, 2007). It is therefore hypothesised that:

Hypothesis 22

Competence on the *accurate diagnoses* as a performance construct, positively influences the level of *patient satisfaction.*

It is furthermore hypothesised that an *accurate diagnosis* structurally links to *adherence to prescribe treatment*. An accurate diagnosis would enable the patient to understand his/her illness better, thus obtaining insight about the implications and effect that the illness may have on the patient. By acquiring this knowledge from a medical practitioner, a patient comprehends the medical problem and is probably more willing to adhere to prescribed treatment. It is therefore hypothesised that:

Hypothesis 23

Competence on the *accurate diagnoses* as a performance construct, positively influences the level of *adherence to prescribed treatment.*

It is hypothesised that *adherence to prescribed treatment* is structurally linked to *effective treatment*. Patients need to follow prescribed medicine and treatment instructions, since effective treatment is dependent on this. To take a case in point; non-adherence in tuberculosis control in developing countries remains a major challenge since most tuberculosis patients do not complete the prescribed six-month course of anti-tuberculosis medication. The result thereof, is the risk of developing multidrug-resistant and extensively drug resistant forms of this illness. As a result, the treatment is not effective anymore (Woimo, Yimer, Bati and Gesesew, 2017). It is therefore hypothesised that:

Hypothesis 24

Patients' standing on the *adherence to prescribed treatments* construct, positively influences the level of *effective treatment.*

In addition, it is also hypothesised that *effective treatment* is structurally linked to *trust in the medical practitioner*. When a medical practitioner prescribes the best and most effective remedy for a patient;

trust in the medical practitioner would be influenced. The better the individualised treatment programme works for a patient the higher assured confidence is gained in the practitioner, in other words a deeper trust relationship develops between medical practitioner and patient. It is therefore hypothesised that:

Hypothesis 25

Competence on the *effective treatment* as a performance construct, positively influences the level of *trust in the medical practitioner.*

It is also hypothesised that *trust in the medical practitioner* is structurally linked to a medical practitioner performance outcome called; *adherence to prescribed treatment*. Patients rely on expert medical advice and are dependent on the practitioner to ensure a healthy outcome; in other words, a trust relationship is developed between both role-players. This trust relationship is necessary in order to ensure patient adherence to prescribed medicine, otherwise patients may become wary of practitioners' intentions, thus motivating them not to use medicine as prescribed. Chadzopulus, Adraniotis and Eurframidu (2011) is of the opinion that there is evidence signifying that greater trust in a medical practitioner results in better adherence to the medical practitioner's instructions. It is therefore hypothesised that:

Hypothesis 26

Patients' standing on the *trust in the medical practitioner* construct, positively influences the level of *adherence to prescribed treatment.*

Furthermore, it is also hypothesised that *trust in the medical practitioner* is structurally linked to an *accurate diagnosis*. A medical practitioner practising medicine in healthcare needs to be able to diagnose a patient's illness accurately; that is identifying the primary sickness causing the observed symptoms. In order to make an accurate diagnosis a medical practitioner need to engage with a patient. This communication, however, is influenced by the level of trust in the medical practitioner. Trust is critical in a patient's willingness to share information (Chadzopulu et al., 2011). If the patient feels comfortable with the practitioner, required information would be shared more comprehensively. This would result in a better diagnosis since the practitioner would have all the necessary information required. It is therefore hypothesised that:

Hypothesis 27

Patients' standing on the *trust in the medical practitioner* construct positively influences the level of *accurate diagnoses*

Furthermore, is that it is also hypothesised that *trust in the medical practitioner* is structurally linked to *patient satisfaction*. In a trust relationship between a medical practitioner and patient, a patient would typically share information regarding his/her symptoms and a detailed medical history. The medical practitioner would, thus be in a position to ensure patient satisfaction, since he/she is in a position to render a service accurately addressing the need. It is therefore hypothesised that:

Hypothesis 28

Patients' standing on the *trust in the medical practitioner* construct, positively influences the level of *patient satisfaction.*

It is hypothesised that *patient satisfaction* is structurally linked to *adherence to prescribed treatment*. Patient satisfaction implies that a patient's need or want has been fulfilled and that the patient has received a good service from the medical practitioner. Patient satisfaction, thus influences a patient's motivation to adhere to prescribed treatment, since a more satisfied patient would probably obey medical practitioner's orders. It is therefore hypothesised that:

Hypothesis 29

Patients' standing on the *patient satisfaction* construct, positively influences the level of *adherence to prescribed treatment.*

In addition, it is also hypothesised that *treated as an individual* is structurally linked to *patient satisfaction*. The provision of good medical care originates from treating all patients as individuals (Sprinks, 2011). It is important that patients are considered as people who have feelings, needs and values that requires individual medical attention. By giving individualised attention to patients, they may feel cared for in the sense that their problems are taken seriously and the fact that they are participating in decision making during the medical encounter (Gruber & Frugone, 2011). In other words, being treated as an individual is a necessary outcome to ensure patient satisfaction. In support of this argument, the Institute of Medicine considers patient-centred care and patient satisfaction as critical factors in healthcare. When medical practitioners meet patient expectations, patient satisfaction tend to be higher resulting in better health outcomes (Ruiz-Moral, De Torres & Jaramillo-Martin, 2007). It is therefore hypothesised that:

Hypothesis 30

Patients' standing on the *treated as an individual* construct, positively influences the level of *patient satisfaction.*

Indeed, cognisance should also be taken of reasons why patient feel dissatisfied with medical services received. In a study done in four academic hospitals situated in Denmark, Israel, USA and the UK, physicians and nurses were asked to rate their clinical awareness of patients' expectations. A sample of 1004 respondents, consisting of 46.6% physicians of which 61.5% were attending, indicated that clinical awareness could be rated as moderate to low with regards to patient expectations. Even though 89.4% of clinicians believed it was important to ask their patients about their expectations, only 16.1% indicated that they actually asked their patients ($p < .0001$). The results indicate that medical practitioners may have a "blind spot" when interacting with patients about their expectations and trying to improve patient satisfaction. The research has shown that nine out of ten medical practitioners felt

that their awareness of patient expectations was insufficient. Nearly all medical practitioners indicated that it was important to ask patients about their expectations, even though only 16% actually asked their patients during medical encounters (Rozenblum et al., 2011).

Along the same lines it is also hypothesised that *medical practitioner satisfaction* is structurally linked to *treated as an individ*ual. When a medical practitioner experiences fulfilment and enjoyment in his/her job, a level of contentment is achieved which enables the practitioner to focus on that which really matters, namely the patient. In addition, the level of satisfaction would also influence the way in which co-workers see and experience the employee in his/her work environment, thus creating an environment of satisfaction and enjoyment which may be contagious to others (Suttie, 2006). A patient that feels valued, listened to and cared for experiences authentic care in the sense that he/she is not only a number. It is therefore hypothesised that:

Hypothesis 31

Medical practitioners' standing on the *medical practitioner satisfaction* outcome, positively influences the level of *being treated as an individual.*

2.4.8   The Shadow Side of Showing Compassion – Compassion Fatigue

One should note that medical practitioners are not invulnerable. Statistics have shown that medical practitioners are more than twice as likely to commit suicide compared to the general population (Miller & McGowen, 2000). Consequently, a need is highlighted to understand the phenomena of compassion fatigue as well as compassion burnout. Limited understanding exists of the connotative meaning of the construct compassion as a competency. One could argue that it is important to understand compassion fatigue and compassion burnout because these constructs probably lie in the bigger nomological network in terms of which compassion is conceptualised. In other words, explicating the connotative meaning of the constructs of compassion burnout and compassion fatigue will assist the researcher to get a more penetrating intellectual grasp on the construct compassion. The fact that compassion fatigue and compassion burnout do occur, should not serve as an excuse not to act compassionately. Displaying compassion over a period of time will not necessarily and unavoidably result in compassion fatigue and ultimately compassion fatigue. It nonetheless does remain a risk and this confirms the importance of understanding the manner in which compassion as a competency as conceptualised in the preceding section structurally links with compassion fatigue and burnout. Specifically interest resides in those main effects, interaction effects and feedback effects that cause some medical practitioners to be more prone to compassion fatigue and burnout. In the few cases where compassion fatigue and burnout should surface, psychological support and resilience programmes should be made available to address the occurrence. Besides specific programmes, it has also been shown that the empathic relationship between medical practitioner and patient can act as a buffer against the generalised dissatisfaction with the medical health system as well as professional burnout. The context in which medical practitioners

operate in, should also be noted, since dealing with a patient's chronic illness will require continuous care compared to an emergency surgical procedure which requires short but definite empathic interaction.

In understanding the dynamic structural relationship between the constructs compassion, compassion fatigue and compassion burnout it is necessary to reflect on how this relationship plays out over time in the medical setting. In other words, is there a saturation point in terms of showing compassion to patients, and if so, what the implication would be if a medical practitioner is required to act compassionately over a prolonged period of time? It could be argued that a crucial factor that affects the development of burnout in general is the extent to which the giving of the self is met with discernible results that are evaluated as positively valenced. If the investing of the self in compassionate care and kindness and compassionate action results in outcomes that are positively valenced by the medical practitioner satisfaction is derived from doing caring work in a professional capacity, it assists in creating meaning. Investing the self in compassionate care and kindness and compassionate action then generates a return that replenishes and re-energises. Conversely it could be argued that prolonged investment of the self in compassionate care and kindness and compassionate action while seemingly not achieving anything of value should over time wear the organism down. One would never be able to understand the negative dimensions of the work if the positive aspects are not understood. There is a test that measures these dimensions called the Compassion Satisfaction and Fatigue Test (CSF).

Compassion satisfaction builds on the positive aspects of a job. It is described as the "maturity to understand the negative "costs of caring" against the background of the credits of positive payments that comes from caring" (Louw, 2008, p. 135). Consequently, the more satisfaction one experiences by helping others, the more motivated one is to help. Thus, compassion satisfaction plays a very important role in equivalence when rendering a human service to others in need. If a medical practitioner should be exposed to extended periods of trauma and stress, compassion satisfaction may change into compassion fatigue (Figley, 1995).

Compassion fatigue, on the other hand occurs when there is a compromise in one's own well-being. One might have a predisposition in the mere act of consciously continuing to give of oneself to a sick patient, despite the awareness one might have of the difficulty in retaining a balance between compassion, objectivity and engagement (Louw, 2008). A medical practitioner for instance, would deal with a traumatised patient. Risking oneself to the indirect trauma experienced by the patient would be inherently part of the doctor-patient relationship. Baldwin (1963, p. 100) summarises it by stating that: "One can give nothing whatever without giving oneself, that is to say risking oneself".

The term "compassion fatigue" originated from a study done by Joinson in 1992 where the occurrence of burnout was studied among nurses working in the emergency care department of hospitals (Figley,

1993). It was found that the long working hours and high frequency of trauma patients that had to be dealt with increased the occurrence of compassion fatigue (Boscarino, Figley & Adams, 2004).

In brief, the critical onset lies in the fact that compassion fatigue results from the natural process of caring for the ill to such an extent that it affects a person's own quality of life (Todaro-Franceschi, 2013). Ironically it is so sudden in onset that most individuals do not recognise it (Figley, 1993; Figley, 1995). If compassion fatigue continues over time without being sufficiently addressed it can spiral into compassion burnout. Typical symptoms of compassion fatigue would include an increase in negative arousal, gradual desensitisation to patient stories, a low frustration tolerance, depression, decrease in quality care for patients (poor bedside manner), feelings of incompetence (work-related) and an increase in clinical errors (Figley, 1993; Figley, 1995). Compassion fatigue, however, should not be confused with post-traumatic stress disorder (PTSD). The difference is the fact that a medical practitioner is exposed to a traumatised person. It is not so much the traumatic event that triggers the behaviour (Figley, 1993; Figley, 1995). In essence, health professionals seem to be quite vulnerable to compassion fatigue due to the long working hours and high number of trauma patients that need to be dealt with. In a research study by Sprang and Clark (2007) 1,121 health professionals completed a survey measuring professional quality of life (called the Professional Quality of Life Scale (ProQOL), the results indicated that psychiatrists experienced higher levels of compassion fatigue than other professionals. The medical literature supports the phenomenon of compassion fatigue and burnout amongst medical practitioners across all areas of specialisation since numerous studies have highlighted the increase occurrence of substance abuse, posttraumatic stress and interpersonal problems among medical practitioners (Miller & McGowen, 2000). The most sinister aspect of compassion fatigue, is that it attacks the fundamental essence of what brings medical practitioners into their profession namely compassion and empathy for others (Mathieu, 2012).

In addressing compassion fatigue, one needs to look at prevention as well as resiliency. Humour can play a critical role in addressing compassion fatigue since it is described as a moderator of compassion fatigue. Laughter lessens the impact of the situation and make anxious people feel better (Figley, 1995). In addition, techniques commonly used in anxiety treatment, for example cognitive therapy seems to help individuals address self-defeating thoughts and laugh at themselves, thus lessening the constraint (self-handicapping or reduced personal accomplishment) that individuals put on themselves (Moran, 1995). Examples of these methods are: Selective abstraction, overgeneralisation and polarisation. Trauma training may also be a mechanism to assist medical practitioners in dealing with compassion fatigue and burnout, thus enhancing compassion satisfaction when displaying compassion. Sprang, Clark and Whitt-Woosley (2007) is of the opinion that knowledge and training protects medical practitioners against the effect of traumatic exposure. In addition, specialised training also enhances medical practitioner self-efficacy through exposure and training in more effective treatment and clinical assessment skills.

Another effective technique in addressing burnout is mindfulness training where medical practitioners are equipped with coping skills. The focus is to teach a medical practitioner to "be present" when dealing with patients but also when dealing with him-/herself (Horowitz, Suchman, Branch & Frankel, 2003). This quality allows the medical practitioner to show an understanding in his/her patient and an awareness of the patient's emotions. However, it also allows undistorted insight in the medical practitioner's fatigue condition and therefore increases the likelihood that appropriate, self-compassionate steps will be taken. This might lessen the loss of meaning and lack of control that medical practitioners tend to experience when diagnosed with burnout. Medical practitioners who participate in Continuing Medical Education (CME) programmes, specifically focussing on mindful communication, have shown improved measures on well-being as well as the improvement of personal characteristics associated with a patient-centered approach during medical encounters.

In essence, keeping a balance is important for medical practitioners; these professionals need to counter compassion fatigue by having external hobbies, enjoy relaxed meals, spend time away with family and friends, listen to music, have time to read, exercise and practice their spirituality. In other words, self-compassion and self-care is critical to ensure a balanced work-life perspective. On the other hand, medical practitioners must be wary of the following: working even harder and more hours, reducing leisure activities, ignoring the problem, neglecting one's own interest and looking for alternative employment. Improvement in mindfulness can assist in preventing the medical practitioner from spiralling into burnout through inappropriate responses to compassion fatigue due to a lack of self-insight and self-acceptance.

Compassion burnout involves an ongoing psychological wearing down of an individual over a period of time. As a result, healing would not be possible without an appropriate intervention. Marslach (1982, p.3) defines burnout as "a syndrome of emotional exhaustion, depersonalization, and reduced personal accomplishment". Research has shown that up to 60% of medical practitioners practicing medicine experience symptoms of burnout, feelings of dissatisfaction, emotional disorientation and compromised interpersonal functioning (Shanafelt, Bradley, Wiph & Back, 2002). The occurrence of burnout is also more common among mental health professionals compared to primary healthcare workers (Imai, Nakao, Tsuchiya, Kuroda & Katoh, 2004).

Alarmingly a correlation has been found between medical practitioner burnout and poorer quality of care, increased medical errors and a decreased ability to show empathy (depersonalisation or cynicism). Reasons as to why burnout occurs might be related to medical practitioners lacking a sense of control or experiencing a loss of meaning. Since it is well-known that burnout is common among the helping professionals, recent research has highlighted the fact that mental health professionals show higher levels of burnout compared to primary healthcare workers (Imai et al., 2004).

For the purpose of understanding compassion, it is imperative to succinctly capture the relationship between compassion, compassion fatigue and compassion burnout as discussed. The illustration represented by Figure 2.18 tries to clarify the progression from compassion satisfaction to compassion fatigue and eventually compassion burnout over time when compassion does not render sufficiently positively valenced outcomes.
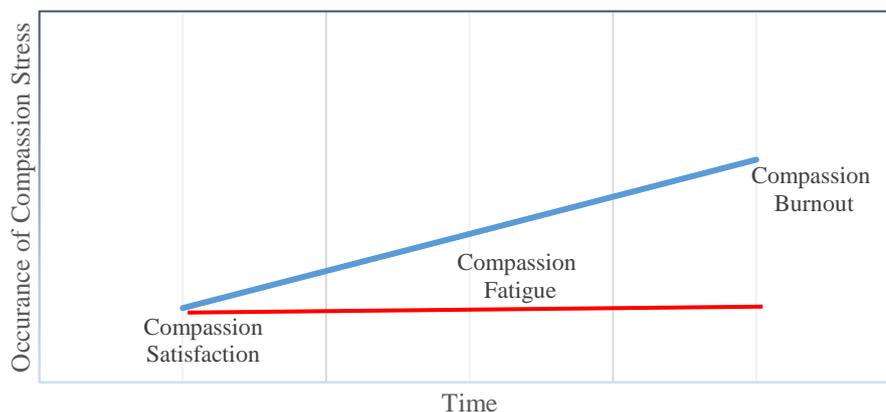
Lines	Compassion	Mindfulness	Self-Compassion
Blue Line	Little positive return	Low	Little
Red Line	High positive return	High	Strong

Figure 2.18. Continuum of compassion responses

Figure 2.18 introduces an additional variable as yet not discussed, namely compassion stress. Stress essentially is a state of psychological and physiological arousal (Radey & Figley, 2007). The degree of arousal is dependent on an assessment of the demands imposed on the organism, the ability of the organism to meet the demands and an evaluation of the consequences of successfully meeting the demands or not successfully meeting the demands. Higher levels of stress should exist if the probability of successfully meeting the demands become smaller (because of inadequate resources) and the consequences of not meeting the demands are highly negatively valences. Displaying competence on the competency compassion requires investing the self in the other. That requires opening up the self and giving of the self (Kahn, 1990). That brings risk, especially if the context is not evaluated as psychologically safe and it requires access to psychological resources (or psychological availability) (Kahn, 1990). If a medical practitioner, for example should be expected to display compassion over an extended period of time when his/her psychological availability is low and the context is evaluated as psychologically unsafe (i.e. the likelihood of negatively valenced consequences are high) compassion stress will increase and over time compassion satisfaction may change into compassion fatigue. If compassion fatigue is not adequately addressed it can spiral into compassion burnout.

In brief, by illustrating that *compassion* as a construct can be labelled as a medical practitioner competency it is argued that compassion is part of a medical practitioner competency model which influences healthcare outcomes. In trying to define the construct from a holistic perspective, it was deemed necessary to describe related constructs such as compassion fatigue and compassion satisfaction.

The current study argued the need to formally recognise compassion as an important competency on which medical practitioners need to display competence. The current study, moreover, argued the need to monitor the level of compassion competence displayed by medical practitioners. These arguments were used to justify the current study's objective of developing and validating the MPCCQ. However, this line of reasoning implies that once compassion development areas have been identified, action need to be taken to increase the level of competence that medical practitioners display on those underperforming latent compassion competency dimensions. Otherwise monitoring of the level of compassion competence displayed by medical practitioners serves little purpose. The subsequent discussion focuses on various positions and approaches to the development of compassion and the development of compassion competence[49].

2.4.9   Cultivation of Compassion

Ekman (Hopkins, 2010) interviewed the Dalai Lama about the phenomenon of compassion where the question was asked why the cultivation of compassion competence is needed. The Dalai Lama (Hopkins, 2010, p.279) stated that: "Compassion is what we are aspiring for. The whole notion of narrow-mindedness, the downside of being narrow-minded, is part of the argument for the need for compassion".

Every human being has the natural capacity to show compassion. In support of this argument, Jazaieri et al. (2012) is of the opinion that compassion can be taught to anyone since it is a skill. The act of showing compassion begins by having courage[50]. Courage to act compassionately, recognizing the suffering of others, this suffering will motivate one to act in order to relief the suffering; while experiencing thoughts and feelings of empathy and concern (Goetz, Keltner & Simon-Thomas, 2010). In addition, one needs to show resilience in order to prevent compassion fatigue (Center for Compassion and Altruism Research and Education, 2015). An alternative way Goetz et al. (2010 p. 351) uses to explain compassion is by dividing it in components namely: "(a) an awareness of another's pain,

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[49] It is acknowledged that it is difficult in this discussion to separate compassion as a state or trait that could potentially be developed from compassion as a competency on which the level of competence that is achieved could potentially be developed. Moreover it is acknowledged that these two perspectives are not mutually exclusive. Again, however, the current study is wary to oversimplify psychological explanations of the the level of competence that is achieved on a specific competency by merely adding the term ability to it.

[50] It is acknowledged that this argument holds implications for the nomological network in which the multidimensional compassion construct is embedded.

perception of reality, and psychological state; (b) a feeling of kindness; (c) a yearning to mitigate the suffering, and (d) doing what is within one's ability to lessen another's suffering".

The question in healthcare still remains: Are medical practitioners born as competent compassionate carers, or is it possible to cultivate this behaviour? In recent neuroscience studies it has been found that positive emotions are less determined by our DNA than our negative emotions (Keltner, Marsh & Smith, 2010). Further studies demonstrated that brain structures involved in positive emotions are more prone to change depending on the environmental input. Thus, the context in which one operates, plays an important role in cultivating compassion. To take a case in point, in the Oliners' study of Germans who helped rescue Jews during the Nazi Holocaust, it was found that one of the strongest predictors of this inspirational behaviour was the environment. Specifically, the individual's memory of growing up in a stable family that prioritised compassion and altruism were found to be the main reasons for acting in such a way (Keltner et al., 2010).

When one should explore the possibility of compassion training, it is important to remember that an individual's brain changes throughout life as the individual learns. In medical terms this is called neuroplasticity, in other words, brain cells are stimulated together, thus fire together and over time will wire up together. If an individual would focus, train and practice on a specific competency for example, it will make a difference to the brain. This phenomenon is also true for compassion training (Gilbert, 2010a). In order to develop compassion though, an individual should start with him/herself, trying to create a self-nourishing orientation. This may be a challenge, since individuals operate and live in a hurried life where a lot of negative emotions may be experienced as well as self-critism, supported by a target driven society. The question then arises as to how one can develop this competency. An individual will need to try and imagine him/herself as compassionate, focussing on behaviour illustrating the act of compassion, focussing thoughts and attention on the competency and then also imagine him/herself as compassionate to others and what that may involve.

In essence, compassion-focussed training is integrated in the sense that it taps into a wide variety of different interest fields, to name but a few – social psychology, evolutionary and Buddhist psychology, neuroscience, applied psychology etc. There may be situations in which medical practitioners have negative philosophies about compassion, since compassion do require courage and direct engagement with patients.

2.4.9.1 *Pre-requisites for the cultivation of compassion and compassion competence*

The Dalai Lama is of the opinion that human emotions can be experienced as very powerful, which at times can be overwhelming for any individual. That is why it is so important that any individual practice

their mind in order to distance him/herself from strong emotions. This will allow the individual to manage the emotion, before it arises in him/her (Nairn, 1997).

In order to develop true compassion competence an individual should be wary not to be influenced by fluctuating and discerning emotions. Depending on the type of relationship, one might feel close to others, for instance being friends, distant towards strangers and feeling aversion towards hostile strangers. The effect of this phenomenon is that individuals tend to feel negative emotions towards people that are disliked and this limit their capacity to show compassion towards others. The Dalai Lama argues that individuals are not unique and do not seem to have any special privileges. Each and everyone has an aspiration to be happy and be free to overcome suffering. He stated that: "The seed of compassion will grow if you plant it in fertile soil, a consciousness moistened with love. When you have watered your mind with love, you can begin to meditate upon compassion. Compassion, here, is simply the wish that all sentient beings be free of suffering" (Vreeland, 2001, p. 91).

2.4.9.2 *Compassion training programmes*

In the literature there seems to be a variety of compassion training programmes (Gilbert & Procter, 2006). Most of these programmes, however have a mindfulness component or have been developed from a Buddhist perspective. Despite the underlying philosophy of the training programmes some programmes also tend to focus on specific perspectives such as the Compassion Mind Training Programme (CMT). The CMT was developed with the specific focus on self-compassion (Gilbert & Procter, 2006). No programme, however seem to address compassion as a competency that can be enhanced by any form of training or coaching. In the subsequent section the different types of training programmes will be explained in order to clarify how it differs from competency training.

a) Mindfulness training

Mindfulness training for professionals is a popular intervention in America and Europe. One of the main goals of this training is to teach one to be mindful, thus enhancing one's self compassion and self-determination which will ultimately lead to reduced levels of stress. In addition, the training programme also elaborates on the qualities of mindfulness namely: presence, centredness and compassion. Despite the qualities of mindfulness, the most critical component of mindfulness is described as a combination of heightened attention and compassion. For the purposes of mindfulness training, compassion is defined as a person's ability to be receptive to others, not being critical of other's situations, showing understanding of suffering for both one's own and others (Gilbert & Procter, 2006). An important assumption of this programme is that self-compassion is not separate from compassion. Interestingly, no previous research has been done on this phenomenon, more specifically the changes of mindfulness and compassion as a result of mindfulness training for professionals.

In South Africa, the Faculty of Medicine and Health Sciences at the University of Stellenbosch in partnership with the Institute of Mindfulness South Africa, drafted and developed a 60-credit training module for professionals. The learning experience covers themes, such as, mindfulness and mindfulness-based approaches, the critical elements in a mindfulness-based training interventions, the foundation of mindfulness and exploring mindfulness at work (Whitesman & Mash, 2015). In the research that was done on this module, twenty-three participants were asked to complete the Kentucky Inventory of Mindfulness Skills (KIMS) Baum et al. (2010) and a Compassion Scale questionnaire (Neff, 2003). Results indicates that compassion is enhanced with the training methodology. It was shown, however, that the context in which these professionals practise should not be underestimated since one is dealing with poor infrastructure, ratio of medical practitioners compared to patients and an unsupportive organisational culture. All these factors contributed to medical practitioner's experience of stress and burnout, thus making it difficult to show mindfulness.

In addition to the mindfulness module, there are also other mindfulness programmes such as the Mindfulness-Based Stress Reduction (MBSR) programme that have shown an increase in self-compassion for clinical and non-clinical populations (Birnie, Speca & Carlson, 2010).

b) Compassion meditation training

Compassion mediation training is an example of a combined training programme where the focus is on meditation and compassion. The training involves techniques such as visualization practices, bodily awareness, repetition of compassion generating phrases for example ("May you be free from the suffering") and cognitive education in the Buddhist philosophy (Weng, Fox, Hessenthaler, Stodola & Davidson, 2015, p. 4). A learner will be trained to balance his/her awareness to the stimulus of the patient that is suffering, enhancing emotional compassionate feelings towards the patient and lastly enhancing motivation to help the patient relief the suffering.

c) Communication skills training

In the past, communication skills training was highlighted as an important skill for medical practitioners which resulted into a subject being included in the medical curriculum for medical students. The training, however, was done through observing the supervising consultant interviewing a patient. With time, a lot of emphasis was placed on quality healthcare and the complexity of medicine also changed which resulted in a more formal approach during the medical encounter with the patient.

In 2004, a decision was made by the Institute of Medicine, the Accreditation Council for Graduate Medical Education (ACGME) and the American Board of Internal Medicine that communication is emphasised as an inherent competency for a successful medical practitioner. The decision implied that all medical college students in America would need to show competence in communication as a competency before they would be allowed to receive certification from the Board of Medical Examiners.

As a result of this focus, the medical curriculum changed from a biomedical to a psychosocial perspective and more recently from a patient-centered to a relationship centered approach (Scherger, 2001).

Liew et al. (2014) illustrated the importance of formal training in communication as part of an undergraduate medical curriculum. In their research study medical interviews of 120 undergraduate students were video recorded during a clinical simulation. The assigned simulation was based on a sore throat scenario on the simulated patients. The modified Calgary Cambridge checklist (Silverman, Kurtz & Draper, 2005) was used by the researchers to evaluate the communication skills of the students by looking at the pre-recorded videos. The results indicated that some medical students portrayed better communication skills during the assessments compared to their counterparts. These students were the ones who had former training in communication skills. Thus, supporting the argument that additional training for medical students should be considered.

The teaching of communication skills however, still remains a challenge. Research has shown that an interview with a simulated patient (SP) or a technique which involves an objective structured clinical examination (OSCE) has shown to be effective in the assessment and teaching of undergraduate students, but there always seem to be a shortage of examiners in the field of expertise. Lecturers from other specialist departments, would get involved to assist with the examination who do not necessarily have the adequate knowledge and experience to assist students. Regardless of the shortage of specialist examiners, there are also opposing viewpoints with regards to the OSCE in the sense that the simulation does not allow one to develop a skill in-depth. One participant remarked (Tavakol, Dennick & Tavakol (2012, p. 308):

> I always find the communication skills OSCE a bit strange because you have 6 minutes to display your communication skills with this patient who isn't a patient at all. They're an actor and you know they're an actor and its suspending your disbelief rather than communicating. Because you can't communicate in 6 minutes with an actor in the same way as you communicate in a clinic with a patient. So, it's almost a bit false and it's kind of (about) passing the exam rather than being a good communicator (Participant 10, Year 5, Male).

Despite the tertiary education challenges with regards to communication skills training, there is also a demand for building this capacity from practice. To take a case in point, one of the largest health maintenance organisations in America called Kaiser Permanente (KP) have 11, 000 physicians. Research was done with 800 of these physicians, to determine what their needs were with regards to communication skills training. The majority (70%) of physicians indicated that they wanted to be taught how to improve their communication skill with difficult patients, for example angry, drug-seeking or demanding patients. Over time, a well-structured and researched model was introduced during the training interventions called the HABITS model which enabled medical practitioners to communicate

better with patients. The focus of the model was to teach medical practitioners how to build rapport and trust with the patient, to facilitate discussion, to show care and concern and to try to work towards positive health outcomes. A cohort study found that patient satisfaction has improved significantly since physicians have improved their communication skills through applying the model (Stein, Frankel & Krupat, 2005). The model does, however, focus explicitly on specific verbal techniques for example using open ended questions, validating and reflecting upon statements, prioritising issues, using non-verbal cues and summarising the conversation. Most of the techniques utilised in the model is a reflection of the typical characteristics of patient-centredness, thus enhancing the doctor–patient relationship (Frankel & Stein, 1999). An example of the Four Habits Model is included in Table 2.6. The model is characterised by four orientations that need to be followed by the medical practitioner, for example in the beginning of the relationship one needs to build rapport with the patient and create a welcoming environment. Each orientation is further divided into the skills required, the techniques that can be utilised and the actual payoff.

Table 2.6

The Four Habits Model

Habit	Skills	Techniques and Examples	Payoff
Invest in the Beginning	Create report quickly	• Introduce self to everyone in the room • Refer to patient by last name and Mr. Or Mrs. Until a relationship has been established • Acknowledge wait • Make a social comment or ask a non-medical question to put patient at ease • Convey knowledge of patient's history by commenting on prior visit or problem • Consider patient's cultural background and use appropriate eye contact and body language	Establishes a welcoming atmosphere Allows faster access to real reason for visit Increases diagnostic accuracy Requires less work Minimizes "Oh by the way..." at the end of visit Facilitates negotiating an agenda Decreases potential for conflict
	Elicit the patient's concerns	• Start with open-ended questions" "What would you like help with today?"; "I understand that you're here for... Could you tell me more about that?" • Speak directly with patient when using an interpreter	
	Plan the visit with the patient	• Repeat concerns back to check understanding • Let patient know what to expect: "How about if we start with talking more about..., then I'll do an exam, and then we'll go over possible tests/ways to treat this, sound O.K.?" • Prioritize when necessary: "Let's make sure we talk about X and Y. It sounds like you also want to make sure we cover Z. If we can't get to the other concerns, let's..."	
Elicit the patient's perspective	Ask for the patient's ideas	• Assess patient's point of view: "What do you think might be causing the problem?" "What worries or concerns you most about this problem?" "What have you done to treat your illness so far?" • Ask about ideas from loved ones or from community	Respects diversity Uncovers hidden concerns and diagnostic clues Reveals use of alternative treatments or requests for tests Improves diagnosis of depression and anxiety
	Elicit specific request		
	Explore the impact on the patient's life	• Determine patient's goal in seeking care: "How were you hoping I could help • Create context: "How has the illness affected your daily activities/work/family?"	

Table 2.6

The Four Habits Model (continued)

Habit	Skills	Techniques and Examples	Payoff
Demonstrate empathy	Be open to the patient's emotions Make an empathic statement Convey empathy nonverbally	• Respond in a culturally appropriate manner to changes in body language and voice tone • Look for opportunities to use brief empathic comments: "You seem really worried." • Compliment patient on efforts to address problem • Use a pause, touch, or facial expression	Adds depth and meaning Builds trust, leading to better diagnostic information and outcomes Makes limit-setting or saying "no" easier
Invest in the end	Deliver diagnostic information Provide education Involve the patient in making decisions Complete the visit	• Frame diagnosis in terms of patient's original concerns • Explain rationale for tests and treatments • Review possible side effects and expected course of recovery • Discuss options that are consistent with patient's lifestyle, cultural values, and beliefs • Provide resources (e.g. written materials) in patient's preferred language when possible • Discuss treatment goals, express respect towards alternative healing practices • Assess patient's ability and motivation to carry out plan • Explore barriers: "What do you think we could do to help overcome any problems you might have with the treatment plan?" • Test comprehension by asking patient to repeat instructions • Set limits respectfully: "I can understand how getting that test makes sense to you. From my point of view, since the results won't help us diagnose or treat your symptoms, I suggest we consider this instead." • Summarise visit and review next steps • Ask for additional questions: "What questions do you have?" • Assess satisfaction: "Did you get what you needed?" • Close visit in a positive way: "It's been nice meeting you. Thanks for coming."	Increases potential for collaboration Influences health outcomes Improves adherence Reduces return calls and visits Encourages self care

Note. Adapted from "Getting the most out of the clinical encounter: The Four Habits Model," by R.M. Frankel and T. Stein, 1999, *The Permanente Journal,* Vol.3, Nr.3, p.81.

The importance of communication skills training has been highlighted for tertiary education institutions and private/public practice. The reason, therefore, was mainly to improve medical practitioner–patient interaction. What has not been addressed, however, is the need for medical practitioners to communicate as well, since feelings of frustration, helplessness and resentment is often experienced without assistance. In the last couple of years, the physician-patient relationship in China seemed to have been weakening because of an increase in conflicting relationships. The most prominent reasons identified were patients not trusting their physician, and physical attacks on doctors. What is more, is that the Union Hospital in Beijing treats 10,000 patients every day in the outpatient clinic, implying that a physician will consult with 50-100 patients per day. In a comparable United States setting the medical practitioner will treat 10 – 20 patients on average per day (Jing, Otten et al., 2013). In short, physicians, similar to patients, are also confronted with psychosocial problems and need to take care of their own well-being. In many cases the opportunity to consult with a psychologist, psychiatrist or even social worker is limited on a short notice.

d) Compassion and compassion competence cultivation programme

Despite uncertainty about the trainability in compassion, a few programmes have been attempted. One such programme is the eight-week compassion cultivation programme that have been developed at The Centre for Compassion and Altruism Research and Development (CCARE) at Stanford University (2015). The programme was, however, developed from a Buddhist perspective. In addition to the eight-week compassion programme by CCARE, another Compassion Cultivation Training (CCT) programme (Goldin & Jazaieri, 2017) was developed, resulting in a nine week intervention where the impact of the training was measured on three orientations, namely compassion for others, being the recipient of compassion from others and lastly self-compassion. For the purpose of this specific programme, compassion is defined and described as a multidimensional process that consists of four key components, namely a person's awareness of suffering, an individual's emotional concern for the suffering, an individual's attention to try and relief the suffering and lastly an individual's sensitivity to feel motivated in order to assist (Jinpa, 2010). With regards to the actual CCT programme, the course consists of a two-hour introductory session, followed by eight, two-hour classes once per week. A daily compassion focussed meditation session is also included where participants are encouraged to do home medications for at least 15 minutes, building up to 30 minutes. Systematically, participants are processing through six sequential steps. The six sequential steps participants need to undergo can be seen as presented in Table 2.7.

Table 2.7

Core Components of the Nine Week CCT Course

		Components
1		Introduction to course and introduction to settling and focusing the mind
2	Step 1	Settling and focusing the mind
3	Step 2	Loving-kindness and compassion for a loved one
4	Step 3a	Compassion for oneself
5	Step 3b	Loving-kindness for oneself
6	Step 4	Embracing shared common humanity and developing appreciation of others
7	Step 5	Cultivation compassion for others
8	Step 6	Active compassion practice (tong-len)
9		Integrated daily compassion cultivation practice

Note: Reprinted from "A randomized controlled trial of compassion cultivation training: Effects on mindfulness, affect, and emotion regulation," by H. Jazaieri, K. McGoniga, T. Jinpa, J. R. Doty, J. R., J. J. Gross & P. R. Goldin, 2014, Motivation and Emotion, 38, p. 27. Copyright 2013 by Springer Science+Business Media.

As part of the training process a self-report inventory measuring the three orientations is utilised to measure the trainability of compassion. Research participants are asked to complete the inventory before a nine-week intervention and again after the intervention. In research done by Jazaieri et al. (2014) a hundred adults were randomly assigned to a nine-week compassion cultivation programme or alternatively to a waitlist for the programme (control study). A significant improvement, compared to the waitlist control sample, were noted in all three orientation domains. The research team is of the opinion that these findings may have critical implications for a person's wellbeing. An area that might need more research in future is the effect of receiving compassion from others (Jazaieri et al., 2012).

Other compassion-based programmes are Compassion-Focused Therapy (CFT) and Compassion Mind Training (CMT) (Gilbert, 2009, 2010a). The CMT programme was developed by Gilbert and his colleagues and focus primarily on the development of self-focused compassion. The target audience of this programme is individuals who suffer from high levels of shame and criticism (Gilbert & Procter, 2006). Another well-known programme is the Mindful-self Compassion (MSC) programme which has shown to increase individuals' self-compassion, compassion for others and mindfulness (Neff & Germer, 2013). A programme which focuses on self- as well as other-focused compassion, is called Cognitive Compassion Training (CBCT), which was designed and developed by the Emory University. A six-week compassion training course focusing on the training of other-centred thoughts and behaviours.

The question might be asked how a construct like mindfulness enhances compassion focussed training. Bishop et al., (2004, p. 232) defined compassion by using a two-component model, namely "(1) self-regulation of attention to the present moment experience, and (2) approaching present-moment experience with a sense of curiosity, openness and acceptance". It seems as if mindfulness tends to focus on an individual's entire experience, re-directing it back to the present moment. Jinpa (2010) is of the opinion that compassion training might also enhance mindfulness, since a vital facet of compassion is about the awareness of suffering in others. In support of Jinpa's argument, Kumar (2002, p. 42) argued theoretically that "it is paradoxical that in order to facilitate mindfulness or our own thoughts, feelings, and sensations, we must first enable ourselves to be more compassionate towards others… mindfulness is therefore an extension of a compassionate attitude, while at the same time compassion is necessary for mindfulness".

In addition to compassion focussed training, one might also include the construct affect. Affect includes short term emotions, longer term moods, attitudes and stress responses (Gross, 2010). As indicated by the research (Gross, 2010) compassion focussed therapy resulted in increases in happiness and a significant reduction in worry. Thus, affect was also influenced.

e) Narrative Medicine

A new development in medical education is called narrative medicine where medical students are taught to listen to patients' stories so that they can become more compassionate in medical care (Talan, 2003). Another strong believer of this is Charon (2001), who is an associate professor of clinical medicine at Columbia University. She developed a programme focusing on narrative medicine since she is of the opinion that many medical students enter the profession for their interest in science, unfortunately not all of these students have the personality to demonstrate the appropriate bedside manners. In support of this argument, the "interruption study" which was done twenty years ago; illustrated that medical practitioners interrupted their patients after twenty-one seconds during the initial medical examination. The study was repeated two years ago (Maugh, 1999), with the results showing that medical practitioners

now interrupted patients on average at twenty-three seconds during the medical examination (Maugh, 1999).

Medical practitioners are taught how to determine what the diagnosis of the patient is, how to listen to the patients as well as how to enter the examination room in a respectful way. Patients seem to complain of medical practitioner insensitivity and aloofness, whereas medical practitioners tend to complain about unrealistic demands, the context in which optimal performance is required and lack of understanding from the patient's side.

Charon (2001) argues that medical practitioners spend most of their time around sick and dying people. In addition, medical care is rushed and impersonal. Thus, medical care is not only about the ill patient, or the context in which one operates but also about how the medical practitioner experiences the dynamics. The technique that Charon introduced to address narrative medicine, was by means of a patient's chart which is divided into a quantitative side and a parallel chart. The quantitative chart consists of medical information (such as vital signs, recommendations and treatment plans) and medical lingo whereas the parallel chart will consist of narratives that medical students write about the patients they treat or their own emotions and experiences. A research study was done on 100 medical students in order to test the effectiveness of the adapted medical chart. Results indicated that those students who utilised the adapted medical chart, showed higher faculty rating and better relationships with their patients. According to Charon, the students also had better interviewing and technical skills compared to the control group who did not (Mangan, 2004). In essence is it about using technology and clinical competence, combined with an understanding of the patient's story, which will enable the medical practitioner to serve patients better. As a result of Charon's research all second-year medical students at Columbia University Medical School need to follow a seminar in narrative medicine despite the compulsory scientific subjects.

f) Case Studies

A deceased patient's mother posted a letter to a medical practitioner about the death of her son. The mother was of the opinion that the death affected her badly, but there was something else that bothered her even more. She was asked to leave the room in a hurried fashion, when her son was admitted. Her son was terrified and the only person that tried to address his fear, was a nurse who held his hand and tried to calm him. The rest of the team ignored him and only focussed on his chest and belly. It seems as if there was no sign of human kindness. Would it not have been better if the patient experienced less anxiety and fright? The last memory the son had, was of people ignoring him. The medical practitioners were attentive to his body but not his being. (Verghese, 2010, p. 423)

The case study is used to teach medical students about compassion. It is important that a medical practitioner understands the complex nature of showing compassion. One cannot be a medical practitioner "and not see yourself reflected in your (the) patient's illness" (Verghese, 2010, p. 397).

2.4.9.3 *The importance of role models in training programmes*

Education in the medical sector is about transmitting knowledge, values, attitudes and behaviour of one generation to the next generation. One of the critical issues in professional medical education is that it needs to be demonstrated to medical students that one's moral responsibility is much more than following rules and regulations. The medical students should know that they are and will always be personally involved (Leget & Olthuis, 2007). Medical students should be given the opportunity to observe competent role models demonstrating how competencies like compassion can be performed; after which the students acquire and practise the skill and lastly show that the skill have been mastered. In addition, role models should also ensure a caring and trustworthy atmosphere in clinical settings, thus setting the platform to learn from. Interventions such as experiential learning methods, including role-plays, simulations and problem-based learning assisted nurses in training can assist and hopefully result in improved training and development.

In a study done by Burack, Irby, Carline, Root and Larson (1999), attending physicians' (AP's) responses to problematic behaviours were studied in a university-affiliated public hospital. The following potentially problematic behaviours were identified: Disrespect towards patients, cutting corners and outright hostility or rudeness. AP's responded to these negative behaviours with passive nonverbal gestures for example, not smiling, humour, reference to the learner's self-interest and medicalising interpersonal issues. In referring to the learner's self-interest, the attending physician will typically suggest to the student that behaving differently would avoid conflict and criticism. In addition, medicalising interpersonal issues would imply that the attending physician will frame feedback more objectively by referring to the biomedical outcomes of care for instance. If one should analyse the problematic behaviours of the attending physicians from a behaviour modification perspective the behaviour could be seen as inadvertently reinforcing negative behaviour (Martin & Pear, 1983).

In the absence of formal medical education programmes incorporating compassion cultivation as a module, medical students will probably look towards role-models. These role-models seems to play a very important role, since they will either affirm the conceptions of the student or the role models will add to the cynicism and disapproving attitude towards patients. It was found that students and medical practitioners, busy with additional training identified enthusiasm, compassion, openness, integrity and good relationships with patients as competencies required for a role model (Paice, Heard & Moss, 2002). When a respected medical educator shows poor attitude and inappropriate behaviour, it causes confusion and distress in these medical practitioners in training and students under their supervision.

In essence the literature has shown that there is a concern about the erosion of compassion care during the medical practitioner–patient encounter. Although evidence is sparse, there seems to be enough research to illustrate that compassion contributes to the patients healing processes. Whether compassion is addressed appropriately or addressed at all in the medical curriculum is still questionable. There seems to be an important component that should be further understood when teaching and training medical students and that is the effect of a competent compassionate role model on medical students. Burack et al. (1999, p. 49) state that if medical practitioners are required to act more compassionately towards patients, "medical training and residency must do better at fostering (this)".

2.4.9.4 *Counter-arguments for the cultivation of compassion and the development of compassion competence*

Remen (1999) believes that compassion cannot be taught. It is not an action, nor behaviour, but a lived experience. Thus, teaching it may be complex. Furthermore, compassion is not an act of obedience, on the contrary it is more about having the insight that all suffering is like our suffering and that all joy is like our joy. When we know ourselves well and are able to connect to all others, compassion will simply be the natural thing to do. In support of Remen's argument, there seems to be uncertainty whether compassion can be trained (Jazaieri et. al., 2012). A study was done to determine if a mindfulness intervention could increase compassion and quality of life and job satisfaction in primary care clinicians. An eight-week mindfulness-based stress reduction programme (MBSR), originally developed by Jon Kabat-Zinn at the University of Massachusetts Medical Center was presented. Interestingly results indicated that there was no significant change in compassion. A contributory reason might have been that the respondents had a high compassion score at baseline already (Ludwig & Kabat-Zinn, 2008).

Despite the question, whether compassion can be cultivated or not, there is still a perspective in healthcare that objectivity is seen as an important criterion for those who want to be good physicians. When physicians lose their objectivity, mistakes might be made. Sir William Osler is often misquoted as having said that objectivity is the single most important trait of a good physician. The Latin word for "objectivity" is translated as "aequinimitas". "Aequinimitas" means "mental stillness" or "inner peace", it does not mean objectivity. Inner peace is an important trait for a physician whose daily work consists of dealing with human suffering. In short, it is about dealing with life so intimately in order to trust and accept it as a whole and to deal with the darkness it may bring, but to also know its grace.

There seems to be a paucity of research about the possibility to teach compassion via formal programs and actioned interventions. The debate centres on whether compassion can be developed as a competency or is classified as an innate ability. Modern day research also adds the brain function variable to the debate of cultivating compassion, since Kuhl and Beckmann (1994) have found that

psychopathy may be related to dysfunction of the paralimbic system. This may be one of the reasons why a psychopath has a complete lack of compassion.

2.4.10   The Importance of Compassion in "Letting Go"

Despite the fact that compassion is highlighted as an important construct in healthcare, it seems to be a challenge when treating the terminally ill. Firstly, the difference between ordinary medicine and hospice needs to be clarified. The difference does not lie between treating patients, compared to leaving patients and not doing anything. The primary goal of standard medical care is to prolong life either by doing surgery, giving chemotherapy or some other intervention. Hospice, on the other hand employs a wide range of different people, medical practitioners, chaplains, nurses and social workers to assist with patients who have a fatal illness, trying to ensure that the patient has the fullest probable life right now. The hospice workers will have direct conversations with the patients, trying to determine what the priorities should be for the patient, of which some examples of questions might be: "I need to understand how much you're willing to go through to have a shot at being alive and what level of being alive is tolerable to you. What are your biggest fears and concerns? What goals are most important to you? What trade-offs are you willing to make, and which ones are you not willing to make?" (Gawande, 2014, p. 183, 234).

Terminally ill patients are often physically and emotionally isolated from familiar environments. The greatest fear, for a dying patient is to suffer alone and to be abandoned. When contact is minimised with these patients, it is interpreted as avoidance and denial since the patient is not getting better. The medical practitioner should maintain a warm and compassionate relationship with these patients in order to ensure a more content patient. To take a case in point, medical practitioners in South Africa indicate uneasiness in caring for patients with terminal illness. The reason therefore might be the fact that palliative medicine and palliative care have only recently been introduced in the undergraduate medical curriculum of South African tertiary training institutions. One such an institution, the University of Cape Town, recognised the need and incorporated the training of medical skills in the curriculum, allowing medical practitioners to show care for an ever-increasing population of patients who face terminal illness. Support is given to address the physical, emotional, psychosocial and spiritual suffering patients might experience with the end-of-life challenge. Ironically it was a different story a few years ago, when medical practitioners abandoned patients for who cure was no longer an option. In many cases a non-profit organisation would then initiate community-based cure for the terminally ill patients (Gwyther & Rawlinson, 2007).

Terminally ill patients at some point need to make peace with the fact that they are dying. The need to let go without resentment. The current study would want to argue that compassionate carers, especially medical practitioners as figures of authority, need to display compassion. In terms of the current study's

conceptualisation of compassion as a multidimensional competency this involves investing the self in the relationship with the dying person, being in the moment when interacting with the patient, recognising and phenomenologically appreciating the dying person's emotions, gaining and unconditionally communicating empathetic understanding of the dying persons concerns, fears and yearnings, caring with kindness and responding with a compassion action orientation by responding with insight and appropriate actions to the phenomenologically appreciated needs of the dying person. Ultimately compassion will communicate to the dying person -you are not alone or abandoned.

In brief, there is a plea for compassionate care from medical practitioners especially when dealing with terminally ill patients.

CHAPTER 3
QUALITATIVE RESEARCH METHODOLOGY

3.1   INTRODUCTION

The introductory argument in Chapter One illustrated the important role that medical practitioners play in the healthcare sector, especially during the medical encounter with patients. The broad objective of the study is to understand a complex phenomenon, called medical practitioner compassion. By extension, the researcher would like to define this competency for medical practitioners and develop an instrument that would allow one to measure this construct, when demonstrated by medical practitioners. The literature review revealed that no South African measurement instrument of this nature currently exists in South Africa. A South African compassion measure would allow the assessment of this construct via context-appropriate behavioural denotations.

In order to develop a measurement instrument in-depth conceptualisation needs to occur since the researcher needs to get a grasp on the construct that the instrument intends to measure. In other words, understanding the internal structure of the construct but also the bigger nomological net of other related constructs in which the construct under study is embedded. From the literature review, a formal constitutive definition has been derived that identifies the underlying latent dimensions of the compassion construct. One could ask, however, how valid the conceptualisation is given that it is based on literature and (general abstract reasoning by the researcher). As a result, qualitative data collection is needed to understand compassion as a competency as well as the behavioural denotations in which each latent compassion dimensions comprising the multidimensional compassion competency expresses itself. In other words, the intention was that medical practitioners should be contracted as co-researchers to get phenomenologically accurate insight into the interpretive structures that they construct for themselves as to what *compassionate medical practitioner behaviour* means. Additionally, the way in which medical practitioner compassion is understood and conceptualised in the competency model should at least correspond to the interpretive structures that medical practitioners have created for themselves in order to make sense of what exactly successful medical practitioner compassion means. To put it another way the conceptualised compassion competency model should be acceptable to medical practitioners in the sense that they should be in a position to recognise their own mental models of successful medical practitioner compassion in the manner that the compassion competency model interprets medical practitioner compassion.

Qualitative data gathering was utilised for two reasons in the subsequent research. Firstly, to ensure trustworthiness and credibility of the connotative meaning of compassion as a medical practitioner competency. Secondly, to identify behavioural denotations or behavioural anchors in which the latent dimensions of compassion manifest themselves.

In the subsequent section qualitative research will be discussed by referring to the research paradigm, relevance of qualitative research, the research design, the interpretive framework for the study, the sample group, the data gathering techniques and the gathering process.

3.2   RESEARCH PARADIGM

In order to understand the research paradigm of this study, one should take a step back and organise one's thinking about research in social science. In everyday life, human beings question their actions and decisions. Babbie and Mouton (2001) refers to this "everyday life" as World One where lay knowledge, such as experience, wisdom and common sense, is utilised to understand life in general. Critical analysis of phenomena in World One by means of qualitative, quantitative and action research allows a researcher to move to World Two (The World of Science). In this world, a researcher builds a body of knowledge of the phenomena observed in World One. A researcher only enters World Three (The World of Metascience) when he/she needs to understand the world of science (World Two), thus reflecting on the nature of science by utilising approaches such as positivism, critical theory, realism or phenomenology.

As an illustration, industrial psychology is regarded as a social science. To answer the question what is science so as to guide actions in World Two, cognisance should be taken of the different research paradigms in social research (World Three).

The term "research paradigm" is used extensively when dealing with disciplined enquiry in research. There seems to be different viewpoints about the meaning of the term. Thomas Kuhn, a researcher responsible for creating awareness about the term, have used the term in more than 21 different ways himself (Guba, 1990). Thus, the argument that there is no clear definition and if a researcher would refer to a research paradigm, one should try to explain it as thoroughly as possible. Usually research paradigms can be characterised by the way it answers three basis questions, namely: what is the ontology, epistemology and methodology of a given interpretation of research? Answers to these questions will allow the researcher to identify the interpretive framework of the study. The importance of the ontological, epistemological and methodological beliefs, plays an important part and also shapes how the researcher perceives the world and acts in it. Denzin and Lincoln (2005) refer to this net of ontological, epistemological and methodological beliefs as an interpretive framework or a *paradigm,* whereas Guba (1990, p. 17) defines it as a "basic set of beliefs that guides action". A research paradigm provides a certain perspective and context of a research study (Ponterotto, 2005).

In order to clarify the different research paradigms, the three concepts of ontology, epistemology and methodology firstly need to be defined. The *ontological* dimension is concerned with metaphysics; thus the issue of existence. Differently stated the ontology is the study of the "nature of reality" (Guba &

Lincoln, 1989; Saunders, Lewis & Thornhill, 2012). *Epistemology* in research refers to the "nature of the relationship between the researcher (knower) and what can be known (Terre Blanche, Durrheim & Painter, 2012, p. 6). Besides this relationship, epistemology also refers to the "way in which knowledge is best acquired" (Ritchie, Lewis, Nicholls & Ormston, 2013, p. 6). Lastly, the *methodological* aspect of research refers to the way in which the researcher will practically investigate the phenomenon under study, for instance quantitative empirical research, qualitative empirical research or both. In addition, the research process, the research tools as well as the research procedures would be described.

The four most significant metatheoretical paradigms in social science, namely positivism, post-positivism, phenomenology and constructivism are described shortly. The four interpretations differ from each other based on their ontology, epistemology and methodology. Depending on the type of work a researcher is doing, he/she can draw on more than one research paradigm. As Miles and Huberman (1984, p. 20) declares:

> It is getting harder to find any methodologist solidly encamped in one epistemology or the other. More and more quantitative methodologists, operating from a logical positivistic stance, are using naturalistic and phenomenological approaches to compliment tests, surveys, and structured interviews.

Nevertheless, some researchers still tend to conduct most of their research in a single paradigm, giving them a definite frame of reference to work from. The first research paradigm titled *positivism* describes the nature of reality as stable, objective and unchanging. The researcher does not really have any impact on the observed object. It is also believed that nature is characterised by independent laws. The aim of research should thus be to understand and discover these laws, thus providing a truthful explanation of laws that operate in social life. In other words, positivism essentially represents the natural science prototype of social research (Lee, 1994). A researcher would typically utilise methodology such as quantitative and experimental techniques as well as hypothesis testing. Some researchers may criticise this paradigm, however, by stating that positivism tends to stay with the *status quo* because an unchangeable social order is accepted. The next paradigm titled *post-positivism,* is described as an amended version of positivism. The general belief is that a real world driven by natural roots, exist, but the only way human beings can truly perceive it would be through their flawed sensory and intellectual properties. Realism is still however the central concept of this paradigm. The post-positivistic interpretation of science advocates methodological pluralism in the sense that a variety of methods should be considered and that the choice should be determined by the nature of the research-initiating question. The methodology recommended for this paradigm would include both quantitative and qualitative methods.

The next paradigm namely *interpretivism (or phenomenology)* is characterised by the subjective experiences that people may have about the world and that knowledge is produced by exploring and

understanding the social world of the people that are being studied. In other words, the ontology can be explained by studying a society in terms of structures, relationships and labels; more specifically studying the way in which people construct ideas and concepts. Maree (2011, p. 54) concurs with the viewpoint by stating that "It is assumed that reality consists of an individual's mental constructions of the objects with which she or he engages, and that the engagement impacts on the observer and the situation being observed". Thus, an inductive approach would need to be followed where a researcher would start with initial speculation and assumptions about the phenomenon after which the phenomenon would be studied by observing a set of specific examples. To put it another way, a researcher would try to describe a phenomenon as accurately as possible, without considering a pre-given framework. Care should be taken, since observations can and probably will be influenced by the researcher's assumptions, therefor a neutral style should be adopted by the researcher (Kruger, 1979; Ritchie et al., 2013).

Since the objective of qualitative research is to attain a *trustworthy* understanding of the interpretive structures of the "actors" in the research, this understanding can be considered as credible to the degree to which it reflects the phenomenological reality of medical practitioners. Thus, the researcher needs to attempt to view reality through the experience of the actor by accepting the experience unconditionally and engaging oneself in the phenomenological world of medical practitioners, trying to ascertain what dimensions medical practitioners hold regarding compassion. By extension, in clarifying the relationship between the researcher and the research participants, the epistemological dimension of research is addressed. Terre Blanche et al. (2012) is of the opinion that a researcher would use methodologies such as participant observation and interviewing as research methods, thus interpretation and qualitative techniques.

The last paradigm, titled *constructivism* refers to a social constructed reality, which is characterised by power and discourse. The researcher assumes a doubtful stance and tends to criticise versions of reality by deconstructing it. To take a case in point, critical researchers would criticise the interpretivism paradigm on the basis of its subjectivity and short-term context. Despite the different viewpoints, an inductive approach is also followed when doing critical research (Neuman, 2003).

The current study seeks to obtain a phenomenological valid understanding of the interpretive structures that medical practitioners construct for themselves about compassion. It is unlikely that medical practitioners would symbolise the interpretive structures as a path diagram. Nevertheless, the interpretive structures organise the phenomenological reality of medical practitioners, thus assisting in understanding their actions. In the current study, medical practitioners were consulted in a *co-researcher* capacity, allowing the primary researcher to get phenomenological valid insight into the interpretive structures that were developed for compassion. George Kelly, a clinician and theorist, known for his work on 'personal construct theory' in the 1950s, utilised a metaphor namely "person-as-scientist". The metaphor implies that scientists and laypersons attempt to develop ideas that allows one

to foresee significant events in one's daily life. In other words, explanatory structural models are developed in order to predict significant events. Moreover, laypersons, like scientists will test their hypotheses and weigh evidence (Pervin, Cervone & John, 2005, p. 387).

In essence, a phenomenological paradigm is appropriate for the first phase of the research. As a result, qualitative empirical research, as a methodology, would need to be conducted since it is a fundamental principle of this type of research. In the subsequent section, more information on the research paradigms chosen for the current study can be found.

3.3   THE INTERPRETIVE FRAMEWORK OF THIS STUDY

When it comes to deciding which research paradigm would be the best suited for the current research, cognisance should be taken of the fact that the researcher needs to enter the social world of the research participants in order to understand the meanings and interpretations that they give to the phenomenon that is being studied (Neuman, 2003). As a result, the *interpretive* paradigm is selected as the most appropriate framework for the first part of the study in understanding compassion in healthcare from a medical practitioner's viewpoint.

The interpretative framework or paradigm of the current study is twofold. Firstly, the researcher wants to develop a constitutive definition of compassion for medical practitioners. In understanding the connotative dimension of the abstract construct in a bigger nomological network and being able to identify the denotations in which compassionate behaviour can be observed, one is mobilised to define medical practitioner compassion. To assist in the identification of the latent dimensions of compassion, the researcher utilised previous published research and her abstract thinking capacity to determine the identity of possible latent dimensions comprising the multidimensional latent compassing competency and the manner in which they are structurally related to each other. Ultimately, the purpose of research for this specific part is to explicate compassion as a construct, since medical practitioner compassion has not been researched as a competency yet, in other words, this component of the research can be classified as *exploratory*. Babbie and Mouton (2001) is of the opinion that exploratory research is recommended when a researcher examines a relatively new topic or when there are levels of uncertainty about the research study. The researcher would typically identify the boundaries of the environment in which the research topic resides, as well as identify significant variables important for the study. A large component of social research focusses on exploring and getting familiar with a research topic.

In terms of the second objective of the study, the researcher wants to develop an instrument for the measurement of compassion as demonstrated by medical practitioners. The MPCCQ needs to provide a reliable and construct valid measure for compassion. An *evaluation research* study is proposed, since the researcher needs to evaluate whether the instrument measures compassion as constitutively defined.

Rossi and Freeman (1993, p. 16) define evaluation research as: "…the systematic application of social research procedures for assessing the conceptualisation, design, implementation and utility of social intervention programmes". In other words, evaluation research can be labelled as the field of applied social science, where a wide range of methods are utilised in evaluating social intervention programmes. For the purpose of this study, evaluation research was conducted to appraise the MPCCQ, by means of quantitative data collection and analysis.

If one can thus summarise the research paradigm of the current study, the research study is probably rooted in a *qualitative research paradigm, which is embedded in positivistic and constructivist research*. The qualitative paradigm, also referred to as *phenomenology* attempts to understand complex phenomena through the meanings that research participants ascribe to it (Boland, 1991). Indeed, this was what German philosopher, Edmund Gustav Albrecht Husserl had in mind when he established the school of phenomenology. Husserl was of the opinion that objects and events cannot be spoken about if it did not come through a person's consciousness. In other words, a situation must be sought in which research participants have first-hand experience that can be described as it actually took place. The researcher needs to aim to capture it in such a way that it relates as closely as possible to the way in which the experiences took place (Smith, 2009). By extension, human beings differ from lower level animals in the sense that people make sense of objects and events through consciousness and abstract thinking capacity. Abstract thinking capacity allows human beings to develop interpretive structures from which they make sense of experiences in and around them (Babbie & Mouton, 2003). In summary Husserl (as cited in Moustakas, 1994, p.46) concluded that phenomenology is: "… the 'science of science' since it alone investigates that which all other sciences simply take for granted (or ignore), the very essence of their own objects".

The current research is also rooted in a positivistic framework since the inquirers wants to understand the phenomenon without altering it, thus taking an objective stance and conducting empirical testing. Lastly, the constructivist paradigm should also be noted for this study. It specifies that the "inquirer and inquired are fused into a single (monistic) entity. Findings are literally the creation of the process of interaction between the two" (Guba, 1990, p. 27). Therefore, this paradigm is also deemed appropriate for this study since it acknowledges the subjective nature of the participants' perceptions of medical practitioner behaviour necessary for effective performance.

3.4   RESEARCH DESIGN

A research design can be seen as a blueprint that a researcher creates in order to execute his/her investigation by aiming to achieve the specified research objectives. Babbie and Mouton (2003) distinguish between qualitative and quantitative research designs in the literature. When considering an

appropriate research design, one should take into consideration what the research-initiating question asks. The research-initiating question for the current study, as identified in Chapter One, is twofold:

- What is the connotative meaning and the denotative meaning of medical practitioner compassion? and

- Does the developed instrument provide a reliable and construct valid measure of compassion as constitutively defined?

In considering the suitable research design to ultimately answer the first part of the research-initiating question, the difference between qualitative and quantitative research should be considered. A researcher committed to the interpretive understanding of human behaviour and experience in their natural environment, focusses on qualitative research whereas quantitative research focusses on the quantitatively measurable aspects of human behaviour. Thus, the research design for this specific study is rooted in an interpretive and constructivist qualitative paradigm (Denzin & Lincoln, 2005).

The qualitative research methodology allows the researcher to investigate medical practitioner insights and opinions about the specific behaviour that constitutes compassionate medical care by doctors. Ultimately the collected information, from the medical practitioners, confirm that the latent dimensions of compassion are included in the compassion competency model as well as better understanding of the denotations and behavioural anchors that relates to each compassion dimension.

The specific aims for the qualitative data-gathering phase were the following:

- Validate the inclusion of the identified latent dimensions that was derived from the literature study.

- Identify additional latent dimensions relevant to the South African context, that have been omitted from the compassion competency model.

- Develop behavioural denotations of the latent dimensions that can be used to create items to be included in the MPCCQ.

In qualitative research, the researcher is seen as an instrument through which data is gathered and analysed in order to answer research-initiating questions (Polkinghorne, 2006). Methods of collecting and analysing empirical material for qualitative research in health research would typically include narrative enquiry, oral history and observations on observation, whereas qualitative research in the behavioural and social sciences include focus groups, interviews, critical incident technique and the repertory grid technique (Denzin & Lincoln, 2011; Myers, 2009). In the next section, the epistemic criteria relevant to qualitative research are explained.

3.5   EPISTEMIC CRITERIA RELEVANCE TO QUALITATIVE RESEARCH

The objective of qualitative research is to interpret phenomena in terms of the meaning (connotation and denotation) that people bring to them, or to study things in their natural setting, trying to make sense of them. The trustworthiness of qualitative research is often questioned since key criteria such as validity and reliability are not addressed in the same way as in quantitative research. Qualitative research findings are considered as trustworthy if the research complies with the following criteria: Firstly, *credibility*. A researcher needs to ensure that quality research is done by illustrating a match between the research participants' viewpoints and the researchers' reconstruction and representation of the information. To put it another way: "How congruent are the findings with reality?" (Merriam, 1998, p. 28). Besides the requirement of credibility, Guba and Lincoln (1989) also proposed *transferability* as a second criterion. This criterion refers to the question whether the research findings can be transferred to other situations than those that were studied in the specific qualitative study. The reader plays an important role in the evaluation of the transferability of qualitative research findings since he/she needs to evaluate it by the thickness[51] and appropriateness of the data that was obtained on the situation that had been studied. Ultimately, the reader will thus carry the burden of proof for their evaluation of the transferability of qualitative research findings. The third criterion, namely *dependability*, implies a consistent research process which is well documented and which can be audited. This will enable future researchers to utilise the methodology and repeat the process. Lastly, *confirmability* is necessary where evidence is required to support research findings, since the research should reflect the ideas and experiences of the research participants and not the characteristics and preferences of the researcher. Triangulation of different methods may assist in promoting confirmability (Shenton, 2004).

Despite the criteria listed for qualitative research, one should strive towards an ideal; an ideal that tries to answer the question "what constitutes valid research?" (Maree, 2011, p. 52). The search for truthful knowledge should be the ultimate goal. This epistemic imperative requires the generation of results and findings that are as truthful as possible. Babbie and Mouton (2001) is of the opinion that the epistemic imperative demonstrates itself when research is made available for public scrutiny, peer review and open debates. In other words, when a community of rational and subject matter experts evaluate research with an outcome that the most conceivable claim has been made, given the evidence; one can accept rationality in science. It should be noted however, that rational assessments of knowledge claims cannot be made without objective evidence. A researcher needs to strive towards objective evidence by using methods and procedures that will allow achievement of high-quality results.

By extension, qualitative methodology would probably be the most useful approach to gain insight from medical practitioners for this part of the research. Terre Blanche et al. (2012, p. 48) states that qualitative

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[51] Thickness refers to a sufficient description of the phenomenon that is being studied in order to enable the reader to have a proper understanding of it.

research allows one to study phenomena as it "unfolds in real-world situations". No manipulation is allowed and an inductive approach is used to discover dimensions and interrelationships between constructs. The researcher thus acts as a tool through which the perspectives of the actors (medical practitioners) are understood and reflected (Babbie & Mouton, 2003).

3.6 SAMPLING STRATEGY AND SAMPLE GROUP

Kerlinger and Lee (2000) defines sampling as the process where a portion of the population is identified and then utilised for research purposes. The sample is considered to be representative of the population to the extent that the characteristics of the sample mirror the characteristics of the population.

The research-initiating question of the study focusses on a specific target population namely medical practitioners in the public healthcare sector of South Africa. Conducting interviews with the whole population would not be possible, due to practical and availability reasons. Consequently, a *non-probability purposeful sample* was drawn since the researcher wants to gain insight with the help of medical practitioners into a specific phenomenon (Collins & Onwuegbuzie, 2007; Suri, 2011). The advantage of using a purposeful sample is explained by Patton (2002, p. 230) who is often cited as an expert on this type of sampling, as follows:

> The logic and power of purposeful sampling, lie in selecting information-rich cases for study in depth. Information-rich cases are those from which one can learn a great deal about issues of central importance to the purpose of the inquiry, thus the term purposeful sampling. Studying information-rich cases, yields insights and in-depth understanding rather than empirical generalizations.

The medical practitioners were required to conceptualise medical practitioner behaviour, inherent to the performance construct compassion, thus allowing the researcher to develop specific items to be included in the MPCCQ. For both the critical incident technique interviews and planned focus groups, medical practitioners were selected based on their knowledge, experience, availability and willingness to participate in the research.

The sample group for both the critical incident technique and the focus group had to comply with the following criteria:

1. The participant should be registered with the HPCSA as a medical practitioner
2. The participant should be a practising medical practitioner in South Africa
3. The participant should have completed the prescribed internship and community years
4. The participant should be representative from one of the five core disciplines, namely, family medicine, internal medicine, paediatrics, obstetrics and gynaecology and surgery
5. The participant should be representative from one of the three healthcare levels in the South African healthcare system, namely, tertiary level (T), secondary level (S) and primary level (P).

The inclusion criteria should ensure that the qualitative research is conducted with subject matter experts who understand the context and job profile of a medical practitioner in the public healthcare sector. More specifically how physicians act when showing compassion and how this competency may influence outcomes.

In terms of sample size, 15 interviews were recommended since this would allow the researcher to conduct interviews with medical practitioners from each core discipline in the healthcare sector and representative of the different healthcare system levels as shown in Table 3.1. It should be noted that sample size is commonly much smaller in qualitative research compared to quantitative research, since the researcher is concerned with meaning whereas quantitative research is focused on statistical hypothesis testing and thus concerned about the statistical power of these tests. Qualitative samples should be large enough to ensure that all relevant and novel opinions about the phenomenon are explored. When a researcher achieves a theoretical saturation point, in the sense that no new information is being unearthed during the interviews, the data collection process may be terminated (Strauss & Corbin, 1998).

Research shows different viewpoints about sample sizes in qualitative research. Some prominent guidelines for the identification of sample size include the aim of the study and expertise required. Mason (2010) is of the opinion that a study, which require specific expertise in a chosen topic, may also limit the number of research participants that are needed for interviews. In fact, many researchers are reluctant to tell what a sufficient sample size may be. Concerning phenomenology, Creswell (as cited in Mason, 2010) specified five to 25 research participants, whereas Morse (as cited in Mason, 2010) indicated at least six participants.

Table 3.1

Sampling Design for the Selection of Medical Practitioners Interviewed

			Core Disciplines in the Healthcare System					
			Family Medicine	Internal Medicine	Paediatrics	Obstetrics and Gynaecology	Surgery	**Total**
Levels of Care in the Healthcare System	T			X	X	X	X	4
	S	R		X	X	X	X	4
		D	XXX					3
	P	CHC	XXXX					4
Total			7	2	2	2	2	15

Note. The X symbol in the table indicates the discipline and healthcare level of medical practitioners who were selected for qualitative data collection. In terms of levels CHC represents community health centres, D represents district hospitals and R, regional hospitals.

The five core disciplines that were selected for the critical incident technique interviews, consisted of the following areas: family medicine, general internal medicine, paediatrics, obstetrics, gynaecology

and lastly surgery. In describing the different areas, cognisance should also be taken of the context in which these practitioners operate on a daily basis. A short description of the core discipline as well as the level of care in the healthcare system is subsequently provided:

The Department of Family Medicine is responsible for holistic medical care for patients. The care is delivered within the context of families and communities. Secondly, Internal Medicine is normally considered a large division in healthcare since clinical activities are divided into emergency submissions, in-patient care that includes high care as well as outpatient care. Subspecialty departments in internal medicine include rheumatology, infectious diseases, gastroenterology etc. Thirdly, the Department of Paediatrics is responsible for the improvement of health of all children and adolescents. Fourthly, Obstetrics and Gynaecology focus on the complexities of women's health, more specifically the challenges in delivering maternal healthcare and newborn healthcare. Typical sub-departments would include: general specialist obstetrics and gynaecology, gynaecological oncology, reproductive medicine (fertility treatment), etc. Lastly the division of surgery is responsible when physical intervention on humane tissue is required, typical examples of departments would be cardiothoracic surgery, neurosurgery, orthopaedic surgery etc. (Medicine and Health Sciences US, 2017).

In addition to the speciality levels, the levels of care in the healthcare sector should also be explained to ease understanding with regards to the context in which these medical practitioners work. The Western Cape Department of Health published an annual performance plan for 2016-2017, in which level descriptions are given (Western Cape Government Health Annual Performance Plan, 2016-2017). To begin with, the primary healthcare level is described as community health clinics and community health centres. A nurse driven service is delivered to patients at healthcare clinics, whereas primary healthcare services are offered at the community health centres where full-time medical practitioners work. The secondary level of care is characterised by district and regional hospitals where services at a general specialist level are provided. The tertiary level is where speciality and sub-speciality practitioners would work. On this level, general and highly specialised medical healthcare would be delivered.

One might question why the researcher decided to interview seven medical practitioners in family medicine, working in the primary and secondary (District Hospitals) level, compared to the remaining eight interviews from the secondary (Regional Hospitals) and tertiary level including internal medicine, paediatrics, obstetrics and gynaecology as well as surgery. A research study referred to as the 'Ecology of Medical Care' originally conducted during the 1960s by White, Williams and Greenberg (1961), and subsequently revisited by Green, Fryer, Yawn, Lanier and Dovey (2001), has provided a framework for the organisation of healthcare. It was found that a large percentage of the American population experienced healthcare problems each month. Typically, one would find that from a population of a 1000 people per month, an average of 800 people would experience symptoms of an illness. Of the 800 people, 217 would visit a medical practitioner, more specifically, 113 patients would visit a primary care

practitioner compared to 104 patients that would visit other specialists. Only 21 patients would visit a hospital-based outpatient clinic, whereas 14 patients would receive healthcare services at their homes and 13 patients would receive emergency medicine treatment. Normally eight patients are hospitalised, whereas less than one (0.7) is received at an academic medical center hospital. Since the majority of the patients tend to visit medical practitioners on the primary level, followed by the secondary level (District Hospitals) and the minority end on the tertiary level, the researcher decided to conduct half of the interviews on the primary level and the remaining interviews on the secondary and tertiary level[52]. Figure 3.1 shows an illustration of the by Green et al. (2001) research findings.
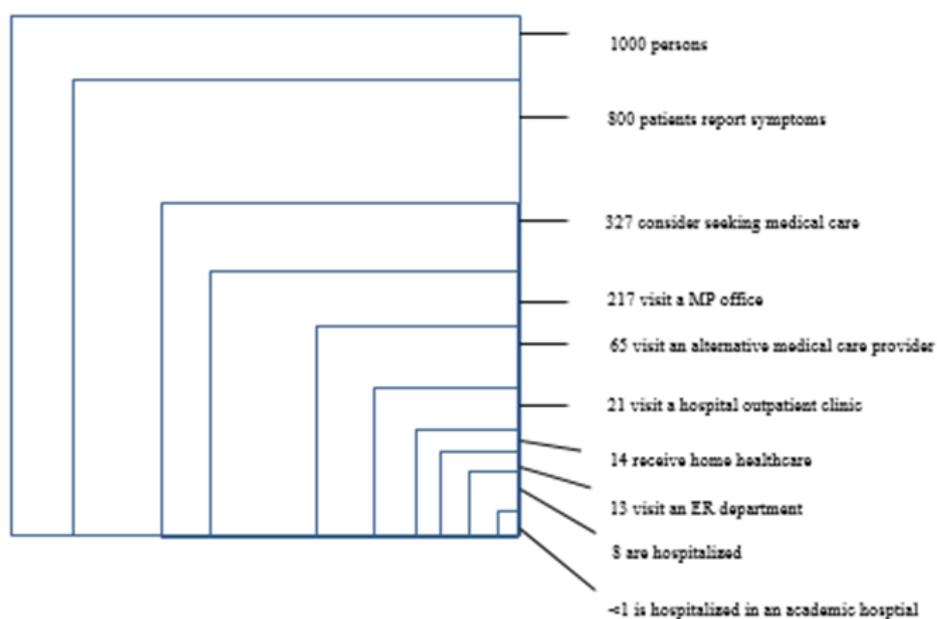
Figure 3.1. Framework for the ecology of medicine. Reprinted from the "Ecology of Medical Care Revisited", by L. Green, G. Fryer, B. Yawn, D. Lanier and S. Dovey, 2001.*The New England Journal of Medicine*, 344 (26), p. 2022). Copyright (2001), Massachusetts Medical Society.

The framework illustrates the occurrence of monthly illness (children and adults included) in an American community and the role of various sources of healthcare in providing health care to those that seek medical help. The largest box represents 1000 people, whereas the remaining boxes represents a subgroup of the largest box.

3.7   DATA GATHERING TECHNIQUES

The data gathering techniques that were considered for this study, included the critical incident technique (CIT), a focus group and a questionnaire. Firstly, the *CIT* was used during phase one of the

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[52] It is acknowledged that it cannot be assumed without risk that the results seamlessly generalise to South Africa. Nonetheless, in the absence of similar research studies in South Africa, these American statistics formed the basis of the design of the sampling plan for the qualitative part of the current study.

research, specifically for the qualitative data collection phase. The researcher intended to conduct individual critical incident technique interviews with 15 subject matter experts in order to generate items for the medical practitioner compassion competency questionnaire. After the initial interviews, a draft questionnaire was developed. Secondly, it was intended to introduce phase two of the qualitative research with a *focus group*, which would be held with selected members of the critical incident technique method in order to validate the information obtained. The third and final data gathering technique namely *questionnaires* was part of the quantitative data collection phase and is discussed in Chapter Four. Subsequently, the critical incident technique and the focus group will be discussed in more detail as part of qualitative data gathering techniques:

3.7.1 Critical Incident Technique

According to Flanagan (1954, p. 327), the critical incident technique is defined as "a set of procedures for collecting direct observations of human behaviour in such a way as to facilitate their potential usefulness in solving practical problems and developing broad psychological principles". The CIT outlines procedures for collecting observed incidents having special significance and meeting systematically defined criteria. The meaning of the word "critical" in the description, critical incident technique "means that the incident must have a discernible impact on some outcome; it must make either a positive or a negative contribution to the accomplishment of some activity of interest" (Lindwall, Boussaid, Kulzer & Wigerblad, 2012, p. 571). Interestingly, the CIT is not a new technique in the sense that people have been analysing and observing behaviour of people for centuries, by making detailed notes of their behaviour. The CIT was first formalised by Flanagan during World War II, where he analysed the work behaviour of military personnel in order to determine the patterns of behaviour that was necessary to do tasks effectively or non-effectively (Weatherbee, 2012). During that time, the CIT methodology presumed a positivist approach, which was the dominant paradigm in the social sciences at that stage. The positivistic approach follows the view that "factual" knowledge gained through observation, that may include measurement, can be seen as trustworthy. A researcher needs to play an objective role in data collection and interpretation; results should be quantifiable (Dudovskiy, 2016).

A different way of describing the CIT can be by designating it as a flexible qualitative technique or mixed method technique allowing the facilitator to prompt for specific behaviours that reflect a high and low standing on the specific latent variable under study and associated outcomes. The advantages and key features of the CIT implies looking for facts and not generalisations, trying to find solutions to practical problems, gathering data by either observing participants or asking the participants to describe memories of specific incidents. Consequently, the incidents will be analysed and not necessarily the participants (Agar, Lobb, Davidson & Phillips, 2014; Flanagan, 1954; Hosie,). In essence the goal of the CIT is to answer questions such as who was involved, what actions/behaviours did the individuals

demonstrate or did not demonstrate and how did these actions contribute to the outcomes (Weatherbee, 2012)?

The purpose of utilising the CIT in this research study is to enable the researcher to identify indicators of the six latent dimensions of compassion from the perception of medical practitioners. The indicators will assist the researcher to develop and draft questionnaire items from the critical incidents in order to draft and develop the MPCCQ. The technique is considered feasible and non-threatening for the purpose of phase one of the planned research.

3.7.2   Focus Group

A focus group is "an informal discussion among selected individuals about specific topics relevant to the situation at hand" (Beck, Trombetta & Share, 1986, p. 73). The utilisation of a focus group in business and manufacturing is quite common, especially for product or program development. This has been expanded however to the nonprofit and public sector. In developing a new product for example, a focus group will be used at three different levels. Krueger and Casey (2009) describes the aim of the first focus group as 'understanding'. The researcher needs to understand how the research participants see, value and talk about the phenomenon. Secondly, the focus group is used to pilot-test the product that was developed from the information gathered from the first focus group. This will allow the researcher to modify ideas and concepts before the final product is build. Lastly, a focus group is used to evaluate the product. Thus, a researcher would look at how the product can be improved, the strengths, weaknesses etc. Besides the listed applications, Barbour and Kitzinger (1999) also stated that focus groups could be combined with quantitative techniques, such a questionnaire development. In other words, research participants are used as subject matter experts in the sense that they need to assist with refining phases of specific questions. For the purpose of this research, it was intended to utilise a focus group in order to validate information gathered from the research interviews, as well as refining and assisting with questions that have been drafted for the quantitative phase of the research.

Utilising a focus group for research purposes is beneficial in a number of ways. To begin with, the dynamic interaction between participants allow a researcher to observe a more naturalistic process of communication such as storytelling, joking, disagreement etc. In addition, the dynamic interaction may shift the discussion towards related theme's that are important for the target audience, thus highlighting areas that a researcher might have missed, therefore informing the research topic. Furthermore, a focus group can be particularly useful when a researcher is not part of the specified sample group that needs to be studied. As an illustration, medical practitioners may present themselves differently during a CIT interview, which is done on an individual basis compared to a focus group where peers are present, and physicians tend to use more technical and formal terminology. Lastly, a focus group would also allow a researcher to observe the research participants during collaborative sense making, thus understanding

the engagement process of the participants, but also how their views are expressed, defended and adjusted within the context of debate.

The plan is to utilise a focus group discussion for this study with the aim to validate information that was gathered during phase one of the qualitative research process where CIT interviews were conducted with subject matter experts. It is believed that a focus group discussion on the identified latent dimensions of compassion, will assist in validating these dimensions. In other words, a small focus group would be valuable to get feedback from the subject matter experts to confirm credibility of the information that was gathered in phase one. Thus, the focus group technique would be considered as phase two of the qualitative data gathering process. It should be noted though, that a research gathering technique such as a focus group might pose a challenge in the healthcare sector since it is highly doubtful to coordinate a group of medical practitioners due to operational and logistical constraints[53].

3.8   DATA GATHERING PROCESS

3.8.1   Phase one: Gathering of data to develop and draft items for the MPCCQ

In terms of data gathering, an aspiring option would be to observe the target sample on the job in trying to understand the inherent behaviours required for successful job performance in the public sector. This is not a practical and cost-effective option however, due to the nature of a medical practitioner's job, especially in the public sector where limited resources and infrastructure are available. Indeed, ethical clearance should also be obtained, since an observer would need to evaluate a medical practitioner–patient encounter, making patient consent a pre-requisite.

Therefore, a more practical procedure such as recalling critical incidents from key personnel, was chosen as a data gathering method since the method ensures immediacy and relevance of information when data is gathered. As part of the CIT a researcher can utilise different techniques such as interviews, group-based interviews or questionnaires when gathering data. In support of the argument, Chitsabesan, Corbett, Walker, Spencer and Barton (2006) stated that the CIT is relatively free of researcher influence allowing one to elicit information on participant characteristics and behaviours.

As part of the data gathering process, the researcher gave clear explanation to participants in terms of what data is desired and how the critical incidents would be recorded. The interviews were facilitated in a comfortable and private setting without distractions and the duration was approximately one hour. Each interview was standardised and structured in the sense that the researcher covered different phases,

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[53] The intended focusgroup did not realise as planned, due to inability to coordinate a session of 4 to 6 medical practitioners due to operational requirements. Chapter 6 explains the results of the qualitative methodology followed.

starting with the introduction, followed by the CIT questions and the conclusion. After the CIT interviews were concluded the researcher drafted and developed items from the data that was elicited during the session in order to develop a draft MPCCQ. It was then intended to validate the draft MPCCQ during a focus group session where some of the participants who participated in the CIT interviews, were asked to evaluate the questionnaire by checking if the information was correctly understood and captured. The process that was followed during the research is illustrated in Figure 3.2, showing different steps that the researcher covered. In the subsequent section, each step will be discussed:
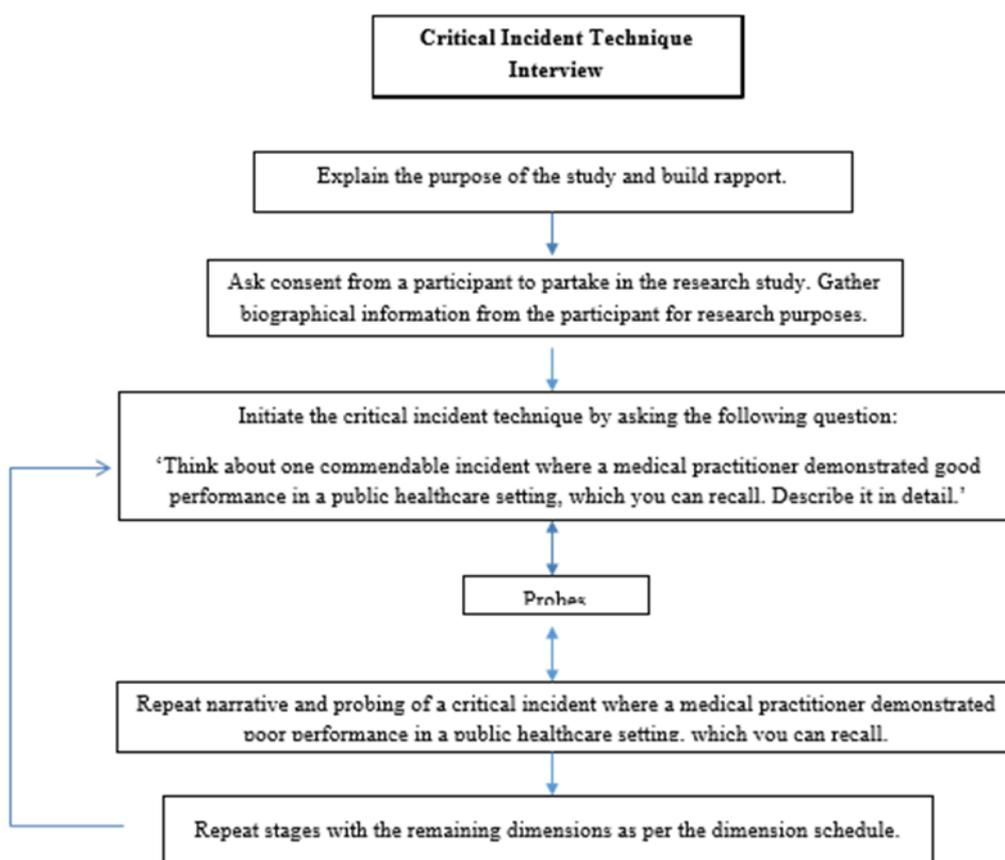
Figure 3.2: Critical incident flow chart. Adapted from "Clinical teachers' characteristics and behaviours using critical incidents and repertory grids" by P. Chitsabesan, S. Corbett, L. Walker, J. Spencer and J.R. Barton 2006, *Medical Education*, 40, p. 648. Copyright (2006), Blackwell Publishing.

Step one: Introduction

During the introductory step, the researcher gained consent and gathered biographical data from the medical practitioners who participated in the critical incident interviews. An example of the consent form is available in Appendix B. In the case when a participant gave consent to the CIT, the researcher commenced with step two. However, when a participant did not give consent to participate in the research, he/she was not included in the subsequent steps. The term informed consent was explained to the participant, the purpose of the research was explained and what exactly the participant would be required to do was explained. In addition, the researcher also indicated what will happen with the participant responses and how the data will be utilised. It was also important for the researcher to remain

aware of the participant's right of privacy, in other words not disclosing information if the participant do not want to be disclosed. Lastly, the principle of confidentiality was addressed since the researcher had to distinguish a normal everyday conversation from a research interview in which confidentiality was the embedded norm (Bradburn, Sudman & Wansink, 2004).

Step two: Individual CIT interview

The critical incident technique was introduced to a medical practitioner participant by requesting the participant to think of a medical practitioner in the public sector who he/she considers as one of the best performers concerning a specific latent dimension of compassion (an example of the semi-structured interview guide is available in Appendix C). The researcher then presented the subject matter expert (SME's) with a formal constitutive definition of the latent compassion dimension being studied for example, mindfulness. Subsequently the researcher would ask the participant to describe specific incidents, illustrating the medical practitioner's competence on the specific dimension being discussed, thus justifying or explaining the behaviour of the medical practitioner. As an illustration, the following dialogue was utilised:

> *Think of a medical practitioner, who is one of the best performers on the latent compassion dimension XXX. The compassion dimension XXX is defined as: …*

> *Please explain your point of view by describing specific incidents that illustrates the medical practitioner's competence on the specific compassion dimension. What did he/she do that illustrates his/her competence on the specific compassion dimension?*

After the participants have explained the critical incidents, probing questions were asked in order to understand the specific behaviour underlying the incidents that lead to the display of competence on the latent compassion dimension. The behaviours identified from the critical incidents were rewritten as short statements that were utilised as potential items for the development of the MPCCQ.

Next, the participants were asked to think of a medical practitioner whom they regarded as a very poor performer on a specific latent compassion dimension being studied. Participants were asked to describe and explain the medical practitioner's inability and incompetence in displaying competence on the stated latent compassion dimension. Firstly, incidents were probed, followed by behaviours underlying those incidents in trying to understand why medical practitioners are/were not successful in illustrating the behaviour. As an example, the following question was asked:

> *Think of a medical practitioner, who is one of the poorest performers on the latent compassion dimension. The compassion dimension is defined as:…*

> *Please explain your point of view by describing specific incidents that illustrates the medical practitioner's competence on the specific compassion dimension. What did he/she do in the specific incident that illustrates his/her competence on the specific compassion dimension?*

The abovementioned process was repeated with each participant in the critical incident interview technique. The number of structured questions were limited for all the dimensions, since the interview is classified as a semi-structured interview. This allows a participant to engage fully, sharing his/her experience by elaborating on examples of behaviours he/she perceives as important indicators for the latent compassion dimensions being studied.

During the critical incident technique, the researcher used the funnel approach as specified by Darity (2008). The funnel approach allows one to ask broad questions in the beginning of the interview and depending on the content that is shared by the participant; the researcher uses practices such as open-ended questions and probing skills to focus the interview. Thus, the funnel approach was utilised for each interview, in trying to secure high data integrity from participants. The interviews proceeded with participants even when participants could not recall a specific incident immediately. In most cases, participants recalled an incident during the interview. When data saturation was reached, in other words, incidents did not generate new behaviours anymore, the interviewer continued with the next latent compassion dimension allocated to that specific interview or ended the interview if all latent compassion dimensions were covered (Hosie, Agar, Lobb, Davidson & Phillips, 2014).

Each participant was asked to describe critical incidents on a specific prespecified latent compassion dimension. In order to address the dilemma of fatigue and concentration, the researcher focused on only four dimensions per interview. In total, six dimensions were addressed with the CIT. Each latent compassion dimension was covered ten times in total and it was planned to conduct fifteen interviews with medical practitioners from the core disciplines in the healthcare sector. The schedule that guided the critical incident technique interviews is presented in Table 3.2:

The X-axis shows the interview number as well as with whom the interview was conducted, for example interview one was done with a medical practitioner in family medicine. The Y-axis lists the different latent compassion dimensions comprising the multidimensional compassion construct that were probed during the interview. The schedule indicates that each participant was asked questions with regards to four dimensions. In the next interview, there was an overlap with the last two dimensions covered in the previous interview and two new dimensions were thus probed. To take a case in point, interview two was conducted with a medical practitioner from general internal medicine. Questions about caring with kindness, mindfulness, compassion action orientation and investing the self were asked during the interview. The number in the table indicates how many times a specific dimension has been covered across the 15 interviews.

Table 3.2.

Schedule for the Critical Incident Technique Interviews

		Core Discipline (X –axis)														
		FM	IM	FM	PD	FM	OG	FM	S	FM	IM	FM	PD	FM	OG	S
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	Emotion Recognition	1		2	3		4	5		6	7		8	9		10
	Gaining and Communicating an Empathic Understanding	1		2	3		4	5		6	7		8	9		10
	Care with kindness	1	2		3	4		5	6		7	8		9	10	
	Mindfulness	1	2		3	4		5	6		7	8		9	10	
	Compassion Action Orientation		1	2		3	4		5	6		7	8		9	10
	Investing the Self		1	2		3	4		5	6		7	8		9	10

Note. The number in the table represents the occurrence of the dimension across the total number of 15 interviews. FM represents family medicine, IM represents Internal Medicine, PD represents Pediatrics, OG represents Obstetrics and Gynaecology, S represents Surgery. Numbers in the columns represent the number of the interview.

In order to make notes of the narratives identified by the participants during the CIT, the researcher used a semi-structured interview guide for recordkeeping purposes. An example of the guide is available in Appendix C.

After the CIT, interviews were concluded and the researcher consolidated the information that was obtained during the data gathering process. The researcher utilised the gathered data as well as the underlying theory in designing and generating questionnaire items for the MPCCQ.

Step three: Closure

The end of the interview was reached when either the participant had no more contributions to make, thus saturation point has been achieved, or the allocated time has expired. The researcher thanked the participant for his/her contribution and provided an opportunity for any questions relating to the study.

After the CIT interviews were concluded the researcher consolidated the information that was obtained during the data gathering process. The researcher utilised the gathered data as well as the underlying theory in designing and generating questionnaire items for the MPCCQ.

3.8.2   Phase two: Validating data obtained and finalisation of the MPCCQ

Medical practitioners who participated in the CIT interviews in phase one, were also asked if they would be willing to participate in a focus group. The aim of the focus group was to critically evaluate the draft MPCCQ, to pilot-test the questionnaire as well as giving final input about the readability and comprehensibility of the questionnaire. The utilisation of a focus group in questionnaire development is quite common in healthcare. In a study by McLeod, Meagher, Steinert and Boudreau (2000), a questionnaire measuring concerns and interest of senior physicians in healthcare was developed by conducting several focus groups. Also, with the development and validation of a dysphagia-specific quality of life questionnaire for patients with head and neck cancer, where four focus groups were facilitated (Chen et al., 2001).

Acknowledging the advantage of utilizing a focus group for this phase of the research, the researcher however decided to rather conduct individual validation sessions with a few medical practitioners who also participated in the critical incident technique interview. Operational requirements and limited availability of medical practitioners necessitated this decision and was subsequently also supported by practitioners who participated in these sessions. The aim of the validation sessions remained exactly the same as the originally planned focus group. Detailed feedback was gathered during this session, allowing the researcher to redesign items and response options where necessary.

After the qualitative data gathering process, the researcher was able to finalise the questionnaire. Indeed, the qualitative phase of the research has also been concluded, since both data gathering processes assisted the researcher in the development of the MPCCQ. Chapter Four explains the quantitative research methodology that was utilised to validate the newly developed questionnaire for the healthcare sector.

CHAPTER 4
QUANTITATIVE RESEARCH METHODOLOGY

4.1   INTRODUCTION

Due to their abstract thinking capacity, human beings have a natural tendency to generate knowledge so as to understand phenomena in and around them in World One (Babbie & Mouton, 2001). Man needs valid knowledge to inform actions to improve his material existence and to fully realise his potential. The main interest of scientists is to generate explanations for phenomena observed and experienced in World One that can be labelled as valid (Babbie & Mouton, 2001). The epistemic interest of science leads to an unconditional commitment by scientists to the search for the most valid claims about phenomena observed in World One. The interpretation of the term 'valid' is dependent on the meta-theoretical perspective from which science is interpreted. From a positivistic perspective a hypothesis may be considered 'valid' in the sense that its epistemic claim may be considered permissible. The epistemic claim made by the hypothesis, may be considered permissible to the extent that it survived opportunities to be empirically refuted (Babbie & Mouton, 2001; Popper, 1972). Verdicts on the validity of hypotheses may be considered 'valid' in the sense that they are permissible. Verdicts may be considered permissible to the extent that the empirical implications deduced from the substantive research hypothesis survived an opportunity to be refuted and alternative explanations for the research findings have been successfully controlled. Kerlinger and Lee (2000, p. 14) define scientific research as the "systematic, controlled, empirical, amoral, public, and critical investigation of natural phenomena".

Science maximises the probability of coming to valid conclusions on the validity of the hypotheses it investigates, through two characteristics of science. The probability of coming to a valid verdict on the validity of the hypotheses it investigates firstly lies in the objectivity of the methodology used to empirically test the research hypotheses (Babbie & Mouton, 2014). Science is objective in as far as it is explicitly, consciously and purposefully focused on the reduction of error (Babbie & Mouton, 2014).

The probability of coming to a valid verdict on the validity of the hypotheses it investigates, secondly lies in the rationality of the methodology used to empirically test the research hypotheses (Babbie & Mouton, 2014). Science is rational in as far as it insists that researchers open up the methodological choices they made under the banner of scientific objectivity for critical inspection by knowledgeable peers, so as to identify methodological flaws that threaten the epistemic ideal of scientific research. The scientific community therefore, plays an integral part in scrutinising the validity of the verdicts on the validity of the hypotheses for the phenomena under study, by critically examining the methods and techniques that were used to generate supporting evidence on which the verdict was based. Scientific rationality can, however, only operate if sufficiently detailed descriptions of the methodological choices

that were made and the motivation underpinning them have been provided. This chapter, therefore, purposefully attempted to describe the quantitative methodology choices that were made to test the overarching substantive hypothesis, that the MPCCQ provides reliable and construct valid measures of compassion as a behavioural construct carrying the specific connotative meaning as it was conceptualised in Chapter Two, as comprehensively as possible. This chapter, moreover, purposefully attempted to justify and motivate the methodological choices that were made by arguing why specific procedures were used[54].

The main objective of Chapter Four is to explain and motivate the research methodological choices that had been made by describing the methods that were utilised in the research process. The research design, the sampling method, the measurement technique and the statistical analysis techniques were chosen to serve the epistemic imperative.

From the outset it was stated that the broad objective of the study was threefold. The objective of the researcher was firstly to develop a constitutive definition of medical practitioner compassion, as a multidimensional behavioural competency, and secondly, to develop an instrument for the measurement of compassion as demonstrated by medical practitioners. Finally, the objective of the researcher was to empirically psychometrically evaluate the reliability and construct validity of the proposed compassion measure in order to present a validated scale, called the MPCCQ, that can be utilised by medical practitioners in the medical profession to evaluate the level of competence that medical practitioners display on the compassion competency. It should be noted though, that a single study of this nature will not allow one to derive a final, definitive verdict on the construct validity of the MPCCQ. Construct validation is really a never-ending process of refining and elaborating ones understanding of the manner in which compassion as a multidimensional competency construct is embedded in a larger nomological network, and a process of finding empirical support for the hypothesised structural relations.

In Chapter Two the construct of medical practitioner compassion was conceptualised as a competency. The connotative meaning of compassion was explicated by describing the internal structure of the construct and the manner in which the construct is structurally related to other constructs in a bigger nomological network in which compassion is embedded. From the literature six dimensions were identified, namely *emotion recognition, gaining and communicating empathic understanding, caring with kindness, mindfulness, compassion action orientation and investing the self*. In addition, compassion was also operationalised in Chapter Two in terms of specific denotations, in other words related behaviours that represent the various latent compassion dimensions of the construct that were

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[54] It is acknowledged that in justifying and motivating the methodological choices that were made by arguing why specific procedures were used, Chapter four's risked at times becoming somewhat didactic. To (deductively) conclude the importance of taking specific steps a number of statements necessarily need to be presented from which the conclusion is derived. The introduction of these statements brought with it the risk of sounding as if the researcher was attempting to (patronisingly) teach the reader on research methodology.

used (along with the critical incidents generated during the qualitative phase of the research) to create items for the MPCCQ. The overarching substantive hypothesis is that the self-rater measuring instrument will provide reliable and construct valid measures of medical practitioner compassion as constitutively defined in Chapter Two.

Empirical evidence is however needed to support the claims made by the study that the MPCCQ provides reliable and construct valid measures of compassion as constitutively defined in Chapter Two. This chapter will therefore outline the methodological choices that were made to test the overarching substantive hypotheses that the MPCCQ provides a reliable and construct valid measure of medical practitioner compassion, given the conceptualisation of the connotative meaning of the construct that resulted from the theorising in the literature study in Chapter Two. This includes an explanation of the research design, followed by the development of statistical hypotheses to allow for the empirical testing of the substantive hypotheses. A description of the sampling methodology is discussed and finally an explanation is given of the statistical procedures that were utilised in order to test the statistical hypothesis.

4.2 SUBSTANTIVE RESEARCH HYPOTHESES

According to Theron (2019) the starting point of fruitful scientific research, should always be a research-initiating question and not a research problem or a research hypothesis as suggested by Kerlinger (1986) and Kerlinger and Lee (2001). The nature of the research initiating question depends on the type of research study. The format of the research initiating question differs across explanatory, descriptive-diagnostic and evaluation research.

In essence the purpose of research can be five-fold, firstly *exploratory research* aims to explore a new theme or topic on which there is a limited or no body of knowledge. Some of the reasons why a researcher would conduct exploratory research would be to address one's desire for understanding certain phenomena, to determine the possibility of an all-encompassing study as well as the development of new hypothesis for existing occurrences. Next a researcher will use *descriptive research* when he/she aims to describe events and situations that have been observed. The researcher will attempt to ensure precise measurement as well as thorough reporting of key characteristics of a certain phenomenon. Interestingly this type of research is quite common for qualitative research, for instance where one is trying to describe a specific culture of some preliterate society. By extension descriptive research allows one to answer to the question 'What's so?' Thirdly, *explanatory research* can be defined as the "why" questions of research with the goal of indicating relationships between constructs or variables of the specific phenomena under study (Babbie & Mouton, 2001, p. 105). Fourthly, *evaluation research* is described as the evaluation of a theoretical model that supports an intervention that a researcher might develop. In fact, it also allows one to evaluate the extent to which the proposed intervention may

influence a target audience; thus measuring the overall impact of the intervention. Finally, a specific type of evaluation research is labelled as the *development and validation of a measuring instrument.* In this type of research, the denotative and connotative meaning of the "to-be-measured" construct is explained followed by the development of an actual instrument that will measure the construct as defined. In addition, rigorous psychometric testing will be done in order to evaluate the inferences in terms of construct validity, and measurement bias and the measures in terms of reliability (Theron, 2016).

The current research should be classified as an evaluation research study[55]. More specifically, the current study should be classified as an evaluation study aimed at the development and validation of a measuring instrument. The research-initiating question that set the current study in motion was therefore the question: What is the connotative meaning and the denotative meaning of medical practitioner compassion, and does the developed instrument provide a reliable and construct valid measure of compassion as constitutively defined[56]? The research objectives that directs/focuses the research study, is essentially to find an answer to the research initiating question. The current study consequently has as its objectives:

- To explicate the connotative and denotative meaning of the to-be-measured construct.
- To develop an instrument that measures the construct as a constitutively defined.
- To evaluate the reliability of the measures of the developed instrument.
- To evaluate the construct validity of the construct-referenced inferences derived from the dimension scores obtained on the developed instrument.

The research-initiating question and research objective should be motivated by the need for valid knowledge in World One (Babbie & Mouton, 2001). Research is not fundamentally conducted for the sake of knowledge as such. Knowledge is rather sought because it serves some cognitive interest (Habermas, 1972). Knowledge is sought because it allows man to achieve specific results in World One. In the absence of such knowledge, man is prevented from achieving specific results or finds it more difficult to do so. The lack of knowledge is experienced by a researcher either in a theoretical or practical situation in World One as a difficulty, on obstacle, a problem for which a solution is needed. Chapter One argued the importance of compassion competence in medical practitioners, the need to monitor the level of compassion competence that medical practitioners display by means of a compassion measure and the need for psychometric reassurance that the measure provides construct valid and reliable measures of medical practitioner compassion. The difficulty, obstacle or problem that

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[55] An evaluation research study generally would be set in motion by the research-initiating question that asks: Can the intervention be expected to achieve its intended objectives, does it achieve its objectives and does it do so in the manner intended? (Theron, 2017)

[56] Strictly speaking the research-initiating question should also have made reference to measurement bias. The current study, however, chose to exclude this aspect because the examination of measurement bias is contingent on the demonstration of satisfactory (single-group) construct validity and because the inclusion of this aspect would have increased the magnitude of the study beyond that that could be realistically expected of a single research study.

gives rise to the research initiating question, is however, not what is technically referred to as the research problem. The research problem and the research hypotheses need to develop through theorising in response to the research initiating question.

The connotative meaning of the construct compassion lies in the internal structure of the construct (i.e. the dimensions comprising the construct) and the manner in which the construct is embedded in a larger nomological network of latent variables. In the latter instance the structural relations between the dimensions of compassion are of importance as well as the structural relations that exist between the determinants of compassion and its dimensions as well as between the dimensions of compassion and outcomes affected by compassion. The literature study presented in Chapter Two, conceptualised the connotative meaning of the construct compassion, by explicating the dimensions constituting the construct and by embedding the construct in a larger nomological network of latent variables related to compassion. The manner in which the conceptualisation of compassion embedded the construct in a larger nomological net, was captured in the literature study (Chapter Two) in a medical practitioner compassion structural model. The denotative meaning of the construct compassion lies in the observable behaviours, in which the construct express itself in Word One, and the situations in World One that affect the construct. Since the objective of the current study is to develop a measuring instrument to measure the level of competence that medical practitioners display on the competency compassion, the focus fell in Chapter Three on the explication of the behavioural denotations of the various latent competency dimensions comprising the construct. The general denotations were subsequently formulated as items for the MPCCQ. More specifically, each item was hypothesised to reflect medical practitioners standing on a specific latent competency dimension.

The overarching research problem that arises from the conceptualisation of compassion in Chapter Two, and the measuring instrument that was designed and developed based on the behavioural denotations explicated in Chapter Two, and via the critical incident techniques as described in Chapter Three, is the question whether the MPCCQ provides a reliable and construct valid measure of compassion as constitutively defined in Chapter Two. The overarching research problem can be dissected into the following more specific operational research problems:

- Operational research problem 1: Can the measurement model implied by the scoring key and the design intention of the MPCCQ closely reproduce the co-variances observed between the items comprising each of the MPCCQ scales?;

- Operational research problem 2: Are the factor loadings of the items on their designated latent dimensions of compassion statistically significant ($p < .05$) and are the completely standardised factor loadings large (($\lambda_{ij} \geq .50$)?;

- Operational research problem 3: Are the measurement error variances associated with each item statistically significant ($p < .05$) but are the completely standardised measurement error variances small?;

- Operational research problem 4: Does the latent compassion dimensions explain large proportions of the variance in the items that represent them ($\lambda^2_{ij} \geq .25$)[57]?;

- Operational research problem 5: Do the latent compassion dimensions correlate statistically significantly ($p < .05$) but not excessively high ($\phi_{ij} < .90$) with each other, is ϕ_{ij}^2 smaller than the average variance extracted (AVE) for latent compassion dimensions i and j and are both AVE_i and AVE_j equal to or greater than .50 (i.e., the MPCCQ latent compassion dimensions display discriminant validity)?;

- Operational research problem 6: Can the structural model describing the internal structure of the compassion construct as described in Chapter Two closely reproduce the co-variances observed between the items comprising each of the MPCCQ scales?;

- Operational research problem 7: Are the path coefficient estimates in the structural model statistically significant ($p < .05$)? (e.g. are the slopes of the regression of η_j on ξ_i and the regression of η_j on η_i in the structural model implied by the manner in which the constitutive definition of the compassion construct interprets the internal structure of the compassion construct statistically significant ($p < .05$)?)

In response to the overarching research problem, the overarching substantive research hypotheses in the current study states that the MPCCQ provides a reliable and construct valid measure of compassion as constitutively defined by medical practitioners practising in the public healthcare sector (Hypothesis 1).

The overarching substantive research hypotheses can in turn also be translated into the following more specific operational research hypotheses, namely:

- Operational hypothesis 1: The measurement model implied by the scoring key and the design intention of the MPCCQ can closely reproduce the co-variances observed between the items comprising each of the MPCCQ scales;

- Operational hypothesis 2: The factor loadings of the items on their designated latent dimensions of compassion are statistically significant ($p < .05$) and the completely standardised factor loadings are large ($\lambda_{ij} \geq .50$);

- Operational hypothesis 3: The measurement error variances associated with each item are statistically significant ($p < .05$), but the completely standardised measurement error variances are small;

- Operational hypothesis 4: The latent compassion dimensions explain large proportions of the variance in the items that represent them ($\lambda^2_{ij} \geq .25$[58]);

- Operational hypothesis 5: The latent compassion dimensions correlate statistically significantly ($p < .05$) but not excessively high ($\phi_{ij} < .90$) with each other, ϕ_{ij}^2 is smaller than the average variance extracted (AVE) for latent compassion dimensions i and j and

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[57] It is acknowledged that this operational research problem is in effect a restatement of operational research problem 2.
[58] It is acknowledged that this operational hypothesis is in effect a restatement of operational hypothesis 2.

both AVE_i and AVE_j are equal to or greater than .50 (i.e., the MPCCQ latent compassion dimensions display discriminant validity);

- Operational hypothesis 6: The structural model describing the internal structure of the compassion construct as described in Chapter Two can closely reproduce the co-variances observed between the items comprising each of the MPCCQ scales;

- Operational hypothesis 7: The path coefficients of the structural model are statistically significant (p < .05) (i.e., the slopes of the regression of η_j on ξ_i and the regression of η_j on η_i in the structural model implied by the manner in which the constitutive definition of the compassion construct interprets the internal structure of the construct are statistically significant (p < .05)).

4.3   RESEARCH DESIGN

The concept research design is interpreted differently in the research methodology literature (Babbie & Mouton, 2001; Campbell & Stanley, 1963; Kerlinger & Lee, 2000). Some authors (Campbell & Stanley, 1963; Kerlinger & Lee, 2000) interpret a research design in a narrow sense as a researcher's investigation plan that stipulates how the researcher is going to empirically test the substantive research hypothesis. Other authors (Babbie & Mouton, 2001) interpret a research design far broader as the 'blueprint' of how the researcher is planning to do the empirical part of the research. Under the broad interpretation it will include the structure of the whole research process including decisions on the type of study, the procedures and its underlying logic thought which the validity of the research hypothesis will be tested, the sampling procedure, the operationalising of latent variables and the statistical analysis techniques that will be utilised (Babbie & Mouton, 2001). Kerlinger (1986) in contrast, restricts the term to the procedure, and its underlying logic, through which the validity of the research hypothesis will be tested. This procedure is typically described via a schematic representation (Campbell & Stanley, 1963) that dictates whether groups should be formed, and if so, how, when and how independent variables should be measured or manipulated, when and how dependent variables should be measured and whether covariates or matching variables should be employed. The function of the research design under this narrow interpretation is to allow an unambiguous evaluation of the validity of the research hypothesis by controlling "experimental, extraneous and error variances" (Kerlinger, 1986, p. 280) in the dependent variable/variables.

In the typical explanatory research study, the research hypothesis would exist as a tentative relational statement hypothesising a specific relationship between at least one exogenous latent variable ξ_1 and at least one endogenous latent variable η. In its simplest form the research hypothesis would therefore in essence take on the form, "If ξ_1 changes in a specific way then η will change along with it in a specific way". It is against this specific background that Kerlinger and Lee (2000) argue that to allow an unambiguous interpretation for or against the research hypotheses, the research design should

distinguish the variance in the measure of η (Y), attributable to the exogenous latent variable of interest (ξ_1), from the Y-variance attributable to other non-relevant latent variables (e.g., error or within group variance and extraneous between group or error variance). The ability of the research design to serve this purpose depends according to Kerlinger and Lee (2000), on the ability of the research design to control variance in the measures of the endogenous latent variable by:

- Maximising the systematic[59] variance in Y, that is due to the exogenous latent variable of interest;

- Minimising the (within-group) error variance in Y, due to other unknown, exogenous latent variables that cause variance in Y, that vary across observations within groups, but that are irrelevant to the objective of the research;

- Controlling the (between-group) extraneous variance in Y due to other unknown, exogenous latent variables that cause variance in Y, that vary across groups, but that are irrelevant to the objective of the research.

Research designs by implication, vary in their ability to control variance in the Y-measures of the endogenous latent variable. The objectivity of scientific research is expressed in science's insistence that the choice of the research design should be critically evaluated in terms of its ability to control Y-variance in the MaxMinCon sense as described above.

The quantitative component of the current study is however not an explanatory research study, but rather an evaluation study. The substantive hypothesis in the current study is therefore not characterised by the traditional relational structure in which it would be meaningful to refer to an endogenous latent variable and an exogenous latent variable in the normal sense of the terms. The current study focusses in its overarching substantive research hypothesis on a single multidimensional latent variable compassion and investigates the claim that the MPCCQ provides reliable and construct valid measures of the construct as it was conceptualised. The overarching substantive hypothesis was, however, translated into seven operational hypotheses. The operational hypotheses can be divided into two sets that are relevant to the current discussion, namely operational hypotheses one to five and operational hypotheses six and seven.

Operational hypothesis 1 claims that the measurement model implied by the scoring key and the design intention of the MPCCQ, can closely reproduce the co-variances observed between the items comprising each of the MPCCQ scales. Operational hypothesis 1 does not hypothesise any structural relations between latent variables. Does this mean that the concept of research design is irrelevant to the testing of Operational hypothesis 1? Although the measurement model does not hypothesise any structural relations between latent variables, it does however hypothesise specific measurement relations (see

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[59] This could also be termed experimental variance in the case of an experimental design or between-group variance in the case of type II quasi-experimental design.

Equation 1 below) between the specific items comprising the subscales of the MPCCQ and specific latent competency dimensions comprising the compassion competency construct. More specifically, the measurement model thereby hypothesises that the manner in which a medical practitioner responds to a specific item is determined by their standing on a specific latent compassion competency dimension. The measurement model, in addition, hypothesises that specific items are not structurally related to specific latent compassion competency dimensions. The measurement model, moreover, also hypothesises that the variance in, and covariance between the items of the MPCCQ, can be explained by six latent compassion competency dimensions. More specifically, the measurement model hypothesises that the slope of the regression of specific item X_i on the specific latent competency dimension ξ_j the item is meant to reflect positive and significantly greater than zero. In addition, the measurement model hypothesises positive covariance between the latent compassion dimensions and hypothesises that the covariances between the measurement error terms, are zero. To empirically test the merits of the hypotheses posited by the measurement model still requires some plan or strategy. The concept of research design is therefore still relevant to the empirical testing of operational research hypotheses 1 to 5 even though the traditional way of thinking about research designs might not apply.

Operational hypotheses 6 and 7 corresponds to the type of operational hypotheses typically encountered in explanatory research studies. The concept of a research design is therefore clearly relevant to the empirical testing of operational research hypotheses six and seven. Although the research design guiding the empirical testing of the fit of a structural model and of the statistical significance of the estimated structural path, coefficients is regularly described (e.g. Prinsloo, 2013; Van Heerden, 2013), the ability of the chosen research design to control Y-variance in the MaxMinCon sense as described above is very seldom if ever evaluated.

4.3.1 A research design appropriate for the empirical testing of the compassion measurement model

The research purpose and research problem guide a researcher to a specific research design. The research design has the ultimate goal of investigating the merits of the stated substantive hypothesis, by describing the procedure that will be used to collect data and the plan that will be used to establish the validity of the stated substantive research hypothesis.

As the purpose of the current study is to develop and evaluate the reliability and construct validity of the MPCCQ designed to assess the performance construct, compassion in medical practitioners, the research can be viewed as *evaluation research*. More specifically the current research can be categorised as a specific type of evaluation research focussing on the *development and validation of a measuring instrument*.

The substantive research hypothesis, states that the MPCCQ provides reliable and construct valid measures of compassion as it was constitutively defined in Chapter Two, in terms of six latent compassion dimensions, in terms of the manner in which it was embedded in a larger nomological network of latent variables. The overarching substantive hypothesis was translated into seven operational hypotheses. To test these operational hypotheses two versions of an *ex-post facto* correlational research design was used.

The latent compassion competency dimensions cannot be experimentally manipulated. This precluded the use of an experimental design. According to Kerlinger and Lee (2000, p. 559), a true experimental design is characterised by the manipulation of the independent latent variable(s) and random assignment of observations to treatments. The random assignment allows for effective control of extraneous latent variables. The experimental manipulation of the latent variable(s) to create different treatments, allow the making of causal inferences. In contrast, a non-experimental research design, like the *ex-post facto* correlational design used in the current study, does not allow the random assignment of observations nor the manipulation of latent variables. The correlational design allows one to observe the independent and dependent variable across individuals, to determine the extent to which they co-vary (Theron, 2016). A limitation that flows from the absence of experimental manipulation and random assignment, is the increased risk of incorrect interpretation, due to reduced level of control over systematic, error and extraneous variance. Regardless of the limitations, an *ex post facto* correlational research design allows the empirical investigation of hypotheses that are frequently encountered in the social and behavioural sciences which cannot easily be investigated via experimental designs (Kerlinger and Lee, 2000). The *ex-post facto* correlational design that was used to test operational hypotheses 1 to 5, is depicted in Figure 4.1[60].

$$
\begin{array}{cccccc}
[X_{11}] & [X_{12}] & \ldots & [X_{1j}] & \ldots & [X_{1,37}] \\
[X_{21}] & [X_{22}] & \ldots & [X_{2j}] & \ldots & [X_{2,37}] \\
[X_{31}] & [X_{32}] & \ldots & [X_{3j}] & \ldots & [X_{3,37}] \\
\vdots & \vdots & \ldots & \vdots & \ldots & \vdots \\
[X_{i1}] & [X_{i2}] & \ldots & [X_{ij}] & \ldots & [X_{i,37]} \\
\vdots & \vdots & \ldots & \vdots & \ldots & \vdots \\
[X_{n1}] & [X_{n2}] & \ldots & [X_{nj}] & \ldots & [X_{n,37}]
\end{array}
$$

Figure 4.1: *Ex-post facto* correlational design to test the measurement model.

Note: The depiction of the research design utilises an adaptation of Campbell and Stanley's (1963) symbol convention. X_{ij} represents the ith observation obtained on the jth exogenous latent variable (ξ_j). The bracket indicates that variable ξ_j will be measured rather than experimentally manipulated. More specifically $[X_{ij}]$; i = 1, 2, …, n; j = 1, 2, …, 37 represent the 37 item scores obtained by the ith person on the MPCCQ.

The research design depicted in Figure 4.1, guided the empirical testing of Operational hypothesis 1 in terms of the following logic: The measurement model reflecting the connotative meaning of the

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[60] The MPCCQ was developed with 37 items. The first five subscales each have six items and the last subscale has seven items. The depiction assumes that all the items were incorporated in the measurement model. This, however, need not necessarily be the case as preceding analyses might detect poor items that need to be deleted rior to the fitting of the measurement model.

compassion construct and the design intention of the MPCCQ that specific items should reflect the competence of medical practitioners on specific compassion competencies implies the position that the MPCCQ provides a construct valid measure of compassion as constitutively defined. The measurement model constitutes a hypothesis on the process that generated the observed inter-item covariance matrix. If estimates for the freed measurement model parameters can be obtained that mathematically allows the derivation of accurate covariance estimates (in the fitted or reproduced covariance matrix) it follows that the measurement model and its parameter estimates are plausible[61]. Operational hypothesis 1 then survived an opportunity to be falsified. The conclusion is then that it is permissible to hold the position that the MPCCQ does provide a construct valid measure of compassion as constitutively defined. If, however, even after a large number of iterations, the fitted covariance matrix mathematically derived from the parameter estimates, deviates substantially from the observed covariance matrix the conclusion invariable has to follow that the measurement model does not provide a valid description of the process that generated the inter-item covariances. The conclusion is then unavoidable that the MPCCQ does not provide a construct valid measure of compassion as constitutively defined.

The *ex-post facto* correlational design that was used to test operational hypotheses 6 and 7 is depicted in Figure 4.2[62].

$$
\begin{array}{cccccccc}
[X_{11}] & \ldots & [X_{16}] & Y_{11} & \ldots & Y_{1j} & \ldots & Y_{1,31} \\
[X_{21}] & \ldots & [X_{26}] & Y_{21} & \ldots & Y_{2j} & \ldots & Y_{2,31} \\
[X_{31}] & \ldots & [X_{36}] & Y_{31} & \ldots & Y_{3j} & \ldots & Y_{3,31} \\
\vdots & \vdots & \vdots & & \ldots & & \ldots & \\
[X_{i1}] & \ldots & [X_{i6}] & Y_{i1} & \ldots & Y_{ij} & \ldots & Y_{i,31} \\
\vdots & \ldots & \vdots & & \ldots & & \ldots & \\
[X_{n1}] & \ldots & [X_{n6}] & Y_{n1} & \ldots & Y_{nj} & \ldots & Y_{n,31}
\end{array}
$$

Figure 4.2: *Ex-post facto* correlational design to test the structural model

Note: The depiction of the research design utilises an adaptation of Campbell and Stanley's (1963) symbol convention. X_{ij} represents the ith observation obtained on the jth exogenous latent variable (ξ_j). The bracket indicates that variable ξ_j will be measured rather than experimentally manipulated. Y_{ij} represents the ith observation obtained on the jth endogenous latent variable (η_j).

The same logic applies to the research design depicted in Figure 4.2 that guided testing of Operational hypothesis 6 by fitting the comprehensive LISREL model.

4.4   STATISTICAL HYPOTHESES

The research design assists with the choice of statistical analysis technique needed to test the statistical hypothesis. Structural equation modelling utilising LISREL (Linear Structural Relationships) will be used to test the overarching substantive research hypothesis (Hypothesis 1) namely that the MPCCQ provides a construct valid and reliable measure of compassion.

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[61] A well-fitting measurement model will, however, not be sufficient to conclude the construct validity of the construct-referenced inferences derived from the MPCCQ. Operational hypotheses 2 – 5 also need to be supported. In addition Operational hypotheses 6 and 7 also need to be corroborated.
[62] The depiction assumes that the individual items will be used to operationalise the latent compassion dimensions.

LISREL is a software package aimed at mean and covariance structure (MACS) analysis and covariance structure (CS) analysis (Jöreskog & Sörbom, 1996b)[63]. These are multivariate statistical techniques in the sense that they test hypotheses involving numerous dependent (endogenous) latent variables. They essentially seek confirmation that hypothesised relationships among latent variables and between latent variables and manifest indicators "are indeed consistent with empirical data" (Diamantopoulos & Siguaw, 2000, p. 4). A comprehensive LISREL model will consist of two parts: A measurement model and a structural model. The measurement model explains how the latent variables in the comprehensive LISREL model are operationalised by corresponding manifest indicators (i.e. the items of the MPCCQ and the measures used to operationalise the additional latent variables included in the compassion structural model). Once fitted the measurement model parameter estimates will give information with regards to the validities and reliabilities of the observed indicators. The structural model, on the other hand, describes structural relationships between the latent variables[64]. Once the comprehensive LISREL model is fitted, the structural model parameter estimates will indicate the strength of the relationship between latent variables and indicate the amount of unexplained variance in each of the endogenous latent variables.

In this study the overarching substantive research hypothesis firstly implies a specific measurement model (Equation 1) and secondly a structural model (Equation 2).

The measurement model implied by the scoring key and the design intention of the MPCCQ (Operational hypothesis 1) can be defined in terms of the matrix equation shown as Equation 1:

$$\mathbf{X} = \mathbf{\Lambda}^{\mathbf{X}}\xi + \delta \text{---} \mathbf{[1]}$$

Where:

$\mathbf{X}$ is a 37 x 1 column vector of observed item scores on the MPCCQ[65];

$\mathbf{\Lambda^X}$ is a 37 x 6 factor loading matrix representing the slopes of the regression of the MPCCQ items on the latent compassion dimensions they were earmarked to reflect;

ξ is a 6 x 1 vector of exogenous latent variables representing the 6 latent compassion dimensions, measured by the MPCCQ;

δ is a 37 x 1 vector of measurement error terms representing systematic and random measurement error in the MPCCQ items.

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[63] CS differs from MACS in that in the former the means of the observed variables and the latent variables and hence the intercepts of the items on the latent variables are not formally modelled.

[64] The structural model in and by itself can, however, not be fitted in that the latent variables comprising it are abstract, in the head variables (Kerlinger, 1986, p. 37).

[65] The MPCCQ was developed with 37 items. The first five subscales each have six items and the last subscale has seven items. For the purpose of Equation 1, it was assumed that all the items survived prior statistical analyses and were included in the measurement model.

Equation 1 implies a CS analysis in that it sets the vector of intercept terms τ to zero. Two additional matrices need to be defined to fully specify the MPCCQ measurement model. Θ_δ is a diagonal 37 x 37 variance-covariance matrix in which the off-diagonal covariance elements have been constrained to zero to reflect the assumption that the measurement error terms δ_i; i=1, 2, ..., 37, are uncorrelated. Φ is a 6 x 6 variance-covariance matrix in which the off-diagonal covariance elements have been freed to be estimated but the main diagonal variance elements have been constrained to 1. Since the intercepts of the regression of X_i on ξ_j is set to be zero in Equation 1, the latent variables are therefore calibrated to have a mean of zero and a variance of 1.

Equation 1 and the description of Φ and Θ_δ still does not fully specify the measurement model, because it still does not clarify whether any equality constraints were imposed on the elements of τ, Λ^X, or Θ_δ. Graham (2006) distinguishes between the following four measurement models:

- The classically parallel model;
- The tau-equivalent model;
- The essentially tau-equivalent model; and
- The congeneric model.

In the classically parallel model, the freed elements of τ, Λ^X, and Θ_δ are constrained to be equal across the items of each latent variable. "All items must measure the same latent variable, on the same scale, with the same degree of precision, and with the same amount of error" (Graham, 2006, p. 934; Raykov, 1997). In the classically parallel measurement model, the regression of X_i on ξ_j is forced to coincide in terms of intercept, slope and error variance across the items of the same (unidimensional) latent variable.

In the tau-equivalent model the freed elements of τ, Λ^X but not Θ_δ are constrained to be equal across the items of each latent variable. This ensures that individual items measure the same latent variable on the same scale with the same degree of precision, but with possibly different amounts of error (Raykov, 1997). In the tau-equivalent measurement model the regression of X_i on ξ_j is forced to coincide in terms of intercept and slope but not in terms of error variance across the items of the same (unidimensional) latent variable.

In the essentially tau-equivalent model the freed elements of Λ^X are constrained to be equal across the items of each latent variable but not the elements of τ and Θ_δ. Essential tau-equivalence assumes that each item measures the same latent variable, on the same scale, but with possibly different degrees of precision" (Raykov, 1997). In the essentially tau-equivalent measurement model, the regression of X_i on ξ_j is forced to coincide in terms of slope only across the items of the same (unidimensional) latent variable.

In the current study the MPCCQ measurement model was fitted as a congeneric model[66]. In the congeneric model, the freed elements of τ, Λ^X and Θ_δ are allowed to be freely estimated across the items of each latent variable. "The congeneric model assumes that each individual item measures the same latent variable, with possibly different scales, with possibly different degrees of precision, and with possibly different amounts of error (Raykov, 1997). In the congeneric measurement model the regression of X_i on ξ_j is allowed to differ in terms of intercept, slope and error variance across the items of the same (unidimensional) latent variable. In the current study, however, the intercept of the regression of X_i on ξ_j was set to zero.

The overarching substantive research hypothesis implies that the measurement model defined by Equation 1, fits the data obtained on the MPCCQ. When interpreting this hypothesis to mean that the MPCCQ measurement model provides a perfect account of the process that produced the observed MPCCQ inter-item variance-covariance matrix in the population, the following exact fit null hypothesis was tested (Brown & Cudeck, 1993):

H_{01}: RMSEA = 0
H_{a1}: RMSEA > 0

It should be noted though, that a finding of an exact fit is a rare occurrence and stating such a hypothesis to some degree is unrealistic. Browne and Cudeck (1993, p. 137) explained it as follows:

> In application of the analysis of co-variance structures in the social sciences it is implausible
> that any model that we use is anything more than an approximation to reality. Since a null
> hypothesis that a model fits exactly in some population is known a priori to be false, it seems
> pointless even to try to test whether it is true.

When interpreting the overarching substantive research hypothesis more realistically, it means that the measurement model provides an approximate account of the process that produced the observed MPCCQ inter-item variance-covariance matrix in the population, and if the error, attributable to approximation is assumed to be equal to or less than .05, the following close fit null hypothesis (H_{02}) was tested (Brown & Cudeck, 1993):

H_{02}: RMSEA ≤ .05
H_{a2}: RMSEA > .05

If exact or close fit was found (i.e. H_{01} or H_{02} was not rejected), or alternatively, if the MPCCQ measurement model at least demonstrated reasonable model fit in the sample (as indicated by the basket

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[66] The more stringent constraints that could have been placed on the MPCCQ measurement model were also discussed even though they were not used in the study to place the congeneric model into context.

of fit indices produced by LISREL), the following 37 null hypotheses on the slope of the regression of item j on latent compassion dimension k were tested:

H_{0i}: $\lambda_{jk} = 0$; i = 3, 4, …, 39; j = 1, 2, …, 37; k = 1, 2, …, 6[67]

H_{ai}: $\lambda_{jk} \neq 0$; i = 3, 4, …, 39; j = 1, 2, …, 37; k = 1, 2, …, 6

If exact or close fit was found (i.e. H_{01} or H_{02} was not rejected), or alternatively if the MPCCQ measurement model at least demonstrated reasonable model fit in the sample, the following 37 null hypotheses were tested with regards to the freed elements in the variance-co-variance matrix Θ_δ:

H_{0i}: $\Theta_{\delta jj} = 0$; i = 40, 41,..., 76; j = 1, 2.....37

H_{ai}: $\Theta_{\delta jj} > 0$; i = 40, 41,..., 76; j = 1, 2.....37

If exact or close fit was found (i.e. H_{01} or H_{02} was not rejected), or alternatively if the MPCCQ measurement model at least demonstrated reasonable model fit, the following 15 null hypotheses were tested with regards to the freed elements in the variance-co-variance matrix Φ:

H_{0i}: $\phi_{jk} = 0$; i = 77, 78,.., 91; j = 1, 2.....6; k = 1, 2.....6; j $\neq$ k

H_{ai}: $\phi_{jk} > 0$; i = 77, 78..., 91; j = 1, 2.....6; k = 1, 2.....6; j $\neq$ k

The manner in which the constitutive definition of compassion developed in Chapter Two, interprets the internal structure of the construct implies a specific structural model shown as Figure 2.14 (Operational hypothesis 6). This structural model can be defined in terms of the matrix equation shown as Equation 2:

$$\eta = \eta B + \Gamma\xi + \zeta \text{-- [2]}$$

Where:

η is a 5 x 1 vector of endogenous latent variables

B is a 5 x 5 square matrix of regression coefficients describing the slope of the regression of η_i on η_j;

Γ is a 5 x 1 matrix of regression coefficients describing the slope of the regression of ξ_i on η_j;

ξ is a 1 x 1 vector of exogenous latent variables;

ζ is a 5 x 1 vector of structural error terms

One additional matrix needs to be defined to fully specify the MPCCQ structural model. Ψ is a 5 x 5 diagonal variance-covariance matrix that describes the variance in, and covariance between, the structural error terms ζ_i. The diagonal nature of Ψ reflects the assumption that the structural error terms ζ_i; i = 1, 2, 5 are modelled to be uncorrelated. Φ need not be defined since the MPCCQ structural model only contains one exogenous latent variable.

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[67] The null hypothesis subscript i starts at 3 because two null hypotheses have already been posited [the exact and close fit null hypotheses)

The overarching substantive research hypothesis implies that the structural model defined by Equation 2, fits the data obtained on the MPCCQ. When interpreting this hypothesis to mean that the structural model provides a perfect account of the process that produced the observed inter-item variance-covariance matrix in the population, the following exact fit null hypothesis was tested (Brown & Cudeck, 1993):

H_{092}: RMSEA = 0

H_{a92}: RMSEA > 0

When interpreting the overarching substantive research hypothesis more realistically to mean that the structural model provides an approximate account of the process that produced the observed inter-item variance-covariance matrix in the population, and if the error, attributable to approximation is assumed to be equal to or less than .05, the following close fit null hypothesis (H_{02}) was tested (Brown & Cudeck, 1993):

H_{093}: RMSEA ≤ .05

H_{a93}: RMSEA > .05

If exact or close fit was found for the structural model (i.e. H_{092} or H_{093} was not rejected), or alternatively if the compassion structural model at least demonstrated reasonable model fit in the sample (as indicated by the basket of fit indices produced by LISREL), the following 8 path-specific null hypotheses on the slope of the regression of η_j on η_i and the slope of the regression of η_j on ξ_i were tested:

Hypothesis 2: Competence on the *interpretation of emotions and recognising suffering* competency positively influence the level of competence achieved on the *gaining and communicating empathic understanding* competency.

H_{094}: $\beta_{32} = 0$

H_{a94}: $\beta_{32} > 0$

Hypothesis 3: Competence on the *mindfulness* competency positively influence the level of competence achieved on the *gaining and communicating empathic understanding* competency.

H_{095}: $\beta_{31} = 0$

H_{a95}: $\beta_{31} > 0$

Hypothesis 4: Competence on the *mindfulness* competency positively influence the level of competence achieved on the *interpretation of emotions and recognising suffering* competency.

H_{096}: $\beta_{21} = 0$

H_{a96}: $\beta_{21} > 0$

Hypothesis 5: Competence on the *investing the self* competency positively influence the level of competence achieved on the *mindfulness* competency.

$H_{097}: \gamma_{11} = 0$

$H_{a97}: \gamma_{11} > 0$

Hypothesis 6: Competence on the *investing the self* competency positively influence the level of competence achieved on the *interpretation of emotions and recognising suffering* competency.

$H_{098}: \gamma_{21} = 0$

$H_{a98}: \gamma_{21} > 0$

Hypothesis 7: Competence on the *investing the self* competency positively influence the level of competence achieved on the *gaining and communicating empathic understanding* competency.

$H_{099}: \gamma_{31} = 0$

$H_{a99}: \gamma_{31} > 0$

Hypothesis 8: Competence on the *gaining and communicating empathic understanding* competency positively influence the level of competence achieved on the *caring with kindness* competency.

$H_{0100}: \beta_{43} = 0$

$H_{a100}: \beta_{43} > 0$

Hypothesis 9: Competence on the *caring with kindness* competency positively influence the level of competence achieved on the *compassion action orientation* competency.

$H_{0101}: \beta_{54} = 0$

$H_{a101}: \beta_{54} > 0$

If exact or close fit was found for the structural model (i.e. H_{0101} or H_{0102} was not be rejected), or alternatively if the compassion structural model at least demonstrated reasonable model fit (as indicated by the basket of fit indices produced by LISREL), the following 5 null hypotheses on the structural error variance associated with η_q were tested:

$H_{0i}: \psi_{qq} = 0; \ i = 102, 103, \ldots, 106; \ q = 1, 2, \ldots, 5$

$H_{ai}: \psi_{qq} > 0; \ i = 102, 103, \ldots, 106; \ q = 1, 2, \ldots, 5$

These hundred and six hypotheses will form the basis for examining the merits of the claim made by the overarching substantive hypothesis that the MPCCQ provides a construct valid measure of medical practitioner compassion as it was constitutively defined in Chapter Two and in the manner intended[68].

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[68] Since the latent compassion dimensions were still operationalised via the individual items of the MPCCQ when fitting the comprehensive LISREL model (rather than using item parcels), there was no need to fit a second measurement model prior to fitting the structural model. There was, therefore, also no need for additional measurement model statistical hypotheses.

4.5   SAMPLING

4.5.1   Sampling/Sampling Procedure

"The decision about what to observe and what not?" is described by Babbie and Mouton (1998, p. 164) as the fundamental question underpinning the sampling process. The target population is the totality of elements that the research initiating question refers to. Since it is typically not practically possible to observe the whole target population, the only practically feasible solution is to select a sample that best represents the target population.

Selection occurs from the sampling population. The sampling population represents all the elements of the target population that have a non-zero probability of being selected (Babbie & Mouton, 2001). The sampling gap refers to the extent to which the sampling population excludes elements from the target population. A substantial sampling gap will invariably compromise the representativeness of the sample of the target population irrespective of the method of sampling (Babbie & Mouton, 2001).

A distinction is made between two sampling procedures, namely *probability sampling* and *non-probability sampling* techniques. Probability sampling involves a sampling procedure in which every element of the sampling population has a known, non-zero (but not necessarily equal) probability of being selected (Babbie & Mouton, 2001). Non-probability sampling on the other hand, refers to sampling procedures where the probability if selection for each element of the sampling population is unknown. Non-probability sampling is utilised in situations where probability samples cannot be gathered and refers to techniques such as reliance on available subjects, purposive or judgemental sampling, snowball sampling or quota sampling. Indeed, Olsen (2012) is of the opinion that this type of sampling should not be called sampling, but rather the selection of research participants. It should be noted though, that the primary method for social sciences, however, remains probability sampling. Only when using a probability sampling procedure, can the researcher have confidence in the representativeness of the selected sample. A sample is considered representative if the statistics calculated for the sample approximate the corresponding parameters in the target population. Moreover, the sampling distributions of different statistics are only known in the case of probability sampling procedures (Babbie, 2016).

The *sampling procedure* in the current study consists of a three-phased approach[69]. Firstly, the intention was to select fifteen SME's for the CIT interview. The subject matter experts were medical practitioners represented from the five core disciplines in the healthcare sector as well as from the different levels in the healthcare system. Secondly, the intention was to conduct a focus group with some of the medical practitioners who participated in the critical incident technique interviews. The sampling procedure for

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[69] The sampling related phases one and two were discussed in Chapter Three.

phase one and phase two of the research, was chosen since a qualitative research method was utilised to gather data in these phases. The third phase of the sampling procedure, involves the survey completing stage in which quantitative methodology was utilised. The sample group for phase three is described in the subsequent section.

4.5.2   Target population, sample group and sample size

The aim of sampling is to select a certain percentage from the target population or universe that the researcher considers to be representative of the target population. Representativeness will allow the researcher to make generalised conclusions about the target population under study (Kerlinger, 1986). The target population of the current study was medical practitioners working in the public health sector in South Africa that are registered with the HPCSA. Since it is not practically possible to observe the whole target population, the only practically feasible solution is to select a sample that best represents the target population. The research question of this study was formulated with reference to a specific target population: South African medical practitioners working in the public healthcare sector. Thus the researcher will have to draw a sample of medical practitioners working in the public healthcare sector in South Africa. Bentler and Chou (1987) is of the opinion that one cannot engage in theory testing if the sample derived from the population is not relevant to the theoretical ideas that needs to be assessed.

The *target population* (or universe) as defined above, although referring to a definite group of people, nonetheless consists of a rather diverse group of individuals. The target population comprises medical practitioners practising in South Africa with different demographic characteristics and cultural backgrounds, working in different geographical areas such as urban or rural; working in different speciality areas such as paediatrics or surgery, working as generalists or specialists, working on different managerial levels, working as a part-time or full-time employee.

The sampling population in the current study comprised:
- Medical practitioners attending the 21st National Family Practitioners Congress during 2018 in Cape Town;
- Medical practitioners employed at the Tygerberg Academic Hospital in Tygerberg;
- Medical practitioners employed at the Khayelitsha Hospital in Khayelitsha;
- Medical practitioners employed at the Karl Bremmer Hospital in Bellville;
- Medical practitioners employed at the Worcester Hospital in Worcester.

A non-probability sample was selected from the sampling population by inviting members of the sampling population to complete the MPCCQ. To qualify for inclusion in the sample, participants had to meet the following specific inclusion criteria:

- Participants had to be registered with the HPCSA as medical practitioners.
- Participants had to be a practicing medical practitioners in South Africa.
- Participants had to have completed the prescribed internship and community years.

In extending invitations to the sampling population the researcher attempted to achieve a more representative sample by attempting to ensure that:

- Participants should be representative from one of the five core disciplines, namely family medicine, internal medicine, paediatrics, obstetrics and gynaecology and surgery.
- Participants should be representative from one of the three healthcare levels in the South African system, namely tertiary level, secondary level and primary level.

The *sample size* of the sample group was another important factor to take into consideration, since the researcher would like to obtain the best possible information at the lowest operational cost (Kerlinger, 1986, p. 295). Some researchers may argue that a larger sample size will ensure a smaller sampling error. For some research situations however a too large sample may not be appropriate. Thus the importance of determining the sample size statistically. This, however, seems to be one of the most challenging problems in applied statistics, according to Williams (1978).

Since this study intended to use structural equation modeling (SEM) during the third phase of the research, a few important matters needed to be taken into account. Firstly, a sample size of 200 observations or more is considered satisfactory for most SEM application (Kelloway, 1998). This, however, provides only a very rough and generalised indication of the required sample size.

Firstly, the ratio of the number of observations to the number of parameters must be taken into account. If more elaborate measurement models containing more observed and latent variables, are tested, more freed parameters need to be estimated, thus a bigger sample size is required. Bentler and Chou (cited in Kelloway, 1998, p. 20) is of the opinion however, that the 'ratio of sample size to the number of parameters estimated should be between 5:1 and 10:1". The measurement model defined by Equation 1 comprises 89 freed parameters[70]. In terms of the Bentler and Chou (1987) rule-of-thumb, the current study would require 445 to 890 medical practitioners to complete the MPCCQ. This sets and extremely ambitious target. In addition to the sampling guidelines for SEM, Hair, Black, Babin and Anderson (2006, p. 662) argued that the following parameters should rather be considered:

- "Minimum sample size - 100: Models containing five or fewer constructs, each with more than three items (observed variables), and with high item communalities (.6 or higher).
- Minimum sample size - 150: Models with seven or fewer constructs, modest communalities (.5), and no under-identified constructs.

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[70] Equation 1 contains 37 freed λ_{ij}, 37 freed $\theta_{\delta ii}$ and $(6 \times 5)/2 = 15$ ϕ_{jk}. This adds up to 89 freed parameters in the measurement model.

- Minimum sample size - 300: Models with seven or fewer constructs, lower communalities (below .45), and/or multiple under-identified (fewer than three items) constructs.

- Minimum sample size - 500: Models with large numbers of constructs, some with lower communalities, and/or having fewer than three measured items."

The second matter that needs attention is the statistical power associated with the test of the hypothesis of close fit (H$_0$: RMSEA ≤ .05) against the alternative hypothesis of mediocre fit (Ha: RMSEA = .08) (MacCallum, Browne & Sugawara, 1996). The Preacher and Coffman open source software, written in R (Preacher & Coffman, 2006) returned a required sample size of 43 (43.35938) to ensure statistical power of .80 when testing the close fit null hypothesis on a 5% significance level and when assuming an effect size of .08 (degrees of freedom 614)[71]. When reducing the effect size to .06 the required sample size increased to 189 (189.0625).

The third and last matter that needed to be taken into consideration when deciding on a sample size, was the availability of the sampling population, the operational challenges like cost, willingness to participate, geographical distribution of participants and length of survey. To draw a sample of 1000 medical practitioners for the current study, would be a challenge, if not impossible.

Taking all the above matters into consideration, a sample size target of 250 - 300 medical practitioners practicing in public healthcare, was set for this study. It should be noted though that a sample size of this magnitude, especially in medicine and more specifically the public healthcare sector, posed a practical challenge. Medical practitioners in public healthcare have limited time for anything other than treating patients, due to the unbalanced doctor-patient ratio, limited resources and organisational structural challenges. Based on these challenges, the following two approaches were followed to attempt to select a sample that met the prescribed sample size requirement and met the inclusion criteria set out earlier:

The *first approach* was to identify *eighty* (n = 80) medical practitioners from the *tertiary level*, such as Tygerberg Academic Hospital, that are representative of the four core disciplines in healthcare, namely Internal Medicine, Paediatrics, Obstetrics and Gynaecology and Surgery. In order to identify eighty medical practitioners from the tertiary level; the researcher has contracted with the Chief Executive Officer (CEO) of the hospital, after ethical clearance from the Western Cape Department of Health and the Research Ethics Committee (Humanities) of Stellenbosch University has been given to conduct the study. The CEO gave guidance as to who may be contacted in the specified departments; normally this would be the Heads of Department (HOD's). In addition, the researcher also contracted with subject

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[71] The degrees of freedom were calculated as (37 x 38)/2 – 89 = 703-89 = 614.

matter experts during the critical incident technique interview (research phase one; see Chapter Three) to gain access to utilise their staff reporting to them in their respective departments.

Another sample of *eighty* (n = 80) medical practitioners from the *secondary level* working at *regional hospitals* was identified. The medical practitioners working at the regional hospitals, also fell in one of the four core disciplines in healthcare. Concerning ethical clearance for regional hospitals, the same principle applied as described for tertiary hospitals. The targeted regional hospitals in the Cape Town area were:

1. Karl Bremmer Hospital
2. Khayelitsha Hospital
3. Worcester Hospital

The third sample of representative of the *secondary level* (*district hospitals*) and *primary level* (*community health centres*) was be targeted at a formal training intervention for medical practitioners such as a medical conference. This allowed the researcher to attempt to extract a sample of 200 or more medical practitioners. The National Family Practitioners Congress held in Cape Town was chosen since the target audience attending the congress consisted mainly of family physicians, representative from community health centres and district hospitals on a national basis. A short presentation of the study was presented at the conference, followed by a formal request where medical practitioners were asked to complete the questionnaire. Institutional permission was obtained from the conference coordination panel before data gathering was initiated. A sample of at least *one hundred (n = 100)* medical practitioners, more specifically family physicians, was required from this source.

The intention was therefore, to target in total a sample of two hundred and sixty (n = 260) medical practitioners from the public healthcare sector to participate in the research. A summary of the intended composition of sample group and the sample size is depicted in Table 4.1.

Table 4.1

Sampling Design for the Selection of Medical Practitioners for Questionnaire Completion

			Core Disciplines in the Healthcare System					
			Family Medicine	Internal Medicine	Paediatrics	Obstetrics and Gynaecology	Surgery	**Total**
Levels of Care in the Healthcare System	Tertiary Level	Regional Hospitals		20	20	20	20	80
	Secondary Level			20	20	20	20	80
		District Hospitals	50					50
	Primary Level	Community Health Centres	50					50
Total			100	40	40	40	40	260

A *second sampling approach* that was considered as a contingency plan, was to target an additional twenty (n = 20) medical practitioners from the tertiary and secondary level (regional hospitals) to mitigate the risk that some questionnaires had to be labelled as invalid for specific reasons, such as incompleteness or that some respondents might have been unwilling to complete the questionnaire. In addition to this extra measure to secure an adequate sample size as required for this study, the researcher also considered targeting other formal training interventions for medical practitioners, such as the "Medical Protection Society (MPS, 2015) Ethical Conference for Professional Practitioners" or the "Refresher Course for General Practitioners" hosted by Stellmed, Stellenbosch University (StellMed Refresher Course for General Practitioners, 2017).

Despite the identified challenges with regards to the sampling procedure and sample size, there was an alliance and positive partnership between the Faculty of Medicine and Health Sciences and the Department of Industrial Psychology at Stellenbosch University. As a result, obtaining and securing data was made substantially easier that what it would have been if this social capital did not exist.

4.6   MEASURING INSTRUMENT

4.6.1   Development of the MPCCQ

The MPCCQ is rooted in the assumption that compassion can be described and measured as a competency displayed by medical practitioners in practise. The researcher developed items from the critical incident technique interviews which were transformed into the MPCCQ. After the questionnaire

was drafted, it was pilot-tested with some of the medical practitioners who participated in the critical incident technique interviews. The pretest was necessary to determine if the questionnaire items were sufficiently clearly formulated, whether the items were appropriate denotations of the latent competency dimension they were reported to measure, whether the instructions were clear for participants and whether they found completing the questionnaire sufficiently user-friendly. The aim was to identify problem areas so that they could be addressed before the empirical quantitative data gathering process was initiated (Bradburn, Sudman & Wanksink, 2004). The questionnaire comprised of six subscales, each representing a specific latent dimension of compassion as a behavioural construct. Six items measured each specific latent competency dimension, but for the compassion action orientation competency subscale that comprised seven items.

A 5-point Likert scale was utilised to capture the respondent's responses to the test items. Medical practitioners had to assess the level of competency that they display on each of the latent compassion competency dimensions by choosing the response option that best summarised them. The following scale anchors were used: "significant development area" (1), "development area" (2), "on par/satisfactory" (3), "strength" (4) and "well-developed strength" (5)[72]. Provision was also made for an "unable to respond" response option (6). These types of responses will be treated as user-defined missing values. Three of the response options were anchored with behavioural descriptions as to what constitutes "significant development area" "on par/satisfactory" and "well-developed strength". A score is calculated for each of the six subscales, which will make up the compassion profile, namely *compassion action orientation*, *emotion recognition, caring with kindness, gaining and communicating empathetic understanding, investing the self and mindfulness*. Scoring was done manually. A copy of the MPCCQ is shown in Appendix E.

In undertaking the assessment, respondents were asked to manually (paper and pencil format) complete the assessment at a convenient time and place since the nature of a medical practitioner's job does not allow a scenario where one can test medical doctors before daily hospital rounds for example. Once the questionnaires have been completed, the data was captured in an Excel database. The assessment was administered by an industrial psychologist and in some cases a psychometrist, who strictly followed the prescribed assessment administration guidelines and procedures as prescribed by the HPCSA. Before commencing with the assessment, medical practitioners were asked to complete a consent form that was included as part of the MPCCQ (See Appendix E), thus giving formal approval for test-taking. Assurance was given via the consent form, that test data will be kept confidential and only utilised for the research study. Since the MPCCQ is an instrument developed to measure typical performance (rather than maximum performance), there was no time limit imposed on the completion of the

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[72] The terms "significant development area" and "development area" were deliberately chosen rather than terms like "well below standard " and "below standard" to increase the probability that partisipants would chose the lower response options if their level of competence on a specific competency was below par.

questionnaire, but respondents will be informed approximately how long it normally takes to complete the questionnaire.

4.6.2   MPCCQ Format

One of the objectives of developing the MPCCQ was to develop an instrument that would provide feedback on how medical practitioners display the performance construct compassion during medical encounters. Self-awareness and self-insight are critical in improving one's behaviour. Initially the MPCCQ was only developed as a *self-assessment* instrument which the medical practitioner him/herself needs to complete. It is acknowledged that the use of a self-assessment in isolation has specific disadvantages. The intention, however, is to in future also develop an *other-assessment* that other medical professionals, generally called "allieds" (for example: physiotherapists and occupational therapists), co-workers (other medical practitioners) or nursing staff can complete. In future the *other-assessment* version of the MPCCQ will consist of the same subscales as specified in the self-assessment, but participants will be asked to rate a specific focal medical practitioner or assess the level of competency that they show on each of the latent compassion competency dimensions by choosing the response option that best summarised them. The same 5-point Likert scale is utilised.

The possibility of expanding the MPCCQ into a fully-fledged 360^0 evaluation, has also been considered where the public healthcare medical practitioner's manager or supervisor also needs to complete a performance evaluation as well as a small sample of patients. The practical feasibility of such a 360^0 evaluation, especially regarding the involvement of patients, however, argues against extending the use of the MPCCQ beyond a 180^0 evaluation.

The intention is therefore to eventually use the MPCCQ to conduct compassion evaluations that will inform specific compassion development interventions. The advantage of the other-assessment version will be the valuable performance feedback information that is obtained from different role-players, with whom a medical practitioner interacts. The other-feedback when interpreted *viz-a-viz* the self-assessment rating in a gap analysis allows the medical practitioners to gain more penetrating self-insight about his/her degree of competence on the area of compassion, thus setting the platform for developing underlying dimensions of compassion or strengthening compassion as a competency.

The items of the MPCCQ, more specifically for the self-assessment, were created by enlisting critical behavioural incidents of poor medical practitioner performance on the specific latent dimensions in question, as well as critical behavioural incidents of successful medical practitioner performance. The definition of each dimension underlying compassion, as specified in the literature study, was used to evaluate the content validity of the behavioural anchors that were highlighted during the critical incident technique. The critical incidents were transcribed into short statement (in other words: items), on which

the participants needed to rate themselves on a 5-point scale, indicating the level of competence that the medical practitioner has reached on a given latent compassion competency dimension.

4.7   DATA ANALYSIS

4.7.1   Data Analysis of the MPCCQ: Item Analysis

Item analysis is a statistical evaluation that is required when constructing a test. The MPCCQ was developed to measure the multidimensional latent compassion competency through homogenous sets of effect indicators designed to reflect medical practitioners' standing on the latent first-order compassion competencies. Medical practitioners' standing on the latent first-order compassion competencies, was therefore indirectly assessed through the manner in which they observably respond to the MPCCQ items. The assumption is that the responses to the items comprising each of the subscales of the MPCCQ are dependent on the medical practitioners' standing on the latent first-order compassion competency, that each subscale was designed to reflect. If this design intention succeeded, items comprising each subscale should tend to respond in unison across different medical practitioners varying in the level of competence that they display on the latent first-order competencies, because the items comprising each subscale are then underpinned by a common source of systematic variance. A further design intention underpinning the development of the MPCCQ items, was that the manner in which medical practitioners respond to the items should differ even when only a relatively small difference in standing on the latent first-order competency, occurs. In essence, item analysis enables a researcher to differentiate between better and poorer items in the test. Poor items on the MPCCQ, are items that do not sensitively discriminate between relatively small differences in competence on the first-order competencies, and/or that do not validly reflect medical practitioners' standing on the latent first-order competency they were designated to reflect. By removing the poorer items, the reliability of the test scores and the validity of the construct-referenced inferences can be improved. Typical examples would include items that are poorly worded or items that seem to measure the researched construct, but in actual fact do not.

When analysing each test item of the MPCCQ, two questions should be asked, namely whether the test item measures the same latent first-order competency that the rest of the subscale that the item forms part of is measuring, and whether each item sensitively discriminates between relatively small differences in competence on the latent first-order competency they were earmarked to reflect. Two types of classical measurement theory item statistics were utilised in trying to answer these questions, namely, item *difficulty statistics* and *item discrimination statistics.*

More specifically, the following classical measurement theory item statistics were calculated via the SPSS 25 Reliability procedure: Item means, item standard deviations, inter-item correlations, corrected

item-total correlations, squared multiple correlations, subscale mean if item deleted, subscale variance if item deleted, and subscale internal consistency reliability if item deleted.

If the design intention to develop sets of items for each subscale of the MPCCQ, that validly, reliably and sensitively reflect relatively small differences in competence on the specific first-order competency the subscale was designated to reflect succeeded, the aforementioned classical measurement theory item statistics, should indicate (Guilford & Fruchter, 1978; Murphy & Davidshofer, 2005):

- The absence of extreme high or extreme low means (item difficulty statistic);
- The absence of outliers in the distribution of item standard deviations to the lower end of the distribution of each subscale (item discrimination statistic);
- The absence of items that consistently correlate lower with remaining items of a subscale[73] (item discrimination statistic)[74] ;
- The absence of items that, when deleted, substantially lower the scale mean, or only marginally lower the scale mean (item difficulty statistic);
- The absence of items that, when deleted, either only marginally decrease the scale variance or increases the scale variance (item discrimination statistic)[75];
- The absence of outliers in the distribution of corrected item-total correlations to the lower end of the distribution of each subscale (item discrimination statistic);
- The absence of outliers[76] in the distribution of squared multiple correlations to the lower end of the distribution of each subscale (item discrimination statistic); and
- The absence of items that, when deleted, substantially increase the internal consistency reliability of the subscale.

If these item statistic results are in fact obtained for all (or the majority) of the items of a subscale (along with a satisfactory subscale internal consistency reliability coefficient), it can, however, not be definitively concluded that the design intention, to develop construct valid indicators of the latent first-order competency, succeeded. At best it can be concluded that the responses to the items comprising each subscale are the expression of a common source of systematic variance and that each item is able to reasonably sensitively differentiate between differences in standing on the underlying construct. In the face of positive item analysis results, it cannot be claimed that the common source of variance is necessarily a unidimensional latent variable nor that it is the latent first-order compassion competency

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[73] Items that consistently correlate negatively but moderately high with the remaining subscale items would indicate a problematic item that can be salvaged by reflecting the scale of the item.

[74] It is acknowledged that an item that consistently correlates low with the remaining items of a subscale could also be indicative of problems with the item difficulty of the item as well.

[75] This follows from the fact that the variance of a linear composite (like the subscale score) is given by $S^2_{scale} = S^2_1 + S^2_2 + \ldots S^2_t + r_{1,2}S_1S_2 + r_{1,3}S_1S_3 + \ldots + r_{t-1,t}S_{t-1}S_t$ (Ghiselli, Campbell & Zedeck, 1981).

[76] It was argued that that no absolute critical cutoff value could be specified for the corrected item-total correlations and the squared multiple correlations because the manner in which items that respond to a different source of systematic variance than the remaining items of the subscale would express themselves in these two statistics depend on the location of the corrected item-total correlation distribution and the squared multiple correlationdistribution and therefore also the inter-item correlation distribution.

that the subscale was designed to reflect. It can only be claimed that the findings are compatible with the latter position and that the latter position survived an opportunity to be falsified.

Conversely, however, if these item statistic results are not obtained for all (or the majority) of the items of a subscale (along with an unsatisfactory subscale internal consistency reliability coefficient), it can be definitively concluded that the design intention to develop reliable and construct valid indicators of the latent first-order competency failed.

In cases when one or more of the item statistics indicated a problematic item, a decision on the appropriate response was throughout, based on a basket of item statistic evidence, rather isolated item statistic results. Items that were flagged as problematic based on a basket of item statistics, were either eliminated, retained as is, or reflected[77]. Moreover, the methodological judgement of the researcher was allowed to play a role in the decision. Considerations that played a role, were the severity of the problematic item statistics, the effect of item deletion on the subscale internal consistency reliability and the length of the original scale[78] (Guilford & Fruchter, 1978; Murphy & Davidshofer, 2005).

4.7.2 Data Analysis of the MPCCQ: Dimensionality Analysis

The MPCCQ was developed to measure the multidimensional latent compassion competency, through homogenous sets of items, designed to reflect medical practitioners' standing on specific latent first-order compassion competencies. The six latent first-order compassion competencies comprising the multidimensional latent compassion competency were conceptualised as unidimensional latent dimensions. Medical practitioners' standing on the latent first-order compassion competencies, was indirectly assessed through the manner in which they observably respond to the MPCCQ items. The assumption is that the responses to the items comprising each of the subscales of the MPCCQ are dependent on the medical practitioners' standing on the latent first-order compassion competency that each subscale was designed to reflect. More specifically, the assumption was made that in the development of the MPCCQ, it was possible to develop essentially unidimensional subscales where the only common source of systematic variance shared by all the items of a subscale, is the latent first-order competency of interest. The assumption is therefore, that the partial inter-item correlations will approach zero when controlling for the latent first-order competency in question. A similar, although somewhat less stringent criterion was that the partial inter-item correlations when controlling for all the other items

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[77] The option of rewriting items was not considered a decision option in the current study since it would require a second administration of the MPCCQ which was not practically desirable. The option to rewrite items (and to add new items) to a future second version of the MPCCQ was, however, considered.

[78] The current study guarded against the deletion of items that were flagged as problematic, based on mild symptoms of psychometric problems and that would only bring about small, second decimal, improvements in subscale internal consistency reliability. Once satisfactory levels of internal consistency reliability had been achieved, the threshold for item deletion was raised considerably. The number of items in the original subscale also played a role-one could afford a more stringent approach to item analysis when starting off with a large number of items.

in the subscale should approach zero (or at least should drop markedly in magnitude from the zero-order correlations).

Factor analysis is classified as an interdependence technique (Tabachnick & Fidell, 2007). An interdependence technique implies that the research variables cannot be classified as either an independent or dependent variable, thus all variables will be analysed concurrently. The purpose of the analysis would be to try and find an underlying latent structure that is capable of explaining the correlations observed amongst a set of variables. In other words, factor analysis "provides the tools for analysing the structure of the interrelationships (correlations) among large number of variables (e.g., test scores, test items, questionnaire responses) by defining sets of variables that are highly interrelated, known as factors" (Hair, Black, Babin, Anderson & Tatham, 2014, p. 104). The assumption is that the factors, on which highly inter-correlated observed variables load, symbolise dimensions in the data. The current study acknowledges that factor analysis can be approached from either an exploratory perspective or a confirmatory standpoint. In an EFA, no hypothesis exists regarding the number of common factors, underlying the observed (inter-item) correlation matrix, no hypothesis exists regarding the manner in which observed variables (items) load on the extracted factors, and no hypothesis exists about the nature of the relationship between the extracted factors (i.e. whether they are correlated or not). For the purpose of the current study factor analysis should be approached from a confirmatory standpoint, since the researcher has preconceived ideas about the actual structure of the data which is based on the constitutive definition of compassion as a six dimensional competency and the design intention underpinning the MPCCQ in terms of which specific items were written to reflect medical practitioners' competence on specific latent first-order competencies. This line of reasoning also applies to each subscale. Strictly speaking, therefore, CFA should be the factor analytic technique of choice to examine measurement hypotheses regarding the individual subscales as well as the overall instrument.

The current study nonetheless, chose to evaluate the success with which the design intention to construct essentially unidimensional subscales of items to measure the latent first-order competencies comprising the compassion construct, had been achieved by running six exploratory factor analyses (Tabachnick & Fidell, 2007). This choice was motivated by the practical expediency of these analysis in contrast to fitting six single-factor measurement models via CFA. SPSS 25 was used to perform the exploratory factor analyses on the subscales. The observed inter-item correlation matrices were analysed using principal factor analysis (PAF). The factor analysability was evaluated. The inter-item correlation matrix was considered factor analysable if the Bartlett identity matrix null hypothesis was rejected ($p <$ .05), the subscale Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy (MSA) exceeded at least .60 (and if the inter-item correlations were statistically significant and exceeded at least .30) (Tabachnick & Fidell, 2007)[79].

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[79] It is acknowledged that the chances that the subscale inter-item correlation matrices would not be factor analysable are very small, given that the items of each subscale have been purposefully written to reflect a common underlying latent compassion

The success with which the design intention to develop items that provide valid measures of a specific unidimensional latent first-order compassion competency, had been achieved, was evaluated by determining whether a single factor provided an adequate explanation of the observed inter-item correlation matrix, as judged by the percentage large residual correlations, and if it did, evaluating the magnitude of the factor loadings ($\lambda_{ij} \geq .50$). If a single factor was extracted, but it failed to provide a valid and credible explanation for the observed inter-item correlation matrix (in that the percentage large residual correlations (i.e., residual correlations larger than .05) was too large ($> 30\%$)), the extraction of a second factor was requested. The pattern matrix[80] (Tabachnick & Fidell, 2007) was then interpreted by attempting to identify common themes shared by the items that loaded on each factor. The same procedure was followed if more than one factor was extracted (in terms of the eigenvalue-greater-than-one rule) and the factor structure provided an adequate explanation of the observed inter-item correlation matrix, as judged by the percentage large residual correlations. The factor fission was considered meaningful if the identity of the extracted factors could be determined from the loading pattern in the pattern matrix, if the factors constituted logical facets of the original latent compassion competency dimension, if the factors did not correlate excessively high and if distinguishing between the factors was of practical value. In the aforementioned two cases of factor fission the unidimensionality assumption was then not supported.

In cases where support was not obtained for the unidimensionality assumption EFA was run on the inter-item correlation matrix, utilising principle axis factor analysis with oblique rotation. Meaningful factor fission was concluded if the identity of the extracted factors could be inferred from shared themes among the items loading on the factors in the pattern matrix and if the percentage of large residual correlations were sufficiently small. In the case of meaningful factor fission, a first-order measurement model was fitted via CFA. If this model showed close fit (or at least reasonable fit in the sample), a second-order measurement model was subsequently fitted via CFA, to evaluate the hypothesis that the latent competency of interest was successfully measured as a second-order factor, by the items originally developed for the subscale. The operationalization of the competency in question as a second-order competency was considered successful if the unstandardised indirect effects of the second-order factor on the items (i.e. $\gamma_{jl}\lambda^{Y}_{ij}$) were statistically significant ($p < .05$)[81] and the magnitude of the completely standardised indirect effects, exceeded .25. If the first-order measurement model did not show close fit (or at least reasonable fit in the sample), the modification indices for the measurement error variance-covariance matrix Θ_{δ} was examined. If numerous statistically significant ($p < .01$) modification index

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competency. Any negative findings related to the factor analysability of the subscale inter-item correlation matrices would therefore comment negatively on the design intention.

[80] The pattern matrix is the rotated factor matrix that reflects the partial regression coefficients when regressing the items on the extracted factors. The factor loadings in the pattern matrix therefore reflect the influence of each factor on the items when controlling for the other factors in the factor structure.

[81] The statistical significance of the indirect effects were tested by translating the original SIMPLIS syntax file to a LISREL syntax file, adding the command AP = 6 to the Model [MO] line and adding the commands CO PAR(1) = < product of the path coefficients that constitute the indirect effect > - CO PAR(6) = < product of the path coefficients that constitute the indirect effect> just before the path diagram [PD] command line.

values were found for the off-diagonal of Θ_δ a bifactor measurement model was fitted. A finding that indicates that allowing for correlated measurement error terms would statistically significantly ($p < .01$) improve the fit of the model, suggests that all (or most) of the items share an additional source of systematic variance that is currently not formally acknowledged by the measurement model.

A similar caveat to that, issued with regards to the interpretation of the item analysis results, again apply here as well. If the items, comprising a specific subscale validly measure the specific latent first-order competency they were designated to represent and the latent first-order competency is in fact an indivisible behavioural characteristic, then a single factor will emerge from the PAF, the percentage large residual correlations will be small and the factor loadings will be large. Such a finding can, however, not be presented as sufficient proof that the subscale items provided construct valid measures of the targeted latent first-order compassion competency as constitutively defined. It can only be offered as evidence that is compatible with such a position. Conversely, however, if the PAF extracted more than one factor or if the factor loadings are small, it can be reasonably unambiguously concluded that the design intention to measure the specific latent first-order competency as a unidimensional latent compassion dimension via the subscale of items failed.

4.7.3   Structural Equation Modelling

Structural equation modelling (SEM) was used to fit the measurement model defined by Equation 1 and the structural model defined by Equation 2. SEM is a technique that is commonly used in testing a hypothesis about relationships between theoretical constructs and hypotheses about the relationships between theoretical constructs and observed variables.

4.7.3.1 CFA

Compassion was conceptualised as a multidimensional competency, comprising six qualitatively distinct but nonetheless interrelated latent first-order competencies. The MPCCQ was developed by identifying behavioural denotations of higher and lower levels of competence on each of the latent first-order competencies. These were transformed into items with a 5-point response scale. Each item was earmarked to reflect the standing of medical practitioners on a specific first-order compassion competency. The manner in which compassion was conceptualised as a six-dimensional competency along with the design intention of structurally linking specific items to specific latent first-order compassion competencies implies the measurement model defined earlier in Equation 1. The fit of the measurement model defined in Equation 1, and the statistical significance of the parameter estimates (given that the model fits), was evaluated via CFA. CFA is a multivariate statistical technique enabling one to test data. Hair, Black, Babin, Anderson and Tatham (2006, p. 773) describe it as "how well measured variables represent a smaller number of constructs".

4.7.3.1.1   Variable Type

It is important to take note of the variable type as well as the measurement scale, when doing CFA. The aim of the current study is to develop the MPCCQ and to evaluate the construct validity of the instrument. As such, the methodological ideal undeniably would be to fit the MPCCQ measurement model, in which the individual items serve as the indicator variables. This allows the psychometric integrity of each individual item to be evaluated. This was reflected in the manner that Equation 1 defined the MPCCQ measurement model. The MPCCQ utilizes a five-point Likert type measurement scale to which respondents are requested to indicate the extent to which the manifested level of competence, that they display on a specific competency is below par or exceeds expectations.

The reflection on the type of indicator variables to use when fitting the measurement model should, however, also take into account the number of freed parameters that will have to be estimated and the implications that hold for the required sample size. Since the MPCCQ has 37 test items, the fitting of the MPCCQ measurement model in which the individual items serve as indicator variables on a sample of the size as targeted (260) will not be ideal and will not meet the lower limit of the Bentler and Chou (1987) interval of desired ratios of observations to freed parameters. In terms of the Bentler and Chou (1987) rule-of-thumb, the current study would require 495 to 990 medical practitioners to complete the MPCCQ. A more favourable ratio of observations to freed parameters could have been achieved by using the technique of item parceling which implies reducing the number of observed variables by calculating the mean (or sum) of sets of items. Little, Cunningham and Shahar (2002, p. 152) define a parcel as "an aggregate level indicator comprised of the sum (or average) of two or more items, responses, or behaviours". The option of creating item parcels, allows one to reduce the number or indicators in lengthy scales, and thus the number of parameters that need to be estimated (Bandalos & Finney, 2001). It was, however, decided that, in the case of the current study the disadvantage of item parceling outweighed the disadvantage of the smaller than desired ratio of observations, to freed model parameters. In the development and validation of a new instrument the interest falls on the functioning of each and every individual item. The aim is not to evaluate the use of the MPCCQ to provide item parcel indicator variable measures for compassion latent variables in a structural model. The research is more focused on the development and psychometric evaluation of the MPCCQ as a measure of compassion in the healthcare industry in South Africa. In other words, the aim is to evaluate the design intentions of the instrument, thus, do the individual items provide a valid and reliable measure of the latent compassion construct? Item parceling offers poor items the opportunity to hide away in item parcels without being detected. Moreover, if an item parcel is flagged because of an insignificant ($p > .05$) or low factor loading it is not clear which item or items are causing the problem. Consequently, the MPCCQ measurement model was fitted as specified in Equation 1, with individual items as indicator variables.

Strictly speaking, the individual items had to be treated as ordinal variables, which would have meant that the polychoric inter-item correlation matrix had to be analysed via diagonally weighted least squares estimation. Methuen and Kaplan (1985), however, recommend that in the case of Likert scales with five or more scale points, the resultant data may be treated as if approximating continuous data on an interval scale. Consequently, the current study analysed the inter-item covariance matrix with maximum likelihood estimation or robust maximum likelihood estimation depending on whether the multivariate normality assumption has been met.

4.7.3.1.2   Multivariate Normality

Multivariate statistics in general, and SEM more specifically, focus on the importance of testing for certain critical statistical assumptions when doing multivariate analysis. An example of such an assumption is that, if one would use continuous indicator variables, these variables should follow a multivariate normal distribution. In the case of the current study, items were measured on a five-point scale that were used as indicator variables. These variables were interpreted as approximating continuous variables. In the case when a researcher wants to fit a measurement model to continuous variables, the default method of estimation (maximum likelihood estimation) requires that the data should follow a multivariate normal distribution (Kaplan, 2000). If the multivariate normality assumption is not met, model fit estimates and the testing of the significance of model parameter estimates can be biased (Diamantopoulos & Siguaw, 2000).

Multivariate normality implies that individual variables are normal in a univariate sense and that in their combinations they are normally distributed. The same cannot be said however for univariate normality. If two variables are univariate normal, it does not imply that their combined distribution will be multivariate normal. Multivariate normality is difficult to test but there are specialised techniques available to do this. Testing of the univariate and multivariate normality of the indicator variable distributions were done in PRELIS. If the null hypothesis of multivariate normality was rejected ($p <$ .05), an attempt was made to normalise the item indicator variable distribution and subsequent to that, the assumption of multivariate normality was tested again (Jöreskog & Sörbom, 1993). If the attempt at normalisation succeeded the normalised data was analysed via maximum likelihood estimation. If the attempt at normalisation failed to remedy the problem, but nonetheless reduced the deviation of the observed sample distribution from the multivariate normal distribution, the normalised data was analysed via robust maximum likelihood estimation. If the attempt at normalisation failed to remedy the problem and further aggravated the deviation of the observed sample distribution from the multivariate normal distribution, the original data was analysed via robust maximum likelihood estimation.

4.7.3.1.3   Evaluating Measurement Model Fit

Measurement model fit refers to the extent to which the measurement model and its parameter estimates can accurately mathematically reproduce the observed variance-covariance matrix. The extent to which the fitted variance-covariance matrix deviates from the observed variance-covariance matrix can be evaluated on the level of the population and on the level of the sample. To evaluate the ability of the model and its parameter estimates to reproduce the observed variance-covariance matrix in the parameter the exact and close fit null hypotheses formulated earlier (H_{01} and H_{02}) were tested. Support for the model and the validity of its parameter estimates is attained if H_{01} and/or H_{02} is not rejected (p > .05).

To evaluate the ability of the model and its parameter estimates to reproduce the observed variance-covariance matrix in the sample LISREL, provides an extensive array of fit statistics that describe the fit of the measurement model from a number of different perspectives. The array of fit statistics produced by LISREL, can broadly be categorised into two types for assessing measurement model fit. Firstly, fit statistics aimed at the assessment of the absolute fit of the model, and secondly, fit statistics aimed at the assessment of the comparative (or incremental) fit of the model. A further subcategory of comparative fit statistics is distinguished that focus on the assessment of parsimonious fit. In the case when the absolute fit of a model is assessed, the ability of an *a priori* model to reproduce the covariance matrix is determined, whereas the assessment of comparative fit focusses on the fit of the *a priori* model relative to some baseline model. Interestingly, measures of absolute fit and comparative fit tend to favor more complex models (Kelloway, 1998)[82]. Parsimony fit indices are generally adaptations of comparative fit indices, by having them take into account the complexity of the model so that these indices tend to seriously penalise the model for complexity.

4.7.3.1.3.1 Fit Statistics

Absolute fit indices

The aim of using fit statistics is to determine how well a *priori* model, reflecting a specific measurement hypothesis or substantive theoretical hypothesis, fits the data. In order to analyse the data, different absolute goodness-of-fit (GOF) statistics are available: Chi-Square (X^2), Goodness-of-Fit Index (GFI), Adjusted Goodness-of-Fit Index (AGFI), Root Mean Square Error of Approximation (RMSEA), Root Mean Square Residual (RMR) and the Standardised Root Mean Square Residual (RMR) (Jöreskog & Söorbom, 1993).

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[82] The RMSEA fit statistic is one exception to this trendency (as is the Tucker Lewis Index or Non-normed Fit Index (NNFI)). The RMSEA favours parsimonyand will favour choose the model with the lesser number of parameters (Diamantopoulos & Siguaw, 2000)

Chi-Square (χ²)

The constitutive definition of compassion as a multidimensional competency and the design intention underpinning the MPCCQ, specified the measurement model as a measurement hypothesis for which the freed parameters are estimated. The purpose of the model fit is to evaluate the researcher's measurement hypothesis, by comparing the covariance estimates derived from the fitted model hypothesised to accurately describe the process that generated the observed covariances to the covariances calculated from the data (reality). In other words, the closer the variance and covariance values that have been calculated mathematically from the fitted model parameter estimates agrees with the variances and covariances mathematically calculated from the data, the better the fit of the model. If the proposed hypothesis were flawless the estimated covariance matrix and the observed covariance matrix would be similar in the sample to a degree that can be explained by sampling error only. The normal theory chi-square (χ²) is classified as the basic absolute goodness-of-fit statistic. This statistic is utilised to quantify the difference between the observed and estimated covariance matrices; the mathematical equation is represented in Equation 3 (Hair et al, 2006, p. 745):

$$\chi^2 = (N-1)(S - \textstyle\sum(\theta)) \hspace{6cm} \textbf{[3]}$$

or

$$\chi^2 = (\text{Overall sample size } -1)(\text{Observed sample covariance matrix} - \text{SEM estimated covariance matrix})$$

The chi-square statistic (χ²) as part of the LISREL GOF output, is interpreted as a "badness of fit" measure and used to test the exact fit null hypothesis (H_{01}) against the alternative hypothesis (H_{a1}) if the multivariate normality assumption had been met. In SEM, the exact fit null hypothesis would state that the observed sample and estimated covariance matrices are equal, thus a textbook model fit. Should the fit not be perfect, the chi-square (χ²) statistic would increase beyond a value that could be explained in terms of sampling error under the exact fit null hypothesis. Ultimately, the researcher would hope for a small χ,² value indicating no statistically significant difference between the two matrices (Hair et al., 2006, p. 746).

In the case of non-normal data LISREL 8.8 produces the Satorra-Bentler scaled chi-square statistic (Du Toit & Du Toit, 2001). The Satorra-Bentler scaled chi-square is calculated when robust maximum likelihood estimation is requested. The Satorra-Bentler scaled chi-square adjusts the maximum likelihood chi-square based on the distributional characteristics of the observed data (Finney & DiStefano, 2006). The Satorra-Bentler scaled chi-square is defined by the mathematical equation shown as Equation Four (Finney & DiStefano, 2006):

$$S - B X^2 = d^{-1}(\text{ML-based } \chi^2) \text{ ---} [4]$$

Where d is a scaling factor that reflects the kurtosis of the multivariate indicator distribution.

Goodness-of-Fit Index (GFI) and the Adjusted Goodness-of-Fit Index (AGFI)

The GFI and the Adjusted Goodness-of-Fit Index (AGFI) were developed as substitutes for the chi-square test with the benefit that they do not clearly depend on sample size. The statistics unfortunately have no known sampling distribution. Testing of hypotheses on the value of the index in the parameter are therefore not possible. In short, the GFI is a measure of fit between the hypothesised model and the observed covariance matrix, whereas the AGFI adjust the GFI for degrees of freedom in the model. When interpreting the GFI and AGFI values a range of zero to one is specified, where higher values would indicate a better model fit. Suggestions for cut-off values are .90, but when factor loadings and sample sizes are low and small, a cut-off value of .95 is required (Kelloway, 1998; Jöreskog & Sörbom, 2000).

Root Mean Square Error of Approximation (RMSEA)

The root mean square error of approximation was developed by Steiger (1990). RMSEA has a known sampling distribution and represents how well a model fits a sample used for assessment but also how well a model fits a population. During the mathematical computation of the RMSEA value, both sample size and model complexity are taken into account. Steiger (1990) is of the opinion that a sample RMSEA values below .10 would be an indicator of a good model fit in the sample, whereas a value below .05, would be classified as a very good fit to the data. Lastly, a value below .01 would indicate outstanding fit to the data, which according to Steiger (1990) is a rare occurrence. In addition to Steiger's point of view, Browne and Cudeck (1993) also stipulated similar parameters, namely, a value below .05 would be classified as a good model fit, whereas RMSEA values smaller than .08 would indicate a reasonable fit in the sample. A poor model fit would be indicated by a value larger than .08. LISREL calculates and reports the probability of observing the sample RMSEA value (assume c) under the close fit null hypothesis (i.e. $P[\text{RMSEA} \geq c | H_{02}: \text{RMSEA} \geq .05]$). If the exceedance probability is sufficiently large (i.e. $p > .05$) the close fit null hypothesis (H_{02}) is not rejected and support is obtained for the fitted model.

Root Mean Square Residual (RMSR) and Standardised Root Mean Residual (SRMR)

Kelloway (1998, p. 27) defines the RMSR as "the square root of the mean of the squared discrepancies between the implied and the observed covariance matrices". In other words, each variance or covariance term is thought of as an individual value that is predicted from the fitted model and the question is asked how well the model, and its parameter estimates, can reproduce the variance and covariance terms in the observed variance-covariance matrix. How accurately the variance terms and covariance terms are predicted, determine model fit. If there are errors in predicting these variance or covariance terms, a variance or covariance residual is created, which indicates an error in one's prediction. The root means

square residual is a summary measure of fitted variance and covariance residuals. It represents the average value of the difference between the sample covariance and a fitted covariance. A drawback inherent to the interpretation of the RMSR value, is that it is expressed in terms of the scale range of the indicator variables. A solution to this problem lies in the standardisation of the residuals. Therefore, an alternative statistic, namely the SRMR, is more useful for comparing fit across models. The SRMR is defined as the square root of the mean of the squared standardised difference between the observed variance and covariance terms and the predicted variance and covariance terms. Diamantopoulos and Siguaw (2000) is of the opinion that a SRMR value below .05 is an indicator of acceptable model fit.

Comparative or Incremental fit indices

Comparative fit indices, represent a group of indices that compare the chi-square value of the fitted *a priori* model to a null or independence in which all measured variables and latent variables are uncorrelated that serves as a baseline model.

Normed fit index (NFI)

The Normed Fit Index (NFI) was proposed by Bentler and Bonnet (Hooper, Coughlan, & Mullen, 2008). The NFI assesses model fit by comparing the X^2 value of the *a priori* model to the χ^2 of the null model (Hooper et al., 2008). Values for the NFI statistic range between 0 and 1 values greater than .90, indicating a good fit. More recent suggestions state that the cut-off criteria should be NFI ≥ .95 (Hu & Bentler, 1999). Hooper et al. (2008) warn that a major drawback to the NFI is that it is sensitive to sample size, underestimating fit for samples less than 200.

CFI (Comparative Fit Index)

The Comparative Fit Index adapts the NFI so that it also takes sample size into account (Hooper et al., 2008) so that this fit index tends to performs well even when sample size is small (Tabachnick & Fidell, 2007). The CFI values also range between 0 and 1 with values closer to 1.0, indicating good fit. A critical cut-off value of .90 is generally accepted, however, Hu and Bentler (1999) propose that a CFI exceeding .95 should be regarded as indicative of good fit.

Parsimony fit indices

Parsimony Goodness-of-Fit Index (PGFI) and the Parsimonious Normed Fit Index (PNFI)

Model fit can be improved by increasing the number of freed model parameters. The category of parsimony fit indices, include adaptations of absolute and comparative fit indices that penalise more complex models by adjusting for loss of degrees of freedom (Hooper et al., 2008). The more complex the model, the lower the parsimony fit indices tend to become. Parsimonious fit indices include the PGFI (based on the Goodness-of-Fit statistic (GFI)), PNFI (based on the NFI). No threshold levels have been

recommended for these indices. The parsimony fit indices do, however, generally tend to produce substantially lower values even when other goodness of fit indices indicate good model fit (Hooper et al., 2008).

Akaike Information Criterion (AIC) or the Consistent Version of AIC (CAIC)

The AIC and CAIC are fit indices typically calculated for the *a priori* model of interest, the null model and the saturated model on the same data and indicates which of the models is the most parsimonious. The AIC and CAIC are not normed to fall on a $0-1$ scale. The model that returns the smaller values, is the more parsimonious model. The ideal is therefore that the *a priori* model obtains an AIC and a CAIC value that are smaller than those of the null and saturated models (Hooper et al., 2008). The AIC and CAIC require a sample size of at least 200 to make their interpretation reliable (Diamantopoulos & Siguaw, 2000).

4.7.3.1.3.2 Standardised Residuals

The ability of the measurement model and its parameter, estimates to reproduce the observed variance-covariance matrix in the sample, can also be evaluated in terms of the percentage of large standardised variance and covariance residuals. Standard SEM output would typically include information about residuals. "Residuals refer to the individual differences between observed covariance terms and the fitted covariance terms, whereas standardised residuals simply represent the raw residuals divided by the standard error of the residual" (Hair et al., 2006 p. 296). The importance of standardised residual information, lies in the fact that it offers diagnostic information on the sources of lack of fit in models that are tested for research purposes. Residuals reflect the difference between the observed and estimates variance and covariances. Large residuals therefore indicate variance or covariance terms that the fitted model poorly accounts for. Standardised residuals were considered large if they exceeded 2.58 (Diamantopoulos & Siguaw, 2000). The sign of the standardised residuals as positive or negative, nonetheless, has diagnostic value. Large positive residuals would indicate that the model underestimates the relationship between two variables. It is then argued that additional explanatory paths would need to be included to address this. Large negative residuals, on the other hand would imply that the model overestimates the relationship between two observed variables. It is then argued that in this case a researcher would have to eliminate some of the paths specified in the model (Kelloway, 1998).

In the output provided by the LISREL program the largest and smallest standardised residuals are indicated as well as a stem and leaf plot that illustrates how the residuals are spread around the median (Diamantopoulos & Siguaw, 2000). The ideal is that the distribution of standardised residuals is symmetrically and mesokurtically distributed around the median centred on zero, and that the dispersion is narrow with no large positive or negative standardised residuals (Diamantopoulos & Siguaw, 2000). In the current study the percentage of large standardised residuals was calculated. A large percentage

of large standardised residuals (> 30%) was regarded as a negative comment on the ability of the fitted model to explain the observed variance-covariance matrix.

4.7.3.1.3.3 Modification Indices

The quality of the fit of the fitted measurement model was also evaluated by calculating the percentage of statistically significant (p < .01) modification indices, calculated for Λ and Θ_δ. Modification indices are valuable sources of information especially if there is a need to improve the fit of the model. Theory trimming is a well-known approach that is recommended to improve models, where non-significant paths are deleted from the model based on information given on the estimated model parameters. A different approach, also used in LISREL, may be suggested, namely, theory-building where parameters are added to the model based on information given on the non-estimated parameters of the model. In LISREL these tests are referred to as modification indices or in more technical terms: Lagrange multiplier tests.

Typically, a modification index would be calculated for every relationship in the model that is not free to be estimated. The modification index would show to what extent the overall model Chi-Square (χ^2) value would be reduced by freeing that single path. In the case of a modification index with the value of $6.64^{[83]}$ or greater, freeing the corresponding path will statistically significantly (p < .01) improve the fit of the existing model (Kelloway, 1998; Hair et al., 2006). In the current study the modification indices calculated for Λ and Θ_δ., were not examined with the idea of modifying the model but rather to comment on the adequacy of the existing model. The percentage statistically significant (p < .01) modification indices were calculated for Λ and Θ_δ. A large percentage (> 30%) implied that numerous ways existed to improve the fit of the measurement model implied by the constitutive definition of the compassion competency, and the design intention underpinning the MPCCQ. Conversely if only a limited number of ways existed in which the fit of the MPCCQ measurement model could be improved that was regarded as a favorable comment on the adequacy of the model.

4.7.3.1.4 Interpretation of Measurement Model Parameter Estimates

If H_{01} and/or H_{02} was not rejected, or if at least reasonable model fit was obtained, as judged by the sample fit statistics, the percentage statistically significant (p < .01) standardised variance-covariance residuals and the percentage statistically significant modification indices calculated for Λ and Θ_δ., the measurement model parameter estimates were interpreted by testing $H_{03} - H_{0101}$. For those parameter estimates that were found to be statistically significant (i.e. H_{0i} was rejected), the magnitude of the

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[83] When one additional parameter is freed to be estimated 1 degree of freedom will be lost. The critical chi-square value on a 1% significance level for 1 degree of freedom is 6.64. When the more lenient 5% significance level would be used a critical chi-square value of 3.8 is obtained.

completely standardised factor loading estimates (λ_{ij}), completely standardised measurement error variances ($\theta_{\delta ii}$) and inter first-order competency correlations (ϕ_{jk}), were evaluated. The hypothesis that the MPCCQ provides construct valid measures of the multidimensional compassion construct as constitutively defined, was considered corroborated if:

- The exact fit (H_{01}) and/or close fit (H_{02}) null hypothesis was not rejected ($p > .05$);
- The unstandardised factor loadings (λ_{ij}) were statistically significant ($p < .05$);
- The completely standardised factor loadings were large (i.e., $\lambda_{ij} \geq .50$);
- The measurement error variances ($\theta_{\delta ii}$) were statistically significant ($p < .05$);
- The completely standardised measurement error variances were small (i.e., $\theta_{\delta ii} \leq .75$);
- The inter-latent first-order competency correlations (ϕ_{jk}) were statistically significant ($p < .05$); and
- The inter-latent first-order competency correlations were not excessively large (i.e., $\phi_{jk} \leq .90$);.

A similar caveat to that, issued with regards to the interpretation of the item analysis and dimensionality analysis results, also apply to the interpretation of the overall MPCCQ measurement model CFA results. If inferences on medical practitioners' standing on the latent first-order compassion competencies comprising the compassion construct could permissibly (i.e. validly) be derived from the MPCCQ dimension scores, the conditions listed above would be met. When the conditions have been met one cannot, however, definitively conclude that the latent variables that the MPCCQ items successfully reflect are in fact the latent first-order compassion competencies as constitutively defined. At best it can be concluded that the CFA results are compatible with such a position. If, however the measurement model did not fit or the parameter estimates would indicate that the MPCCQ items do not provide valid reflections of the latent variables they were designated to reflect one could reasonably confidently conclude that the MPCCQ does not allow one to make construct valid inferences of medical practitioners standing on the multidimensional construct, as constitutively defined.

4.7.4   Discriminant Analysis (Validity)

The MPCCQ was developed to provide a construct valid measure of the multidimensional compassion competency. Construct validation refers to a process that is followed in determining whether test scores provide a sound measure of a given construct. Construct validation is a process aimed at determining whether inferences may permissibly be derived from the observed first-order compassion competency scores about test-takers' standing on the latent first-order competencies, comprising the construct. The compassion construct, as conceptualised by the MPCCQ, comprises six related, but nonetheless qualitatively distinct, latent first-order competencies. Once favourable evidence has been led in support of the construct validity of the MPCCQ, the question arises whether the MPCCQ succeeded in measuring the six first-order competencies as related, but nonetheless, qualitatively distinct, latent variables. The concern is that the items comprising the various subscales of the MPCCQ were unable to differentiate between the various related but qualitatively distinct first-order competencies, and that the observed dimension scores that appear to be distinct measures of the different competencies, are in fact measures of the same construct measured more than once.

The current study utilised a number of approaches to evaluate the discriminant validity of the MPCCQ. The six latent first-order competencies constituting the compassion construct are expected to correlate. However, since the six latent first-order competencies are regarded as related but qualitatively distinct dimensions of the construct compassion, they should not correlate excessively with each other. The Φ matrix was consequently inspected to determine whether any ϕ_{jk} greater than .90 occurred.

The absence of any ϕ_{jk} greater than .90 occurred in Φ, is not very strong evidence of discriminant validity. The possibility still remains that latent first-order competencies might correlate unity in the parameter, but correlate less than unity in the sample statistic because of sampling error. To examine this possibility, a 95% confidence interval was calculated for each sample ϕ_{jk} estimate, using an Excel macro developed by Scientific Software International (Mels, 2010). If any confidence interval includes the value 1, it would imply that the null hypothesis H_0: $\phi_{jk} = 1$ cannot be rejected. Confidence in the claim that the two latent first-order competencies j, and k, are measured as unique and qualitatively distinct dimensions by the MPCCQ would thereby be seriously eroded.

Farrell (2010, p. 324) sets the following two criteria for discriminant validity:

> Discriminant validity means that a latent variable is able to account for more variance in the observed variables associated with it than a) measurement error or similar external, unmeasured influences; or b) other constructs within the conceptual framework. If this is not the case, then the validity of the individual indicators and of the construct is questionable

Operationally, the Farrell (2010) requirement means that ϕ^2_{jk} has to be smaller than the average variance extracted (AVE) for latent first-order competencies j and k. The AVE[84] reflects the average proportion of variance in the indicator variables that is accounted for by the latent variable that the indicator variables were tasked to represent (Diamantopoulos & Siguaw, 2000). The Φ matrix was consequently expanded by calculating ϕ^2_{jk} and by calculating the AVE for all 6 latent first-order competencies and noting all pairs of latent first-order competencies that failed on one or both the Farrell (2010) criteria.

The discriminant validity of the MPCCQ could also have been evaluated, by constraining the correlation ϕ_{jk} between two latent first-order competencies equal to one and then to test the statistical significance of the difference of the fit of the constrained and unconstrained measurement models[85]. "In essence it is the same as specifying that the items making up two constructs could just as well make up one construct. If the fit of the two-construct model is not significantly better than that of the one construct model, then discriminant validity is insufficient" (Hair et al., 2006, p. 778). Conversely, if the unconstrained model fits significantly better ($p < .05$) than the constrained model for all first-order competency pairs, discriminant validity is indicated. This procedure is then repeated for all ϕ_{jk}. Since the MPCCQ measures six latent first-order compassion competencies this procedure would have required the fitting of 15 different constrained models and comparing their fit to that of the unconstrained model. Due to the cumbersomeness of this procedure it was not implemented in the current study.

4.7.5   Fitting the MPCCQ Internal Structure Structural Model

If H_{01} and/or H_{02} was not rejected, or if at least reasonable model fit was obtained as judged by the sample fit statistics, the percentage statistically significant ($p < .01$) standardised variance-covariance residuals and the percentage statistically significant modification indices calculated for Λ and Θ_δ and the measurement model parameter estimates, indicated that the compassion construct was successfully operationalised, the comprehensive LISREL model was fitted. H_{092} and H_{093} were subsequently tested. If exact and/or close model fit was attained, or if at least reasonable model fit was obtained in the sample, H_{094} -H_{0106} were tested. For those parameter estimates that were found to be statistically significant (i.e. H_{0i} was rejected) the magnitude of the completely standardised estimates of the slope of the regression of η_i on ξ_1 (γ_{i1}), the completely standardised estimates of the slope of the regression of η_i on η_j (β_{ij}) and the completely standardised residual variances (ψ_{jj}), were evaluated. The hypothesis that the MPCCQ provides construct valid measures of the multidimensional compassion construct as constitutively defined was considered corroborated if:

- The comprehensive model LISREL fitted (i.e. H_{092} and/or H_{093} was rejected);

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[84] The AVE is calculated as $\rho_v = \Sigma\lambda^2_{ij}/[\Sigma\lambda^2_{ij}+\Sigma\theta_{\delta ii}]$ (Diamantopoulos & Sigauw, 2000, p. 91)

[85] The researcher considered it important to describe procedures available to her to evaluate the discriminant validity of the MPCCQ, even if such procedures were not used in the current study, to estblish the thoroughness with which the current study evaluated discriminant validity..

- The path coefficient estimates were statistically significant (i.e. $H_{094} - H_{0101}$ were rejected);

- The residual variance estimates were statistically significant[86]; and

- The model explained at least modest proportions of variance in the endogenous latent variables (i.e. $\psi_{jj} \leq .50$ or R^2 for $\eta_j \geq .50$)).

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[86] It could be argued that the (long-term) ideal of (positivistic) explanatory science would be to obtain statistically insignificant residual variance estimates. This ideal is pursued through cumulative research studies in which earlier explanatory structural models are expanded. Insignificant residual error variance estimates would imply structural models (i.e. explanations) that are able to explain all the variance in the the endogenous latent variables in the parameter. The expectation of statistically significant ($p < .05$) residual error variances therefore constitute an expression of humility on the side of the researcher.

CHAPTER 5
AN EVALUATION OF THE RESEARCH ETHICS

The role of ethics in research should not be underestimated. Some researchers may think that it is the difference between right and wrong, but how does one make a distinction between right and wrong? The Merriam-Webster dictionary (2016) refers to the word "*ethics*" as "the principles of conduct governing an individual or a group". Thus, if a researcher would engage in a research activity in the social sciences, it is necessary to understand the general arrangements of what is proper and improper with regards to the scientific investigation in that specific domain. In social sciences a researcher needs to take note of the following five issues, namely: Voluntary participation, no harm to participants, the role of anonymity and confidentiality, deceiving subjects and lastly the analysis and reporting of data (Babbie & Mouton, 2001). The five issues will be dealt with in more detail in the subsequent section.

Voluntary participation in social sciences implies that participants are not forced, coerced, manipulated or seduced into participation in the research but that they consent voluntary to participate. As a researcher, one should be sensitive towards this criterion and no harm may be done to participants. To take a case in point, in many instances in social science research, participants are required to report on deviant behaviour or personal information such as income level. A way to formalise this criterion is by introducing "informed consent". This is a formal document where the participant signs a statement indicating that he/she is willing to voluntarily participate in the planned research and cognisance is taken of the risks involved. The informed consent letter should provide participants with a comprehensive and accurate description of the purpose and objective of the research, the nature of their involvement, the credentials of the researcher/s, how the results of the study will be disseminated, how their anonymity or the confidentiality of the data and results will be protected. Another issue, namely anonymity and confidentiality, highlights the participants well-being and the protection of his/her identity. In striving for pure anonymity, a researcher cannot identify a given answer as that of a given participant in a questionnaire, for example. The challenge of this type of approach, is to keep a track on questionnaires distributed versus questionnaires received. In some case, this approach might be necessary though. Confidentiality on the other hand, implies that a researcher may identify a participant's responses, but cannot do so publicly. Also, participants should not be deceived. The researcher should not lie about the purpose of the specified research. In cases where the purpose cannot be shared beforehand, a good practice would be to debrief participants about the purpose of the research after the experiment. Lastly, the analysis and reporting of data should be done objectively and with high integrity. Limitations of the study should be shared and communicated, no data should be fabricated or changed after the study and researchers should be prepared to disclose methodology and techniques of analysis (Babbie & Mouton, 2001; Horn, Graham, Prozesky & Theron, 2015; Stellenbosch University, 2012; Stellenbosch University, Division for Research Development, 2013).

In addition to the criteria stipulated by Babbie and Mouton (2001), the researcher also abided by the stipulations of Annexure 12 of the Ethical Rules of Conduct for Practitioner's registered under the Health Professions Act (Act no. 56 of 1974) (Health Professions Council of South Africa, 2006).

Annexure 12 of the Ethical Rules of Conduct for Practitioners, registered under the Health Professions Act (Act no. 56 of 1974) (Health Professions Council of South Africa, 2006), that it is required of a psychologist doing research, to enter into an agreement with participants on the nature of the research, the participants' responsibilities as well as those of the researcher. The agreement in terms of which the research participant provides informed consent, should meet the following requirements, according to Annexure 12 (Health Professions Council of South Africa, 2006, p. 42):

89. (1) A psychologist shall use language that is reasonably understandable to the research participant concerned in obtaining his or her informed consent.

(2) Informed consent referred to in sub rule (1) shall be appropriately documented, and in obtaining such consent the psychologist shall –

(a) inform the participant of the nature of the research;

(b) inform the participant that he or she is free to participate or decline to participate in or to withdraw from the research;

(c) explain the foreseeable consequences of declining or withdrawing;

(d) inform the participant of significant factors that may be expected to influence his or her willingness to participate (such as risks, discomfort, adverse effects or exceptions to the requirement of confidentiality);

(e) explain any other matters about which the participant enquires;

(f) when conducting research with a research participant such as a student or subordinate, take special care to protect such participant from the adverse consequences of declining or withdrawing from participation;

(g) when research participation is a course requirement or opportunity for extra credit, give a participant the choice of equitable alternative activities; and

(h) in the case of a person who is legally incapable of giving informed consent, nevertheless –

(i) provide an appropriate explanation;

(ii) obtain the participants assent; and

(iii) obtain appropriate permission from a person legally authorized to give such permission."

The researcher obtained informed consent from all participants in the qualitative phase of the research before the interviews commenced. The informed consent letter that was used in the qualitative phase of the research, is shown in Appendix B. Informed consent was also obtained from all participant in the quantitative phase of the research. The informed consent letter forms part of the MPCCQ and is shown in Appendix E.

Annexure 12 of the Ethical Rules of Conduct for Practitioners Registered under the Health Professions Act (Act no. 56 of 1974) (Health Professions Council of South Africa, 2006, p. 41) requires psychological researchers to obtain institutional permission from the organisation from which research participants will be solicited:

A psychologist shall –

(a)   obtain written approval from the host institution or organisation concerned prior to conducting research;

(b)   provide the host institution or organisation with accurate information about his or her research proposals; and

(c)   conduct the research in accordance with the research protocol approved by the institution or organisation concerned.

Informed institutional permission for the research was obtained from the Western Cape Department of Health. The provincial office issued clearance once consent from each participatory research site has been received, for example the Worcester Hospital, Khayelitsha Hospital, Tygerberg Academic hospital etc. Informed institutional permission for the research was also obtained from the organisers of the National Family Practitioners Congress held in Cape Town in 2018.

The data collected was treated as confidential, unless otherwise agreed on by written consent. Results obtained during the data gathering phase, will be presented in aggregate form. Annexure 12 of the Ethical Rules of Conduct for Practitioners, registered under the Health Professions Act (Act no. 56 of 1974) (Health Professions Council of South Africa, 2006, p. 41), requires psychological researchers to disclose confidential information under the following circumstances:

A psychologist may disclose confidential information –

(a) only with the permission of the client concerned;

(b) when permitted by law to do so for a legitimate purpose, such as providing a client with the professional services required;

(c) to appropriate professionals and then for strictly professional purposes only;

(d) to protect a client or other persons from harm; or

(e) to obtain payment for a psychological service, in which instance disclosure is limited to the minimum necessary to achieve that purpose.

In addition to the ethical rules of conduct, the researcher also submitted an application for ethical clearance to the Departmental Ethics Screening Committee (DESC) of the Department of Industrial Psychology at Stellenbosch University. The ethical clearance report of the DESC was subsequently audited and a formal ethical clearance certificate issued by the Research Ethics Committee Human Research (Humanities) of Stellenbosch University (Appendix A).

CHAPTER 6
QUALITATIVE RESEARCH RESULTS

6.1   INTRODUCTION

In the opening argument in Chapter One, the rationale for the study was presented with subsequent research and operational objectives for the study. Chapter Two not only highlighted the theoretical underpinnings of constructs, measurement, competencies and compassion, but also conceptualised the connotative meaning of the medical practitioner compassion construct by developing a formal constitutive definition, as well as a structural model that illustrated the internal structure of the multidimensional compassion construct and the manner in which the construct is embedded in a larger nomological network of related constructs. Chapter Three comprised of the qualitative research methodology utilised for the study, whereas Chapter Four dealt with the quantitative research methodology of the research.

The qualitative phase comprised of two phases, namely, a CIT interview which was held with a number of medical practitioners as well as a number of individual validation sessions where the information gathered during the interview, was corroborated. Originally the idea was to facilitate a focus group, but due to the medical practitioner's operational requirements, difficulty was experienced in arranging a session with all role-players attending simultaneous, therefore individual validation sessions were held.

The qualitative phase in this study was primarily used to generate items for the MPCCQ. Medical practitioners supported the latent compassion dimensions derived from literature by sharing accurate behavioural incidents, thus allowing the generation and development of a sufficient number of items for the development of the experimental version of the MPCCQ. Participants shared both positive and negative behavioural manifestations of the identified latent compassion competency dimensions. The qualitative phase served the secondary purpose of providing formative feedback on the initial draft of the MPCCQ during individual validating sessions with some medical practitioners.

The sample group utilised for the CIT interview had to comply with certain criteria, namely the participant had to be registered with the HPCSA as a medical practitioner, the participant had to practice as a practitioner in South Africa, also have completed both the prescribed internship and community years. In addition, the participant had to be representative from one of the five core disciplines in healthcare, namely family medicine, internal medicine, paediatrics, obstetrics and gynaecology and surgery. Lastly, the participant also had to work on one of the three healthcare levels in the South African healthcare system, namely on either a tertiary, secondary or primary healthcare level. The demographics of the participants who participated in the CIT interviews are reported in Table 6.1, Table 6.2, Table 6.3, Table 6.4 and Table 6.5.

Table 6.1

Gender Distribution of the CIT Interview Sample

	Gender	Frequency	Percentage
Valid	Female	4	33
	Male	8	67
	Total	12	100

The majority of participants in the qualitative phase were male, representing sixty seven percent of the sample, whereas females represented thirty three percent of the sample.

Table 6.2

Race Distribution of the CIT Interview Sample

	Race	Frequency	Percentage
Valid	Africans	2	17
	Coloured	2	17
	Indian	1	8
	White	7	58
	Other	-	-
	Total	12	100

Concerning the race distribution category, most of the medical practitioners participating in the research were White (n = 7), followed by two Africans, two Coloured and one Indian participant.

Table 6.3

Discipline Category of the CIT Interview Sample

	Category	Frequency	Percentage
Valid	Family Medicine	7	58.3
	Internal Medicine	1	8.33
	Obstetrics and Gynaecology	2	16.67
	Pediatrics	1	8.33
	Surgery	1	8.33
	Other	0	0
	Total	12	99.96

Most of the respondents who participated in the qualitative part of the study were from the family medicine discipline category (n = 7), followed by one each from internal medicine, paediatrics and surgery and two participants from the obstetrics and gynaecology discipline. The distribution across medical discipline shown in Table 6.3 approximates the planned distribution as set out in Table 3.1. Three fewer medical practitioners participated in the CIT interviews than initially planned. These three came from the internal medicine, paediatrics and surgery disciplines.

Table 6.4

Level of Care in the Healthcare System of the CIT Interview Sample

			Frequency	Percentage
Levels of Care in the Healthcare System	T	Regional Hospitals	5	42
	S	District Hospitals	4	33
	P	Community Health Centre's	3	25
Total			12	100

The majority of the respondents who participated in the research were from the tertiary healthcare level, in other words a hospital were speciality and sub speciality levels are found, followed by four respondents from the secondary level, more specifically from district hospitals. Lastly three respondents participated from the primary level, thus community health centres. The distribution across healthcare levels also roughly approximates the planned distribution, as set out in Table 3.1. Three fewer medical practitioners than intended were interviewed from the tertiary level. One more and one less medical practitioner was interviewed from the secondary and primary levels than initially intended.

Table 6.5 depicts the crosstabulation of the level of healthcare at which medical practitioners in the CIT interview sample practice and the medical discipline category in which they practice.

Table 6.5

Cross Tabulation of Level of Care in the Healthcare System and Discipline Category of the CIT Interview Sample

			Family Physician	Internal Medicine	DISCIPLINE Obstetrics and Gynaecology	Paediatrics	Surgery	Total
LEVEL	Primary Level	Count	2	1	0	0	0	3
		% within LEVEL	66.7%	33.3%	0.0%	0.0%	0.0%	100.0%
		% within DISCIPLINE	28.6%	100.0%	0.0%	0.0%	0.0%	25.0%
		% of Total	16.7%	8.3%	0.0%	0.0%	0.0%	25.0%
	Secondary Level	Count	4	0	0	0	0	4
		% within LEVEL	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%
		% within DISCIPLINE	57.1%	0.0%	0.0%	0.0%	0.0%	33.3%
		% of Total	33.3%	0.0%	0.0%	0.0%	0.0%	33.3%
	Tertiary Level	Count	1	0	2	1	1	5
		% within LEVEL	20.0%	0.0%	40.0%	20.0%	20.0%	100.0%
		% within DISCIPLINE	14.3%	0.0%	100.0%	100.0%	100.0%	41.7%
		% of Total	8.3%	0.0%	16.7%	8.3%	8.3%	41.7%
Total		Count	7	1	2	1	1	12
		% within LEVEL	58.3%	8.3%	16.7%	8.3%	8.3%	100.0%
		% within DISCIPLINE	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	58.3%	8.3%	16.7%	8.3%	8.3%	100.0%

A comparison of Table 6.5 with Table 3.1 shows a reasonable agreement between the initial sampling plan and the eventual sample that was collected for the CIT interviews.

6.2   EMERGING THEMES FROM DATA

Formal contracting happened at the beginning of the interview process where the purpose of the interview was explained and participant consent was confirmed. Subsequently the CIT interview was introduced by sharing an example of each one of the identified compassion dimension definitions for the specific interview. To take a case in point; interview one was introduced by sharing the definition for *investing the self* compassion dimension, followed by asking the participant examples of positive and negative critical incidents that illustrated specific behaviours of a medical practitioner who has invested him-/herself in the patient-practitioner relationship. A funnel approach was used by the researcher where broad open questions were firstly asked, followed by more specific questions (Darity, 2008). Research participants were also asked how the specific dimension could influence performance outcomes of a medical practitioner, whether the specific latent compassion dimension under discussion was relevant to medical practitioner compassion, as well as identifying any omitted dimensions necessary for medical practitioner compassion that needs to be included. This allowed the risk of eliminating important compassion dimensions or including irrelevant compassion dimensions to be fathomed. The rest of the interviews followed the same sequence, focussing on the remaining latent compassion dimensions specified for the first interview, i.e. mindfulness, recognition of emotion and caring with kindness. After all the interviews were concluded, the researcher transcribed the data and gave each participant the opportunity to check the accuracy of the captured data.

The transcribed data gathered during the CIT interview is presented in Appendix D. A short description of each participant is given, followed by the identified latent compassion dimension to be discussed, a definition thereof and then the participant's quotes given during the CIT interview for both critical incidents and performance outcomes. A negative statement made by a participant is represented by a negative indicator (-) at the end of the sentence. The quotes tabled are directly from the transcribed interviews without any language editing. It should be noted though that some of the supporting statements were used for more than one dimension. It should also be noted that all interviews were conducted in English, even though English was not the first language for some of the medical practitioners that participated in the study.

Data analysis was done by organising the responses of the research participants as they presented it. In other words, responses were coded to ensure agreement, thus contributing to item development. Thematic data analysis was utilised in analysing the data, however not in the traditional sense, when evaluating qualitative data. The main purpose was to identify behavior from the CIT interviews that could be used as a source from which test items for the MPCCQ could be developed. Braun and Clarke

(2006) are of the opinion that thematic analysis in qualitative research should be performed step by step, especially when one is looking for content and meaning of patterns in data, where 'themes are abstract (and often fuzzy) constructs the investigators identify before, during and after analysis' (Ryan & Bernard, 2000, p. 780). In support of Ryan and Bernard's argument, a step by step approach was followed when data was analysed for the current study.

The first step in the process was where the investigator needed to familiarise herself with the data (Ryan & Bernard, 2000). Since the data for the current research was transcribed by the researcher herself, immersion happened by repeated reading, listening and adjusting text where necessary, based on interviews held. The second step for analysing the qualitative data, more specifically thematic analysis, was to develop initial codes. The interview process was indirectly guided by a dimension name and definition that was given to each participant in order to initiate their thinking process. The verbatim responses were then captured next to each dimension as shown in Appendix D. Next, all participant responses for a specific dimension such as investing the self were extracted from all interviews and transferred to the specified dimension. Then all responses, for the specific dimension, were categorised according to positive critical incidents, negative critical incidents and performance outcomes. Following the categorisation, behavioural anchors were written from these responses as illustrated in Table 6.6, still taking into consideration the dimension definition.

Table 6.6

Example of Data Extracts, with Behavioural Anchors written for the Investing the Self Dimension

Dimension definition	Data extract	Behavioural anchors
The extent to which the medical practitioner invests him-/herself into the patient practitioner relationship; the extent to which the practitioner does not remain distant; the extent to which the practitioner gives him/herself to the patient, the extent to which the practitioner commits him-/herself to the relationship; the extent to which the practitioner is authentically present in the encounter.	"I remember talking to him softly, taking my time to examine the wound." (Participant 5)	I do spend time in getting to know the patient.
	"I was intentionally building a relationship with somebody that was vulnerable, that was in need…" (Participant 5)	I see and treat each patient as a unique person.
	"Instead of saying 'No, the sister must come and do it', just walk around the corner and grab a bedpan yourself and bring it to the patient. It does show the patient that you actually see their discomfort and that it is important for you." (Participant 9)	I attune and focus myself on the patient and develop an understanding of patient's fears and expectations.

The behavioural anchors had to be written in such as style as to reflect the scale response options namely "Significant development area", "on par/satisfactory" and "Well-developed strength" as shown in Table 6.7. After a rigorous process of evaluating, each behavioural anchor and re-writing it to comply with criteria such as ensuring that it captures the essence of the competency as originally conceptualised and

that the behavioural description was not written too explicitly, behavioural anchors were finalised. The researcher also had to check whether each behavioural anchor was in actual fact a manifestation of the competency as it was originally conceptualised/understood. In other words, codes (behavioural anchors) were developed for data extracts from the interviews.

Table 6.7

Example of an Item for the Investing the Self Dimension as part of the MPCCQ

Item	Item Label	Scale					
		Significant development area 1	Development area 2	On par /Satisfactory 3	Strength 4	Well-developed strength 5	Unable to rate 6
B11	Medical practitioner-patient involvement	I see and treat each patient as just another case. I focus on my task and do not try to understand patient fears and expectations. I do not spend time in getting to know the patient.		I try to see and treat each patient as a unique person. I attempt to attune and focus myself on the patient and try to understand patients' fears and expectations, but do not always succeed. I try to spend time in getting to know the patients, but this is not always possible.		I see and treat each patient as a unique person. I attune and focus myself on the patient and develop an understanding of patient's fears and expectations. I do spend time in getting to know patients.	

The results of the critical incident technique interview were therefore not used in the normal conventional manner by transforming the critical incidents into statements that are then rated on a 7-point frequency scale (Almost never – Almost always). The current study used a 5-point scale anchored by three behavioural descriptions/behavioural incidents that depicted a significant development area on a specific compassion competency, compassion behaviour that was regarded as on par/satisfactory and compassion behaviour that indicated that the compassion competency was a well-developed strength. The themes that were identified via the critical incident technique interview were classified under the six compassion competencies. The behavioural descriptions that were then generated for the three scale points were then based partly on the insight developed through the critical incident technique interviews and partly based on the insight of the researchers into the constitutive definition of the various compassion competencies

After developing all test items per latent compassion dimension, alignment between these test items and latent dimension definitions were checked and adapted accordingly. This was done to ensure that items did capture the essence of the latent compassion dimension definition and also to check whether items did not duplicate among the six latent medical practitioner compassion competency dimensions.

The third step in the qualitative analysis process involves the search for themes. Researcher judgement is necessary when themes are determined; in addition, the researcher should examine the underlying

ideas and conceptualisations of the data, thus utilising latent analysis and not simply semantic analysis where only content is evaluated (Braun & Clarke, 2006). For the current research, the researcher had to interpret the behavioural anchors of every test item in order to develop an item label for the specific test item. In other words, a theme was identified for the item. To take a case in point, for the 'investing the self' dimension, the behavioural anchors, as shown in Table 6.7, were developed on a five-point Likert scale. For this item, the item label was defined as 'medical practitioner-patient involvement'.

The fourth step in the process involved the reviewing and refinement of themes. The review process happened on two levels, namely on the level of the coded data extracts, and also on the level of the entire data set; thus looking at the validity of individual themes in relation to the entire data set (Braun & Clarke, 2006). All behavioural anchors for the MPCCQ were reviewed and adjusted accordingly. Examples of changes implemented were aspects like, spelling, terminology, and change of wording. As an example, for the "medical practitioner-patient over-involvement" item label under the '*investing the self* dimension', the following behaviour anchor (representing the significant development area response option) was initially utilised: "I experience the possibility of breakdowns if results of patients' outcomes are not as expected". After consideration this was changed to "I feel distraught if patient outcomes are not as expected".

Next, the themes in relation to the whole dataset were analysed and reviewed. An example of one change that was introduced, was the item label "medical practitioner patient involvement" measuring both involvement and over-involvement with patients. It was decided to split this label into two item labels namely "medical practitioner patient involvement" and "medical practitioner patient over-involvement".

The fifth step in the process involves the defining and naming of themes. Here it is important to identify the "story" that each theme tells and how that "story" fits into the overall "story" that the data is telling in relation to the research question. During this phase the themes that have emerged from the analysis were corroborated with the relevant literature. Refinement happened with regards to latent compassion dimension names and latent compassion dimension definitions. The latent compassion dimension definitions were developed from the findings of the research as well as from literature. It was also important to check whether the themes (item labels) and behavioural anchors gave insight into the informative structures that the medical practitioners constructed for themselves, for the overarching medical practitioner compassion competency, as well as how the medical practitioner understood the competency model.

The sixth step entails a report that needed to be produced, according to Braun and Clarke (2006), in order to finalise the analysis phase. In the case of the current study, a draft MPCCQ was developed incorporating input from SME's, theory and abstract reasoning.

In addition to the steps followed during data analysis, the researcher also examined the responses that were coded when questions were asked, whether any latent compassion dimension should be added/omitted with regards to the medical practitioner compassion model. None of the proposed six latent compassion dimensions were flagged by any of the participants, as not relevant to the multidimensional latent compassion construct. All six latent dimensions were regarded as necessary latent behavioural competencies to eventually allow the medical practitioner to discernably display compassion (i.e. display competence on the latent compassion action orientation dimension) towards a patient during the medical encounter. Regarding the question of omitted latent compassion dimensions, one of the participants indicated that the competency of "reflection" should play a prominent role in compassion, more specifically during the medical practitioner–patient consultation i.e., "perhaps just an opportunity for reflection at the end of the consultation, in just having a space on how did the consultation go?" (Participant 5). The specific comment seems to be something that is somewhat broader than compassion. The suggestion is, however, not altogether without merit. Reflecting on something, like the degree of compassion displayed in a specific patient-practitioner encounter, refers to thinking deeply or carefully about the psychological mechanism involved in displaying compassion. Reflection is essential to learning. Adding a latent dimension of reflective learning, would have the advantage of adding a dimension that would allow for learning feedback loops to some of the more upstream latent compassion dimensions. A dimension of reflective learning would, however, not be unique to compassion but also be relevant to other medical practitioner latent performance dimensions (as the participants' comment suggested). The current study, at least for the moment, for this reason decided not to follow up on this suggestion. The longer term need to consider the importance of incorporating feedback loops in the structural model, that describes the psychological mechanism of medical practitioner compassion, so as to formally reflect the dynamic nature of the mechanism, is acknowledged. At the same time it is acknowledged that the foregoing argument can also be applied to the mindfulness that is currently conceptualised as a latent compassion dimension. This erodes that impact of the preceding argument.

Another contribution made by one of the participants, was about cultural awareness, more specifically: "In South Africa we have different cultures who have different cues, and it can sometimes have an impact on consultation. So, just an awareness – not everyone thinks in the same way, be aware that your patient has a different context than you do" (Participant 4). This aspect did not emerge as a separate theme during the analysis, even though it was present in some of the narratives. Concerning the questionnaire, facets of this theme is probably captured in "registering the current moment accurately" (dimension: mindfulness), 'interpreting emotional cues' (dimension: recognition of emotions) as well as "developing an insider perspective" (dimension: gaining and communicating empathic understanding). It could, in addition, be argued that displaying a cultural awareness (or even possibly broader displaying an appreciation and awareness of cultural diversity), is a competency that holds

relevance beyond the display of compassion competence. Its relevance is not unique to compassion; hence it was argued that it should not be incorporated as a latent compassion dimension in the multidimensional compassion construct. It is acknowledged that decisions on the manner in which complex multidimensional constructs are delineated, remain to some degree, frustratingly ambiguous.

After the qualitative data was analysed and all participants had an opportunity to check their data, the draft MPCCQ was finalised and ready for validation by some of the SME's that participated in the CIT interviews.

6.2.1   Emerging Themes from Data – Performance Outcomes

As part of the CIT interview participants were also asked what possible performance outcomes could be achieved in the event that a medical practitioner should display the specific dimension as discussed. For the majority of interviews held, either clinical or behavioural performance outcomes were identified. Extracts of some of the examples follow subsequently, while all extracts linked to the compassion dimensions are available in Appendix D:

For the "investing the self" dimension, the following outcomes were highlighted:

> "…the patient would trust you more and in the end you would be able to make a better diagnoses and a better plan for the patient" (Participant 2).
> "If you invest yourself and spend more time explaining and discussing and giving them more time…we are going to have a more compliant patient that is less likely to come back" (Participant 9).
> "…it is usually word of mouth, as you walk into the ward they will say 'Here is doctor so and so', 'You are lucky to have this doctor looking after you'" (Participant 9).
> "…job satisfaction" (Participant 9).
> "It makes you feel good, you appreciate that. All the long hours, all the late nights, the lack of sleep – it makes it worthwhile" (Participant 11).
> "…patient satisfaction" (Participant12).

Some of these outcomes also emerged from the theorising in Chapter Two and were included in the structural model depicted in Figure 2.16. It is therefore recommended that these performance outcomes are further validated and researched in future, namely trust in the medical practitioner, patient compliance to medication, job satisfaction and patient satisfaction.

For the "mindfulness" dimension, the following outcomes were emphasised:

> "A much better patient care experience" (Participant 3).
> "More satisfied patients" (Participant 3).

"Patient feels respected and valued, because it is about who the patient is, not who I want the patient to be or who I think the patient would be and not bringing in my own belief system and all of that" (Participant 4).

"It reduces the cost on the part of the department. How that works is, if a patient are properly sorted out at any given visit, then it doesn't mean multiple visits, because by visits, there is a cost involved" (Participant 6).

"A satisfied patient – a patient that feels involved and engaged in the process" (Participant 8).

"We need to be mindful that what we are doing is pattern recognition and that is why it becomes so obvious… you also need to be mindful that you have the potential of missing things. There is a reason why you need to be systematic. If somebody comes in with a severe chest pain going to the left arm, a fifty-year-old man that smokes and has a beer belly, I sort of go immediately 'yes, it is a heart attack', and focus all my questions during examination to confirm it. Start with a proper what is the patient presenting and everything around it, very systematic… I need to be mindful, if you do that jump every time, every now and again you are going to miss something. You need to be mindful that if you take short cuts, there is a potential risk in doing that" (Participant 9).

"…you can actually miss a diagnoses on a patient" (Participant 11).

"…patient satisfaction" (Participant 11).

"…they (patients) will understand the prognoses better" (Participant 12).

Some of these outcomes also emerged from the theorising in Chapter Two and were included in the compassion, competency potential and outcome structural model depicted in Figure 2.16. Performance outcomes for the mindfulness dimension could also be further researched and validated namely: a positive patient care experience, being valued as a patient and not a number, less hospital visits, insight and understanding of the prognoses.

For the "recognition of emotion" dimension, the following outcomes were prominent:

"…it might sometimes change your diagnoses to a more accurate one" (Participant 4).

"…the patient experience will be much better because the minute that someone recognise or picks up on something they didn't say, it actually shows that they are not just listening but also looking at me" (Participant 4).

"…it is a positive experience for the doctor" (Participant 4).

"It is about managing the patient holistically; it also tells you something about your skill – if you are able to pick those things up" (Participant 4).

"…if the doctor is able to recognise underlying emotion and cues, the body language, probably a better diagnostician because they can pick up the underlying reasons for presenting the mental health aspects" (Participant 7).

"So I think it is better treatment and in a way not complicating the treatment by adding another medication which would cause side effects" (Participant 7).

"…when patients realise that you are a little bit more involved … they trust you more" (Participant 11).

"…gain their (patients) trust" (Participant 11).

Again, some of these outcomes also emerged from the theorising in Chapter Two and were included in the compassion, competency potential and outcome structural model depicted in Figure 2.16. In essence the following performance outcomes linked to recognition of emotion were highlighted: a better diagnosis, improved treatment plan and trust between medical practitioner and patient.

For the "gaining and communicating an empathic understanding" dimension, the following outcomes were emphasised:

"Your patient will not disclose as much when you are not empathic" (Participant 2).

"…patient enduring the treatment instructions…" (Participant 5).

"… actively engage in the treatment" (Participant 5).

"I think medical practitioner satisfaction could be an outcome because you have been treated as a human being" (Participant 5).

"Those little human moments can actually make your day at the end of the day" (Participant 5).

"…it is not about opportunity to see 30 diabetic patients, but an opportunity to have a conversation with 30 patients from Khayelitsha that you can get to know better" (Participant 5).

"…the patient is going to leave you feeling very unfulfilled, possibly very confused and probably overwhelmed…" (Participant 10).

"…are not going to be happy with you, they won't come back to you" (Participant 10).

"…patient satisfaction…" (Participant 11).

"…word of mouth, they will tell each other 'Listen, this doctor – you can listen to what he is saying…'" (Participant 11).

"From a doctor's point of view – just to get to a diagnosis" (Participant 11).

"...just treat them (patients) in a humane way, that might also come back one day and that they might thank you" (Participant 11).

Again, some of these outcomes also emerged from the theorising in Chapter Two and were included in the compassion, competency potential and outcome structural model depicted in Figure 2.16. The performance outcomes for the gaining and communicating an empathic understanding dimensions are: active engagement in treatment, patient disclosure, medical practitioner satisfaction, patient satisfaction and a better diagnosis.

For the 'caring with kindness' dimension, the following outcomes were emphasized:

"If you treat people with kindness you are more likely to get some positive affirmation" (Participant 5).

"I firmly believe that the patients feel cared for are much more likely to comply to their medication so their endurance is better" (Participant 5).

"The patient is also more likely to believe that this medication is going to work" (Participant 5).

"It builds self-efficacy, self-confidence (if the patient follows medication instructions)" (Participant 5).

> "'Ek het nog van waarde gevoel', known that medically speaking, there is no cure, beyond chemo" (Participant 7).
>
> "…in many cases they also blame you for the patient's condition, not getting… because you haven't showed that you care" (Participant 10).
>
> "…they don't seem to get better…they may actually become depressed" (Participant 10).
>
> "…it was a bad outcome, but because throughout her labour I was there, showing her kindness … we actually had a good connection, good relationship, even the outcome was not so good" (Participant 12).

Again, some of these outcomes also emerged from the theorising in Chapter Two and were included in the compassion, competency potential and outcome structural model depicted in Figure 2.16. The performance outcomes for the caring with kindness dimension suggested the following outcomes for further research: compliance to medication, trust in the medication prescribed, perceived self-worth, patient depression, mutual satisfying relationship.

For the final dimension called "compassion action orientation", the following outcomes were emphasised:

> "Actually patients leave the consultation feeling better when they went in there the first place" (Participant 4).
>
> "If the patient is happy even if I can't provide all the answers, that to me is probably a more rewarding consultation then one where there was absolutely no connection" (Participant 4).
>
> "Greater job satisfaction" (Participant 5).
>
> "Less burnout" (Participant 5).
>
> "Positive impact on junior doctors and other members of team" (Participant 5).
>
> "Improves the whole image of the hospital, clinic and service… it improves the image of the whole service offered" (Participant 5).
>
> "The patients are happy, they tell a good story about this individual… and they also market the facility (hospital, clinic)" (Participant 6).
>
> "…sense of reward, you feel you have contributed, made a difference…" (Participant 7).
>
> "Re-admission rates… can be an indicator, but the problem is there is so many, a lot of different variables that influence it, so alone it is not going to be enough as an indicator" (Participant 9).
>
> "…happy patient, probably a healthier patient, more satisfied" (Participant 10).
>
> "…the family will feel better as well" (Participant 10).
>
> "I think you yourself, it is so satisfying if you now really helped someone" (Participant 10).
>
> "Some patients will always come back and say 'Thank you so much Doctor'…it makes you feel very, very good. Like I said it is not about the numbers.

Lastly, performance outcomes for the compassion action dimension proposed for future research are: patient satisfaction, medical practitioner satisfaction, and effective role-modelling, improved service offering, improved hospital image and readmission rates. The effect that compassion action orientation has on the performance outcomes namely the hospital image as well as re-admission rates would need

to be clarified since the constructs probably consist of more dimensions. Some of these outcomes also emerged from the theorising in Chapter Two and were included in the compassion, competency potential and outcome structural model depicted in Figure 2.16.

6.3   VALIDATING MPCCQ ITEMS

The draft MPCCQ was validated with three medical practitioners during individual contact sessions. Firstly, participants had to complete the questionnaire. After completion, a session was facilitated were specific questions concerning the questionnaire were asked to all three participants i.e., clarity on questionnaire instructions, length of the questionnaire and time it took to complete it; adequacy of scale response options, item labels, behavioural anchors and general format of the questionnaire. Secondly, participants were also asked whether they thought the items, item labels and dimensions were valid reflections of the medical practitioner compassion competency given the way in which they conceptualise the construct for themselves. Input gained during these sessions were formally captured on the questionnaires itself, consolidated, reviewed and implemented where necessary.

Examples of feedback received, included the following; "Questionnaire is very long" (Participant V1), "Draft 1 of the questionnaire is very dense" (Participant V1), "Some wording changes suggested for example, insensitive to blunt" (Participant V2); "Include hospital names for those who don't know on what healthcare level they operate" (Participant V2); "There is probably going to be bias to the right side of the questionnaire" (Participant V2); "Scale was no problem" (Participant V3); "I read both the definition, label descriptor and behavioural anchors, before starting with the question items" (Participant V3); "We carefully need to check the printing layout and format, since it was difficult to complete the questionnaire, I had to turn the pages upside down etc." (Participant V3); "B11 and B12 are too closely related, move around or write another descriptor for B12" (Participant V3); "Wording B25 – 'bracket out' can change to 'block out' (Participant V3); "What does phenomenological mean – B44?" (Participant V3); "Looks good and professional. When you start, you first need to get the hang of it and then it gets better" (Participant V3).

In essence, aspects related to questionnaire administration were addressed, more specifically: the length of the questionnaire, the layout of the questionnaire and the scale response options. In addition, there was also a need to split some items, use synonyms for certain words and including additional options with regards to the demographic section of the questionnaire to ensure better clarity when capturing data (i.e. hospital name and healthcare level).

6.4   SUMMARY

The data obtained from the CIT interviews, conducted with twelve medical practitioners as well as the data obtained from the validation sessions held with three medical practitioners, was presented in this section. Appendix D consists of the dimension name, dimension definition and supporting quotes on critical incidents and performance outcomes from the participants. These quotes reflect the mental models that medical practitioners develop for themselves with regards to efficient medical practitioner performance. The behaviours promoted by the medical practitioners are converted to test items, included in the MPCCQ (Appendix E).

In summary latent compassion dimensions identified from literature were indeed confirmed during the qualitative interviews and no alterations to the proposed structural and measurement model was needed, given the literature and input gained from the SME's. In the subsequent chapter quantitative research results are discussed after data was gathered with the MPCCQ.

CHAPTER 7
QUANTITATIVE RESEARCH RESULTS

7.1   INTRODUCTION

The current research study was set in motion by the research initiating question, namely "What is the connotative and denotative meaning of medical practitioner compassion and does the developed instrument provide a construct valid and reliable measure of compassion as constitutively defined?". The literature study was used to explicate the connotative meaning of the compassion construct as a behavioural (or competency) construct. The connotative meaning was explicated by:

- Specifying the identity and the definitions of the latent competency dimensions comprising the compassion construct;
- Specifying the structural relationships that exist between the latent competency dimensions;
- Specifying the manner in which the compassion construct was embedded in a larger nomological network of outcome latent variables and medical practitioner competency potential variables.

The qualitative research results were discussed in Chapter Six, where medical practitioners were utilised as co-researchers in the process of identifying critical incidents of medical practitioners, illustrating acts of compassionate behaviour. The critical incident technique was therefore used to explicate behavioural denotations of medical practitioner compassion as constitutively defined. These behavioural examples were then rewritten as draft items for the MPCCQ.

In the subsequent section, the quantitative research results are presented by reporting on the results obtained via the various statistical analysis techniques that were utilised to analyse data gathered after questionnaire completion. The statistical analysis techniques chosen for the study are guided by the second part of the research initiating question, namely "What is the connotative and denotative meaning of Medical Practitioner compassion and does the developed instrument (MPCCQ) provide a construct valid and reliable measure of compassion as constitutively defined?".

Firstly, the results of the descriptive statistics are discussed, namely the distribution of missing variables across items, followed by a description of the demographic profile of the sample, a discussion of the sample size and finally a discussion of the item descriptive statistics. Secondly, the results of the item analyses are presented. Thirdly, the results of the dimensionality analysis are presented, more specifically results of the EFA performed on each of the six subscales. In the case of those subscales, where factor fission was observed, the results of the confirmatory factor analyses (CFA) aimed at fitting the first-order measurement model that emerged in the pattern matrix and the subsequent fitting of either

a second-order measurement model or bi-factor measurement model (depending on the fit of the first-order model), are discussed as well.

7.2   MISSING VARIABLES

The occurrence of missing data, especially in behavioural sciences, more specifically quantitative data analysis, is quite common. This can be a challenge however for researchers and should be reported and managed. Best practices indicate that researchers should at least report on the extent and nature of the missing variables as well as the procedures used to manage the missing data (Schlomer, Bauman & Card, 2010). For this study, data was collected in the form of a hard copy questionnaire which was completed by medical practitioners in the hospital setting. Missing values were present for different reasons. Firstly, a five-point rating scale was used in the questionnaire, with a sixth response option 'unable to rate' and coded as 6. These values were coded as user-defined missing values. Medical practitioners, however, also at times refrained, either on purpose or by accidental omission, to respond to a specific item at all. The fact that medical practitioners completed the questionnaire in their own time anonymously, prevented the researcher from prompting the respondent for an answer like in the case of an electronic questionnaire. When questionnaires were returned missing variables could not be addressed since the identity of the medical practitioner was unknown. As a result, these two types of missing values had to be attended to before data analysis could commence.

Multiple imputation (MI) was utilised to address the challenge of missing variables; whereby missing data was replaced with substituted values. Under MI several imputations were performed for each missing variable in the dataset (Davey, Shanahan & Schafer, 2001). A point estimate is then determined by taking the average of the several plausible estimates of the missing values. MI has the advantage over imputation by matching (Jöreskog & Sörbom, 1996a) that all the cases are retained in the imputed data set. MI assumes that the mechanism that generated the missing values in the data set, is missing at random mechanism (MAR)[87] and that the item distribution follows a multivariate normal distribution (Du Toit & Du Toit, 2001; Jöreskog & Sörbom, 1996a). Little's missing completely at random mechanism (MCAR) test returned a chi square value of 577.729 (df = 477; p = .001). The null hypothesis that the missing data was caused by a missing completely at random (MCAR) mechanism[88], was therefore rejected. The current study could not determine whether the missing data was MAR or whether the mechanism at work was missing not at random (MNAR)[89]. To determine whether the mechanism at work was MNAR or MAR, some of the missing data had to be measured *post hoc*. This

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[87] Under the missing at random mechanism, the probability of missing values on any given variable depends on the values of (some) of the other observed variables in the data set but that it does not depend on the value of the variable on which values are missing.

[88] Under the missing completely at random mechanism, the probability of missing values on any given variable depends neither on the values of the other observed variables in the data set, nor the value of the variable on which values are missing.

[89] Under the missing not at random mechanism the probability of missing values on any given variable, depends on the values of the variable on which values are missing.

would then have allowed a comparison between those that have responded to an item to those that have not responded to an item. If no statistically significant (p > .05) difference is obtained in the response pattern across these two groups on the items that had missing values that would point to the MAR mechanism (in conjunction with the Little test outcome), that is good evidence that the data are MNAR. The multivariate normality assumption was not the case in the current study in that the null hypothesis of multivariate normality had been rejected (see paragraph 7.7.2.2). According to Mels (2003) it is, however, permissible to use MI if the observed variables are measured on a scale comprising five or more scale values, if no more than 30% of the total number of possible data points are missing and if the item distributions are not excessively skewed. At the time when data collection was concluded, two hundred and thirty-four (n = 234) datasets were obtained. The item with the most missing values was item B52 ("Using non-verbal cues to communicate care") as shown in Table 7.1. The data set contained a total of 44 missing values which comprised only .51% percent of the total dataset 44/(37 x 234) = 44/8658 = .005082). The descriptive statistics shown in Appendix F1, indicate that only 9 of the 37 item distributions (24.3%) were statistically significantly skewed and only 8 of the 37 item distributions (21.62%) deviated statistically significantly (p < .05) from a mesokurtic distribution. The conclusion was thus that the use of MI was justified.

Table 7.1

Distribution of Missing Values per Item

B11	B12	B13	B14	B15	B16	B21	B22
0	0	1	1	0	0	0	2
B23	B24	B25	B26	B31	B32	B33	B34
3	1	2	2	1	1	1	1
B35	B36	B41	B42	B43	B44	B45	B46
1	1	1	2	1	1	1	1
B51	B52	B53	B54	B55	B56	B61	B62
3	4	3	1	2	2	2	2
B63	B64	B65	B66	B67			
0	0	0	0	0			

Note: Total Sample Size = 234

The MI procedure resulted in a complete data set of 234 cases for further analysis.

7.3 DEMOGRAPHIC CHARACTERISTICS OF THE SAMPLE

7.3.1 Age

The sample consisted of 234 participants that completed the MPCCQ over the period September 2018 – December 2018. All respondents were Medical Practitioners. Table 7.2 indicates that 178 participants specified their age category. There were 56 participants who did not respond to this question. The average age of the participants were 40.85 years old. The oldest participant is 70 years old compared to the youngest participant who is 24 years old.

The standard deviation (10.832) is relatively small indicating that most of the responses given by participants were very close to the average (Coefficient of Variation (CV) was determined: CV – standard deviation/mean = 0.265). The age distribution was statistically significantly (p < .05) positively skewed. This is also signalled by the mode (31) being substantially smaller than the median (39) and the mean (40.85). The age distribution tended to be somewhat platykurtic but the deviation from a mesokurtic distribution was not statistically significant (p > .05).

Table 7.2

Descriptive Statistics describing Participants' Age Distribution

	Statistics	Value
N	Valid	178
	Missing	56
Mean		40.85
Std. Error of Mean		.812
Median		39.00
Mode		31
Std. Deviation		10.832
Variance		117.323
Skewness		.715
Std. Error of Skewness		.182
Kurtosis		-.392
Std. Error of Kurtosis		.362
Range		46
Minimum		24
Maximum		70
Sum		7272

7.3.2   Core Discipline

Table 7.3 describes the core discipline in which medical practitioners practiced. The majority of the participants who participated in the study were representative from Family Medicine (39.7%), followed by Surgery (16.2%). Internal Medicine (13.7%) and Obstetrics and Gynaecology (13.2%) were similarly represented with Paediatrics (10.3%) who were the least presented in terms of the major core disciplines identified for the study. A limited number of medical practitioners from other areas (6.8%) also participated in the study. Their area of specialisation is discussed in the subsequent section.

Table 7.3

Distribution of Participants' Core Discipline

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Family Medicine	93	39.7	39.7	39.7
	Internal Medicine	32	13.7	13.7	53.4
	Paediatrics	24	10.3	10.3	63.7
	Obstetrics and Gynaecology	31	13.2	13.2	76.9
	Surgery	38	16.2	16.2	93.2
	Other	16	6.8	6.8	100.0
	Total	234	100.0	100.0	

Table 7.4 indicates that some of the medical practitioners who participated in the study were not identified from the core disciplines. The "other" option was chosen resulting in the following results: four medical practitioners from emergency medicine participated, one from palliative medicine, one from radiology, one from orthopaedics, one from anaesthetics', one from mental health, three general medical practitioners and one practitioner was still busy with the medical internship year. Three respondents refrained from indication their area of specialisation.

Table 7.4

Distribution of Participants' Core Discipline, more specifically the "Other" option

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Emergency Medicine	4	1.7	30.8	30.8
	Palliative Medicine	1	.4	7.7	38.5
	Radiology	1	.4	7.7	46.2
	Orthopaedics	1	.4	7.7	53.8
	Anaesthetic	1	.4	7.7	61.5
	Mental Health	1	.4	7.7	69.2
	Medical Practitioner/General Practitioner	3	1.3	23.1	92.3
	Medical Internship	1	.4	7.7	100.0
	Total	13	5.6	100.0	
Missing	System	221	94.4		
Total		234	100.0		

7.3.3   Years of Experience

Table 7.5 shows that 223 participants, from the sample group of 234 answered the question related to years of experience. There were 11 participants who did not answer the questions. The respondent with the most number of years' experience had 44 years of experience, compared to respondent with the least period of experience, who had only worked for 8 months.

Table 7.5

Distribution of Participants' Years of Experience

Statistics		Value
N	Valid	223
	Missing	11
Mean		12.6343
Std. Error of Mean		.69994
Median		9.0000
Mode		4.00
Std. Deviation		10.45232
Variance		109.251
Skewness		1.021
Std. Error of Skewness		.163
Kurtosis		.174
Std. Error of Kurtosis		.324
Range		43.92
Minimum		.08
Maximum		44.00
Sum		2817.44

7.3.4   Home Language

Table 7.6 indicates that most of the medical practitioners were English speaking (46.2%), followed by Afrikaans speaking (38.5%). The other languages were indicated as follows: Xhosa (3.8%), Northern Sotho (1.3%), Tswana (1.3%), Tsonga (0.9%), Venda (0.9%), Sotho (0.4%), Swazi (0.4%) and Zulu (0.4%). Some of the medical practitioners chose the "Other" option (6%) of which the specific language was unfortunately not specified. No missing values were reported for the home language variable.

Table 7.6

Distribution of Participants' Home Language

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Afrikaans	90	38.5	38.5	38.5
	English	108	46.2	46.2	84.6
	Northern Sotho	3	1.3	1.3	85.9
	Sotho	1	.4	.4	86.3
	Swazi	1	.4	.4	86.8
	Tsonga	2	.9	.9	87.6
	Tswana	3	1.3	1.3	88.9
	Venda	2	.9	.9	89.7
	Xhosa	9	3.8	3.8	93.6
	Zulu	1	.4	.4	94.0
	Other	14	6.0	6.0	100.0
	Total	234	100.0	100.0	

7.3.5   Gender

Table 7.7 indicates that both men and women were well represented in the sample. There were slightly more female medical practitioners compared to males. The females represent 53.9% of medical practitioners that participated in the research compared to males representing 45.7% of participating medical practitioners. Two medical practitioners refrained from stating their gender.

Table 7.7

Distribution of Participants' Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	107	45.7	46.1	46.1
	Female	125	53.4	53.9	100.0
	Total	232	99.1	100.0	
Missing	System	2	.9		
Total		234	100.0		

7.3.6   Race

Table 7.8 shows that the majority of participants who participated in the research were from the White race category (54.3%), followed by Black African (21.4%). The Coloured race grouping was next (13.2%), followed by Indian (6.8%). The Asian grouping (1.3%) was one of the smallest participatory

categories as well as the "Other" category (1.3%). No option was given as to elaborate on the "other" option. There were 4 missing values reported.

Table 7.8

Distribution of Participants' Race

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Asian	3	1.3	1.3	1.3
	Black African	50	21.4	21.7	23.0
	Coloured	31	13.2	13.5	36.5
	Indian	16	6.8	7.0	43.5
	White	127	54.3	55.2	98.7
	Other	3	1.3	1.3	100.0
	Total	230	98.3	100.0	
Missing	System	4	1.7		
Total		234	100.0		

7.3.7 Job Category

Table 7.9 shows that there were more specialists (37.6%) who participated in the study compared to registrars (25.6%) and medical practitioners (35.9%). Two participants did not indicate their job category.

Table 7.9

Distribution of Participants' Job Category

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Medical Practitioner/General Practitioner	84	35.9	36.2	36.2
	Registrar	60	25.6	25.9	62.1
	Specialist	88	37.6	37.9	100.0
	Total	232	99.1	100.0	
Missing	System	2	.9		
Total		234	100.0		

7.3.8 Healthcare System Level

The distribution of the healthcare system level on which the participants practice is indicated in Table 7.10. The majority of medical practitioners that participated in the research were from the secondary level (50.9%), followed by medical practitioners working on the tertiary level (25.6%). Medical practitioners from the primary level (21.8%) were the smallest group that participated. Four missing values were reported.

Table 7.10

Distribution of the Healthcare System Level on which Medical Practitioner's Practice

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Primary Level (Clinic or Healthcare Centre)	51	21.8	22.2	22.2
	Secondary Level (District or Regional Hospital)	119	50.9	51.7	73.9
	Tertiary Level (Central, Specialised or Sub-specialist tertiary hospital)	60	25.6	26.1	100.0
	Total	230	98.3	100.0	
Missing	System	4	1.7		
Total		234	100.0		

7.3.9   Hospital Name

Table 7.11 indicates that the majority of medical practitioners that participated in the research were from the "other" grouping (26.9%) which includes a whole range of different but unknown hospitals[90]. The next biggest group that participated in the study was from Tygerberg hospital (21.4%) which was specifically targeted as a sampling group. Worcester hospital had the third biggest number of responses (15.0%), followed by Karl Bremer (10.3%) and Khayelitsha (7.3%). These hospitals were also targeted as sample groups. Ten medical practitioners from private practice (4.3%) participated in the study (they also probably completed the MPCCQ when they attended the conference which was held in August 2018), followed by a similar number of responses from Helderberg hospital (3.8%) and a smaller number of responses from Mthata in the Eastern Cape (2.1%). The remainder of the listed hospitals returned less than 2% of the sample. Four missing values were reported.

Table 7.11

Distribution of the Hospital Names' in which Medical Practitioner's Practice

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Tygerberg	50	21.4	21.7	21.7
	Karl Bremer	24	10.3	10.4	32.2
	Khayelitsha	17	7.3	7.4	39.6
	Worcester	35	15.0	15.2	54.8
	Helderberg	9	3.8	3.9	58.7
	Elsiesriver	2	.9	.9	59.6
	Swartland	2	.9	.9	60.4
	George	4	1.7	1.7	62.2
	Mthatha	5	2.1	2.2	64.3
	Ngwelezano	2	.9	.9	65.2
	Potchefstroom	2	.9	.9	66.1
	Grootte Schuur	2	.9	.9	67.0
	Eerste River	3	1.3	1.3	68.3
	Private Practice	10	4.3	4.3	72.6
	Other	63	26.9	27.4	100.0
	Total	230	98.3	100.0	
Missing	System	4	1.7		
Total		234	100.0		

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[90] Most of these medical practitioners probably completed the MPCCQ when they attended the conference which was held in August 2018.

7.4   DESCRIPTIVE STATISTICS FOR THE MPCCQ ITEMS

The descriptive statistics for the MPCCQ is attached in Appendix F1. Statistical results, more specifically the number of missing values, mean, median, mode, standard deviation, variance, skewness, standard error of skewness, kurtosis, standard error of kurtosis, range, skewness – z score, the statistical significance of the skewness , kurtosis – z score and the statistical significance of the kurtosis are reported for each of the 37 test items. From the mean, median and mode results, is it clear that the following options were typically selected by participants: 'on par/satisfactory', 'strength' and 'well-developed strength'. Appendix F1 indicated that only nine of the 37 item distributions (24.3%) were statistically significantly skewed and only eight of the 37 item distributions (21.62%) deviated statistically significantly ($p < .05$) from a mesokurtic distribution. Three of the item distributions were statistically significantly ($p < .05$) positively skewed and six were statistically significantly ($p < .05$) negatively skewed. Of the eight item distributions that deviated statistically significantly ($p < .05$) from a mesokurtic distribution, seven were platykurtic and only one leptokurtic.

Appendix F2 shows the frequency distributions for each item of the MPCCQ. Appendix F2 shows that in the case of the majority of items all six response options were used. Only in the case of items B24, B36, B55, B61 and B65 the first response option "Significant weakness" was not chosen by any respondent. Appendix F2 and Appendix F3 show that in the case of the following five items, 19% or more of the sample of medical practitioners responded by indicating that they regarded the described behaviour as a weakness or a significant weakness:

- B13 Medical practitioner personal disclosure/exposure (22.7%):
    - I share only the medical diagnosis and/or management plan with patients. I do not share anything about myself with patients that is relevant to their situation. (1)
    - I often think of sharing my own story with patients when discussing the diagnosis and/or management plan, but do not always follow through. (3)
    - I openly share my own story/something personal when discussing the diagnosis and/or management plan when it is relevant. I reveal something about myself to patients when it is relevant to their situation. (5)
- B42 Developing an insider perspective (19.0%):
    - When meeting with patients I do not attempt to understand the lived experience of their illness. I rather attempt to understand and explain their medical symptoms. (1)
    - When meeting with patients I do not only attempt to understand and explain their medical symptoms, but try to get some understanding of the lived experience of their illness. (3)
    - When meeting with patients, I purposefully attempt to put myself in their shoes and to understand the lived experience of their illness as well as understanding and explaining their medical symptoms. (5)

- B43 Probing to deepen insight (23.2%):
  - When meeting with patients I very seldom, if ever, ask questions to deepen my understanding of the lived experience of their illness. I really only ask questions aimed at clarifying their symptoms. (1)
  - When meeting with patients I ask questions aimed at clarifying their symptoms, but also regularly ask questions to deepen my understanding of the lived experience of their illness. (3)
  - When meeting with patients I always ask questions to deepen my understanding of the lived experience of their illness as well as questions aimed at clarifying their symptoms. (5)

- B44 Reflecting my insider appreciation (24.5%):
  - When meeting with patients I very seldom, if ever, attempt to reflect back to them my understanding of the lived experience of their illness. (1)
  - When meeting with patients I try to reflect back to them my understanding of the lived experience of their illness. At times this helps me to have a deeper understanding of the patient. (3)
  - When meeting with patients I purposefully attempt to reflect back to them my understanding of the lived experience of their illness so as to deepen my understanding and to convey the message that I understand their feelings, concerns and perspectives about their illness. (3)

- B45 Communicating an empathic understanding (25.3%):
  - When meeting with patients I seldom, if ever, attempt to convey to them that I am trying to put myself in their position. I am trying to understand and feel with them what they are experiencing from their frame of reference. (1)
  - When meeting with patients I sometimes convey to them that I am trying to put myself in their position. I am trying to understand and feel with them what they are experiencing from their frame of reference. (3)
  - When meeting with patients I purposefully attempt to convey to them that I want to and am trying to put myself in their position. I am trying to understand and feel with them what they are experiencing from their frame of reference. (5)

It therefore appears as if medical practitioners experienced the latent *gaining and communicating an empathic understanding* competency dimension as the most prominent development area.

7.5 PSYCHOMETRIC EVALUATION OF THE MEDICAL PRACTITIONER COMPASSION COMPETENCY QUESTIONNAIRE

After managing the missing values and reporting the demographic characteristics of the sample the psychometric evaluation of the questionnaire was executed. Subscale by subscale was analysed by utilising item analysis, followed by dimensionality analysis (i.e., exploratory factor analysis (EFA)). All multidimensional subscales were analysed as a whole utilising confirmatory factor analysis (CFA). In the case of factor fission, the multidimensional subscale was analysed, utilising CFA by first fitting a first-order measurement model that reflected the loading pattern obtained in the pattern matrix and subsequently fitting either a second-order measurement model or a bifactor model depending on the fit of the first-order model. The psychometric evaluation of each dimension is discussed in the subsequent sections after a short overview is given to the analysis techniques.

7.5.1 Item Analysis

Item analysis was performed on each of the six different subscales of the medical practitioner compassion competency questionnaire in order to identify and delete or reflect poor items that did not contribute to the internally consistent description of the latent dimensions that the subscales were designed to measure.

Test items were written with the intent to determine a respondent's standing on the latent dimension of interest and that respondents with different standings on the latent competency dimension of interest will differ in their response to the items of that subscale. Problematic test items, as reflected by unfavourable item analysis statistics, implied that those test items failed to validly reflect a respondents' standing on a specific latent dimension or that they failed to discriminate between medical practitioners that differed in their standing on the latent competency dimension of interest. By identifying and removing (or reflecting) poor test items it was possible to improve the reliability and validity of the subscale. In order to evaluate the test items for each subscale, item analysis was performed using SPSS 25 (SPSS 25, 2017). The following statistics were scrutinised in the subsequent section for each dimension: Cronbach's alpha, the item means, the item standard deviations, the inter-item correlations, the squared multiple correlations, the change in the subscale standard deviation if an item was deleted, the change in Cronbach's alpha if an item was deleted and the corrected item-total correlations. Items that were highlighted as problematic test items were not utilised when the dimensions were operationalised in the MPCCQ measurement model.

The results of the item analysis and dimensionality analysis was reported together for each subscale rather than first reporting the results of the item analyses performed on all six subscales and then reporting the results of the exploratory factor analyses for all the subscales.

7.5.2   Dimensionality Analysis

The test items comprising each subscale were designed to operate as sets of stimuli to which respondents responded with behaviour that is primarily an expression of a specific unidimensional underlying latent competency dimension.   EFA defined by Skrondal and Rabe-Hesketh, (2004, p. 255) as "… an inductivity method designed to discover an optimal set of factors that accounts for the covariation among items" was done by performing unrestricted principal axis factor analysis with oblique rotation on all subscales.   The intention of the analysis was to determine whether each subscale measured a single united factor, in other words to test the unidimensionality assumption.   The eigenvalue-greater-than-one rule (supported by the scree plot) was utilised to determine the number of factors per dimension as well as the parallel analysis procedure (O'Connor, 2000).   Parallel analysis was used when factor fission occurred, based on the Kaiser-rule or when a too large percentage of large residual correlations necessitated the extraction of additional factors.

The extracted factor structure was regarded as providing a credible and valid (i.e. permissible) explanation for the subscale inter-item correlation matrix if the percentage large residual correlations (i.e., residual correlations larger than .05) was less than 30%[91].   The unidimensionality assumption was considered corroborated if a single factor provided a credible and valid explanation for the subscale inter-item correlation matrix.   Factor loadings of items on the single extracted factor were deemed satisfactory when loadings were greater than .50.

In the event where factor fission occurred, and the latent competency dimension that was originally conceptualised as a unidimensional compassion construct showed itself as a multidimensional latent variable (dimension), the extracted factor structure was rotated to simple structure (Tabachnick & Fidell, 2007).   Oblique rotation was utilised in the current study to allow extracted factors to be correlated if necessary (Field, 2005).   The pattern matrix was interpreted (Tabachnick & Fidell, 2007).   To determine the identity of the extracted factors, the common themes shared by the items loading on each factor were isolated.

Where factor fission was obtained CFA was used to attempt to evaluate the ability of the items to reflect the latent compassion dimension as a second-order factor.   The first-order measurement model was fitted in which the loading pattern reflected the pattern matrix.   If the first-order measurement model obtained close fit (i.e., the close fit null hypothesis was not rejected) the second-order measurement model was fitted in which each extracted first-order factor loaded on a single second-order factor.   The statistical significance of the indirect effects of the second-order factor on the subscale items was then evaluated. If they were found to be statistically significant it was concluded that the subscale may be used as

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[91] It is acknowledged that the cut-off percentage of 30% represents a judgement call made by the researcher and that very little if any theoretical justification can be given for this decision other than that as small as possible a percentage is desirable.

indicators of the second-order measurement model. If, however, the first-order measurement model did not attain close fit the modification indices for the off-diagonal of Θ_δ were inspected. If numerous large modification index values were found in the off-diagonal of Θ_δ that would statistically significantly increase the fit of the measurement model a bi-factor model was fitted.

CFA as an explicitly hypothesis testing statistical technique, would have been a more suitable approach to have used to examine the unidimensionality assumption on each of the subscales. The hypothesis held by the developer of the MPCCQ is that each of the six subscales measure a unidimensional latent compassion competency dimension. It therefore would have been the more intellectually honest approach to at the outset test these hypotheses explicitly by fitting of the single factor first-order measurement model on the data obtained for each subscale. EFA, in contrast, is a data-driven technique that probes the data to determine the number of underlying factors and loading pattern that are needed to explain the inter-item correlation matrix. EFA was chosen over CFA in the current study, firstly, because the test of close fit of these first-order subscale measurement models would suffer from low statistical power[92]. Secondly, EFA was chosen of CFA for expediency reasons (i.e., it was easier and faster to perform). It is, nonetheless, admitted as a methodological limitation.

7.6 PSYCHOMETRIC EVALUATION OF THE INVESTING THE SELF SUBSCALE

The investing the self subscale consists of six items measured on a five-point Likert scale with response categories ranging from *significant development area* to *well-developed strength*, and a sixth response option, namely *unable to rate*.

7.6.1 Item Analysis: Investing the Self

The full results from the item analysis for the investing the self subscale are represented in Table 7.12.

A somewhat less satisfactory Cronbach Alpha of .620, that fell below the .80 critical cut-of, was obtained for the six-item subscale, as shown in the Reliability Statistics section of Table 7.12. This indicates that only approximately 62% of the variance in the items is systematic or true score variance and 38% is random error variance.

In the Item Statistics section of Table 7.12, item means ranged from 3.08 to 4.21 on a five-point Likert scale and the item standard deviations ranged from .888 to 1.341. This indicates that most medical

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[92] Given that the majority of the subscales consist of 6 items, 12 parameters had to be estimated. The observed inter-item variance-covariance matrix contained 15 unique variance and covariance terms. The degrees of freedom were therefore 3. The Preacher and Coffman (2006) online statistical power calculator indicated that the statistical power of the test of close fit was .1731882, given an effect size of .08.

practitioner participants supported the 'on par/satisfactory' and 'strength' (mean and higher mean) category. An absence of extreme means, and a lack of small standard deviations that appear as outliers in the standard deviation distribution, shows that there are no insensitive items presented in the scale that were unable to detect relatively small differences in the participants' standing on the investing the self dimension (Theron, 2017). The highest mean was for item B14. Item B14's mean however was not sufficiently extreme to significantly curtail the variance of the distribution. The lowest standard deviation was for item B12 (.888) and B14 (.888).

The inter-item correlation ranged between -.027 and .429. The mean inter-item correlation was .229. Item B16 consistently correlated below the mean correlation (.229) with the remaining items of the subscale.

In the Item-Total Statistics section of Table 7.12, the corrected item-total correlations ranged from .116 to .474, whereas the Squared Multiple Correlation ranged from .080 to .346. Item B16 showed itself as an outlier in the corrected item-total correlation and the squared multiple correlation distributions. These results, taken in conjunction with the inter-item correlation matrix results, suggest that the responses to B16 were not to the same degree underpinned by the source of systematic variance that underpinned the remaining items of the scale. This caused B16 to respond a little out of step with the remaining items. Item B16's failure to act in unison with the remaining items is also reflected in the fact that Cronbach's alpha increased to .669 if the item was deleted.

The basket of evidence from the results of the item analysis of the investing the self dimension suggested that item B12 ("Medical practitioner – patient contact") was the strongest item in the subscale and item B16 ("Medical practitioner-patient over involvement") was the weakest item in the subscale. Thus, based on the available basket of evidence it was decided to delete item B16 from the Investing the Self scale. The item analysis was subsequently reran in order to determine whether the deletion of this item caused any other items to be problematic. The results are indicated in Table 7.13.

Table 7.12

Reliability Analysis Output for the Investing the Self Subscale

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardised Items	N of Items
.620	.641	6

Item Statistics			
	Mean	Std. Deviation	N
B11	3.72650	.908934	234
B12	4.00000	.888650	234
B13	3.50427	1.340194	234
B14	4.21795	.888372	234
B15	3.08547	.998477	234
B16	4.00427	1.090332	234

Table 7.12

Reliability Analysis Output for the Investing the Self Subscale (continued)

Inter-Item Correlation Matrix						
	B11	B12	B13	B14	B15	B16
B11	1.000	.409	.184	.265	.277	.092
B12	.409	1.000	.332	.429	.314	-.027
B13	.184	.332	1.000	.232	.349	.057
B14	.265	.429	.232	1.000	.245	.229
B15	.277	.314	.349	.245	1.000	.047
B16	.092	-.027	.057	.229	.047	1.000

Summary Item Statistics							
	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Item Means	3.756	3.085	4.218	1.132	1.367	.170	6
Item Variances	1.064	.789	1.796	1.007	2.276	.153	6
Inter-Item Correlations	.229	-.027	.429	.456	-16.160	.018	6

	Item-Total Statistics			
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
B11	18.81197	10.170	.383	.204	.567
B12	18.53846	9.795	.474	.346	.536
B13	19.03419	8.531	.369	.182	.577
B14	18.32051	9.893	.454	.259	.543
B15	19.45299	9.691	.407	.195	.555
B16	18.53419	11.186	.116	.080	.669

Scale Statistics			
Mean	Variance	Std. Deviation	N of Items
22.53846	13.220	3.635869	6

Table 7.13 illustrates that the Cronbach alpha for .620 increased to .669 after Item B16 was deleted and item analysis was reran on the remaining five-item subscale. The Cronbach Alpha still fell below the .80 critical cut-of as shown in the Reliability Statistics section of Table 7.13. This indicates that only approximately 66% of the variance in the items is systematic or true score variance and 34% is random error variance.

The inter-item correlation ranged between .184 and .429. The inter-item correlation matrix indicated that none of the items consistently correlated below the mean inter-item correlation (.304) with the rest of the items of the subscale.

In the Item-Total Statistics section of Table 7.13, the corrected item-total correlations ranging from .389 to .544 were all reasonably satisfactory. None of the items could be described as an outlier in the corrected item-total correlation distribution. In other words, all the remaining items were responding to a common (but not necessarily unidimensional) underlying source of systematic variance. Moreover, although it cannot be offered as proof that all the remaining items were measuring the targeted latent competency dimension that they were earmarked to reflect, the findings are compatible with such a position (Pallant, 2007). The squared multiple correlations ranging from .181 to .328 were somewhat less than satisfactory. The rather modest to low magnitude of the squared multiple correlations meant that the items generally were not able to explain substantial proportions of variance in each other.

Table 7.13

Reliability Analysis Output for the Investing the Self Subscale after Deleting Item B16

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardised Items	N of Items
.669	.686	5

Item Statistics			
	Mean	Std. Deviation	N
B11	3.72650	.908934	234
B12	4.00000	.888650	234
B13	3.50427	1.340194	234
B14	4.21795	.888372	234
B15	3.08547	.998477	234

Inter-Item Correlation Matrix					
	B11	B12	B13	B14	B15
B11	1.000	.409	.184	.265	.277
B12	.409	1.000	.332	.429	.314
B13	.184	.332	1.000	.232	.349
B14	.265	.429	.232	1.000	.245
B15	.277	.314	.349	.245	1.000

Summary Item Statistics							
	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Item Means	3.707	3.085	4.218	1.132	1.367	.194	5
Item Variances	1.040	.789	1.796	1.007	2.276	.186	5
Inter-Item Correlations	.304	.184	.429	.245	2.332	.006	5

Item-Total Statistics					
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
B11	14.80769	8.319	.389	.198	.633
B12	14.53419	7.709	.544	.328	.571
B13	15.02991	6.664	.394	.181	.653
B14	14.31624	8.303	.409	.208	.625
B15	15.44872	7.759	.437	.195	.611

Scale Statistics			
Mean	Variance	Std. Deviation	N of Items
18.53419	11.186	3.344476	5

Nonetheless, none of the remaining items showed themselves as distinct outliers in the distribution of squared multiple correlations. The squared multiple correlations of item B13 was a little lower in comparison to the other items. Item B13, however, did not convincingly present itself as an outlier in the squared multiple correlation distribution and hence this did not constitute sufficient evidence to conclude that the variance in item B13 originated from different sources of systematic variance than the remaining items. The results moreover, revealed that none of the items would increase the current rather modest Cronbach alpha if deleted. These findings collectively suggest that all the remaining items do measure a common, yet not necessarily unidimensional, source of systematic variance but that they all tend to do so to a relatively limited degree. The internal consistency of the responses to the items of the reduced investing the self subscale, is for that reason of modest magnitude.

The basket of evidence from the results of the item analysis of the investing the self subscale suggested that item B12 ("Medical Practitioner Contact") was the strongest item in the subscale and item B11 ("Medical practitioner-patient involvement") was the weakest item in the reduced subscale. No additional items were deleted.

7.6.2   Dimensionality Analysis: Investing the Self

Only five of the six items for the investing the self subscale were factor analysed since item B16 was removed during the preceding reliability analysis. The design intention of the questionnaire was that the six items written for the investing the self scale, should all reflect a single indivisible underlying latent competency dimension.

In order to consider the investing the self subscale factor analysable, the correlation matrix should show numerous statistically significant ($p < .05$) correlations of .3 or greater (Tabachnick & Fidell, 2007). The correlation matrix for the investing the self scale, showed that most of the correlations were larger than .3. Correlations between B13 and B11 (.179), between B14 and B11 (.267), between B15 and B11 (.278), between B14 and B13 (.235), between B14 and B15 (.242), however fell below this critical cut-off value, echoing the conclusion reached in the item analysis of this subscale. All the correlations were statistically significant ($p < .05$). In addition, the Kaiser-Meyer-Olkin (KMO) value should be .6 or greater and Bartlett's test of Sphericity should return a statistically significant ($p < .05$) test statistic (Tabachnick & Fidell, 2007; Theron, 2017). For the investing the self scale, a KMO value of .736 was obtained (($> .6$) and the Bartlett Test ($p < .05$)) showed a statistically significant chi-square estimate that allows for the identity matrix null hypothesis to be rejected[93]. Some of the item pairs showed poor correlations, pointing to a possibility for more than one factor (which implies a factor analysable correlation matrix), whilst the remainder of evidence also showed that the correlation matrix was factor analysable, even though the evidence was not strong.

Despite the observed pattern of higher and lower inter-item correlations, only one factor was extracted since only one factor obtained an eigenvalue greater than one (2.226). The scree plot also suggested that a single factor should be extracted. The factor matrix revealed that all the remaining items comprising the investing the self scale but one (item B13) loaded satisfactory ($\lambda_{i1} > .50$) on the single extracted factor, as shown in Table 7.14.   Item B13 ("Medical practitioner personal disclosure/exposure") had the lowest factor loading that only marginally fell below .50 ($\lambda_{51} = .475$)[94] and Item B12 ("Medical practitioner patient contact") had the highest factor loading ($\lambda_{11} = .729$). This is

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[93] The identity matrix null hypothesis states that the subscale inter-item correlation matrix in theparameter is an identity matrix with all elements in the main diagonal 1 and all off-diagonal elements 0.

[94] It needs to be taken into account though that the factor loadings are sample estimates subject to sampling error. The 95% confidence interval for λ_{51} quite conceivably would contain .50.

consistent with the item analysis conclusion in the sense that both analysis showed item B12 was identified as the strongest item and the item with the highest factor loading as compared to item B13 which was the weakest item and also the item with the lowest factor loadings. The findings, thus indicated that all items, but for item B13, can be considered satisfactory regarding the proportion of item variance that can be explained by the single factor. The single-factor factor structure provided a reasonably sound explanation for the observed inter-item correlation matrix in the sense that only three (30%) nonredundant residuals had absolute values greater than .05. The unidimensionality assumption, for the investing the self subscale was thus corroborated.

Table 7.14

Factor Matrix for the Investing the Self Subscale

Factor Matrix	
	Factor 1
B12	.731
B14	.534
B11	.513
B15	.511
B13	.476

7.7   PSYCHOMETRIC EVALUATION OF THE MINDFULNESS SUBSCALE

The mindfulness subscale consists of six items measured on a five-point Likert scale, with response categories ranging from *significant development area* to *well-developed strength*, and a sixth response option, namely unable to rate.

7.7.1   Item Analysis: Mindfulness

The full results from the item analysis for the mindfulness subscale are represented in Table 7.15.

A Cronbach Alpha of .736 was obtained for the six-item scale as shown in the Reliability Statistics section of Table 7.15. The coefficient fell fairly below the critical cut-off value of .80. This indicates that approximately 74% of the variance in the items is systematic or true score variance and only 26% is random error variance.

In the Item Statistics section of Table 7.15, item means ranged from 3.43 to 4.01 on a five-point Likert scale and the item standard deviations ranged from .883 to 1.031. This indicates that most medical practitioner participants chose the 'on par/satisfactory' (mean) category. None of the items showed themselves as outliers in the item standard deviation distribution. The highest mean was for item B23. Item B23's mean however, was not sufficiently extreme to significantly curtail the variance of the item distribution. The lowest standard deviation was for item B24. Its standard deviation could, however,

not be characterised as an outlier in the subscale standard deviation distribution. None of the items therefore could be characterised as insensitive items that failed to discriminate between medical practitioners that differ in their standing on the mindfulness latent competency dimension. The inter-item correlation ranged between .156 and .432. The mean inter-item correlation was .318. No item consistently correlated below the mean inter-item correlation with the remaining items of the subscale.

In the Item-Total Statistics section of Table 7.15, the corrected item-total correlations ranging from .385 to .540 were reasonably satisfactory. Item B25 obtained the lowest corrected item-total correlations of .385. Item B25, nonetheless, cannot be described as an outlier at the lower end of the corrected item-total distribution. This finding is compatible with the position that all the items are measuring the identified latent competency dimension that was earmarked to measure (Pallant, 2007). The squared multiple correlation ranged from .192 to .318. The squared multiple correlations of item B22 and item B25 were also a little lower in comparison to those obtained for the other items. The response of these two items to different medical practitioners, were therefore to some degree less predictable to their colleagues[95]. This could imply that the variance in item B22 and B25 might originate from different sources of systematic variance than the variance in the remaining items. These two items, however, were not really convincing outliers in the squared multiple correlation distribution. The results, moreover, reveal that none of the items would increase the current Cronbach alpha if deleted. This suggests that item B22 and item B25 do not present as seriously problematic items.

The basket of evidence from the results of the item analysis of the mindfulness subscale suggested that item B24 ("Being psychologically present") was the strongest item in the subscale and item B25 ("Registering the current moment accurately") was the weakest item in the subscale. None of the items were deleted.

Table 7.15

Reliability Analysis Output for the Mindfulness Subscale

	Reliability Statistics	
Cronbach's Alpha	Cronbach's Alpha Based on Standardised Items	N of Items
.736	.737	6

	Item Statistics		
	Mean	Std. Deviation	N
B21	3.43162	.983569	234
B22	3.56838	.915780	234
B23	4.01282	.982599	234
B24	3.85043	.883237	234
B25	3.97436	.975771	234
B26	3.63675	1.031945	234

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[95] Although thereby possibly risking the danger of being accused of being unscientific, the researcher nonetheless allowed herself the liberty of to some degree anthropomorphising subscale items. This allowed for a richer, more vivid interpretation of the item statistics.

Table 7.15

Reliability Analysis Output for the Mindfulness Subscale (continued)

Inter-Item Correlation Matrix						
	B21	B22	B23	B24	B25	B26
B21	1.000	.365	.385	.332	.199	.400
B22	.365	1.000	.249	.259	.156	.347
B23	.385	.249	1.000	.432	.287	.309
B24	.332	.259	.432	1.000	.404	.359
B25	.199	.156	.287	.404	1.000	.289
B26	.400	.347	.309	.359	.289	1.000

Summary Item Statistics							
	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Item Means	3.746	3.432	4.013	.581	1.169	.055	6
Item Variances	.928	.780	1.065	.285	1.365	.010	6
Inter-Item Correlations	.318	.156	.432	.277	2.778	.006	6

Item-Total Statistics					
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
B21	19.04274	10.264	.504	.284	.690
B22	18.90598	11.107	.403	.192	.718
B23	18.46154	10.318	.494	.271	.692
B24	18.62393	10.527	.540	.318	.681
B25	18.50000	10.964	.385	.196	.724
B26	18.83761	10.008	.510	.271	.687

Scale Statistics			
Mean	Variance	Std. Deviation	N of Items
22.47436	14.405	3.795381	6

7.7.2 Dimensionality Analysis: Mindfulness

7.7.2.1 Factor Analysis

All six items for the mindfulness subscale were factor analysed. The design intention of the developers of the MPCCQ was that the six items written for the mindfulness dimension, should all reflect a single indivisible underlying factor.

For the subscale to be considered factor analysable, the correlation matrix should show numerous statistically significant ($p < .05$) correlations of .3 or greater, Bartlett's test of Sphericity should be statistically significant ($p < .05$), and the Kaiser-Meyer-Olkin (KMO) value should be .6 or greater (Pallant, 2007, Tabachnick & Fidell, 2007). The correlation matrix for the mindfulness subscale, showed that most of the correlations were larger than .3. Correlations between B25 and B21 (.199), between B23 and B22 (.249), between B24 and B22 (.259), between B25 and B22 (.156), between B25 and B23 (.287) and lastly between B25 and B26 (.289) correlated poorly. All the correlations however, were statistically significant ($p < .05$). Furthermore, a KMO value of .795 was obtained and the chi-square statistic calculated under Bartlett's Test was statistically significant ($p < .05$) which allowed for the identity matrix null hypothesis to be rejected.

One factor was initially extracted since only one factor obtained an eigenvalue greater than one (2.606 > 1). The scree plot shown in Figure 7.1, was somewhat ambiguous in that it suggested that either a single factor or two factors should be extracted.
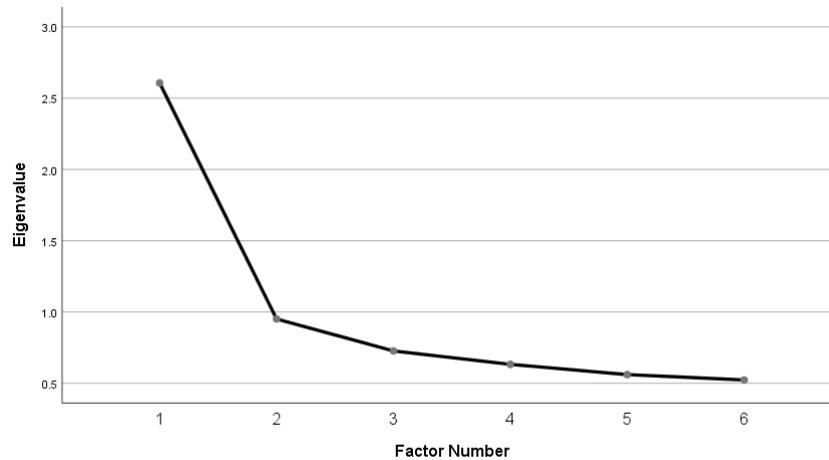
Figure 7.1. Scree plot for the mindfulness subscale

The factor matrix revealed that the items comprising the mindfulness subscale all but two items (item B25 and Item B22) loaded satisfactory ($\lambda_{i1} > .50$) on the single extracted factor as shown in Table 7.16. Item B25 ("Registering the current moment accurately") had the lowest factor loading ($\lambda_{61} = .463$) and Item B24 ("Being psychologically present") had the highest factor loading ($\lambda_{11} = .659$).

Table 7.16

Factor Matrix for the Mindfulness Subscale

	Factor Matrix
	Factor 1
B24	.645
B26	.606
B21	.602
B23	.598
B22	.476
B25	.463

The single factor structure, however, failed to provide a convincing explanation for the observed inter-item correlation matrix in that five (46%) non-redundant residual correlations had absolute values greater than .05.

It should be noted though that there is criticism against using the eigenvalues, greater-than-one or the scree-plot rule. These procedures are described as simpler techniques and there is a tendency for them to typically overestimate and sometimes underestimate the number of factors (Zwick & Velicer, 1986). The decision how many factors should be extracted is, however, a critical one. Another way of determining the number of factors is by utilising a less well-known procedure, namely parallel analysis

(O'Connor, 2000). Parallel analysis involves the extraction of eigenvalues from a large number of random data sets that parallel the actual data, in terms of the number of cases and variables. In other words, the eigenvalues derived from the actual data set are compared to the eigenvalues obtained from the random data sets. Should the eigenvalues from the actual data set be greater than the corresponding eigenvalues from the random data set, factors can be considered substantive and retained. O'Conner (2000) suggests that the raw data eigenvalues should be compared to the 90th percentile random data eigenvalue.

Because of the contradiction between the eigenvalue-greater-than-one rule and the scree plot on the one hand, and the percentage large residual correlations on the other hand, parallel analysis was performed to obtain a further opinion on the number of factors to extract. Table 7.17 indicates that the first raw data eigenvalue was bigger compared to the 90th percentile random data eigenvalue. The second raw data eigenvalue, however, was smaller than the random data eigenvalue. The parallel analysis therefore also indicates that only one factor should be extracted for the subscale.

Table 7.17

Parallel Analysis for the Mindfulness Subscale

Root	Means	Random Data Eigen Values 90th Percentile	Raw Data Eigenvalues
1.000000	.253890	.361317	1.869990
2.000000	.135043	.211139	.182729
3.000000	.049266	.110903	-.021260
4.000000	-.023892	.021641	-.131586
5.000000	-.098857	-.051009	-.178312
6.000000	-.181468	-.127329	-.189611

Given that the single-factor factor structure did not provide a credible and valid (i.e. permissible) explanation for the observed inter-item correlation matrix, despite all indications that a single factor should be extracted, the extraction of two factors were forced to obtain a more credible explanation for the observed inter-item correlation matrix.

Table 7.18

Extracted Factor (pattern) Matrix for the Mindfulness Subscale with Two Factors Forced

	Pattern Matrix Factor	
	1	2
B21	**.696**	.011
B22	**.574**	.042
B26	**.480**	-.178
B24	.041	**-.718**
B25	-.045	**-.579**
B23	.267	**-.383**

Note: figures in bold indicate the factor on which each item displayed the highest loading. The common theme shared by those items loading on the same factor was used to infer the identity of the extracted factors.

The two-factor structure offered a highly credible explanation for the observed inter-item correlation matrix in that 0% of the residual correlations were now larger than .05. Table 7.18 indicates that Items

B21, B22 and B26 all grouped together to load positively on factor 1. Item B24 and B25 grouped together to load negatively on factor 2. Item B23 showed itself somewhat of a complex item with moderate loadings on both factor 1 (.267) and factor 2 (.383). Factor 1 seems to represent a *living in the moment* factor (with item B21: *Taking hold of the moment*, item B22: *Being non-judgmental about experiences* and item B26: *Opening oneself*). Factor 2 seems to present a *psychologically present* factor (with item B24: *Being psychologically present* and item B25: *Registering the current moment accurately*). It could be argued that the response to item B23 (*"Being attentive"*) logically then should depend on both factors. The factor correlation matrix indicate that the two extracted factors correlated -.631. Factor fission was regarded as meaningful. In other words, both these factors can be seen as meaningful sub-factors of the *mindfulness* dimension that the scale intended to measure[96]. The small number of items that loaded on factor 2, however, raised some concern over the stability of the factor in the solution obtained in the current study. It was argued that the conceptual distinction between the *living in the moment* and the *psychologically present* competencies could be of value in providing formative feedback to medical practitioners[97]. Even though the second factor was not well defined in the current solution, the writing of additional items for both factors, but especially for the *psychologically present* competency, should result in a more stable, well defined factor structure. Moreover, the factor correlation matrix returned a moderate positive correlation of -.631 implying a not overly excessive *circa* 40% shared variance between the two factors.

This brought about the question whether the items of the mindfulness subscale may be regarded as sufficiently valid indicators of mindfulness interpreted as either a second-order factor or as a multidimensional construct[98]. To answer this question, the first-order mindfulness measurement model implied by the pattern matrix shown in Table 7.18, was fitted so as to determine whether a second-order model may be legitimately fitted or whether a bi-factor model should rather be considered.

7.7.2.2 Test of Multivariate Normality on Imputed Items

The test items of the mindfulness subscale were measured on a 5-point scale which allowed the items to be interpreted as continuous variables (Methuen & Kaplan, 1985). When fitting a measurement model

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[96] It is acknowledged that the factor fission strictly speaking necessitates the recalculation of the reliability of the mindfulness subscale in a manner that acknowledges that the dimension score obtained on the subscale is in reality a linear composite derived from scores obtained on the two mindfulness facets. The formula proposed by Nunnally (1978) would be appropriate for this purpose. This analysis has been postponed until a decision had been made in Chapter eight whether the factor fission should be formally acknowledged in a future version of the MPCCQ.

[97] An alternative to the acceptance of a more complex factor structure than what was originally envisaged with the development of the MPCCQ was to deleted at least some of the items B23, B24 and B25. This would have ensured that the unidimensionality assumption is corroborated for the reduced *mindfulness* subscale. This would have, however, substantially reduced the connotative meaning of the latent compassion competency measured by this subscale. Acknowledgement of the factor fission will, however, necessitate the creation of additional items for the two facets of the *mindfulness* competency in a revised version of the MPCCQ.

[98] The question whether the MPCCQ should in future be expanded to formally make the distinction between these two facets of mindfulness will be debated in Chapter Eight. In the current analysis the question arises whether the items may be regarded as valid indicators of mindfulness interpreted as a second-order factor or as a multi-dimensional construct.

to continuous data, maximum likelihood (ML) estimation is used as the default estimation method to develop estimates for the measurement model parameters (Kaplan, 2000). ML estimation, however, assumes that the items follow a multivariate normal distribution. Alternative estimation methods are available should maximum likelihood estimation not be appropriate. The imputed dataset for the mindfulness dimension was tested for multivariate normality. The results in Table 7.19 indicate that the exceedance probability associated with the skewness and kurtosis chi-square was sufficiently small (p < .05) to reject the null hypothesis postulating a normally distributed dataset in the parameter. By rejecting the null hypothesis it is thus assumed that the item distribution in the population is not multivariate normal. An attempt was consequently made to normalise the item distribution.

Table 7.19

Test of Multivariate Normality on Imputed Items before Normalisation

	Skewness			Kurtosis			Skewness and Kurtosis	
Value	z-Score	p-Value	Value	z-Score	p-Value	Chi-Square		p-Value
3.130	4.772	.000	52.154	3.014	.003	31.859		.000

After normalisation, the test for multivariate normality was repeated. Table 7.20 indicates that the normalisation failed to salvage the multivariate normality problem. In fact, it aggravated the problem as is indicated by the fact that the chi-Square increased from 31.859 to 34.413 as seen in Table 7.20. The imputed dataset for mindfulness before normalisation was thus analysed using robust maximum likelihood (RML) estimation. ML is a widely used approach which is more efficient and unbiased when the assumption of multivariate normality is met, in addition it is also a flexible method in the sense that the "most likely" parameter values to achieve the best model fit are found (Hair et al., 2014).

Table 7.20

Test of Multivariate Normality on Imputed Items after Normalisation

	Skewness			Kurtosis			Skewness and Kurtosis	
Value	z-Score	p-Value	Value	z-Score	p-Value	Chi-Square		p-Value
2.980	4.438	.000	53.773	3.836	.000	34.413		.000

7.7.3 Dimensionality Analysis utilising CFA

7.7.3.1 *Fitting of the First Order Mindfulness Measurement Model*

CFA allows one to test how well measured variables represent the constructs that they have been purported to reflect. CFA thus gives an indication of how well the theoretical specification of the factors, in actual fact matches the actual data (Hair et al., 2014). The fitted first-order measurement model for the Mindfulness dimension is shown in Figure 7.2.

Chi-Square=19.62, df=8, P-value=0.01189, RMSEA=0.079
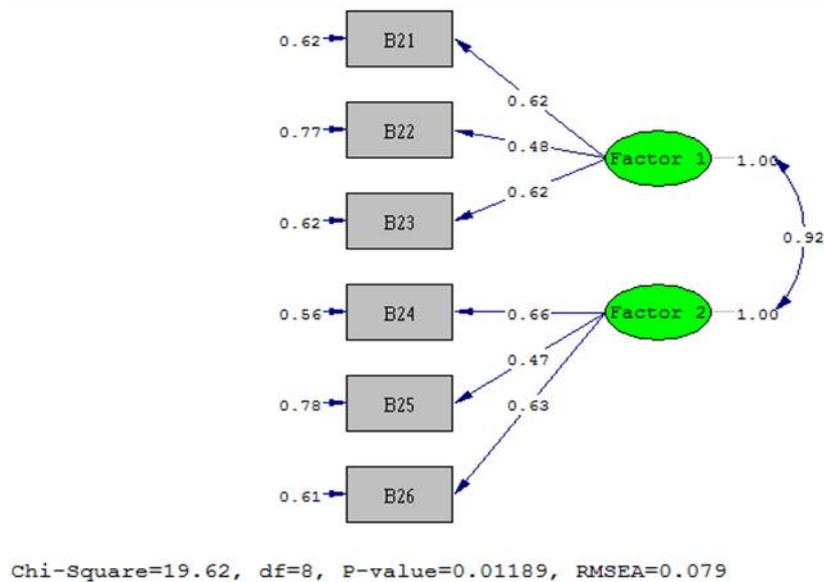
Figure 7.2. First-order mindfulness measurement model (completely standardised solution)

The Satorra-Bentler chi-Square statistic of .19.62 (p < .05) as shown in Figure 7.2 and in Table 7.21 was statistically significant (p < .05) and the exact fit null hypothesis was therefore rejected. The RMSEA value of .079 shown in Figure 7.2 and in Table 7.21 indicates mediocre fit in the sample given that it fell below .08, but still above a value of .05 (Theron, 2017). Using the 90% confidence interval for this RMSEA, it can be concluded with 90% confidence that the parametric value of the RMSEA lies between 0.034 and 0.123. Given that the 90% confidence interval includes the value hypothesised under the close fit null hypothesis and given that the probability of observing the sample RMSEA estimate under the close fit null hypothesis was sufficiently large (.122), the close fit null hypothesis was not rejected. The position that the mindfulness measurement model shows close fit in the parameter was therefore a permissible position to hold, despite the somewhat mediocre fit[99] of the first-order measurement model in the sample[100].

Table 7.21

Goodness of Fit Statistics for the First Order Mindfulness Measurement Model

Goodness of Fit Statistics
Degrees of Freedom = 8
Normal Theory Weighted Least Squares Chi-Square = 22.00210 (P = .0049120)
Satorra-Bentler Scaled Chi-Square = 19.61535 (P = .011894)
Chi-Square Corrected for Non-Normality = 12.36330 (P = .13572)
Estimated Non-centrality Parameter (NCP) = 11.61535
90 Percent Confidence Interval for NCP = (2.26123 ; 28.62816)
Minimum Fit Function Value = .037299
Population Discrepancy Function Value (F0) = .049851

[99] In contrast to the sample RMSEA estimate that indicates reasonable fit approaching mediocrity the remaining fit statistics (e.g. the standardised RMR and the CFI) indicate quite good model fit.
[100] It needs to be acknowledged that the statistical power of the test of close fit was rather low due to the small degrees of freedom.

Table 7.21

Goodness of Fit Statistics for the First Order Mindfulness Measurement Model (continued)

Goodness of Fit Statistics
90 Percent Confidence Interval for F0 = (.0097048 ; .12287)
Root Mean Square Error of Approximation (RMSEA) = .078939
90 Percent Confidence Interval for RMSEA = (.034830 ; .12393)
P-Value for Test of Close Fit (RMSEA < .05) = .12276
Expected Cross-Validation Index (ECVI) = .19577
90 Percent Confidence Interval for ECVI = (.15563 ; .26879)
ECVI for Saturated Model = .18026
ECVI for Independence Model = 1.64778
Chi-Square for Independence Model with 15 Degrees of Freedom = 371.93311
Independence AIC = 383.93311
Model AIC = 45.61535
Saturated AIC = 42.00000
Independence CAIC = 410.66504
Model CAIC = 103.53453
Saturated CAIC = 135.56174
Normed Fit Index (NFI) = .94726
Non-Normed Fit Index (NNFI) = .93898
Parsimony Normed Fit Index (PNFI) = .50521
Comparative Fit Index (CFI) = .96746
Incremental Fit Index (IFI) = .96808
Relative Fit Index (RFI) = .90111
Critical N (CN) = 239.66015
Root Mean Square Residual (RMR) = .041241
Standardised RMR = .045297
Goodness of Fit Index (GFI) = .98827
Adjusted Goodness of Fit Index (AGFI) = .96920
Parsimony Goodness of Fit Index (PGFI) = .37648

In addition to the model fit the magnitude and significance of the slope of the regression of the individual items on the two latent mindfulness dimensions was examined. The unstandardised lambda-X matrix (Λ^X) in Table 7.22 shows that all the slope coefficients that describes the regression of the individual items on their respective latent mindfulness dimensions, were statistically significant ($p < .05$).

Table 7.22

Unstandardised Factor Loading (Lambda) Matrix for the First Order Mindfulness Measurement Model

	Factor 1	Factor 2
B21	.60717*	
	(.08169)	
	7.43230	
B22	.44075*	
	(.07006)	
	6.29112	
B23	.60330*	
	(.07670)	
	7.86530	
B24		.58472*
		(.06423)
		9.10325
B25		.45485*
		(.07778)
		5.84811
B26		.64598*
		(.07013)
		9.21086

Note: The first value in each cell represents the unstandardised estimate, the second value (in brackets) represents the standard error and the third value the z test statistic obtained by dividing the unstandardised estimate by the standard error.
* (p<.05)

Thus all the null hypotheses (H_{0i}: $\lambda_{jk} = 0$; i = 1, 2, …, 6; j = 1, 2, …, 6; k = 1, 2) were rejected in favour of the alternative hypotheses (H_{ai}: $\lambda_{jk} > 0$; i = 1, 2, …, 6; j = 1, 2, …, 6; k = 1, 2) stating that the item responses are dependent on the medical practitioners' level of competence on the two mindfulness dimension. It can therefore be concluded that all the items were useful indicators of the two first-order mindfulness dimensions.

The completely standardised lambda-X matrix ($\mathbf{\Lambda^X}$) in Table 7.23, shows that the items loaded with moderate magnitude on the two extracted factors, namely the *living in the moment* factor (factor 1) and the *psychologically present* factor (factor 2).

The close fit of the first-order mindfulness measurement model warranted the fitting of the second-order measurement model. This allowed the calculation of the indirect effects of the second-order mindfulness factor on the subscale items and the evaluation of their statistical significance.

Table 7.23

Completely Standardised Factor Loading (Lambda) Matrix for the First Order Mindfulness Measurement Model

	Factor 1	Factor 2
B21	.61732	
B22	.48128	
B23	.61532	
B24		.66202
B25		.46715
B26		.62598

7.7.3.2 Fitting of the Second Order Mindfulness Measurement Model

The second order-factor model, as shown in Figure 7.3, was fitted with diagonally weighted least squares estimation[101].

The goodness of fit statistics as depicted in Table 7.24 allows one to compare the theory that was developed on the mindfulness construct to the actual reality, by assessing the similarity of the theory (the estimated covariance matrix) to the reality which is the observed covariance matrix. Table 7.24 shows that the Satorra-Bentler chi-Square statistic of 15.78, (p < .05) was statistically significant which necessitated the rejection of the exact fit null hypothesis. The RMSEA value of .073 indicated that the second-order measurement model showed reasonable fit approaching mediocrity in the sample. The 90% confidence interval for RMSEA, indicates that it can be concluded with 90% confidence that the parametric value of the RMSEA lies between .023266 and .12221.

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[101] When fitting the second-ordermindfullness measuremt model with RML estimation LISREL 8.8 issued a warning "PS 2_2 may not be identified. Standard errors, t-values, modification indices, and standardized residuals cannot be computed." The use of DWLS estimation resolved the problem.

Chi-Square=15.78, df=7, P-value=0.02717, RMSEA=0.073
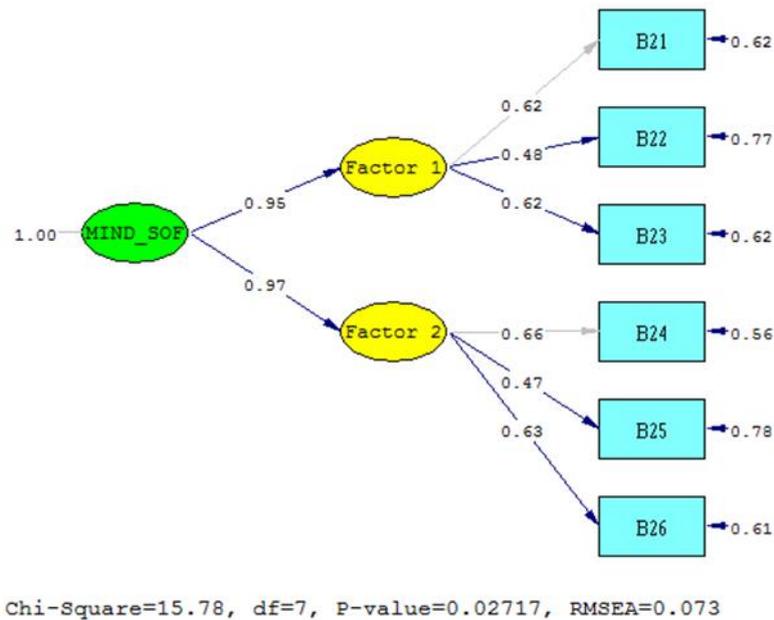
Figure 7.3. Second order mindfulness measurement model (completely standardised solution)

Given that the lower bound of the 90% confidence interval falls below the parametric RMSEA value hypothesised under the close fit null hypothesis, and given the fact that the probability of observing the sample RMSEA estimate under the close fit null hypothesis was sufficiently large (.181), the close fit null hypothesis was not rejected. It was therefore permissible to hold the position that the second-order measurement model showed close fit in the parameter. The remaining fit statistics shown in Table 7.24, generally indicated good to reasonable fit (e.g. the standardised RMR and the CFI). This warranted the interpretation of the second-order measurement model parameter estimates.

Table 7.24

Goodness of Fit Statistics for the Second Order Mindfulness Measurement Model

Goodness of Fit Statistics
Degrees of Freedom = 7
Normal Theory Weighted Least Squares Chi-Square = 17.48949 (P = .014499)
Satorra-Bentler Scaled Chi-Square = 15.78389 (P = .027166)
Chi-Square Corrected for Non-Normality = 10.78466 (P = .14829)
Estimated Non-centrality Parameter (NCP) = 8.78389
90 Percent Confidence Interval for NCP = (.88288 ; 24.35832)
Minimum Fit Function Value = .037299
Population Discrepancy Function Value (F0) = .037699
90 Percent Confidence Interval for F0 = (.0037892 ; .10454)
Root Mean Square Error of Approximation (RMSEA) = .073387
90 Percent Confidence Interval for RMSEA = (.023266 ; .12221)
P-Value for Test of Close Fit (RMSEA < .05) = .18146
Expected Cross-Validation Index (ECVI) = .18791
90 Percent Confidence Interval for ECVI = (.15400 ; .25476)
ECVI for Saturated Model = .18026
ECVI for Independence Model = 1.64778
Chi-Square for Independence Model with 15 Degrees of Freedom = 371.93311
Independence AIC = 383.93311
Model AIC = 43.78389
Saturated AIC = 42.00000
Independence CAIC = 410.66504
Model CAIC = 106.15839

Table 7.24

Goodness of Fit Statistics for the Second Order Mindfulness Measurement Model (continued)

Goodness of Fit Statistics
Saturated CAIC = 135.56174
Normed Fit Index (NFI) = .95756
Non-Normed Fit Index (NNFI) = .94727
Parsimony Normed Fit Index (PNFI) = .44686
Comparative Fit Index (CFI) = .97539
Incremental Fit Index (IFI) = .97593
Relative Fit Index (RFI) = .90906
Critical N (CN) = 273.73680
Root Mean Square Residual (RMR) = .041241
Standardised RMR = .045297
Goodness of Fit Index (GFI) = .98827
Adjusted Goodness of Fit Index (AGFI) = .96480
Parsimony Goodness of Fit Index (PGFI) = .32942

The unstandardised and completely standardised lambda matrix are shown in Table 7.25 and Table 7.26 respectively. The unstandardised λ_{jk} estimates shown in Table 7.25 correspond to those in Table 7.22. The lambda-Y matrix ($\mathbf{\Lambda^Y}$) in Table 7.25 indicates that the slope of the regression of the individual items on the latent first-order mindfulness factors were statistically insignificant (p>.05). Thus the null hypotheses H_{0i}: $\lambda_{jk} = 0$; i = 1, 2, …, 6; j = 1, 2, …, 6; k = 1,2 could not be rejected in favour of the alternative hypotheses H_{ai}: $\lambda_{jk} > 0$; I = 1, 2, …, 6; j = 1, 2, …, 6; k = 1,2. In other words, in the second-order mindfulness measurement model, the item responses are no longer dependent on the medical practitioner's level of competence on the two latent first-order mindfulness factors. This anomaly is due to the difference in the standard errors associated with the factor loadings across the two measurement models. Scientific Software International attributes the difference in the standard errors to the difference in the degrees in freedom between the two models that cause the two models not to be equivalent (G. Mels, personal communication, June 18, 2019)[102].

Table 7.25

Unstandardised Factor Loading (Lambda) Matrix for the Second Order Mindfulness Measurement Model

	Factor 1	Factor 2
B21	.60717	- -
B22	.44075	- -
	(.43261)	
	1.01881	
B23	.60329	- -
	(.61747)	
	.97705	
B24		.58472
B25		.45485
		(.51966)
		.87529
B26		.64598
		(.71494)
		.90354

Note: The first value in each cell represents the unstandardised estimate, the second value (in brackets) represents the standard error and the third value the z test statistic obtained by dividing the unstandardised estimate by the standard error.

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[102] The researcher is not fully satisfied and reassured by this explanation.

In the completely standardised lambda-Y matrix ($\mathbf{\Lambda^Y}$) both the items and the two latent mindfulness factors have been standardised in order to ensure that all items and dimensions are measured on a standardised scale. The values shown in Table 7.26 correspond to the values shown in Table 7.23

Table 7.26

Completely Standardised Factor Loading (Lambda) Matrix for the Second Order Mindfulness Measurement Model

	Factor 1	Factor 2
B21	.62	- -
B22	.48	- -
B23	.62	- -
B24		.66
B25		.47
B26		.63

The unstandardised gamma matrix for the second-order mindfulness measurement model is depicted in Table 7.27. The gamma path coefficients indicate the slope of the regression of the endogenous latent first-order mindfulness factors (factor 1: *living in the moment* and factor 2: *being psychologically present*) on the exogenous latent second-order mindfulness factor. Both Factor 1 and Factor two are statistically significant (p < .05) expressions of the second-order mindfulness factor.

Table 7.27

Unstandardised Second-order Factor Loading (Gamma) Matrix for the Second Order Mindfulness Measurement Model

	MIND_SOF
Factor 1	.94932*
	(.16778)
	5.65807
Factor 2	.96680*
	(.15064)
	6.41783

Note: The first value in each cell represents the unstandardised estimate, the second value (in brackets) represents the standard error and the third value the z test statistic obtained by dividing the unstandardised estimate by the standard error.
* (p<.05)

The completely standardised gamma matrix for the second-order mindfulness measurement model is depicted in Table 7.28. The influence of the second-order mindfulness factor on both first-order factors are quite pronounced. One standard deviation unit increase in the second-order mindfulness factor would result in .95 standard deviation unit increase in the first-order Factor 1 ('Living in the moment') and .97 standard deviation unit increase in Factor 2 ('Being psychologically present').

Table 7.28

Completely Standardised Second-order Factor Loading (Gamma) Matrix for the Second Order Mindfulness Measurement Model

	MIND_SOF
Factor 1	.95
Factor 2	.97

The second-order measurement model SIMPLIS syntax was translated to LISREL syntax to allow for the estimation of indirect effects of the second-order on the subscale items and to test the statistical significance of these. Table 7.29 highlights the estimates of the indirect effects for the measurement model. All the indirect effects are shown to be statistically significant (p < .05). It therefore follows that all the items of the mindfulness subscale of the MPCCQ statistically significantly reflect the standing of medical practitioners on the second-order mindfulness factor[103].

Table 7.29

Unstandardised Indirect Effects for the Second-Order Mindfulness Measurement Model

PA(1)	PA(2)	PA(3)	PA(4)	PA(5)	PA(6)
.58*	.42*	.57*	.57*	.44*	.62*
(.07)	(.07)	(.07)	(.07)	(.07)	(.07)
8.80	6.39	8.74	8.63	6.71	9.53

Note: PA(i); i = 1, 2, …, 6 represents the six indirect effects as defined in footnote 75.[104]
The first value in each cell represents the unstandardised estimate, the second value (in brackets) represents the standard error and the third value the z test statistic obtained by dividing the unstandardised estimate by the standard error.
* (p<.05)

7.8 PSYCHOMETRIC EVALUATION OF THE RECOGNITION OF EMOTION SUBSCALE

The recognition of emotion subscale consists of six items measured on a five-point Likert scale, with response categories ranging from *significant development area* to *well-developed strength*, and a sixth response option, namely unable to rate.

7.8.1 Item Analysis: Recognition of Emotion

The full results from the item analysis for the recognition of emotion subscale are represented in Table 7.30.

A satisfactory (above .80) Cronbach alpha of .832 was obtained for the six-item subscale, as shown in the Reliability Statistics section of Table 6.30. This indicates that approximately 83% of the variance in the items is systematic or true score variance and only 17% is random error variance.

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[103] The second-order mindfulness factor captures the abstract theme in the variance shared by the two extracted mindfulness factors.
[104] CO PAR1 = LY(1,1)*GA(1,1)
CO PAR2 = LY(2,1)*GA(1,1)
CO PAR3 = LY(3,1)*GA(1,1)
CO PAR4 = LY(4,2)*GA(2,1)
CO PAR5 = LY(5,2)*GA(2,1)
CO PAR6 = LY(6,2)*GA(2,1)

In the Item Statistics section of Table 7.30, item means ranged from 3.60 to 4.08 on a five-point Likert scale and the item standard deviations ranged from .893 to 1.079. This indicates that most medical practitioner participants supported the 'on par/satisfactory' and 'strength' category. An absence of extreme means and a lack of small standard deviations show that there were no insensitive items presented in the subscale that were unable to detect relatively small differences in the participants' standing on the recognition of emotion dimension (Theron, 2017). The highest mean was for item B35. Item B35's mean however, was not sufficiently extreme to significantly curtail the variance of the item distribution. The lowest standard deviation was for item B36. None of the items however, could convincingly be characterised as outliers at the lower end of the item standard deviation distribution.

The inter-item correlation ranged between .343 and .612. The mean inter-item correlation was .453. No item consistently correlated below the mean correlation with the remaining items of the subscale.

In the Item-Total Statistics section of Table 7.30, the corrected item-total correlations ranging from .560 to .641 were satisfactory. Item B31 obtained the lowest corrected item-total correlation of .560. Item B31, however, cannot be described as an outlier at the lower end of the corrected item-total distribution. In other words, all the items were responding to the same source of variance. It cannot, however, be concluded that the source of systematic variance was unidimensional nor that it necessarily was the intended latent compassion dimension of interest. The findings are, however, compatible with the position that the items of the recognition of emotion subscale measuring the identified dimension that they were earmarked to measure to more or less the same satisfactory degree (Pallant, 2007). The squared multiple correlations, ranging from .347 to .476, were satisfactory. The fact that the items were able to explain moderate proportions in their subscale colleagues, again indicated that the items were all responding to a common source of systematic variance. The results also revealed that none of the items would increase the current Cronbach alpha, if deleted. The fact that not one of the items, if deleted, would improve the internal consistency of the item responses, was again testimony of the fact that all the items were all responding to a common source of systematic variance and thus were responding in relative unison. This suggests that item B31 does not present a sufficiently problematic item to be seriously considered for deletion.

The basket of evidence from the results of the item analysis of the recognition of emotion dimension, suggested that item B34 ("Getting to the underlying distress") was the strongest item in the subscale and item B31 ("Naming/labelling the emotion that patients experience accurately") was the weakest item in the subscale. None of the items were deleted.

Table 7.30

Reliability Analysis Output for the Recognition of Emotion Subscale

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardised Items	N of Items
.832	.832	6

Item Statistics			
	Mean	Std. Deviation	N
B31	4.02137	.923915	234
B32	3.87607	.920454	234
B33	3.85043	1.079988	234
B34	4.00427	.942546	234
B35	4.08120	.957145	234
B36	3.60684	.893056	234

Inter-Item Correlation Matrix						
	B31	B32	B33	B34	B35	B36
B31	1.000	.478	.373	.389	.469	.421
B32	.478	1.000	.551	.461	.343	.504
B33	.373	.551	1.000	.612	.406	.424
B34	.389	.461	.612	1.000	.499	.400
B35	.469	.343	.406	.499	1.000	.459
B36	.421	.504	.424	.400	.459	1.000

Summary Item Statistics							
	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Item Means	3.907	3.607	4.081	.474	1.132	.029	6
Item Variances	.912	.798	1.166	.369	1.462	.017	6
Inter-Item Correlations	.453	.343	.612	.269	1.786	.005	6

Item-Total Statistics					
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
B31	19.41880	13.206	.560	.347	.813
B32	19.56410	12.831	.628	.445	.800
B33	19.58974	11.908	.636	.476	.798
B34	19.43590	12.633	.641	.464	.797
B35	19.35897	12.944	.575	.382	.810
B36	19.83333	13.221	.585	.366	.808

Scale Statistics			
Mean	Variance	Std. Deviation	N of Items
23.44017	17.818	4.221172	6

7.8.2 Dimensionality Analysis utilising EFA

7.8.2.1 Factor Analysis

The full six-item recognition of emotion subscale was factor analysed since none of the items were deleted during the preceding reliability analysis. The design intention of the developers of the MPCCQ was that the six items written for the recognition of emotion scale, should all reflect a single indivisible underlying latent compassion dimension.

The correlation matrix, for the recognition of emotion subscales, showed that all of the correlations were larger than .3. All the correlations were statistically significant ($p < .05$). In addition, a KMO value of

.825 was obtained and the chi-square statistic calculated in terms of Bartlett's Test was statistically significant (p < .05), which allowed for the identity matrix null hypothesis to be rejected. This presented strong evidence that the correlation matrix was factor analysable.

One factor was extracted since only one factor obtained an eigenvalue greater than one (3.267). The position of the elbow in the scree plot, shown in Figure 7.4 also rather unambiguously suggested that a single factor should be extracted.
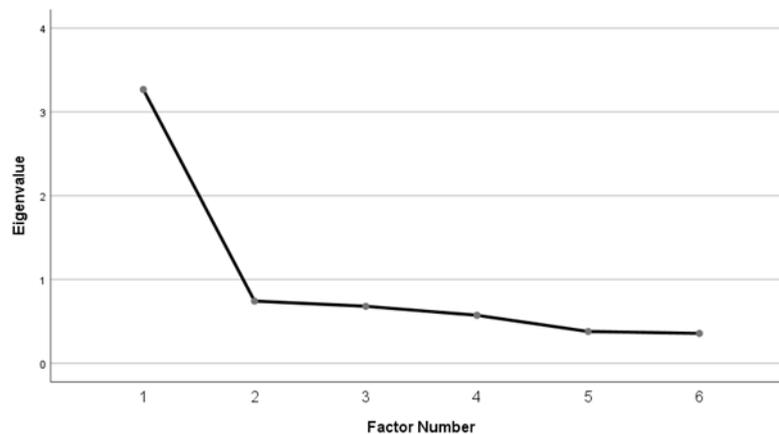
Figure 7.4. Scree plot for the recognition of emotion subscale

The factor matrix revealed that all items loaded onto one factor satisfactorily since all factor loading were larger than .50 ($\lambda_{i1} > .50$), as shown in Table 7.31. Item B31 ("Naming/labelling the emotion that the patients experience accurately") had the lowest factor loading ($\lambda_{61} = .620$) and item B33 ("Probing emotional cues") had the highest factor loading ($\lambda_{11} = .718$). The analysis is consistent with the item analysis conclusion in the sense that both identified Item B31 as the weakest item and also the item with the lowest factor loadings. Item B33 ($\lambda_{11} = .718$), however, was shown in the item with the highest loading in the factor matrix compared to item B34 ($\lambda_{21} = .713$) that was identified in the item analysis conclusion as the strongest factor of the recognition of emotion scale. The findings thus indicated that all items can be considered satisfactory regarding the proportion of item variance that can be explained by the single extracted factor.

However, seven (46%) of the non-redundant residual correlations obtained absolute values greater than .05. The factor solution thus did not provide a credible and valid (i.e. permissible) explanation for the observed inter-item correlation matrix. This implied that more common underlying factors need to be assumed to obtain a credible explanation of the observed inter-item correlation matrix. The unidimensionality assumption, for the recognition of emotion scale was thus not corroborated.

Table 7.31

Factor Matrix for the Recognition of Emotion Subscale

	Factor Matrix
	Factor 1
B33	.718
B34	.713
B32	.701
B36	.649
B35	.636
B31	.620

Given the difference in opinion of the eigenvalue-greater-than-one rule and the scree plot on the one hand, and the percentage large residual correlations on the other hand, parallel analysis was also executed in order to obtain a further opinion on the number of factors to extract for the recognition subscale. Table 7.32 indicates that the first raw data eigenvalue was bigger compared to the 90th percentile, random data eigenvalue. The second raw data eigenvalue, however, was smaller than the random data eigen-value. The parallel analysis therefore also was of the opinion that only one factor should be extracted for the recognition of emotion subscale.

Table 7.32

Parallel Analysis for the Recognition of Emotion Subscale

Root	Means	Random Data Eigen Values 90th Percentile	Raw Data Eigenvalues
1.000000	.253890	.361317	2.589377
2.000000	.135043	.211139	.091553
3.000000	.049266	.110903	-.023208
4.000000	-.023892	.021641	-.099730
5.000000	-.098857	-.051009	-.136783
6.000000	-.181468	-.127329	-.176720

Since the single factor structure undeniably failed to provide a convincing explanation for the observed inter-item correlation matrix despite the consensus opinion of the Kaiser rule, the scree plot and the parallel analysis, the extraction of two factors was forced to obtain a more credible explanation for the observed inter-item correlation matrix.

The two-factor structure offered a credible explanation for the observed inter-item correlation matrix in that only 20% of the residual correlations were now larger than .05. Table 7.33 indicates that items B31, B35, B36 and B32 all grouped together to load positively on Factor 1. Item B33 and B34 grouped together to load negatively on Factor 2. Factor 1 seems to represent a *recognition and labelling of emotion* factor (with item B31: *Naming/labelling the emotion that patients experience accurately*, item B35: *Dismissal of patient emotions*, item B36: *Emotional scanning* and item B32: *Interpreting emotional cues*). Factor 2 seems to present an *emotional probing* factor (with item B33: *Probing emotional cues* and item B34: *Getting to the underlying distress*). Both these factors can be seen as meaningful sub-factors of the recognition of emotion dimension that the scale intended to measure. The factor fission was thus regarded as meaningful. The two extracted factors correlated -.678 in the factor correlation matrix. The small number of items that loaded on factor 2, however, raised some concern

over the stability of the factor in the solution obtained in the current study. It was argued that the conceptual distinction between the *recognition and labelling of emotion* and the *emotional probing* competencies will be of value in providing formative feedback to medical practitioners[105]. Even though the second factor was not well defined in the current solution, the writing of additional items for both factors, but especially for the *emotional probing* competency, should result in a more stable, well defined factor structure. Moreover, the factor correlation matrix returned a moderate positive correlation of .678 implying a not overly excessive *circa* 46% shared variance between the two factors.

Table 7.33

Extracted Factor (Pattern) Matrix for the Recognition of Emotion Subscale with Two Factors Forced

	Pattern Matrix Factor	
	1	2
B31	**.739**	.082
B35	**.654**	-.017
B36	**.639**	-.045
B32	**.465**	-.280
B33	-.028	**-.937**
B34	.333	**-.443**

Note: figures in bold indicate the factor on which each item displayed the highest loading. The common theme shared by those items loading on the same factor was used to infer the identity of the extracted factors.

This brought about the questions whether the items of the recognition of emotion subscale may be regarded as sufficiently valid indicators of recognition of emotion interpreted as either a second-order factor or as a multidimensional construct[106]. To answer this question, the first-order recognition of emotion measurement model implied by the pattern matrix shown in Table 7.33 was fitted so as to determine whether a second-order model may be legitimately fitted or whether a bi-factor model should rather be considered.

7.8.2.2 Test of Multivariate Normality on Imputed Items

The imputed dataset for the recognition of emotion dataset was tested for multivariate normality prior to fitting the first-order recognition measurement model. The results in Table 7.34 indicates that the exceedance probability associated with the skewness and kurtosis chi-square under the multivariate normality null hypothesis was sufficiently small ($p < .05$) to allow the rejection of the multivariate normality null hypothesis. By rejecting the null hypothesis it was thus assumed that the parametric

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[105] An alternative to the acceptance of a more complex factor structure than what was originally envisaged with the development of the MPCCQ was to deleted at least some of the items B33 and B34. This would have ensured that the unidimensionality assumption is corroborated for the reduced *recognition of emotions* subscale. This would have, however, substantially reduced the connotative meaning of the latent compassion competency measured by this subscale. Acknowledgement of the factor fission will, however, necessitate the creation of additional items for the two facets of the *recognition of emotions* competency in a revised version of the MPCCQ.

[106] The question whether the MPCCQ should in future be expanded to formally make the distinction between these two facets of recognition of emotion will be debated in Chapter Eight. In the current analysis the question arises whether the items may be regarded as valid indicators of recognition of emotion interpreted as a second-order factor or as a multi-dimensional construct.

distribution is not multivariate normal. Thus an attempt was made to normalise the multivariate recognition of emotion item distribution.

Table 7.34

Test of Multivariate Normality on Imputed Items before Normalization

	Skewness			Kurtosis		Skewness and Kurtosis	
Value	z-Score	p-Value	Value	z-Score	p-Value	Chi-Square	p-Value
1.583	0.5874	.557	52.009	2.936	.003	8.966	.011

The test for multivariate normality after normalisation still resulted in a significant chi-square value (p < .05) as indicated in Table 7.35. The chi-square statistic however increased from 8.966 to 14.570. The attempt to normalise the data therefore had the unintended consequence of increasing the extent to which the normalised distribution deviates from a multivariate normal distribution. As a consequence, the first-order recognition of emotion measurement model was fitted to the original, non-normalised data using RML estimation.

Table 7.35

Test of Multivariate Normality on Imputed Items after Normalization

	Skewness			Kurtosis		Skewness and Kurtosis	
Value	z-Score	p-Value	Value	z-Score	P-Value	Chi-Square	p-Value
1.376	-0.159	.873	53.727	3.814	.000	14.570	.001

7.8.3 Dimensionality Analysis utilising CFA

7.8.3.1 *Fitting of the First Order Recognition of Emotion Measurement Model*

In order to evaluate the feasibility of fitting the second-order recognition of emotion measurement model, the first-order measurement model was fitted first as illustrated in Figure 7.5.

The fit statistics for the first-order measurement model for the recognition of emotion subscale are depicted in Table 7.36. The Satorra-Bentler chi-square (χ^2), calculated in terms of the robust maximum likelihood estimation, provided a statistically significant value of 24.0911 (p = 0.002213). The exact fit null hypothesis was therefore rejected. The RMSEA value of .090 indicates poor fit in the sample. Using the 90% confidence interval for RMSEA, it can with 90% confidence be concluded that the parametric value of RMSEA lies between .05171 and .1366. The lower bound of the confidence interval fell above the critical close fit value of .05. The probability of observing the sample RMSEA estimate under the close fit null hypothesis was, however, sufficiently large (p > .05) not to reject the close fit

null hypothesis[107]. The remainder of the fit statistics (e.g. the standardised RMR and the CFI) indicated reasonable to good fit.
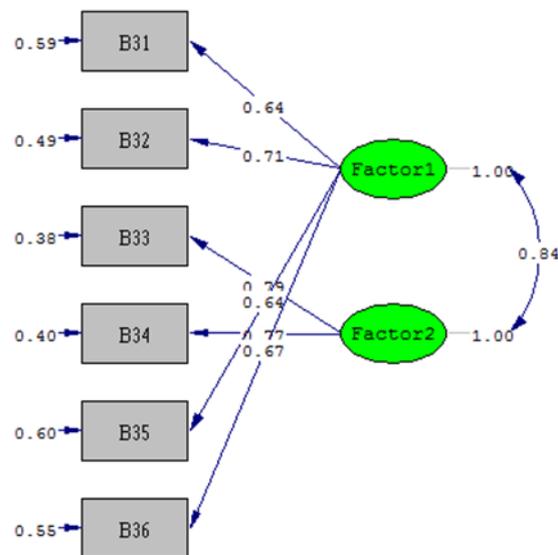
Chi-Square=23.24, df=8, P-value=0.00307, RMSEA=0.090

Figure 7.5. The first order recognition of emotion measurement model (completely standardised solution)

The decision was made to rather steer towards prudence in this case and not interpret the first-order recognition of emotion measurement model parameter estimates and not proceed to fit the second-order measurement model.

Table 7.36

Goodness of Fit Statistics for the First Order Recognition of Emotion Measurement Model

Goodness of Fit Statistics
Degrees of Freedom = 8
Minimum Fit Function Chi-Square = 30.8939 (P = .0001467)
Normal Theory Weighted Least Squares Chi-Square = 29.3344 (P = .0002770)
Satorra-Bentler Scaled Chi-Square = 23.2361 (P = .003074)
Chi-Square Corrected for Non-Normality = 28.6726 (P = .0003619)
Estimated Non-centrality Parameter (NCP) = 15.2361
90 Percent Confidence Interval for NCP = (4.4466 ; 33.6404)
Minimum Fit Function Value = .1326
Population Discrepancy Function Value (F0) = .06539
90 Percent Confidence Interval for F0 = (.01908 ; .1444)
Root Mean Square Error of Approximation (RMSEA) = .09041
90 Percent Confidence Interval for RMSEA = (.04884 ; .1343)
P-Value for Test of Close Fit (RMSEA < .05) = .05423
Expected Cross-Validation Index (ECVI) = .2113
90 Percent Confidence Interval for ECVI = (.1650 ; .2903)
ECVI for Saturated Model = .1803
ECVI for Independence Model = 3.1942
Chi-Square for Independence Model with 15 Degrees of Freedom = 732.2545
Independence AIC = 744.2545
Model AIC = 49.2361

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[107] The low statistical power of the test of close fit here becames more problematic given the fact that the RMSEA point estimate fell in the region typically characterised as mediocre fit (Diamantopoulos & Siguaw, 2000).

Table 7.36

Goodness of Fit Statistics for the First Order Recognition of Emotion Measurement Model (continued)

Goodness of Fit Statistics
Saturated AIC = 42.0000
Independence CAIC = 770.9864
Model CAIC = 107.1552
Saturated CAIC = 135.5617
Normed Fit Index (NFI) = .9683
Non-Normed Fit Index (NNFI) = .9602
Parsimony Normed Fit Index (PNFI) = .5164
Comparative Fit Index (CFI) = .9788
Incremental Fit Index (IFI) = .9790
Relative Fit Index (RFI) = .9405
Critical N (CN) = 202.4713
Root Mean Square Residual (RMR) = .03844
Standardised RMR = .04213
Goodness of Fit Index (GFI) = .9597
Adjusted Goodness of Fit Index (AGFI) = .8943
Parsimony Goodness of Fit Index (PGFI) = .3656

The statistically significant (p < .01) modification indices calculated for the first-order recognition of emotions measurement model are shown in Figure 7.6.
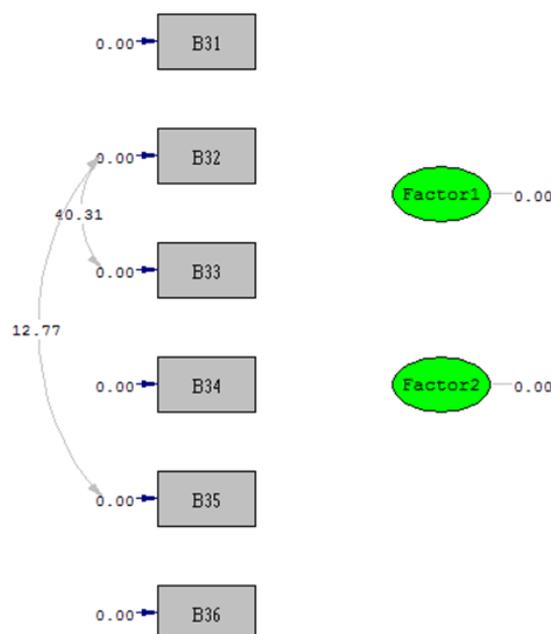
Chi-Square=23.50, df=8, P-value=0.00278, RMSEA=0.091

Figure 7.6. Statistically significant (p < .01) modification indices calculated for the first-order recognition of emotion measurement model

Only two statistically significant modification index values are shown in Figure 7.6 for the off-diagonal of Θ_δ. LISREL 8.8, however, flags parameters currently fixed to zero that, if freed to be estimated, would bring about a statistically significant improvement in model fit judged on a 1% significance level (critical chi-square = 6.64). When judged on a 5% significance level (critical chi-square = 3.84) one further error covariance term is flagged that, if freed, would bring about a statistically significant (p <

.05) improvement in the fit of the first-order measurement model. The presence of general sources of systematic variance not currently acknowledged by the model is implied by the number of statistically significant (p < .05) modification indices calculated for the first order measurement model as shown in Figure 7.6. Therefore, a bi-factor model was fitted on the data. A bi-factor model is a latent structure where each item in the subscale also loads on a broad, general factor in addition to a narrow, more specific factor. The broad, general factor is assumed to be uncorrelated with the narrow, more specific group factors. In other words, the general factor would represent an additional common source of systematic variance reflected by all the items for that specific subscale that is independent of the specific sources of systematic variance reflected by specific groups of items (Holzinger & Swineford, 1937; Reise, Moore & Haviland, 2010).

7.8.3.2 Fitting of the Bi-Factor Recognition of Emotion Model

The bi-factor measurement model was fitted with RML estimation. The fitted model initially returned an inadmissible solution with the estimated correlation between the two first-order factors exceeding unity. The correlation between the two first-order factors was subsequently constrained to .40[108][109]. The bi-factor model for the *recognition of emotion* subscale, is depicted in Figure 7.7.
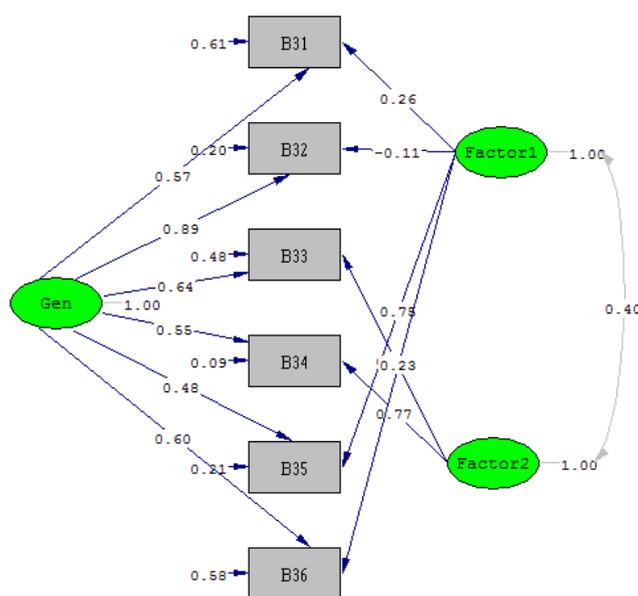
Chi-Square=0.67, df=3, P-value=0.87989, RMSEA=0.000

Figure 7.7. The recognition of emotion bi-factor model (completely standardised solution)

The bi-factor model for the *recognition of emotion* subscale showed exact fit with a statistically insignificant Satorra-Bentler chi-square (Satorra-Bentler scaled chi-square = .6715; p > .05) and with

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[108] Initially the correlation between the two first-order factors were constrained to be .84 (the estimate obtained for the two-factor first-order measurement model shown in Figure 7.5 based on the assumption that the addition of a general factor should not affect the correlation between the first-order factors). The error in this line of reasoning was subsequently pointed out by one of the examiners. The addition or removal of any latent (or observed) variable from the model will invariably affect the parameter estimates obtained.

[109] Justifying a specific value for ϕ_{12} is very difficult, if not impossible. This is acknowledged as a methodological limitation. Values for ϕ_{12} of .30 and .20 resulted in inadmissible negative error variances for item B34.

the sample RMSEA = .00 (p > .05). Using the 90% confidence interval for RMSEA, it can be concluded with 90% confidence that the parametric value of RMSEA lies between 0 and . 05359. The excellent fit of the bi-factor recognition of emotion measurement model (see Table 7.37) warranted the interpretation of the measurement model parameter estimates.

Table 7.37

Goodness of Fit Statistics for the Bi-factor Recognition of Emotion Measurement Model

Goodness of Fit Statistics
Degrees of Freedom = 3
Minimum Fit Function Chi-Square = .8132 (P = .8463)
Normal Theory Weighted Least Squares Chi-Square = .8001 (P = .8495)
Satorra-Bentler Scaled Chi-Square = .6715 (P = .8799)
Chi-Square Corrected for Non-Normality = .7813 (P = .8539)
Estimated Non-centrality Parameter (NCP) = .0
90 Percent Confidence Interval for NCP = (.0 ; 2.0074)
Minimum Fit Function Value = .003490
Population Discrepancy Function Value (F0) = .0
90 Percent Confidence Interval for F0 = (.0 ; .008615)
Root Mean Square Error of Approximation (RMSEA) = .0
90 Percent Confidence Interval for RMSEA = (.0 ; .05359)
P-Value for Test of Close Fit (RMSEA < .05) = .9440
Expected Cross-Validation Index (ECVI) = .1674
90 Percent Confidence Interval for ECVI = (.1674 ; .1760)
ECVI for Saturated Model = .1803
ECVI for Independence Model = 3.1942
Chi-Square for Independence Model with 15 Degrees of Freedom = 732.2545
Independence AIC = 744.2545
Model AIC = 36.6715
Saturated AIC = 42.0000
Independence CAIC = 770.9864
Model CAIC = 116.8672
Saturated CAIC = 135.5617
Normed Fit Index (NFI) = .9991
Non-Normed Fit Index (NNFI) = 1.0162
Parsimony Normed Fit Index (PNFI) = .1998
Comparative Fit Index (CFI) = 1.0000
Incremental Fit Index (IFI) = 1.0032
Relative Fit Index (RFI) = .9954
Critical N (CN) = 3938.4156
Root Mean Square Residual (RMR) = .006822
Standardized RMR = .007317
Goodness of Fit Index (GFI) = .9989
Adjusted Goodness of Fit Index (AGFI) = .9920
Parsimony Goodness of Fit Index (PGFI) = .1427

The unstandardised factor loading matrix is shown in Table 7.38. The table indicates that the recognition of emotion subscale items all loaded statistically significantly (p < .05) on the two narrow, specific factors identified via EFA (*recognition and labelling of emotion* and *emotional probing*) but statistically insignificantly (p > .05) on the broad, general recognition of emotion factor. Bringing in the broad general factor was necessary to obtain good measurement model fit. Nonetheless the items did not load statistically significantly (p > .05) on the general factor. In the sample the broad general recognition of emotion factor subtly influenced the item responses but not strongly enough to be judged generalisable.

The z-scores corresponding to the loadings of items B32 and B35 on the general factor did, however, approach the critical z-score under a one-tailed test on a 5% significance level[110].

Table 7.38

Unstandardised Factor Loading Matrix for the Bi-Factor Recognition of Emotion Subscale

	Factor1	Factor2	Gen
B31	.2432*	- -	.5252*
	(.0817)		(.0616)
	2.9758		8.5237
B32	-.0976	- -	.8156*
	(.2217)		(.1021)
	-.4401		7.9919
B33	- -	.3619*	.6870*
		(.0900)	(.0767)
		4.0187	8.9627
B34	- -	.7289*	.5228*
		(.1403)	(.0661)
		5.1946	7.9035
B35	.7204*	- -	.4565*
	(.2750)		(.1326)
	2.6194		3.4416
B36	.2070*	- -	.5371*
	(.0764)		(.0627)
	2.7092		8.5672

Note: The first value in each cell represents the unstandardised estimate, the second value (in brackets) represents the standard error and the third value the z test statistic obtained by dividing the unstandardised estimate by the standard error. Gen refers to the broad, general factor.
* (p < .05)

To evaluate the validity of the items in reflecting the latent multidimensional recognition of emotion compassion dimension the R^2 was calculated for each item (Table 7.39).

Table 7.39

Item R² for the Bi-Factor Recognition of Emotion Subscale

B31	B32	B33	B34	B35	B36
.3924	.7964	.5170	.9057	.7940	.4155

Table 7.39 shows that the two factors linked to each item explained quite substantial proportions of variance in items B32 and B35 (which dovetails with the previous comment on these two items), and somewhat less so in items B33 and B34, although still quite satisfactorily (so above 50%), Factor 1 and the general factor explained more modest, less satisfactory proportions of variance in items B31 and B36. It was concluded that to adequately explain the covariance observed between the items of the subscale, two narrow, specific recognition of emotion factors (*recognition and labelling of emotion* and *emotional probing*) and a broad general recognition of emotion factor had to be assumed. The items of the subscale provided valid measures of the two narrow, specific factors (*recognition and labelling of emotion* and *emotional probing*) of the multidimensional recognition of emotion construct as well as the broad, general recognition of emotion factor. The completely standardised factor loading matrix (not

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[110] There was insufficient theoretical justification to formulate directional alternative hypotheses with regards to the loading of the items on the general factor.

shown) indicates that the broad general recognition of emotion factor (rather than the narrow, more specific factor) was the stronger, more dominant determinant of the item response, with the exception of items B34 and B35 where the narrow, more specif factor was the more dominant influence. The tendency of the broad, general factor to dominate the item responses constitutes evidence recognition of emotions subscale to some extent did succeed in measuring (Reise, 2012, p. 668) "the conceptually broad "target" construct"that the subscale was designed to measure while acknowledging that the items also tap into relevant but conceptually narrower "subdomain constructs".

7.9   PSYCHOMETRIC EVALUATION OF THE GAINING AND COMMUNICATING AN EMPATHIC UNDERSTANDING SUBSCALE

The gaining and communicating an empathic understanding subscale consists of six items measured on a five-point Likert scale with response categories, ranging from *significant development area* to *well-developed strength*, and a sixth response option namely unable to rate.

7.9.1   Item Analysis: Gaining and Communicating an Empathic Understanding

The full results from the item analysis of the gaining and communicating an empathic understanding subscale are represented in Table 7.40.

A satisfactory (above .80) Cronbach Alpha of .868 was obtained for the six-item subscale, as shown in the Reliability Statistics section of Table 7.40. This indicates that approximately 87% of the variance in the items is systematic or true score variance and only 13% is random error variance.

In the Item Statistics section of Table 7.40, item means ranged from 3.14 to 3.61 on a five-point Likert scale and the item standard deviations ranged from .913 to 1.113. This indicates that most medical practitioner participants supported the 'on par/satisfactory' category. An absence of extreme means and a lack of small standard deviations showed that there were no insensitive items present in the subscale that were unable to detect relatively small differences in the participants' standing on the gaining and communicating an empathic understanding dimension (Theron, 2017). The highest mean was for item B46. Item B46's mean however was not sufficiently extreme to significantly curtail the variance of the distribution. The lowest standard deviation was for item B41. None of the items however, could convincingly be characterised as outliers at the lower end of the item standard deviation distribution.

The inter-item correlations ranged between .363 and .674. The mean inter-item correlation was .520. Item B41 consistently correlated below the mean inter-item correlation with its colleague items in the subscale but not dramatically so.

In the Item-Total Statistics section of Table 7.40, the corrected item-total correlations ranged from .527 to .751. Item B41 obtained the lowest corrected item-total correlations of .527. Item B41, nonetheless, cannot convincingly be described as an outlier at the lower end of the corrected item-total distribution. The squared multiple correlations ranging from .293 to .595 were satisfactory. The squared multiple correlation of item B41 was also lower in comparison to the other items, achieving borderline outlier status. This suggested that the variance in this item could possibly have originated from a different source of systematic variance than that which underpinned the responses to the remaining items, making B41 a bit of a closed book to its item colleagues. The results, however, reveal that none of the items would increase the current Cronbach alpha if deleted. This suggests that item B41 was not sufficiently problematic to be a serious contender for deletion from the subscale.

The basket of evidence from the results of the item analysis of the gaining and communicating an empathic understanding subscale suggested that item B43 ("Probing to deepen insight") was the strongest item in the subscale and item B41 ("Uninterrupted listening") was the weakest item in the subscale. None of the items were deleted.

Table 7.40

Reliability Analysis Output for the Gaining and Communicating an Empathic Understanding Subscale

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardised Items	N of Items
.868	.867	6

Item Statistics			
	Mean	Std. Deviation	N
B41	3.47863	.913403	234
B42	3.41453	1.070058	234
B43	3.29915	1.113822	234
B44	3.14103	1.092986	234
B45	3.21795	1.107688	234
B46	3.61966	.991703	234

Inter-Item Correlation Matrix						
	B41	B42	B43	B44	B45	B46
B41	1.000	.446	.432	.426	.363	.467
B42	.446	1.000	.652	.566	.445	.509
B43	.432	.652	1.000	.674	.566	.554
B44	.426	.566	.674	1.000	.577	.557
B45	.363	.445	.566	.577	1.000	.568
B46	.467	.509	.554	.557	.568	1.000

Summary Item Statistics							
	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Item Means	3.362	3.141	3.620	.479	1.152	.031	6
Item Variances	1.104	.834	1.241	.406	1.487	.026	6
Inter-Item Correlations	.520	.363	.674	.311	1.856	.007	6

Table 7.40

Reliability Analysis Output for the Gaining and Communicating an Empathic Understanding Subscale (continued)

| | | | Item-Total Statistics | | |
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
B41	16.69231	18.918	.527	.293	.867
B42	16.75641	16.906	.669	.486	.845
B43	16.87179	16.001	.751	.595	.829
B44	17.02991	16.321	.727	.547	.834
B45	16.95299	16.878	.641	.447	.850
B46	16.55128	17.347	.679	.470	.843

| | Scale Statistics | | |
Mean	Variance	Std. Deviation	N of Items
20.17094	23.936	4.892476	6

7.9.2 Dimensionality Analysis: Gaining and Communicating an Empathic Understanding

All six items of the gaining and communicating an empathic understanding subscale were factor analysed. The design intention of the developers of the questionnaire was that the six items written for the gaining and communicating an empathic understanding subscale, should all reflect a single, indivisible, underlying latent compassion dimension.

The correlation matrix, for gaining and communicating and empathic understanding scale, showed that all of the correlations were larger than .3. All the correlations were statistically significant ($p < .05$). In addition, a KMO value of .877 was obtained and the chi-square statistic calculated in terms of Bartlett's Test was statistically significant ($p < .05$) which allowed for the identity matrix null hypothesis to be rejected. This presented strong evidence that the correlation matrix was factor analysable.

One factor was extracted since only one factor obtained an eigenvalue greater than one (3.620). The position of the elbow in the scree plot also unambiguously suggested that a single factor should be extracted. The factor matrix revealed that all items loaded onto one factor satisfactorily since all factor loading were larger than .50 ($\lambda_{i1} > .50$), as shown in Table 7.41. Item B41 ("Uninterrupted listening") had the lowest factor loading ($\lambda_{61} > .565$) and item B43 ("Probing to deepen insight") had the highest factor loading ($\lambda_{11} > .822$). This finding derived from the EFA is consistent with the item analysis conclusion. The findings thus indicated that all items can be considered satisfactory regarding the proportion of item variance that can be explained by the single factor.

Furthermore, four (26%) of the non-redundant residual correlations obtained absolute values greater than .05. The factor solution thus provides a sound explanation of the observed inter-item correlation matrix. The unidimensionality assumption, for the gaining and communicating an empathic understanding scale was thus corroborated.

Table 7.41

Factor Matrix for the Gaining and Communicating an Empathic Understanding Subscale

	Factor Matrix
	Factor 1
B43	.822
B44	.793
B46	.731
B42	.726
B45	.695
B41	.566

7.10. PSYCHOMETRIC EVALUATION OF THE CARING WITH KINDNESS SUBSCALE

The caring with kindness subscale consists of six items measured on a five-point Likert scale with response categories ranging from *significant development area* to *well-developed strength*, and a sixth response option, namely unable to rate.

7.10.1 Item Analysis: Caring with Kindness

The full results from the item analysis for the caring with kindness subscale are represented in Table 7.42.

A satisfactory (above .80) Cronbach Alpha of .825 was obtained for the six-item subscale, as shown in the Reliability Statistics section of Table 7.42. This indicates that approximately 83% of the observed variance in the items is systematic or true score variance and only 17% is random error variance.

In the Item Statistics section of Table 7.42, item means ranged from 3.72 to 4.36 on a five-point Likert scale and the item standard deviations ranged from .909 to 1.066. This indicates that most medical practitioner participants supported the 'strength' category. An absence of extreme means and a lack of small standard deviations showed that there were no insensitive items presented in the scale that were able to detect relatively small differences in the participants' standing on the caring with kindness dimension (Theron, 2017). The highest mean was for item B55. Item B55's mean however was not extreme enough to significantly curtail the variance of the item distribution. The lowest standard deviation was for item B51. None of the items could, however be convincingly characterised as outliers at the lower end of the item standard deviation distribution.

In the Item-Total Statistics section of Table 7.42, the corrected item-total correlations, ranging from .496 to .682, were satisfactory. Item B55 obtained the lowest corrected item-total correlations of 496. Item B55, nonetheless, cannot convincingly be described as an outlier at the lower end of the corrected item-total distribution. The squared multiple correlations ranging from .257 to .479 were satisfactory. The squared multiple correlations of item B55 was also lower in comparison to the other items, achieving borderline outlier status. This suggested that the variance in this item could possibly have

originated from different sources of systematic variance than that which underpinned the remaining items, making B55 somewhat of a closed book to its item colleagues. The results reveal, however, that none of the items would increase the current Cronbach alpha if deleted. None of the items therefore responded to such a degree out of step with its colleague items to the medical practitioners that were presented to it that its deletion would have increased the internal consistency of the subscale. This suggests that item B55 was not sufficiently problematic to warrant deletion from the subscale.

The basket of evidence from the results of the item analysis of the caring with kindness subscale suggested that item B56 ("Express encouragement and support") was the strongest item in the subscale and item B55 ("Acting responsibly and with dedication") was the weakest item in the subscale. None of the items were deleted.

Table 7.42

Reliability Analysis Output for the Caring with Kindness Subscale

	Reliability Statistics	
Cronbach's Alpha	Cronbach's Alpha Based on Standardised Items	N of Items
.825	.824	6

Item Statistics			
	Mean	Std. Deviation	N
B51	4.25641	.909217	234
B52	4.07265	1.035351	234
B53	3.71795	1.042827	234
B54	4.08974	1.066693	234
B55	4.35470	.925462	234
B56	3.91880	1.022194	234

Inter-Item Correlation Matrix						
	B51	B52	B53	B54	B55	B56
B51	1.000	.536	.421	.397	.340	.433
B52	.536	1.000	.444	.433	.345	.496
B53	.421	.444	1.000	.443	.349	.562
B54	.397	.433	.443	1.000	.402	.534
B55	.340	.345	.349	.402	1.000	.443
B56	.433	.496	.562	.534	.443	1.000

Summary Item Statistics							
	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Item Means	4.068	3.718	4.355	.637	1.171	.053	6
Item Variances	1.004	.827	1.138	.311	1.376	.017	6
Inter-Item Correlations	.439	.340	.562	.222	1.652	.005	6

Item-Total Statistics					
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
B51	20.15385	14.483	.572	.357	.801
B52	20.33761	13.555	.608	.401	.793
B53	20.69231	13.562	.601	.384	.795
B54	20.32051	13.455	.597	.367	.796
B55	20.05556	14.868	.496	.257	.815
B56	20.49145	13.161	.682	.479	.777

Scale Statistics			
Mean	Variance	Std. Deviation	N of Items
24.41026	19.264	4.389128	6

7.10.2 Dimensionality Analysis: Caring with Kindness

All six items of the caring with kindness subscale were factor analysed. The design intention of the developers of the questionnaire was that the six items written for the caring with kindness scale, should all reflect a single indivisible underlying dimension.

The correlation matrix, for caring with kindness scale, showed that all the correlations were larger than .3. All the correlations were statistically significant ($p < .05$). In addition, a KMO value of .858 was obtained and the chi-square statistic calculated in terms of Bartlett's Test was statistically significant ($p < .05$) which allowed for the identity matrix null hypothesis to be rejected. This presented strong evidence that the correlation matrix was factor analysable.

One factor was extracted since only one factor obtained an eigenvalue greater than one ($3.205 > 1$). The position of the elbow in the scree plot also unambiguously suggested that a single factor should be extracted. The factor matrix revealed that all items loaded onto one factor satisfactorily since all factor loading were larger than .50 ($\lambda_{i1} > .50$), as shown in Table 7.43. Item B55 ("Acting responsibly and with dedication") had the lowest factor loading ($\lambda_{61} > .549$) and item B56 ("Express encouragement and support") had the highest factor loading ($\lambda_{11} > .769$). These conclusions derived from the EFA are consistent with the item analysis conclusions. The findings thus indicated that all items can be considered satisfactory regarding the proportion of item variance that can be explained by the single extracted factor.

In addition, only one (13%) of the non-redundant residual correlations obtained an absolute value greater than .05. The factor solution thus provides a credible and valid (i.e. permissible) explanation for the observed inter-item correlation matrix. The unidimensionality assumption, for the caring with kindness scale was thus corroborated.

Table 7.43

Factor Matrix for the Caring with Kindness Subscale

	Factor 1
B56	.769
B52	.683
B53	.675
B54	.667
B51	.635
B55	.549

7.11 PSYCHOMETRIC EVALUATION OF THE COMPASSION ACTION ORIENTATION SUBSCALE

The compassion action orientation subscale consists of seven items measured on a five-point Likert scale, response categories range from *significant development area* to *well-developed strength*, and an option sixth response category, namely unable to rate.

7.11.1 Item Analysis: Compassion Action Orientation

The full results from the item analysis for the compassion action orientation subscale, are represented in Table 7.44.

A satisfactory Cronbach Alpha of .797 was obtained for the seven-item subscale, as shown in the Reliability Statistics section of Table 7.44. This indicates that approximately 80% of the variance in the items is systematic or true score variance and only 20% is random error variance.

In the Item Statistics section of Table 7.44, item means ranged from 3.63 to 4.11 on a five-point Likert scale and the item standard deviations ranged from .950 to 1.108. This indicates that most medical practitioner participants chose the 'on par/satisfactory' and 'strength' response category. An absence of extreme means and a lack of small standard deviations showed that there were no insensitive items present in the subscale that were unable to detect relatively small differences in the participants' standing on the compassion action orientation dimension (Theron, 2017). The highest mean was for item B61. Item B61's mean, however, was not sufficiently extreme to significantly curtail the variance of the item distribution. The lowest standard deviation was for item B61. None of the items, however, could convincingly be characterised as outlier at the lower end of the item standard deviation distribution.

The inter-item correlations ranged between .188 and .494. The mean inter-item correlation was .364. Item B67 consistently correlated below the mean inter-item correlation with the remaining items of the subscale, although not dramatically lower. Item B67 therefore did not respond in unison with the other items of the subscale to the same degree than the other items did. This in turn suggests that the responses to item B67 was to some degree underpinned by a different source of systematic variance than that which underpinned the responses to the other items.

In the Item-Total Statistics section of Table 7.44, the corrected item-total correlations, ranging from .362 to .604, were satisfactory. Item B67 obtained the lowest corrected item-total correlations of .362. Item B67 moreover seems to be an outlier at the lower end of the corrected item-total distribution, and more clearly so, in the squared multiple correlation distribution with a value of .168. This again implies that the variance in the responses to item B67 originated from different sources of systematic variance

compared to that which underpinned the remaining items; in other words, B67 responded a little out of step with the remaining items. Item B67's failure to act in unison with the remaining items is also reflected in the fact that the Cronbach's alpha increased to .803 if the item was deleted. The fact that item B67 was flagged as problematic was not altogether surprising. Although being a change agent is undoubtedly important for a medical practitioner to display active compassion, this item possibly expresses active compassion on a community level, rather than on an individual patient level.

Table 7.44

Reliability Analysis Output for the Compassion Action Orientation Subscale

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardised Items	N of Items
.797	.800	7

Item Statistics			
	Mean	Std. Deviation	N
B61	4.10684	.950105	234
B62	3.63248	1.069261	234
B63	3.96581	1.071933	234
B64	3.94872	.992211	234
B65	4.08120	1.000981	234
B66	4.00855	1.014874	234
B67	3.79487	1.108209	234

Inter-Item Correlation Matrix							
	B61	B62	B63	B64	B65	B66	B67
B61	1.000	.461	.488	.402	.433	.320	.188
B62	.461	1.000	.397	.391	.425	.288	.269
B63	.488	.397	1.000	.398	.407	.320	.200
B64	.402	.391	.398	1.000	.467	.414	.342
B65	.433	.425	.407	.467	1.000	.494	.232
B66	.320	.288	.320	.414	.494	1.000	.314
B67	.188	.269	.200	.342	.232	.314	1.000

Summary Item Statistics						
	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Item Means	3.934	3.632	4.107	.474	1.131	.028	7
Item Variances	1.063	.903	1.228	.325	1.361	.013	7
Inter-Item Correlations	.364	.188	.494	.306	2.625	.008	7

Item-Total Statistics					
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
B61	23.43162	18.075	.560	.366	.766
B62	23.90598	17.510	.542	.321	.769
B63	23.57265	17.559	.534	.325	.770
B64	23.58974	17.573	.594	.357	.759
B65	23.45726	17.451	.604	.403	.757
B66	23.52991	17.993	.520	.318	.773
B67	23.74359	18.792	.362	.168	.803

Scale Statistics			
Mean	Variance	Std. Deviation	N of Items
27.53846	23.503	4.847969	7

The basket of evidence from the results of the item analysis of the compassion action orientation dimension, suggested that item B65 ("Helps patients to make sense of their suffering") was the strongest item in the subscale and item B67 ("Being a change agent") was the weakest item in the subscale. Thus,

based on the evidence it was decided to delete item B67 from the Compassion Action Orientation scale. The item analysis was subsequently reran in order to determine whether the deletion of the item caused any other items to be problematic. The results are indicated in the subsequent section in Table 7.44.

Table 7.45

Reliability Analysis Output for the Compassion Action Orientation Subscale after Deleting Item B67

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardised Items	N of Items
.803	.805	6

Item Statistics			
	Mean	Std. Deviation	N
B61	4.10684	.950105	234
B62	3.63248	1.069261	234
B63	3.96581	1.071933	234
B64	3.94872	.992211	234
B65	4.08120	1.000981	234
B66	4.00855	1.014874	234

Inter-Item Correlation Matrix						
	B61	B62	B63	B64	B65	B66
B61	1.000	.461	.488	.402	.433	.320
B62	.461	1.000	.397	.391	.425	.288
B63	.488	.397	1.000	.398	.407	.320
B64	.402	.391	.398	1.000	.467	.414
B65	.433	.425	.407	.467	1.000	.494
B66	.320	.288	.320	.414	.494	1.000

Summary Item Statistics							
	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Item Means	3.957	3.632	4.107	.474	1.131	.029	6
Item Variances	1.035	.903	1.149	.246	1.273	.009	6
Inter-Item Correlations	.407	.288	.494	.206	1.716	.004	6

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
B61	19.63675	13.760	.586	.366	.768
B62	20.11111	13.438	.537	.310	.779
B63	19.77778	13.324	.552	.325	.775
B64	19.79487	13.614	.573	.332	.770
B65	19.66239	13.255	.622	.403	.759
B66	19.73504	13.990	.497	.295	.787

Scale Statistics			
Mean	Variance	Std. Deviation	N of Items
23.74359	18.792	4.335013	6

Table 7.44 illustrates that the original Cronbach alpha of .797 increased to .803 after Item B67 was deleted and item analysis was reran on the remaining six-item scale. The Cronbach alpha now marginally exceeded the .80 critical cut-of as shown in the Reliability Statistics section of Table 7.45. This indicates that approximately 80% of the variance in the items is systematic or true score variance and 20% is random error variance.

The inter-item correlation ranged between .288 and .494. Originally the mean inter-item correlation was .364. After the deletion of item B67, however, the mean inter-item correlation increased to .407. None of the remaining six items consistently correlated lower than the mean inter-item correlation with its item colleagues.

In the Item-Total Statistics section of Table 7.45, the corrected item-total correlations, ranging from .497 to .622, were satisfactory. Item B66 obtained the lowest corrected item-total correlations of .497. Item B66 cannot be convincingly described as an outlier at the lower end of the corrected item-total distribution. The squared multiple correlations, ranging from .295 to .403, were satisfactory. The squared multiple correlations of item B66 was also a little lower in comparison to the other items but again not enough to convincingly characterise B66 as an outlier. The results moreover reveal that none of the items would increase the current Cronbach alpha if deleted. The finding is consistent with the position that all the items are measuring the latent compassion dimension that they were earmarked to measure to more or less the same satisfactory degree (Pallant, 2007). The findings, however, do not allow this as a definite conclusion.

The basket of evidence from the results of the item analysis of the recognition of emotion dimension suggested that item B65 ("Help patients to make sense of their suffering") was the strongest item in the subscale and item B66 ("Relieves emotional distress") was the weakest item in the subscale. None of the items were deleted.

7.11.2 Dimensionality Analysis: Compassion Action Orientation

7.11.2.1   Factor Analysis

Only six of the seven items for the compassion action orientation subscale were factor analysed since item B67 was removed during the preceding reliability analysis. The design intention of the questionnaire was that the seven items written for the compassion action orientation scale, should all reflect a single indivisible underlying latent compassion dimension.

In order to consider the compassion action orientation subscale factor analysable, the correlation matrix had to show that most of the correlations were larger than .3. The correlation between B66 and B62 (.288), was marginally below .30. All the correlations were statistically significant (p < .05). For the compassion action orientation subscale, a KMO value of .847 was obtained and the Bartlett Test (p < .05) showed a statistically significant chi-square estimate that allows for the identity matrix null hypothesis to be rejected. The fact that two of the items showed a somewhat lower correlation while correlating higher with other items in the subscale, pointed to the possibility for more than one factor

(which implies a factor analysable correlation matrix) whilst the remainder of evidence also showed that the correlation matrix was factor analysable.

Nonetheless only one factor was extracted since only one factor obtained an eigenvalue greater than one (3.040). The scree plot also rather unambiguously suggested that a single factor should be extracted. The factor matrix revealed that all the items comprising the compassion action orientation scale loaded satisfactory, in other words all factor loading were larger than .50 ($\lambda_{i1} > .50$) on the single extracted factor matrix as shown in Table 7.46. Item B66 ("Relieves emotional distress") had the lowest factor loading ($\lambda_{61} = .566$) and Item B65 ("Helps patients to make sense of their suffering") had the highest factor loading ($\lambda_{11} = .709$). This finding is consistent with the item analysis conclusion. The findings, thus indicated that all items can be considered satisfactory regarding the proportion of item variance that can be explained by the single extracted factor.

The single-factor factor structure, however, failed to provide a valid explanation for the observed inter-item correlation matrix in the sense that five (33%) nonredundant residuals had absolute values greater than .05. The inability of the single-factor factor structure to accurately reproduce the observed inter-item correlation matric invariably drew the credibility and validity of the factor solution into question. To improve the ability of the factor structure to accurately explain the observed inter-item correlation matrix the number of factors in the solution had to be increased. The unidimensionality assumption, for the compassion action orientation subscale was thus not corroborated.

Table 7.46

Factor Matrix for the Compassion Action Orientation Subscale

Factor Matrix	
	Factor 1
B65	.709
B61	.664
B64	.650
B63	.628
B62	.612
B66	.566

Because of the conflict in opinion between the eigenvalue-greater-than-one rule and the scree plot on the one hand and the percentage large residual correlations on the number of factors to extract, parallel analysis was also conducted to obtain a further opinion on the appropriate dimensionality of the compassion action orientation subscale. Table 7.47 indicates that the first raw data eigenvalue was bigger compared to the corresponding 90th percentile random data eigen value. The second raw data eigenvalue, however, was smaller than the second random data eigenvalue. The parallel analysis therefore concurred with the Kaiser rule and the scree plot in indicating that only one factor should be extracted for the compassion action orientation subscale.

Table 7.47

Parallel Analysis for the Compassion Action Orientation Subscale

Root	Means	Random Data Eigen Values 90th Percentile	Raw Data Eigenvalues
1.000000	.253890	.361317	2.382286
2.000000	.135043	.211139	.142611
3.000000	.049266	.110903	-.070155
4.000000	-.023892	.021641	-.093803
5.000000	-.098857	-.051009	-.156607
6.000000	-.181468	-.127329	-.173972

Despite this consensus amongst the three extraction criteria the single-factor factor structure, nonetheless, failed to provide a convincing explanation for the observed inter-item correlation matrix. Thus the extraction of two factors were forced to obtain a more credible explanation for the observed inter-item correlation matrix. The rotated two-factor factor structure (pattern matrix) is shown in Table 7.48.

Table 7.48

Extracted Factor (Pattern) Matrix for the Compassion Action Orientation Subscale with Two Factors Forced

	Pattern Matrix Factor	
	1	2
B61	**.785**	-.066
B63	**.612**	.054
B62	**.585**	.063
B66	-.071	**.740**
B65	.210	**.574**
B64	.297	**.401**

Note: figures in bold indicate the factor on which each item displayed the highest loading. The common theme shared by those items loading on the same factor was used to infer the identity of the extracted factors.

The two-factor structure offered a highly credible and valid (i.e. permissible) explanation for the observed inter-item correlation matrix in that 0.0% of the residual correlations were now larger than .05. Table 7.48 indicates that Items B61, B63 and B62 all grouped together to load positively on Factor 1. Item B66, B65 and B64 grouped together to load positively on Factor 2. Factor 1 seems to represent *organising resources around the patient* (with item B61: *Organising resources*, item B63: *Assisting patients with their wishes*, item B62: *Finding solutions to auxiliary problems*. Factor 2 seems to present *a compassion action* factor (with item B66: *Relieves emotional distress*, item B65: *Helps patients to make sense of their suffering* and item B64: *Initiates tangible action*). Both these factors can be seen as meaningful sub-factors of the compassion action orientation dimension that the subscale intended to measure. The factor fission was thus regarded as meaningful. The number of items that loaded on factor 2, gave credence to the factor. It was argued that the conceptual distinction between the *organising resources around the patient* and the *compassion action* competencies could be of value in providing formative feedback to medical practitioners[111]. On the other hand, the factor correlation matrix returned

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[111] An alternative to the acceptance of a more complex factor structure than what was originally envisaged with the development of the MPCCQ was to deleted at least some of the items B64, B65 and B66. This would have ensured that the unidimensionality

a somewhat disconcertingly large positive correlation of .709 implying a a somewhat excessive *circa* 50% shared variance between the two factors.

This brought about the questions whether the items of the compassion action orientation subscale may be regarded as sufficiently valid indicators of compassion action orientation interpreted as either a second-order factor or as a multidimensional construct. To investigate this question, the first-order compassion action orientation measurement model reflecting the loading pattern derived via the EFA and shown in Table 7.48, was fitted so as to establish whether a second-order model may permissibly be fitted or whether the fitting of a bi-factor model would be more appropriate.

7.11.2.2 *Test of Multivariate Normality on Imputed Items*

The imputed compassion action orientation dataset was tested for multivariate normality. The results in Table 7.49 indicate that the probability of observing the skewness and kurtosis chi-square statistic estimate under the multivariate normality null hypothesis was sufficiently small (p < .05) to reject the null hypothesis. By rejecting the null hypothesis, it is thus assumed that the item distribution is not multivariate normal in the population. An attempt was consequently made to normalise the item distribution.

Table 7.49

Test of Multivariate Normality on Imputed Items before Normalisation

	Skewness			Kurtosis		Skewness and Kurtosis	
Value	z-Score	p-Value	Value	z-Score	p-Value	Chi-Square	p-Value
3.186	4.893	.000	56.943	5.214	.000	51.124	.000

The test for multivariate normality after normalisation still resulted in the rejection of the multivariate normality null hypothesis (p < .05) as indicated in Table 7.50. In addition, the skewness and kurtosis chi-square value also increased from 51.124 to 63.122. Thus the attempt at normalising the item distribution was not successful. In fact, it aggravated the original deviation of the item distribution from a multivariate normal distribution.

Table 7.50

Test of Multivariate Normality on Imputed Items after Normalisation

	Skewness			Kurtosis		Skewness and Kurtosis	
Value	z-Score	p-Value	Value	z-Score	p-Value	Chi-Square	p-Value
3.244	5.019	.000	59.515	6.159	.000	63.122	.000

---

assumption is corroborated for the reduced *compassion action orientation* subscale. This would have, however, substantially reduced the connotative meaning of the latent compassion competency measured by this subscale. Acknowledgement of the factor fission will, however, necessitate the creation of additional items for the two facets of the *compassion action orientations* competency in a revised version of the MPCCQ.

The original compassion action orientation item data set was therefore analysed using RML estimation.

7.11.3 Dimensionality Analysis utilizing CFA

7.11.3.1   *Fitting of the First Order Compassion Action Orientation Measurement Model*

The Compassion Action Orientation first order measurement model, reflecting the loading pattern shown in Table 7.48, was fitted as illustrated in Figure 7.8.

The goodness of fit statistics, more specifically the exact fit statistics as displayed in Figure 7.8 and in Table 7.51, show the Satorra-Bentler chi-square (χ^2) estimate as 7.00 with 8 degrees of freedom (df). The probability of observing the chi-square estimate under the exact fit null hypothesis, is sufficiently large (.53667; $p > .05$) to not reject the exact fit null hypothesis (H_0: RMSEA $= 0$). The close fit statistics as displayed in Table 7.51 indicate an RMSEA value that implies very good measurement model fit (RMSEA $= .000$, $p > .05$). The close fit null hypothesis is (necessarily) also not rejected. Using the 90% confidence interval for RMSEA, it can be concluded with 90% confidence that the parametric value of RMSEA lies between .0 and .07.
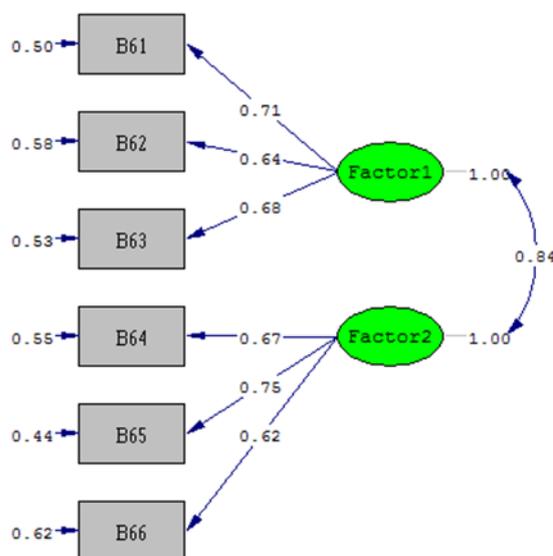
Chi-Square=7.00, df=8, P-value=0.53667, RMSEA=0.000

Figure 7.8. The first order compassion action orientation measurement model (completely standardised solution)

Table 7.51

Goodness of Fit Statistics for the First Order Compassion Action Orientation Measurement Model

Goodness of Fit Statistics
Degrees of Freedom = 8
Minimum Fit Function Chi-Square = 7.2040 (P = .5148)
Normal Theory Weighted Least Squares Chi-Square = 6.9997 (P = .5367)
Estimated Non-centrality Parameter (NCP) = .0
90 Percent Confidence Interval for NCP = (.0 ; 9.2292)
Minimum Fit Function Value = .03079
Population Discrepancy Function Value (F0) = .0
90 Percent Confidence Interval for F0 = (.0 ; .03944)
Root Mean Square Error of Approximation (RMSEA) = .0
90 Percent Confidence Interval for RMSEA = (.0 ; .07021)
P-Value for Test of Close Fit (RMSEA < .05) = .8387
Expected Cross-Validation Index (ECVI) = .1453
90 Percent Confidence Interval for ECVI = (.1453 ; .1847)
ECVI for Saturated Model = .1795
ECVI for Independence Model = 2.6814
Chi-Square for Independence Model with 15 Degrees of Freedom = 615.4592
Independence AIC = 627.4592
Model AIC = 32.9997
Saturated AIC = 42.0000
Independence CAIC = 654.2167
Model CAIC = 90.9743
Saturated CAIC = 135.6513
Normed Fit Index (NFI) = .9883
Non-Normed Fit Index (NNFI) = 1.0025
Parsimony Normed Fit Index (PNFI) = .5271
Comparative Fit Index (CFI) = 1.0000
Incremental Fit Index (IFI) = 1.0013
Relative Fit Index (RFI) = .9781
Critical N (CN) = 653.6211
Root Mean Square Residual (RMR) = .02478
Standardised RMR = .02392
Goodness of Fit Index (GFI) = .9901
Adjusted Goodness of Fit Index (AGFI) = .9741
Parsimony Goodness of Fit Index (PGFI) = .3772

The unstandardised lambda-X matrix (Λ^X) in Table 7.52, shows that all the slope coefficients that describes the regression of the individual items on the latent dimensions, were all statistically significant ($p < .05$).   Thus one could reject the null hypotheses, H_{0i}: $\lambda_{jk} = 0$; i = 1, 2, …, 6; j = 1, 2, 3, …, 6; k = 1, 2, in favour of the alternative hypotheses, H_{ai}: $\lambda_{jk} = 0$; i = 1, 2, …, 6; j = 1, 2, 3, …, 6; k = 1, 2, stating that the item response were dependent of the medical practitioners level of competence on the compassion action orientation dimension.

Table 7.52

Unstandardised Factor Loading (Lambda) Matrix for the First Order Compassion Action Orientation Measurement Model

	Factor 1	Factor 2
B61	.6700*	
	(.0620)	
	10.8029	
B62	.6888**	
	(.0709)	
	9.7107	
B63	.7321	
	(.0704)	
	10.4060	

Table 7.52

Unstandardised Factor Loading (Lambda) Matrix for the First Order Compassion Action Orientation Measurement Model (continued)

	Factor 1	Factor 2
B64		.6653*
		(.0650)
		10.2294
B65		.7522*
		(.0644)
		11.6829
B66		.6267*
		(.0676)
		9.2759

Note: The first value in each cell represents the unstandardised estimate, the second value (in brackets) represents the standard error and the third value the z test statistic obtained by dividing the unstandardised estimate by the standard error.
* (p < .05)

The completely standardised lambda matrix for the first order model is displayed in Table 7.53.

Table 7.53

Completely Standardised Factor Loading (Lambda) Matrix for the First Order Compassion Action Orientation Measurement Model

	Factor 1	Factor 2
B61	.7051	
B62	.6442	
B63	.6830	
B64		.6705
B65		.7515
B66		.6175

The excellent fit of the first-order compassion action orientation measurement model warranted the fitting of the second-order model.

7.11.3.2   *Fitting of the Second Order Compassion Action Orientation Measurement Model*

The second-order compassion action orientation measurement model as shown in Figure 7.9, showed very good fit (RMSEA = .000, p > .05).

Chi-Square=4.10, df=7, P-value=0.76855, RMSEA=0.000
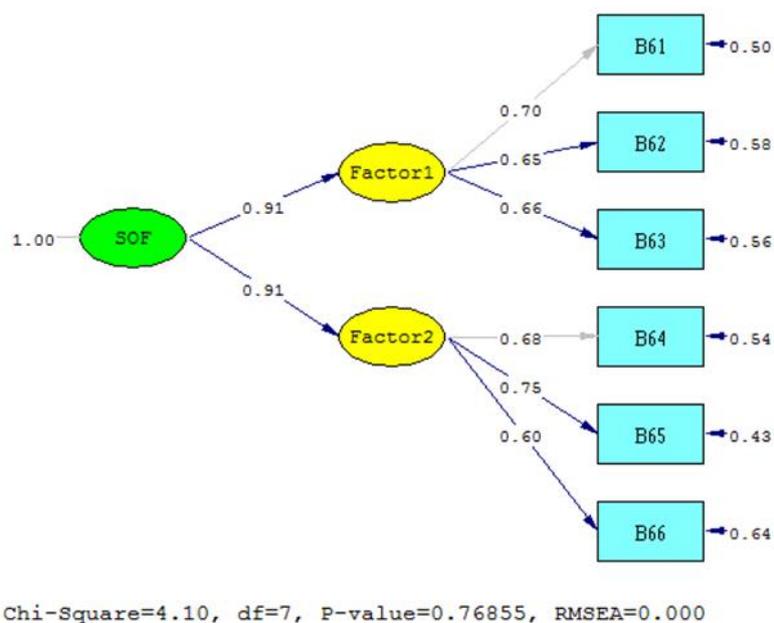
Figure 7.9. Second order compassion action orientation measurement model (completely standardised solution)

The goodness of fit statistics as displayed in Table 7.54 show the Satorra-Bentler chi-square estimate as 4.0969 with 7 degrees of freedom. The probability of observing the chi-square estimate under the exact fit null hypothesis, was sufficiently large (.76855; p > .05) not to reject the exact fit null hypothesis. In addition, close fit statistics as displayed in Figure 7.9 and Table 7.54, show that the sample RMSEA value (RMSEA = 0.0) indicates very good model fit. The close fit null hypothesis could (necessarily) also not be rejected (p > .05). Using the 90% confidence interval for RMSEA, it could be concluded with 90% confidence that the parametric value of the RMSEA, lies between .0 and .055.

Table 7.54

Goodness of Fit Statistics for the Second Order Compassion Action Orientation Measurement Model

Goodness of Fit Statistics
Degrees of Freedom = 7
Normal Theory Weighted Least Squares Chi-Square = 5.8295 (P = .5598)
Satorra-Bentler Scaled Chi-Square = 4.0969 (P = .7686)
Chi-Square Corrected for Non-Normality = 6.4767 (P = .4853)
Estimated Non-centrality Parameter (NCP) = .0
90 Percent Confidence Interval for NCP = (.0 ; 4.9674)
Minimum Fit Function Value = .008347
Population Discrepancy Function Value (F0) = .0
90 Percent Confidence Interval for F0 = (.0 ; .02123)
Root Mean Square Error of Approximation (RMSEA) = .0
90 Percent Confidence Interval for RMSEA = (.0 ; .05507)
P-Value for Test of Close Fit (RMSEA < .05) = .9340
Expected Cross-Validation Index (ECVI) = .1496
90 Percent Confidence Interval for ECVI = (.1496 ; .1708)
ECVI for Saturated Model = .1795
ECVI for Independence Model = 2.5859
Chi-Square for Independence Model with 15 Degrees of Freedom = 593.1033
Independence AIC = 605.1033
Model AIC = 32.0969
Saturated AIC = 42.0000

Table 7.54

Goodness of Fit Statistics for the Second Order Compassion Action Orientation Measurement Model (continued)

Goodness of Fit Statistics
Independence CAIC = 631.8608
Model CAIC = 94.5311
Saturated CAIC = 135.6513
Normed Fit Index (NFI) = .9931
Non-Normed Fit Index (NNFI) = 1.0108
Parsimony Normed Fit Index (PNFI) = .4634
Comparative Fit Index (CFI) = 1.0000
Incremental Fit Index (IFI) = 1.0050
Relative Fit Index (RFI) = .9852
Critical N (CN) = 1056.2697
Root Mean Square Residual (RMR) = .02195
Standardised RMR = .02112
Goodness of Fit Index (GFI) = .9981
Adjusted Goodness of Fit Index (AGFI) = .9944
Parsimony Goodness of Fit Index (PGFI) = .3327

The unstandardised and standardised lambda matrix are shown in Table 7.55 and Table 7.56. The lambda-Y matrix ($\mathbf{\Lambda^Y}$) in Table 7.55, indicates that, in comparison to the results shown in Table 7.52, the slope of the regression of the individual items on the latent first-order compassion action orientation sub-dimensions, were now statistically insignificant (p > .05) due to markedly larger standard errors. This implies that in the case of the second-order compassion action orientation measurement model, the null hypotheses, H_{0i}: $\lambda_{jk} = 0$; i = 1, 2, …, 6; j = 1, 2, 3, …, 6; k = 1, 2, could not be rejected in favour of the alternative hypotheses, H_{ai}: $\lambda_{jk} = 0$; i = 1, 2, …, 6; j = 1, 2, 3, …, 6; k = 1, 2 .

Table 7.55

Unstandardised Factor Loading (Lambda) Matrix for the Second Order Compassion Action Orientation Measurement Model

	Factor 1	Factor 2
B61	.67	- -
B62	.69*	- -
	(.51)	
	1.35	- -
B63	.71*	
	(.50)	
	1.42	- -
B64	- -	.68
B65	- -	.75*
		(.58)
		1.31
B66	- -	.61*
		(.45)
		1.35

Note: The first value in each cell represents the unstandardised estimate, the second value (in brackets) represents the standard error and the third value the z test statistic obtained by dividing the unstandardised estimate by the standard error.
* (p < .05)

In order to determine the extent to which the test items serve as valid indicators of the level of competence showed by the medical practitioner on the specific competency dimension, the completely standardised solution for the lambda matrix would normally be analysed. However, since the first-order

loadings were statistically insignificant (p>.05) there was no point in interpreting the results shown in Table 7.56.

Table 7.56

Completely Standardised Factor Loading (Lambda) Matrix for the Second Order Compassion Action Orientation Measurement Model

	Factor 1	Factor 2
B61	.70	
B62	.65	
B63	.66	
B64		.68
B65		.75
B66		.60

The unstandardised gamma matrix for the second-order factor model of compassion action orientation measurement model, is depicted in Table 7.57. The gamma estimates indicate the slope of the regression of the endogenous compassion action orientation first-order factors ("Organising resources around the patient") and ("Compassion action") on the exogenous compassion action orientation second-order factor. The second-order compassion action orientation factor statistically significantly (p < .05) influenced both the first-order compassion action orientation factors.

Table 7.57

Unstandardised Second-order Factor Loading (Gamma) Matri) for the Second Order Compassion Action Orientation Measurement Model

	ACTION_SOF
Factor 1	.91*
	(.15)
	6.18
Factor 2	.91*
	(.16)
	5.78

Note: ACTION_SOF represents the compassion action orientation second-order factor
* (p < .05)

The standardised gamma matrix for the second-order factor compassion action orientation measurement model, is depicted in Table 7.58. Both first-order compassion action orientation factors were quite strongly influenced by the second-order compassion action orientation factor. One standard deviation unit increase in the second-order compassion action orientation factor, would result in .91 standard deviation unit increase in both the first-order compassion action orientation factors.

Table 7.58

Completely Standardised Second-order Factor Loading (Gamma) Matrix for the Second Order Compassion Action Orientation Measurement Model

	ACTION_SOF
Factor 1	.91
Factor 2	.91

The SIMPLIS syntax that was used to fit the second-order measurement model was subsequently translated to LISREL syntax. The command lines are shown in footnote 81. The matrix in Table 7.59 highlights the estimates of the indirect effects of the second-order compassion action orientation factor on the items of the compassion action orientation subscale. The indirect effects are all shown to be statistically significant (p < .05). This justifies the use of the items of the compassion action orientation subscale as indicators of the second-order compassion action orientation factor.

Table 7.59

Standardised Indirect Effects for the Second Order Compassion Action Orientation Measurement Model

PA(1)	PA(2)	PA(3)	PA(4)	PA(5)	PA(6)
.61*	.63*	.65*	.61*	.68*	.55*
(.07)	(.07)	(.07)	(.07)	(.07)	(.07)
9.31	9.61	9.90	9.37	10.46	8.44

Note: PA(i); i=1, 2, …, 6 represents the six indirect effects as defined in footnote[112]
The first value in each cell represents the unstandardised estimate, the second value (in brackets) represents the standard error and the third value the z test statistic obtained by dividing the unstandardised estimate by the standard error.
* (p < .05)

7.12   RELIABILITY OF THE COMPOSITE COMPASSION SCORE

The scores that medical practitioners achieve on the MPCCQ will firstly be interpreted on the dimension level. A compassion competency profile will be drawn based on the normative dimension scores that medical practitioners achieve on the six compassion competencies. The total compassion competency score will, however, also be calculated.

The Cronbach alpha's calculated for each compassion competency subscale reflects the reliability of the dimension scores. Simply combining the items of the various compassion competency subscales in a single item analysis would result in a too conservative estimation of the reliability of the linear composite calculated to reflect medical practitioners' standing on the overall compassion construct (Nunnally, 1978). This underestimation would be aggravated the more the compassion competency dimension scores correlate very low with each other, approaching zero (Nunnally, 1978)[113]. It is acknowledged that in the current study the latent compassion dimensions do correlate quite substantially with each other as was shown in Table 7.68 and Table 7.69. In the current study the underestimation of the reliability of the MPCCQ total score would therefore not have been that severe. Nonetheless the procedure would have been in principle incorrect because it would have knowingly disregarded the assumption made by Cronbach's alpha that all the items tap into a unidimensional construct.

---

[112] CO PAR1 = GA(1,1)*LY(1,1)
CO PAR1 = GA(1,1)*LY(2,1)
CO PAR1 = GA(1,1)*LY(3,1)
CO PAR1 = GA(2,1)*LY(4,2)
CO PAR1 = GA(2,1)*LY(5,2)
CO PAR1 = GA(2,1)*LY(6,2)
[113] It is acknowledged that the Cronbach alpha coefficients calculated for the subscales where factor fission occurred also provide too conservative estimates of the subscale reliability.

The reliability of the MPCCQ total score was therefore calculated utilising a formula proposed by Nunnally (1978, p.248), shown as Equation 3, to estimate the reliability of an unweighted linear composite.

$r_{tt\_comp} = 1-(\Sigma S_i^2 - \Sigma r_{tti}S_i^2)/S_t^2$-- [3]

Where:

- $r_{tt\text{-}comp}$ refers to the reliability of the MPCCQ total score;
- S_i^2 refers to the variance of the ith compassion competency subscale dimension score;
- r_{tti} refers to the Cronbach alpha of the ith compassion competency subscale; and
- S_t^2 refers to the variance of the MPCCQ total score.

The variance of the MPCCQ total score was calculated by running item analysis on all the MPCCQ items (excluding the two deleted items). The reliability of the MPCCQ total score, calculated as an unweighted composite of the MPCCQ item scores, was calculated below as .95[114].

$$r_{tt\_comp} = 1-(\Sigma S_i^2 - \Sigma r_{tti}S_i^2)/S_t^2$$

$$= 1 - (105.544 - 84.76251)/409.524$$

$$= 1 - 20.7813155253321/409.524$$

$$= 1 - .050745049$$

$$= .949254951$$

The MPCCQ compassion total score reliability was highly satisfactory.

7.13 PSYCHOMETRIC EVALUATION OF THE COMPREHENSIVE MEDICAL PRACTITIONER COMPASSION COMPETENCY MEASUREMENT MODEL

The fit of the MPCCQ measurement model, in which the six latent compassion dimensions have been operationalised with the individual items of the MPCCQ[115], is discussed in the subsequent section. In the subsequent section statistics relating to the testing of the measurement model is explained, more specifically the test of multivariate normality, the goodness of fit statistics, the lambda matrix, the theta delta matrix, squared multiple correlations, the phi matrix, and discriminant validity.

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[114] A Cronbach's alpha of .941 was obtained when combining all the items in a single item analysis.
[115] Items B16 and B67 that have been flagged in the item analysis as problematic item, have not been included in the fitted measurement model.

7.13.1 Test of Multivariate Normality on the Imputed Item Dataset

The imputed MPCCQ dataset was tested for multivariate normality. The results in Table 7.60 indicates that the probability of observing the sample skewness and kurtosis chi-square estimate under the multivariate normality null hypothesis, is sufficiently small ($p < .05$) to reject the null hypothesis. By rejecting the null hypothesis, it is thus assumed that the item distribution is not multivariate normal. Thus an attempt was made to normalise the item distribution.

Table 7.60

Test of Multivariate Normality on Imputed Items before Normalization

	Skewness			Kurtosis			Skewness and Kurtosis	
Value	z-Score	p-Value	Value	z-Score	p-Value	Chi-Square	p-Value
282.542	23.100	.000	1446.497	13.537	.000	716.841	.000

The attempt at normalising the item distribution, however, failed to rectify the problem as indicated by the test for multivariate normality after normalisation shown in Table 7.61. The multivariate normality null hypothesis still had to be rejected ($p < .05$). In addition, the skewness and kurtosis chi-square value increased from 716.841 to 948.015 which was unexpected and signalled that the attempt at normalisation actually exacerbated the initial problem. Thus the MPCCQ measurement model was fitted to the original non-normalised item dataset using RML estimation.

Table 7.61

Test of Multivariate Normality on Imputed Items after Normalization

	Skewness			Kurtosis			Skewness and Kurtosis	
Value	z-Score	p-Value	Value	z-Score	p-Value	Chi-Square	p-Value
298.374	26.953	.000	1476.327	14.885	.000	948.015	.000

The fitted medical practitioner compassion competency measurement model is shown in Figure 7.10. The Satorra-Bentler chi-square (χ^2) calculated in terms of the robust maximum likelihood estimation procedure, and shown in Table 7.62, obtained a significant statistical value of 717.7365 ($p < .05$). The exact fit null hypothesis (H_{01}: RMSEA = 0) was therefore rejected ($p < .05$). The sample estimate for the root mean square error of approximation indicated good model fit (RMSEA = .037, $p > .05$). The probability of observing the sample RMSEA estimate under the close fit null hypothesis was sufficiently large ($p > .05$) not to question the close fit null hypothesis. The close fit null hypothesis (H_{02}: RMSEA $\leq .05$) was therefore not rejected ($p > .05$). Using the 90% confidence interval for RMSEA, it can be concluded with 90% confidence that the parametric value of RMSEA lies between .029 and .043.

Table 7.62

Goodness of Fit Statistics for the Medical Practitioner Compassion Competency Measurement Model

Goodness of Fit Statistics
Degrees of Freedom = 545
Minimum Fit Function Chi-Square = 840.8589 (P = .00)
Normal Theory Weighted Least Squares Chi-Square = 846.1498 (P = .00)
Satorra-Bentler Scaled Chi-Square = 717.7365 (P = .0000)
Estimated Non-centrality Parameter (NCP) = 172.7365
90 Percent Confidence Interval for NCP = (107.3456 ; 246.2283)
Minimum Fit Function Value = 3.5934
Population Discrepancy Function Value (F0) = .7382
90 Percent Confidence Interval for F0 = (.4587 ; 1.0523)
Root Mean Square Error of Approximation (RMSEA) = .03680
90 Percent Confidence Interval for RMSEA = (.02901 ; .04394)
P-Value for Test of Close Fit (RMSEA < .05) = .9992
Expected Cross-Validation Index (ECVI) = 3.7937
90 Percent Confidence Interval for ECVI = (3.5143 ; 4.1078)
ECVI for Saturated Model = 5.3846
ECVI for Independence Model = 66.2580
Chi-Square for Independence Model with 595 Degrees of Freedom = 15434.3680
Independence AIC = 15504.3680
Model AIC = 887.7365
Saturated AIC = 1260.0000
Independence CAIC = 15660.4535
Model CAIC = 1266.8013
Saturated CAIC = 4069.5389
Normed Fit Index (NFI) = .9535
Non-Normed Fit Index (NNFI) = .9873
Parsimony Normed Fit Index (PNFI) = .8734
Comparative Fit Index (CFI) = .9884
Incremental Fit Index (IFI) = .9884
Relative Fit Index (RFI) = .9492
Critical N (CN) = 204.6802
Root Mean Square Residual (RMR) = .05494
Standardised RMR = .05441
Goodness of Fit Index (GFI) = .8288
Adjusted Goodness of Fit Index (AGFI) = .8020
Parsimony Goodness of Fit Index (PGFI) = .7169

The expected cross-validation index (ECVI) indicates the difference between the reproduced sample covariance matrix resulting from fitting the model on the medical practitioner sample, and the expected covariance matrix that could be achieved in an independent sample of the same sample size of medical practitioners. Since the expected cross-validation index (ECVI) is smaller (3.7937) than the ECVI for the independent model (66.2580) and also smaller than the ECVI value of the saturated model (5.3846) the fitted model is expected to fit better in an independent sample. This provides support for the fitted model.
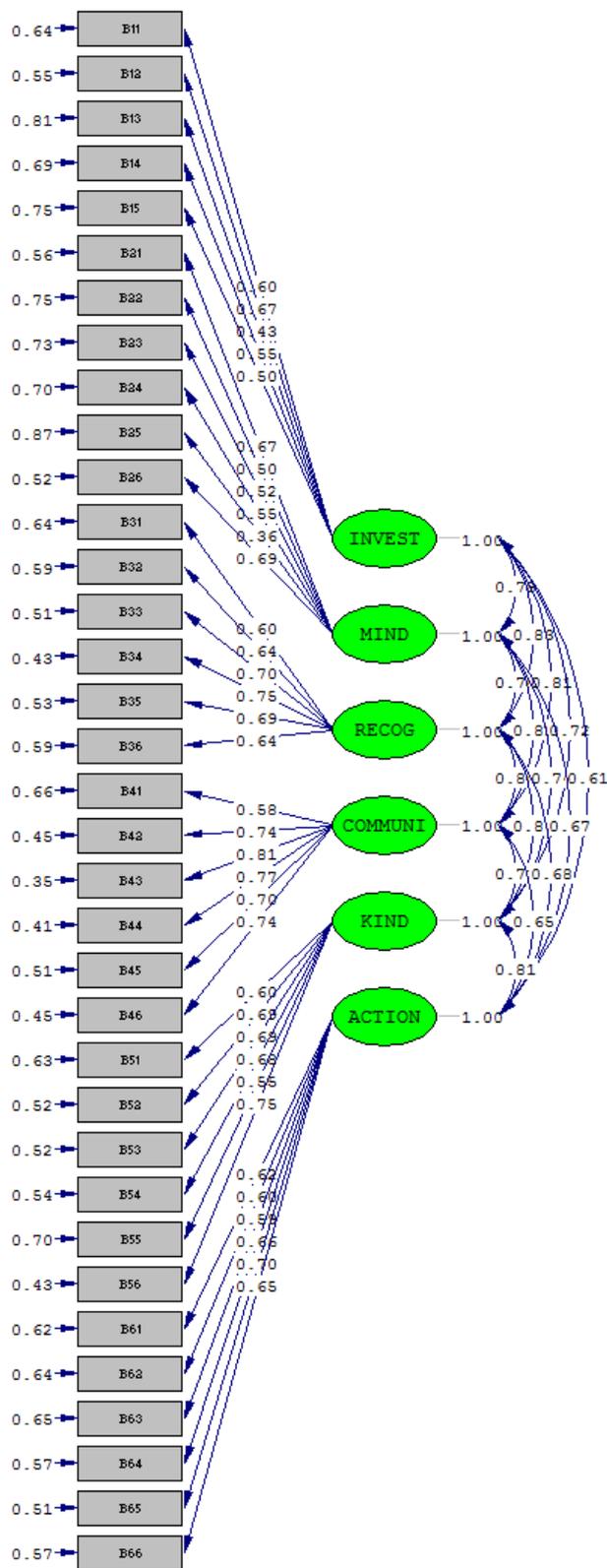
Figure 7.10. Medical practitioner compassion competency measurement model (completely standardised solution)

The Akaike information criterion (AIC) and the consistent version of AIC (CAIC) are used when comparing non-hierarchical model estimated with the same data used. A good fitting model is indicated by smaller values. The independence AIC (15504.3680), model AIC (887.7365), saturated AIC (1260.0000), independence CAIC (15660.4535), model CAIC (1266.8013) and lastly saturated CAIC (4069.5389) both reported the smallest value for the fitted model thus indicating a good fitting model. In addition the normed fit index (NFI) (.9535) and the comparative fit index (CFI) (.9884) both indicated good model fit.

The root mean square residual (.05494) and the standardised root mean residual (SRMR), (.05441) also indicated a good fitting model. The MPCCQ measurement model demonstrated good fit, as indicated by the basket of fit indices produced by LISREL.

7.13.2 The Unstandardised and standardised Lambda-X Matrix [Λ^X]

The unstandardised and completely standardised lambda matrices are shown in the following two tables, namely Table 7.63 and Table 7.64. The lambda-X matrix (Λ^X) was standardised in order to ensure that all items and dimensions are measured on a standardised scale.

Table 7.63

Unstandardised Factor Loading (Lambda) Matrix for the Medical Practitioner Compassion Competency Measurement Model

	INVEST	MIND	RECOG	COMMUNI	KIND	ACTION
B11	.5448*					
	(.0561)					
	9.7050					
B12	.5938*					
	(.0655)					
	9.0651					
B13	.5828*					
	(.0918)					
	6.3483					
B14	.4924*					
	(.0595)					
	8.2741					
B15	.4999*					
	(.0651)					
	7.6732					
B21		.6550*				
		(.0636)				
		10.3045				
B22		.4618*				
		(.0653)				
		7.0714				
B23		.5141*				
		(.0667)				
		7.7049				
B24		.4845*				
		(.0545)				
		8.8944				
B25		.3524*				
		(.0726)				
		4.8569				

Table 7.63

Unstandardised Lambda Matrix for the Medical Practitioner Compassion Competency Measurement Model (continued)

	INVEST	MIND	RECOG	COMMUNI	KIND	ACTION
B26		.7171* (.0540) 13.2869				
B31			.5547* (.0529) 10.4890			
B32			.5860* (.0581) 10.0857			
B33			.7556* (.0617) 12.2527			
B34			.7095* (.0498) 14.2566			
B35			.6588* (.0533) 12.3485			
B36			.5716* (.0537) 10.6500			
B41				.5341* (.0618) 8.6262		
B42				.7945* (.0573) 13.8613		
B43				.9004* (.0545) 16.5263		
B44				.8423* (.0591) 14.2415		
B45				.7751* (.0548) 14.1376		
B46				.7352* (.0529) 13.8922		
B51					.5498* (.0551) 9.9727	
B52					.7174* (.0569) 12.6077	
B53					.7247* (.0586) 12.3656	
B54					.7252* (.0581) 12.4835	
B55					.5100* (.0602) 8.4677	
B56					.7686* (.0573) 13.4240	
B61						.5889* (.0569) 10.3461

Table 7.63

Unstandardised Lambda Matrix for the Medical Practitioner Compassion Competency Measurement Model (continued)

	INVEST	MIND	RECOG	COMMUNI	KIND	ACTION
B62						.6399*
						(.0695)
						9.2015
B63						.6377*
						(.0634)
						10.0648
B64						.6511*
						(.0640)
						10.1685
B65						.7003*
						(.0551)
						12.7086
B66						.6621*
						(.0577)
						11.4846

Note: INVEST refers to investing the self, MIND refers to mindfulness, RECOG refers to recognition of emotions, COMMUNI refers to gaining and communicating an empathic understanding, KIND refers to caring with kindness, ACTION refers to compassion action orientation. The first value in each cell represents the unstandardised estimate, the second value (in brackets) represents the standard error and the third value the z test statistic obtained by dividing the unstandardised estimate by the standard error.

* (p < .05)

Table 7.63 allowed the testing of the following 37 null hypotheses on the slope of the regression of item j on latent compassion dimension k[116]:

H_{0i}: $\lambda_{jk} = 0$; i = 3, 4, …, 39; j = 1, 2, …, 37; k = 1, 2, …, 6

H_{ai}: $\lambda_{jk} \neq 0$; i = 3, 4, …, 39; j = 1, 2, …, 37; k = 1, 2, …, 6

Table 7.63 indicates that H_{0i}: $\lambda_{jk}=0$ could be rejected for i=3, 4, …, 7, 8, … 38; j=1, 2, …, 5, 6, …, 36; k = 1, 2, …, 6 in favour of H_{ai}: $\lambda_{jk} > 0$; i = 3, 4, …, 7, 8, … 38; j = 1, 2, …, 5, 6, …, 36; k = 1, 2, …, 6. All of the retained MPCCQ items therefore statistically significantly (p<.05) reflected the latent compassion dimensions they were designated to represent. In other words, medical practitioner's items responses were dependent on their level of competence in medical practitioner compassion.

In order to determine how valid the test items served as indicators of the level of competence showed by the medical practitioners on the specific latent compassion competencies, the completely standardised solution for the lambda matrix was analysed. Table 7.64 indicates that the completely standardised factor loadings for all items fell above the cut-off value of .50, except item B13 (λ_{31} = .4349) and item B25 ($\lambda_{10,2}$ = 0.3611). These two items had completely standardised factor loadings which were below .50, but still above .30, which was still regarded as acceptable; not satisfactory but

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[116] Two of these null hypotheses were not formally tested in Table 6.63, namely H_{08}: $\lambda_{61} = 0$ and H_{039}: $\lambda_{37,6} = 0$ because items B16 and B67 were deleted after the item analysis

not totally unacceptable and pathological. The completely standardised factor loadings, describe the slope of the regression of the MPCCQ items (X_i) on the latent compassion competency (ξ_k) they were designated to reflect when both items and latent competencies are standardised to have a mean of zero and a variance of one. The completely standardised factor loadings therefore describe the average change in standard deviation units in the item response (X_i) that is brought about by one standard deviation increase in the standing on the latent compassion competency (ξ_k). The two items with somewhat lower than desired completely standardised factor loadings (B13 and item B25) were therefore somewhat less sensitive to changes in the latent compassion competency they were designated to reflect compared to other items in the lambda matrix.

Table 7.64

Completely Standardised Factor Loading (Lambda) Matrix for the Medical Practitioner Compassion Competency Measurement Model

	INVEST	MIND	RECOG	COMMUNI	KIND	ACTION
B11	.5993					
B12	.6682					
B13	.4349					
B14	.5542					
B15	.5007					
B21		.6659				
B22		.5042				
B23		.5233				
B24		.5485				
B25		.3611				
B26		.6949				
B31			.6003			
B32			.6366			
B33			.6996			
B34			.7528			
B35			.6883			
B36			.6400			
B41				.5848		
B42				.7425		
B43				.8084		
B44				.7707		
B45				.6998		
B46				.7414		
B51					.6047	
B52					.6929	
B53					.6950	
B54					.6799	
B55					.5511	
B56					.7519	
B61						.6199
B62						.5985
B63						.5949
B64						.6562
B65						.6996
B66						.6524

Note: INVEST refers to investing the self, MIND refers to mindfulness, RECOG refers to recognition of emotions, COMMUNI refers to gaining and communicating an empathic understanding, KIND refers to caring with kindness, ACTION refers to compassion action orientation.

Given the fact that each item was only allowed to load on a single latent compassion competency (i.e. the regression of X_i on ξ_k was described by a simple linear regression model), the completely standardised factor loadings shown in Table 7.64, can also be interpreted as Pearson correlation

coefficients[117]. The two flagged items are therefore less than satisfactory because less than 25% of the variance in medical practitioner's responses to them could be explained by the latent compassion competency they were designated to reflect (see also Table 7.67). Table 7.64 returned no inadmissible completely standardised factor loadings larger than one.

7.13.3 The Unstandardised and Standardised Theta Delta Matrices [Θ_δ]

All the retained MPCCQ items are shown in Table 7.65 to be statistically significantly (p < .05) afflicted by systematic and random measurement error. In other words, the null hypotheses H_{0i}: $\Theta_{\delta jj} = 0$; i = 40, 41,..., 44, 46, …, 75; j = 1, 2.....36 were rejected in favour of H_{ai}: $\Theta_{\delta jj} > 0$; i = 40, 41,..., 44, 46, …, 75; j=1, 2.....36. H_{045}: $\Theta_{\delta 66} = 0$ and H_{076}: $\Theta_{\delta 37,37} = 0$ were not formally tested because items B16 and B67 were deleted.

Table 7.65

Unstandardised Measurement Error Variance (Theta-Delta) Matrix for the Medical Practitioner Compassion Competency Measurement Model

B11	B12	B13	B14	B15	B21
0.5294*	0.4371*	1.4563*	0.5468	0.7470*	0.5384*
(.0489)	(.0775)	(.1302)	(.0596)	(.0915)	(.0595)
10.8223	5.6411	11.1852	9.1780	8.1652	9.0502
B22	B23	B24	B25	B26	B31
0.6254*	0.7012*	0.5454*	0.8280*	0.5507*	0.5460*
(.0608)	(.0609)	(.0523)	(.0828)	(.0696)	(.0523)
10.2909	11.5175	10.4188	9.9999	7.9090	10.4318
B32	B33	B34	B35	B36	B41
0.5039*	0.5954*	0.3850*	0.4822*	0.4708*	0.5490*
(.0479)	(.0682)	(.0448)	(.0509)	(.0457)	(.0610)
10.5111	8.7318	8.5843	9.4776	10.3092	9.0076
B42	B43	B44	B45	B46	B51
0.5137*	0.4298*	0.4851*	0.6261*	0.4429*	0.5244*
(.0594)	(.0504)	(.0529)	(.0680)	(.0505)	(.0548)
8.6446	8.5316	9.1711	9.2021	8.7626	9.5759
B52	B53	B54	B55	B56	B61
0.5573*	0.5622*	0.6118*	0.5964*	0.4542*	0.5559*
(.0875)	(.0612)	(.0771)	(.0520)	(.0603)	(.0552)
6.3696	9.1797	7.9337	11.4675	7.5300	10.0692
B62	B63	B64	B65	B66	
0.7338*	0.7424*	0.5605*	0.5116*	0.5961*	
(.0796)	(.0824)	(.0913)	(.0528)	(.0671)	
9.2226	9.0081	6.1400	9.6893	8.8133	

Note: The top value represents the unstandardised estimate, the second value in brackets the standard error and the third value the test statistic z.

* (p<.05)

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[117] This is true despite the fact that Λ^X is an obliquely rotaded factor structure (i.e., the latent compassion dimensions were allowed to correlate). This would not have been the case if the MPCCQ items were allowed to load on all nine latent compassion dimensions. Then the loadings would have been interpreted as partial regression coefficients that express the the unique influence of each latent compassion dimension on each item. A comparison of the values in Table 7.64, when squared, to those in Table 7.67 bears testimony to the accuracy of the claim that the completely standardised factor loadings shown in Table 7.64, can also be interpreted as Pearson correlation coefficients.

The completely standardised theta-delta matrix in Table 7.66 shows that all error variances, but two, fell below the critical value of .75 implied by the critical completely standardised factor loading of .50 that was decided upon[118]. Item B13 and item B25 were the only two problematic items in the sense that more than 75% of variance in the test item, was due to systematic and random measurement error variance; thus not variance that is explicated by the influence of the dimension. Table 7.66 returned no inadmissible completely standardised negative measurement error variances.

Table 7.66

Completely Standardised Measurement Error Variance (Theta-Delta) Matrix for the Medical Practitioner Compassion Competency Measurement Model

B11	B12	B13	B14	B15	B21
.6408	.5535	.8109	.6928	.7493	.5566
B22	B23	B24	B25	B26	B31
.7458	.7262	.6991	.8696	.5171	.6396
B32	B33	B34	B35	B36	B41
.5947	.5105	.4334	.5263	.5903	.6581
B42	B43	B44	B45	B46	B51
.4487	.3465	.4061	.5103	.4504	.6343
B52	B53	B54	B55	B56	B61
.5199	.5170	.5377	.6963	.4347	.6158
B62	B63	B64	B65	B66	
.6418	.6461	.5694	.5106	.5744	

7.13.4 Squared Multiple Correlations

In addition to the statistical measures described thus far for the measurement model, the squared multiple correlations (R^2) of the item indicators were examined in order to determine the validity of the item indicators. This was achieved by clarifying the proportion of variance in each test item that was explained by the latent dimension that the item has been designated to measure. Table 7.67 shows that almost all (33 out of 35) item indicators provided valid explanations of the latent dimensions they were designed to reflect ($\geq$ .25), when using the critical cut-off value set for the completely standardised factor loadings as basis.

Table 7.67

Squared Multiple Correlation Matrix for the Medical Practitioner Compassion Competency Measurement Model

B11	B12	B13	B14	B15	B21
.3592	.4465	.1891	.3072	.2507	.4434
B22	B23	B24	B25	B26	B31
.2542	.2738	.3009	.1304	.4829	.3604
B32	B33	B34	B35	B36	B41
.4053	.4895	.5666	.4737	.4097	.3419
B42	B43	B44	B45	B46	B51
.5513	.6535	.5939	.4897	.5496	.3657
B52	B53	B54	B55	B56	B61
.4801	.4830	.4623	.3037	.5653	.3842
B62	B63	B64	B65	B66	
.3582	.3539	.4306	.4894	.4256	

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[118] In the completely standardised solution $\lambda^2_{jk} + \theta_{\delta ii} = 1$.

Only item B13 ('Medical practitioner personal disclosure/exposure') and item B25 ('Registering the current moment accurately') had squared multiple correlations which were below the cut-off value (< .25). This is due to the excessive role of systematic and random error in the variance in medical practitioners' responses to these two items.

Table 7.67 indicates that the items of the first two subscales of the MPCCQ, generally tend to be more plagued by measurement error than the items of the last four subscales. This trend is also visible in Table 7.64 (the items of the first two subscales tended to have smaller completely standardised factor loadings) and Table 7.66 (the items of the first two subscales tended to have larger completely standardised error variances). This was also reflected in the item analysis results.

7.13.5 Unstandardised and Standardised Phi Matrix

The unstandardised phi matrix is shown in Table 7.68. Correlations between all latent dimensions were statistically significant ($p < .05$).

Table 7.68

Unstandardised Inter-latent Variable Correlation (Phi) Matrix for the Medical Practitioner Compassion Competency Measurement Model

	INVEST	MIND	RECOG	COMMUNI	KIND	ACTION
INVEST	1.0000					
MIND	.7814*	1.0000				
	(.0572)					
	13.6706					
RECOG	.8273*	.7620*	1.0000			
	(.0470)	(.0496)				
	17.6168	15.3498				
COMMUNI	.8117*	.8178*	.8644*	1.0000		
	(.0431)	(.0445)	(.0301)			
	18.8277	18.3606	28.7552			
KIND	.7198*	.7441*	.8003*	.7278*	1.0000	
	(.0522)	(.0524)	(.0454)	(.0427)		
	13.8020	14.1917	17.6407	17.0464		
ACTION	.6103*	.6702*	.6781*	.6490*	.8098*	1.0000
	(.0629)	(.0666)	(.0522)	(.0508)	(.0398)	
	9.7018	10.0564	12.9901	12.7719	20.3533	

Note: INVEST refers to investing the self, MIND refers to mindfulness, RECOG refers to recognition of emotions, COMMUNI refers to gaining and communicating an empathic understanding, KIND refers to caring with kindness, ACTION refers to compassion action orientation. The first value in each cell represents the unstandardised estimate, the second value (in brackets) represents the standard error and the third value the z test statistic obtained by dividing the unstandardised estimate by the standard error.
* ($p < .05$)

The completely standardised phi matrix is shown in Table 7.69[119]. No correlations in the phi matrix were excessively high correlations. A correlation was deemed excessively high in the current study if the value exceeded a cut-off, of .90.

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[119] It is acknowledged that the ϕ_{kp} values reported in Table 7.68 are already correlation coefficients (standardised covariances) and therefore correspond exactly to those reported in Table 7.69. They are repeated here for the sake of ease of interpretation.

Table 7.69

Completely Standardised Inter-latent Variable Correlation (Phi) Matrix for the Medical Practitioner

Compassion Competency Measurement Model

	INVEST	MIND	RECOG	COMMUNI	KIND	ACTION
INVEST	1.0000					
MIND	.7814	1.0000				
RECOG	.8273	.7620	1.0000			
COMMUNI	.8117	.8178	.8644	1.0000		
KIND	.7198	.7441	.8003	.7278	1.0000	
ACTION	.6103	.6702	.6781	.6490	.8098	1.0000

Note: INVEST refers to investing the self, MIND refers to mindfulness, RECOG refers to recognition of emotions, COMMUNI refers to gaining and communicating an empathic understanding, KIND refers to caring with kindness, ACTION refers to compassion action orientation.

7.13.6 Test Discriminant Validity

Multidimensional constructs more often than not comprise of qualitatively distinct, but correlated, latent dimensions. Test discriminant validity indicates the extent to which the instrument succeeded in measuring the qualitatively distinct, but correlated, latent dimensions as separate, qualitatively distinct, latent variables. Inspection of Table 7.69 already indicated that none of the latent compassion dimensions measured by the MPCCQ correlated excessively high ($\phi_{kp} \geq .90$) in the sample. The possibility, however, still existed that the parametric value of one or more ϕ_{kp} could be unity while the corresponding sample estimates are smaller due to sampling error. The fifteen 95% confidence intervals were consequently calculated, as shown in Table 7.70, using an Excel macro developed by Scientific Software International (Mels, 2010). The confidence intervals indicate the upper and lower bound ϕ_{kp} values between which, with 95% confidence, the parametric ϕ_{kp} can be expected. The critical question is whether any interval contains the value of 1. If not, it can be argued with 95% confidence that none of the ϕ_{kp} correlations in general were equal to 1, which then implies discriminant validity. Table 7.70 indicates that none of the fifteen confidence intervals contained 1. Thus indicating that the MPCCQ successfully measured the six latent compassion dimensions as qualitatively distinct, but correlated, latent competencies.

Table 7.70

95% Confidence Interval Estimates for all Fifteen Inter-latent variable Correlations

Estimate	Standard Error Estimate	Lower Limit of 95% Confidence Interval	Upper Limit of 95% Confidence Interval	Phi
.781	.057	.641	.871	ϕ_{21}
.827	.047	.710	.900	ϕ_{31}
.812	.043	.708	.881	ϕ_{41}
.720	.052	.601	.808	ϕ_{51}
.610	.063	.472	.719	ϕ_{61}
.762	.050	.646	.844	ϕ_{32}
.818	.045	.710	.888	ϕ_{42}
.744	.053	.622	.831	ϕ_{52}
.670	.067	.518	.781	ϕ_{62}

Table 7.70

95% Confidence Interval Estimates for all Fifteen Inter-latent variable Correlations (continued)

Estimate	Standard Error Estimate	Lower Limit of 95% Confidence Interval	Upper Limit of 95% Confidence Interval	Phi
.864	.030	.792	.913	ϕ_{43}
.800	.046	.692	.873	ϕ_{53}
.678	.052	.562	.768	ϕ_{63}
.728	.043	.633	.801	ϕ_{54}
.649	.051	.538	.738	ϕ_{64}
.810	.040	.716	0,875	ϕ_{65}

Note: the first subscript p for ϕ_{pk} represents the row of the phi matrix and the second subscript the column of the matrix

Probably the most stringent criterion that have been proposed to evaluate discriminant validity has been explained by Farrell (2010, p. 324) as follows:

> Discriminant validity is the extent to which latent variable A discriminates from other latent variables (e.g., B, C, D). Discriminant validity means that a latent variable is able to account for more variance in the observed variables associated with it than a) measurement error or similar external, unmeasured influences; or b) other constructs within the conceptual framework. If this is not the case, then the validity of the individual indicators and of the construct is questionable (Fornell and Larcker, 1981).

The average variance extracted (AVE) is a measure utilised to describe the average proportion of variance in the subscale item that is accounted for by the latent dimension that the items were designated to measure (Diamantopoulos & Siguaw, 2000). Farrell's (2010) criterion as explained above therefore requires:

- That AVE_k and AVE_p for subscales k and p measuring latent dimensions k and p should exceed .50; and
- That AVE_k and AVE_p should be larger than ϕ^2_{kp}.

Farrell (2010) is therefore of the opinion that the MPCCQ latent compassion dimensions should account for more variance in the subscale items than measurement error. In addition, the latent compassion dimensions measured by the MPCCQ should also account for more variance in the subscale items that represent them than they account for in each other. Table 7.71 illustrates that none of the fifteen squared inter-latent variable correlations are smaller than both the AVE values associated with the latent variable pairs being correlated. The finding that the AVE is less than the inter-latent variable correlation implies that the unique part of the latent variable has not been adequately measured. Three of the squared inter-latent variable correlations are smaller than the AVE value associated with one of the latent variables in the pair of variables being correlated (shown in green in Table 7.71). One of the latent variables involved in three pairs of latent variables, therefore account for less variance in each other than the average variance it accounts for in the items designated to reflect it. Twelve of the fifteen squared inter-latent variable correlations are larger than both the AVE values associated with the latent variable pairs being correlated (shown in red in Table 7.71).

Table 7.71

Average Variance Extracted Calculated for each Latent Compassion Dimension and Squared Inter-latent Variable Correlations

	Invest	Mind	Recog	Communi	Kind	Action	
Invest	1						**310530054**
Mind	.61058596	1					**314268359**
Recog	.68442529	.580644	1				**.45085976**
Communi	.65885689	.66879684	.7471874	1			**.530005293**
Kind	.51811204	.55368481	.6404801	.52969284	1		**.443352443**
Action	.37246609	.44916804	.4598196	.421201	.65577604	1	**.406998023**
AVE	**310530054**	**31426836**	**.4508598**	**.53000529**	**.44335244**	**.406998**	

Note: INVEST refers to investing the self, MIND refers to mindfulness, RECOG refers to recognition of emotions, COMMUNI refers to gaining and communicating an empathic understanding, KIND refers to caring with kindness, ACTION refers to compassion action orientation.

🟦	PHI²<BOTH AVE
🟥	PHI²>BOTH AVE
🟩	PHI²>ONE AVE

The criterion proposed as described by Farrell (2010) should, however, also be critically examined. A concern is that subscales are evaluated on the average variance that the designated latent dimension explains in its items, rather than on the validity and reliability of the subscale score. Individual subscale items are generally expected to be aggressively plagued by systematic and random measurement error. The designated latent dimension is generally expected to explain relatively little variance in each individual item. The expectation in the current study was that a latent dimension should explain at least 25% of the variance in the individual items earmarked to reflect it. The assumption, however, is that the designated latent dimension is the only common source of systematic variance across items. When the responses to these rather error prone items are combined into a linear composite the reliability and validity of the dimension score is substantially higher than the reliability and validity of the individual items (Ghiselli et al., 1981; Nunnally, 1978).

In Chapter Four it was argued that the hypothesis that the MPCCQ provides construct valid measures of the multidimensional compassion construct as constitutively defined would be considered corroborated if:

- The exact fit (H_{01}) and/or close fit (H_{02}) null hypothesis was not rejected (p > .05) for the MPCCQ measurement model;
- The unstandardised factor loadings (λ_{ij}) were statistically significant (p < .05);
- The completely standardised factor loadings were large (i.e. $\lambda_{ij} \geq .50$);
- The measurement error variances ($\theta_{\delta ii}$) were statistically significant (p < .05);
- The completely standardised measurement error variances were small (i.e. $\theta_{\delta ii}$);

- The inter-latent first-order competency correlations (ϕ_{jk}) were statistically significant (p < .05); and

- The inter-latent first-order competency correlations were not excessively large (i.e. ϕ_{jk} < .90).

The results reported on the measurement model in paragraph 7.13 indicated that:

- The exact fit (H_{01}) was rejected but the close fit (H_{02}) null hypothesis was not rejected (p > .05) for the MPCCQ measurement model;

- The unstandardised factor loadings (λ_{ij}) were all statistically significant (p < .05);

- The completely standardised factor loadings were all large (i.e. $\lambda_{jk} \geq .50$) but for the loading of item B13 on ξ_1 and the loading of item B25 on ξ_2;

- The measurement error variances ($\theta_{\delta ii}$) were all statistically significant (p < .05);

- The completely standardised measurement error variances were all small (i.e. $\theta_{\delta jj}$ < .75) but for the error variances ($\theta_{\delta 33}$ and $\theta_{\delta 10,10}$) associated with item B13 and item B25.;

- The 15 inter-latent first-order competency correlations (ϕ_{kp}) were all statistically significant (p < .05); and

- The inter-latent first-order competency correlations were not excessively large in the sense that none exceeded .90 and none of the 95% confidence intervals calculated for ϕ_{kp} included 1.

The multidimensional compassion construct was conceptualised to comprise six specific latent competencies. Items were specifically written so that the manner in which medical practitioners respond to them would reflect their level of competence on a specific latent compassion competency. This conceptualisation, in conjunction with the design intention that guided the development of the MPCCQ, implied the measurement model shown in Figure 7.10. Although not an unqualified corroboration of the hypothesis that the MPCCQ provides construct valid measures of the multidimensional compassion construct as constitutively defined, these findings nonetheless are by and large compatible with such a position.

The conceptualisation of the multidimensional compassion construct did, however, not only identify and explicate the connotative meaning of the six latent compassion competencies that make up the multidimensional medical practitioner compassion construct, but it also made clear how the constituent parts causally affect each other. The available portfolio of evidence would, therefore, be strengthened if it could also be shown that the structural model reflecting the internal structure attributed to the multidimensional compassion construct as constitutively defined fits data obtained from the MPCCQ and the paths in the structural model are statistically significant (p < .05).

7.14 PSYCHOMETRIC EVALUATION OF THE COMPREHENSIVE MEDICAL PRACTITIONER COMPASSION COMPETENCY STRUCTURAL MODEL

In order to further evaluate the construct validity of the construct-referenced inferences derived from the MPCCQ, LISREL 8.8 was utilised to evaluate the fit of the comprehensive MPCCQ LISREL model. The completely standardised solution of the fitted comprehensive medical practitioner compassion competency LISREL model is shown in Figure 7.11. The full spectrum of fit statistics produced by LISREL 8.8 for the comprehensive MPCCQ LISREL model is shown in Table 7.72.

Table 7.72

Goodness of Fit Statistics for the Comprehensive Medical Practitioner Compassion Competency Model

Goodness of Fit Statistics
Degrees of Freedom = 552
Minimum Fit Function Chi-Square = 867.3121 (P = .00)
Normal Theory Weighted Least Squares Chi-Square = 876.3877 (P = .0)
Satorra-Bentler Scaled Chi-Square = 744.5516 (P = .0000)
Estimated Non-centrality Parameter (NCP) = 192.5516
90 Percent Confidence Interval for NCP = (125.3523 ; 267.8246)
Minimum Fit Function Value = 3.7065
Population Discrepancy Function Value (F0) = .8229
90 Percent Confidence Interval for F0 = (.5357 ; 1.1445)
Root Mean Square Error of Approximation (RMSEA) = .03861
90 Percent Confidence Interval for RMSEA = (.03115 ; .04554)
P-Value for Test of Close Fit (RMSEA < .05) = .9973
Expected Cross-Validation Index (ECVI) = 3.8485
90 Percent Confidence Interval for ECVI = (3.5613 ; 4.1702)
ECVI for Saturated Model = 5.3846
ECVI for Independence Model = 66.2580
Chi-Square for Independence Model with 595 Degrees of Freedom = 15434.3680
Independence AIC = 15504.3680
Model AIC = 900.5516
Saturated AIC = 1260.0000
Independence CAIC = 15660.4535
Model CAIC = 1248.3993
Saturated CAIC = 4069.5389
Normed Fit Index (NFI) = .9518
Non-Normed Fit Index (NNFI) = .9860
Parsimony Normed Fit Index (PNFI) = .8830
Comparative Fit Index (CFI) = .9870
Incremental Fit Index (IFI) = .9871
Relative Fit Index (RFI) = .9480
Critical N (CN) = 199.6993
Root Mean Square Residual (RMR) = .05792
Standardised RMR = .05741
Goodness of Fit Index (GFI) = .8237
Adjusted Goodness of Fit Index (AGFI) = .7988
Parsimony Goodness of Fit Index (PGFI) = .7217

The Satorra-Bentler chi-square (χ^2), calculated in terms of the robust maximum likelihood estimation procedure, provided a significant statistical value of 717.7365 (p < .05). The exact fit null hypothesis (H_{092}: RMSEA = 0) was therefore rejected.

In addition, Table 7.72 indicates the full array of fit statistics calculated to assess the close fit of the comprehensive structural model in the sample which resulted in a RMSEA value of .039 (p >.05) which indicates good fit.
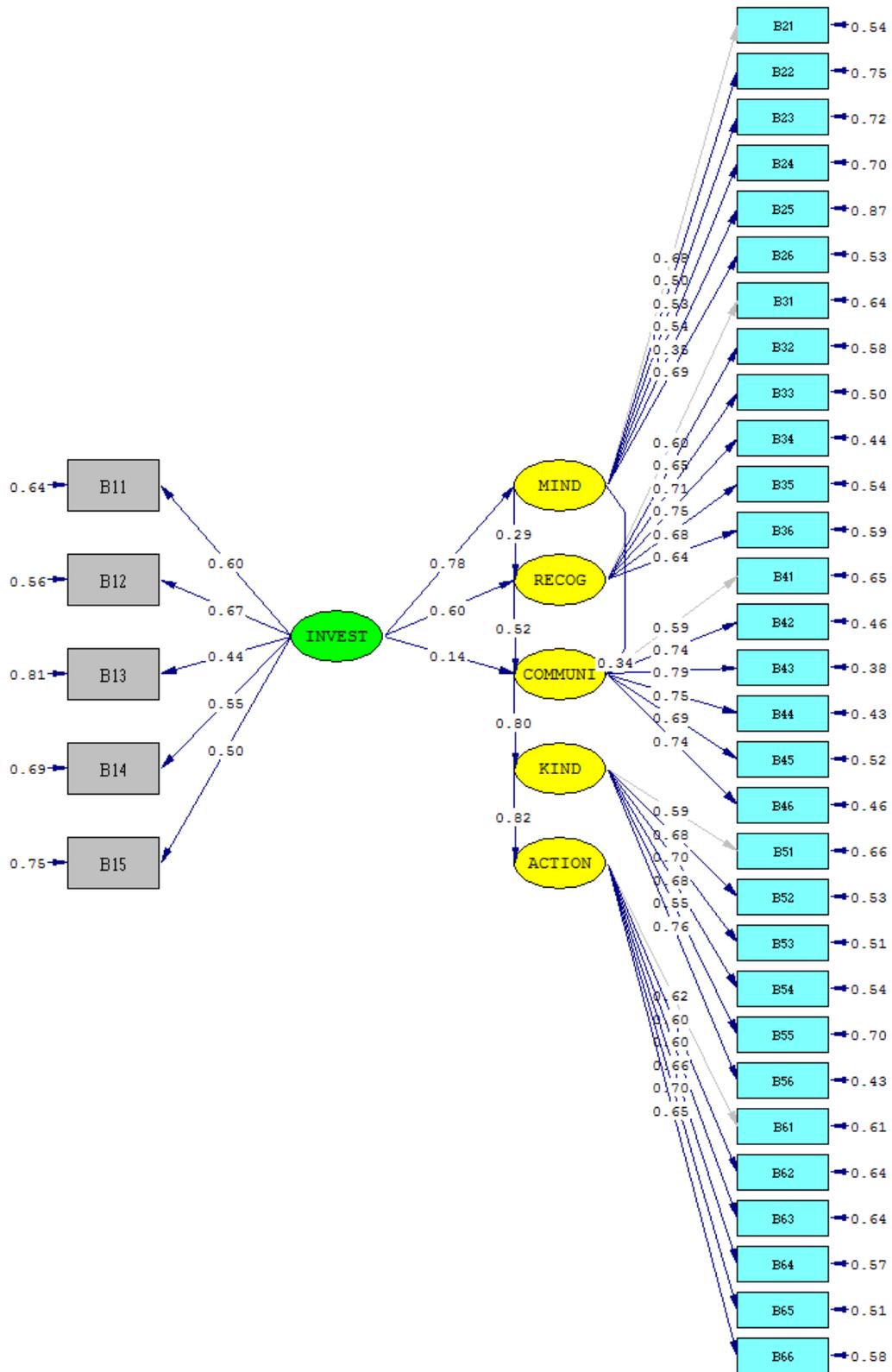
Figure 7.11. The comprehensive medical practitioner compassion competency structural model (completely standardised solution)

The probability of observing the sample RMSEA estimate, under the close fit null hypothesis, was sufficiently large (.9992) not to question the close fit null hypothesis. The close fit null hypothesis (H_{093}: RMSEA ≤ .05) is therefore not rejected (p > .05). In other words, the comprehensive LISREL model provided an approximate account of the covariance matrix in the parameter, thus presenting a model that is consistent with the empirical data (Kelloway, 1998).

Using the 90% confidence interval for RMSEA, it can be concluded with 90% confidence that the parametric value of RMSEA lies between .02901 and .04394. Worthy of note is that the additional constraints imposed by the structural model on the measurement model only marginally reduced the fit of the model (the RMSEA of the measurement model (.03680) increased by only .00181 to .03861 for the comprehensive LISREL model).

Also the additional indices, namely the Normed Fit Index (NFI), the Non-Normed Fit Index (NNFI), the Comparative Fit Index (CFI), the Incremental Fit Index (IFI) and the Relative Fit Index (RFI) showed a convincing argument in favour of the fit of the comprehensive model given the following results: NFI (.952), NNFI (.986), CFI (.987) IFI (.987) and RFI (.948). Hu and Bentler (1999) is of the opinion that the values for these indices should all exceed a cut-off value of .95, thus indicating a good fit. All reported values were adhering to this guideline. The standardised RMR (.05741) also indicated good model fit in that standardised RMR values of .05 and smaller are considered indicative of good model fit (Diamantopoulos & Siguaw, 2000).

The finding of close measurement model fit and close comprehensive LISREL model fit implied acceptable structural model fit. This in turn warranted the interpretation of the structural model parameter estimates.

7.14.1 Unstandardised Beta Matrix

The primary objective in evaluating the comprehensive structural model parameter estimates was to determine whether each of the hypothesised path-specific relationships as argued theoretically in Chapter Two and formulated as path-specific statistical hypothesis in Chapter Three, were supported by the data. Diamantopoulos and Siguaw (2000) are of the opinion that four aspects should be taken into consideration when evaluating path-specific hypotheses, namely the signs (i.e., positive or negative) of the parameters that represents the paths between the dimensions. It should be determined whether the direction of the hypothesised relationships are indeed as were initially theorised and predicted under the alternative hypotheses. Secondly, the statistical significance (p < .05) of the estimated path coefficient should be utilised to determine whether the estimate can be generalised to the parameter. Thirdly, if found to be statistically significant (p < .05), the magnitude of the completely standardised estimated parameters should be used to determine the strength of the hypothesised relationships and lastly, the

squared multiple correlations for the structural equations should be used to determine the proportion of variance in each latent compassion dimension that is explained by the structural model. In the subsequent section the unstandardised beta (**B**) and gamma (**Γ**) matrices are explained in order to get clarity on the causal linkages that were hypothesised to exist between the exogenous latent variables (**B**) and between the exogenous and endogenous latent variables (**Γ**) according to the constitutive definition of the multidimensional compassion construct.

The unstandardised beta matrix, as shown in Table 7.73, describes the slope of the regression of each of the endogenous latent compassion dimensions in the structural model on the endogenous latent variables that were hypothesised to affect them. The parameter estimates were interpreted as partial regression slope estimates. They therefore describe the influence of η_j on η_i when controlling for η_P and ξ_P that were also hypothesised to affect η_j (Theron, 2017). All the β_{ij} parameter estimates were statistically significant ($p < .05$). Moreover, the signs of the statistically significant ($p < .05$) β_{ij} estimates agreed with the nature of the effect that was originally hypothesised and that was captured in the formulation of the alternative hypotheses.

Table 7.73

Unstandardised Regression Slope Estimates (Beta Matrix) for the Medical Practitioner Compassion Competency Comprehensive Model

	MIND	RECOG	COMMUNI	KIND	ACTION
MIND	- -	- -	- -	- -	- -
RECOG	.2928* (.1453) 2.0149	- -	- -	- -	- -
COMMUNI	.3432* (.1169) 2.9360	.5222* (.1396) 3.7403	- -	- -	- -
KIND	- -	- -	.8033* (.1174) 6.8442	- -	- -
ACTION	- -	- -	- -	.8240* (.1273) 6.4736	- -

Note: MIND refers to mindfulness, RECOG refers to recognition of emotions, COMMUNI refers to gaining and communicating an empathic understanding, KIND refers to caring with kindness, ACTION refers to compassion action orientation. The first value in each cell represents the unstandardised estimate, the second value (in brackets) represents the standard error and the third value the z test statistic obtained by dividing the unstandardised estimate by the standard error.
* ($p < .05$)

Since all the β_{ij} parameter estimates were statistically significant ($p < .05$) and since the signs of the estimates agreed with the position taken under the respective alternative hypotheses, support was shown for the following five beta hypotheses:

- Hypothesis 2: Competence on the *interpretation of emotions and recognising suffering* competency, positively influences the level of competence achieved on the *gaining and communicating empathic understanding* competency (H_{a94}: $\beta_{32} > 0$).

- Hypothesis 3: Competence on the *mindfulness* competency, positively influences the level of competence achieved on the *gaining and communicating empathic understanding* competency (H_{a95}: $\beta_{31} > 0$).

- Hypothesis 4: Competence on the *mindfulness* competency, positively influences the level of competence achieved on the *interpretation of emotions and recognising suffering* competency (H_{a96}: $\beta_{21} > 0$).

- Hypothesis 8: Competence on the *gaining and communicating empathic understanding* competency, positively influences the level of competence achieved on the *caring with kindness* competency (H_{a100}: $\beta_{43} > 0$).

- Hypothesis 9: Competence on the *caring with kindness* competency, positively influence the level of competence achieved on the *compassion action orientation* competency (H_{a101}: $\beta_{54} > 0$).

7.14.2   Unstandardised Gamma Matrix

The unstandardised gamma matrix, as shown in Table 7.74, describes the slope of the regression of the endogenous latent compassion dimensions that were hypothesised to be influenced by the single exogenous latent variable in the structural model. The parameter estimates were interpreted as partial regression slope estimates, therefore describe the influence of ξ_1 on η_i when controlling for η_p that were also hypothesised to affect η_i (Theron, 2017).

Two of the three γ_{i1} parameter estimates were statistically significant (p < .05). Table 7.74 shows that γ_{11} and γ_{21} were both statistically significant (p < .05). Moreover, the signs of the two estimates agreed with the nature of the effect that was originally hypothesised and that was captured in the formulation of the alternative hypotheses. Therefore, support was found for the following gamma hypotheses:

- Hypothesis 5: Competence on the *investing the self* competency, positively influence the level of competence achieved on the *mindfulness* competency (H_{a97}: $\gamma_{11} > 0$).

- Hypothesis 6: Competence on the *investing the self* competency, positively influence the level of competence achieved on the *interpretation of emotions and recognising suffering* competency (H_{a98}: $\gamma_{21} > 0$).

Table 7.74, however, shows that γ_{31} was not statistically significant (p > .05). Support was therefore not found for one of the three gamma hypotheses namely:

- Hypothesis 7: Competence on the *investing the self* competency positively influence the level of competence achieved on the *gaining and communicating empathic understanding* competency (H_{a99}: $\gamma_{31} > 0$).

Again, it needs to be stressed that this finding does not warrant the conclusion that the level of competence on the *investing the self* competency, did not influence the level of competence achieved on the *gaining and communicating empathic understanding* competency. The finding means that the level of competence on the *investing the self* competency did not influence the level of competence achieved on that part of the *gaining and communicating empathic understanding* competency that is not explained by *mindfulness* and *interpretation of emotions and recognising suffering* competency. Moreover, the results indicate that the level of competence on the *investing the self* competency did influence the *gaining and communicating empathic understanding* competency indirectly via the mediating effect of the *mindfulness* and *interpretation of emotions and recognising suffering* competencies.

Table 7.74

Unstandardised Regression Slope Estimates (Gamma Matrix) for the Medical Practitioner Compassion Competency Comprehensive Model

	INVEST
MIND	.7844*
	(.0936)
	8.3770
RECOG	.5966*
	(.1519)
	3.9283
COMMUNI	.1380
	(.1321)
	1.0447
KIND	
ACTION	

Note: INVEST refers to investing the self, MIND refers to mindfulness, RECOG refers to recognition of emotions, COMMUNI refers to gaining and communicating an empathic understanding, KIND refers to caring with kindness, ACTION refers to compassion action orientation. The first value in each cell represents the unstandardised estimate, the second value (in brackets) represents the standard error and the third value the z test statistic obtained by dividing the unstandardised estimate by the standard error.
* (p < .05)

Diamantopoulos and Siguaw (2000) is of the opinion that the magnitude of the estimates of the regression slopes should rather be interpreted and compared in the completely standardised solution, since the metric in which the unstandardised regression slopes are expressed are not always comparable across different latent variables. Thus, the completely standardised beta and gamma matrices are shown in Table 7.75 and Table 7.76. These two tables indicate the average change, expressed in standard deviation units, in an endogenous latent variable that is associated with one standard deviation change in an endogenous or exogenous latent variable that has been structurally linked to it in the structural model, when holding all the other endogenous and exogenous variables constant (Spangenberg & Theron, 2005).

7.14.3   Completely Standardised Beta Matrix

Table 7.75 indicates that the most pronounced effect was the effect of *caring with kindness* on *compassion action orientation*.

Table 7.75

Completely Standardised Regression Slope Estimates (Beta Matrix) for the Medical Practitioner Compassion Competency Comprehensive Model

	MIND	RECOG	COMMUNI	KIND	ACTION
MIND					
RECOG	.2928				
COMMUNI	.3432	.5222			
KIND			.8033		
ACTION				.8240	

Note: MIND refers to mindfulness, RECOG refers to recognition of emotions, COMMUNI refers to gaining and communicating an empathic understanding, KIND refers to caring with kindness, ACTION refers to compassion action orientation.

The effect of *gaining and communicating empathic understanding* on the level of competence achieved on the *caring with kindness* competency, was almost as strong though. The level of competence that is achieved on the *interpretation of emotions and recognising suffering* competency had a moderately strong influence on the level of competence achieved on the *gaining and communicating empathic understanding* competency when controlling for the influence of *mindfulness* and *investing the self*. The level of competence on the *mindfulness* competency had a rather modest influence on the level of competence achieved on the *interpretation of emotions and recognising suffering* competency when controlling for *investing the self*. The level of competence on the *mindfulness* competency had a small effect on the level of competence achieved on the *gaining and communicating empathic understanding* competency, when controlling for *interpretation of emotions and recognising suffering* and *investing the self*.

7.14.4 Completely Standardised Gamma Matrix

Table 7.76 indicates that the most pronounced effect was the effect of the level of competence on the *investing the self* competency on the level of competence that is achieved on the *mindfulness* competency. The level of competence on the *investing the self* competency also had a reasonably pronounced effect on the level of competence achieved on the *interpretation of emotions and recognising suffering* competency when controlling for *mindfulness*.

Table 7.76

Completely Standardised Regression Slope Estimates (Gamma Matrix) for the Medical Practitioner Compassion Competency Comprehensive Model

	INVEST
MIND	.7844
RECOG	.5966
COMMUNI	.1380
KIND	
ACTION	

Note: INVEST refers to investing the self, MIND refers to mindfulness, RECOG refers to recognition of emotions, COMMUNI refers to gaining and communicating an empathic understanding, KIND refers to caring with kindness, ACTION refers to compassion action orientation.

7.14.5 Unstandardised Psi Matrix

The unstandardised psi matrix for the comprehensive LISREL model is depicted in Table 7.77.

Table 7.77

Unstandardised Structural Error Variance (Psi) Matrix for the Medical Practitioner Compassion Competency Comprehensive Model

MIND	RECOG	COMMUNI	KIND	ACTION
.3847*	.2842*	.1244*	.3547*	.3210*
(.1151)	(.0830)	(.0385)	(.0920)	(.0879)
3.3421	3.4260	3.2319	3.8574	3.6542

Note: MIND refers to mindfulness, RECOG refers to recognition of emotions, COMMUNI refers to gaining and communicating an empathic understanding, KIND refers to caring with kindness, ACTION refers to compassion action orientation. The first value in each cell represents the unstandardised estimate, the second value (in brackets) represents the standard error and the third value the z test statistic obtained by dividing the unstandardised estimate by the standard error.
* ($p < .05$)

Table 7.77 indicates that all five endogenous latent variables were statistically significantly (p<.05) affected by structural error. Thus, all the null hypotheses H_{0i}: $\psi_{qq} = 0$; i = 102, 103, …, 106; q = 1, 2, …, 5 were rejected in favour of H_{ai}: $\psi_{qq} > 0$; i = 102, 103, …, 106; q = 1, 2, …, 5. This finding was welcomed. The level of compassion that medical practitioners display is complexly determined. Although the various latent competency dimensions comprising the compassion construct influence each other, a large number of competency potential and situational latent variables are expected to directly and indirectly influence the level of competence that medical practitioners achieve of the compassion competencies.

7.14.6 Completely Standardised Psi Matrix

The completely standardised Ψ matrix for the comprehensive LISREL model is depicted in Table 7.78. Table 7.78 reveals the proportion of variance in the five endogenous latent variables (i.e. the compassion competency dimensions) that were not explained by the structural model. It was expected that the structural model would only explain rather modest proportions of variance in each of the endogenous

latent variables and that the majority of the variance would be explained by structural error. If the level of competence that medical practitioners achieve on the latent competencies that comprise the compassion construct is complexly determined by a nomological network of latent competency potential variables, latent situational variables and latent outcome variables, as argued above, it is to be expected that the internal dynamics of the compassion construct will account for relatively small proportions of the variance in its constituent parts. To reduce the structural error variance, the multidimensional compassion competency needs to be validly embedded in this larger nomological network of latent variables. Rather surprisingly this was not the case. Table 7.78 indicates that the structural model explains more than 60% of the variance in each of the endogenous latent variables[120]. Especially the latent *Gaining and communicating an empathic understanding* competency (*circa* 88%) and, to a somewhat lesser degree, the latent *Recognition of emotions* competency (*circa* 72%) were surprisingly well explained by the structural model. One possible explanation for this finding is that the latent competency potential variables, latent situational variables and latent outcome variables primarily affect the level of compassion competence that medical practitioners achieve via the latent *Investing the self* competency. The latent *Investing the self* competency therefore could be mediating the effect of the latent competency potential variables, latent situational variables and latent outcome variables on the more downstream latent compassion competencies.

Table 7.78

Completely Standardised Structural Error Variance (Psi) Matrix for the Medical Practitioner Compassion Competency Comprehensive model

MIND	RECOG	COMMUNI	KIND	ACTION
.3847	.2842	.1244	.3547	.3210

Note: MIND refers to mindfulness, RECOG refers to recognition of emotions, COMMUNI refers to gaining and communicating an empathic understanding, KIND refers to caring with kindness, ACTION refers to compassion action orientation.

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[120] The R² values for the five endogenous latent variables are .6153 (MIND), .7158 (RECOG), .8756 (COMMUNI), .6453 (KIND) and .6790 (Action)

CHAPTER 8
CONCLUSION AND RECOMMENDATIONS

8.1   INTRODUCTION

This final chapter serves to provide an overview of the research, followed by various contributions originating from the study as well as limitations. Practical recommendations are made regarding the performance management of medical practitioner compassion. Subsequently recommendations for future research are put forward not only from a theoretical perspective but also from the results of the research.

8.2   OVERVIEW OF THE RESEARCH

The study developed from a need to operationalise medical practitioner compassion as a competency on which competence is necessary for the successful medical practitioner-patient encounter in the public healthcare sector. The study argued that compassion is a necessary and integral component of medical practitioner performance. Work performance was conceptualised as a structurally inter-linked set of latent behavioural competencies and latent outcome variables.

According to the Health Professions Act of 1974, medical practitioner work performance is defined in terms of the following two broad healthcare outcomes namely, preventing people from contracting diseases and curing patients. This viewpoint was however criticised as too limiting, since performance outcomes such as patient trust in a medical practitioner, amongst others, are ignored whilst they could be regarded as influential in achieving those two generalist outcomes. In addition, clarity is not given on the behaviour tasks (or competencies) that the medical practitioner needs to perform to achieve those two outcomes. Effective and efficient medical practitioner performance is expected from medical practitioners. The success achieved by medical practitioners, however, varies across practitioners. This variance is not due the outcome of some random process but rather is the outcome of a complex psychological mechanism comprising person characteristics and (interpreted) situational characteristics that systematically regulates the level of competence that medical practitioners achieve. Because variance in medical practitioners' performance is not the outcome of a random event, but rather is systematically, albeit complexly, determined it in principle becomes possible to purposefully enhance medical practitioner performance. The success of interventions aimed at enhancing medical practitioner performance are, however, dependent on the extent to which the psychological mechanism, that systematically regulates the level of competence that medical practitioners achieve, is validly understood. To develop and empirically test explanatory hypothesis on the nature of this mechanism, a construct valid and reliable measure of medical practitioner performance is required. To monitor and manage the performance of medical practitioners, a construct valid and reliable measure of medical

practitioner performance is required. To develop a construct valid and reliable measure of medical practitioner performance, in turn requires a clear constitutive definition of medical practitioner performance that explicates the connotative meaning of the construct.

The definition of medical practitioner performance provided by the Health Professions Act of 1974 is regarded as inadequate because:

- It is vague on the nature of the competencies that medical practitioners need to be competent on to achieve these two (downstream) outcomes,

- It ignores a whole network of more upstream outcomes that mediate the effect of medical practitioner competence on the competencies on the two downstream outcomes, and

- It fails to explicitly acknowledge that the competencies that medical practitioners need to display competence on, extend beyond the technical actions required by the profession.

Therefore, a need exists to conceptualise medical practitioner performance extensively in order to acknowledge that the construct encompasses so much more than the technical definition proposed by the Act. Performance can only be managed if it is measured, but then a clear definition of the required performance outcomes is necessary, as well as the specified competencies necessary for achieving it. Human resource management and industrial psychology could be regarded as valuable business partners in the endeavour to manage the performance of medical practitioners, since their main focus is to optimise human potential in the workplace.

The foregoing argument also applies to compassion as a latent behavioural dimension (i.e. one competency) of the multidimensional medical practitioner performance construct.

Patients are human beings that live in a phenomenological world where they try to create meaning beyond scientific explanations. Expertise on genetics, biology, chemistry and physiology is necessary to cure a disease, but to heal an illness, a medical practitioner needs to discover the patient's life journey, and support the patient to find meaning, purpose and wholeness, when faced with an illness (Swinton, 2001). It has been shown that patients with a strong sense of purpose in life, increase their mental and physical health, contributing to an enhanced overall quality of life (Alimujiang et al., 2019). Patients want to be treated like family; they want to feel cared for; they want to receive attention, they want to be treated as a human being, not a "case" nor as a "number". Patients want to find comfort in a safe space that they expect the medical practitioners to provide. They want to observe the medical practitioner as being 'present' (Gwyther, 2011). Given the importance of patient's needs and rights, as well as the way in which these healthcare services should be offered to the public sector, not disregarding the vital goal to equip medical practitioners as best as possible in achieving performance outcomes, medical practitioner compassion is deemed necessary.

Unfortunately, it seems as if a decline in compassion in healthcare has been present over the last number of years (Samalonis, 2007). Medical students seem to have become less compassionate during medical training and seem to prefer to utilise a biomedical model during medical encounters (Self, Schrader, Baldwin & Wolinsky, 1993). Contributing factors towards the decline in compassion in healthcare, could also be situational factors affecting medical practitioner performance such as understaffed and under resourced facilities, the overpopulation of patients as well as older infrastructure. Despite these challenges, it is still expected that medical practitioners need to deliver on clinical outcomes such as diagnosing a certain number of patients per day, perform a specified number of procedures and manage diseases (Landau, 1993).

Limited research was found on the construct of medical practitioner compassion, specifically from a competency perspective. A more popular stance was to describe compassion as either a state or trait, in other words, as an employee characteristic. Also, no constitutive definition for the construct in the South African context could be found, nor the availability of a psychometrically sound instrument, measuring this competency in the South African public healthcare sector. In an attempt to address these shortcomings and to make a concrete contribution to the improvement of medical practitioner compassion, the broad objective of this research was therefore to explicate the connotative meaning of medical practitioner compassion as a multidimensional latent behavioural competency, develop a formal constitutive definition of medical practitioners compassion construct and thirdly, to develop an instrument for the measurement of compassion as displayed by medical practitioners and to empirically psychometrically evaluate the reliability of the measures and the validity of the construct-referenced inferences derived from the scale.

Each chapter in the study contributed to the achievement of the broad objectives specified for the study. The study at the outset developed an argument making case for the importance of medical practitioner compassion. An initial constitutive definition was proposed that led to the identification of six latent compassion dimensions that were guided by literature, informed by practice and researcher cognition. The connotative meaning of the multidimensional compassion construct lies in part in the internal structure attributed to the construct. Specific causal structural relations were conceptualised to exist between the six latent compassion dimensions. These were captured in a theoretical compassion structural model. The connotative meaning of the compassion construct further lies in the manner in which the construct, and its latent dimensions, are embedded in a larger nomological network of latent variables. In an attempt to further explicate the connotative meaning of the compassion construct, the structural model that describes the internal structure attributed to the construct was extended by structurally mapping the latent compassion competencies on patient and medical practitioner characteristics that are thought to be affected by the compassion competencies.

The nature of the topic under investigation required a multidisciplinary and collaborative approach with psychology, medicine and health sciences as well as education. Medical practitioners, acting as SME's, were utilised as co-researchers in the data gathering phase. First of all, qualitative data was collected by means of CIT interviews in which medical practitioners shared examples of good and poor medical practitioner behaviour, linked to certain compassion dimensions as specified by the constitutive compassion definition. The rich descriptions gave valuable information in the sense that it was used to write behavioural anchors for the MPCCQ. The quantitative phase consisted of the psychometric evaluation of the items comprising the six subscales through item and EFA, assessment of the fit of the MPCCQ measurement model as well as the evaluation of the fit of the comprehensive LISREL model. Goodness of statistics were utilised to test the fit of the models from various angles, indicating good model fit for both models. Interestingly the comprehensive LISREL model showed only marginally poorer fit than the measurement model, which is uncommon and was above expectation. Both qualitative and quantitative data sources fruitfully served the research objectives of explicating the connotative meaning of medical practitioner compassion, developing a psychometrically sound instrument, measuring the construct as a competency and compiling a portfolio of psychometric evidence in support of the claim that the construct-referenced inferences derived from the dimension scores obtained on the MPCCQ, are construct valid. The integration of the findings originating from both the qualitative and quantitative data collection underlines the theoretical and practical implications that follow in the subsequent section.

8.3   SUMMARY OF THE RESEARCH RESULTS AND FINDINGS

The implications and contributions are presented according to the theory and research sections of the dissertation.

8.3.1   Results of the Theorising and Conceptualisation
8.3.1.1 *Constitutive Definition of Compassion*

Most of the compassion definitions available in literature are written from either a state or trait perspective. For this study, however, compassion was classified as a latent behavioural competency. As a first draft, in Chapter One, the following definition of compassion was formulated:

> *Compassion is context-appropriate helping behaviour that is motivated by the desire and intent to relieve the suffering of another human being (and all other life forms) rooted in a concern for a fulfilling life.*

After a process of conceptualisation which was also influenced by the literature study, the internal structure of compassion became clearer and allowed the identification of the internal structure of this

construct in Chapter Two. The following dimensions were identified as constituting to the competency compassion:

1. Recognition of the suffering

2. Showing a phenomenological valid, insider, understanding of the suffering

3. Displaying authentic affection and care

4. Displaying the desire to lessen the pain

5. Taking context appropriate tangible steps to lessen the suffering

The initial constitutive definition was subsequently adapted to more explicitly reflect the latent compassion dimensions comprising the compassion competency:

> Recognising someone's suffering, conveying an insider phenomenological *understanding* of someone's suffering, expressing the unconditional *desire to alleviate* the suffering rooted in demonstrated *authentic affection and care* for the individual and *implementing tangible context-appropriate action* to alleviate the suffering.

The linkages between different dimensions were also acknowledged as depicted in Figure 8.1. This was a second draft of the compassion competency definition.
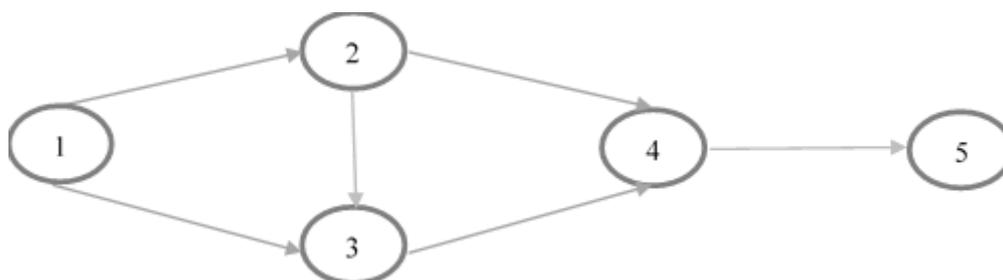
Figure 8.1. The initial proposed internal structure of compassion as a competency

Note: 1 refers to recognition of the suffering, 2 refers to showing a phenomenological valid, insider, understanding of the suffering, 3 refers to displaying authentic affection and care, 4 refers to displaying the desire to lessen the pain and 5 refers to taking context appropriate tangible steps to lessen the suffering

Despite the improvement that the second draft of the constitutive definition brought, there was still discomfort about the proposed structure of the competency, given that dimensions might have been omitted. A medical practitioner cannot recognise a patient's suffering if they do not first of all, invest themselves in the medical encounter. Also, a medical practitioner would probably not be able to recognise the suffering and gain and communicate empathic understanding if he/she is not physically and psychologically present in the moment (mindfulness). The second constitutive definition of the compassion construct was therefore further revised to read:

> *Recognising* someone's suffering, attentively living in the moment of the patient-practitioner encounter, investing the self in the role of alleviating the suffering, developing and conveying an insider phenomenological *understanding* of someone's suffering, demonstrated *authentic affection and care* for the individual and *implementing tangible context-appropriate action* to alleviate the suffering.

Acknowledging that the connotative meaning of the multidimensional latent compassion competency lies in the internal structure of the construct, the internal structure of the compassion competency was slightly adapted to the structural model shown in Figure 8.2.
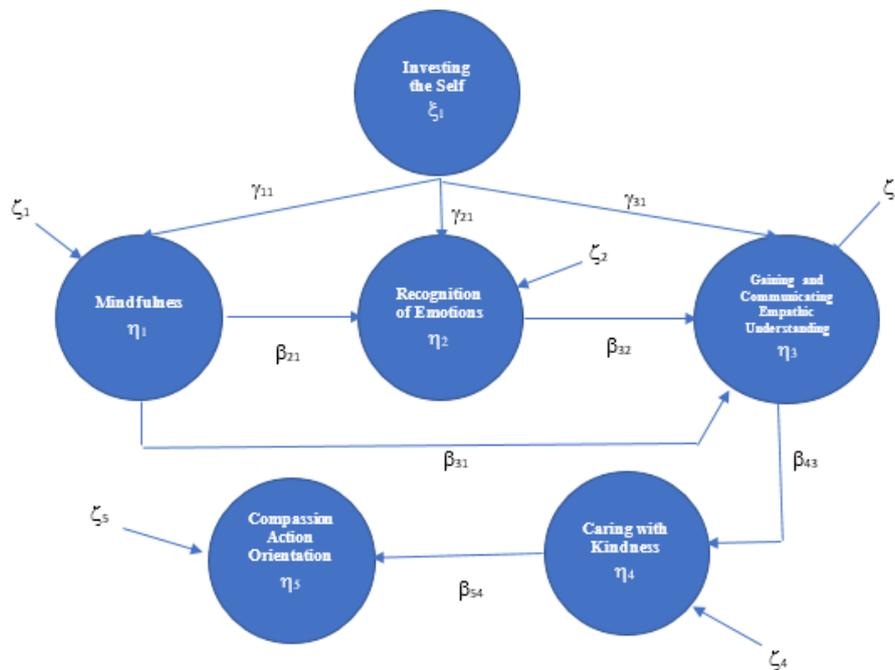
Figure 8.2: Partial medical practitioner compassion structural model reflecting the final internal structure of the multidimensional compassion construct

8.3.1.2 Compassion Definitions of the Latent Dimensions

In addition to the foregoing iterative unfolding of the constitutive definition of the multidimensional compassion construct, constitutive definitions of the six latent compassion dimensions comprising the construct, were developed as well. It was important to ensure clarity of the definitions of the latent compassion dimensions, since these definitions would guide the generation of behavioural denotations that would serve as items in the MPCCQ. Medical practitioners had to identify with the definitions and the definitions also had to encapsulate the context in which medical practitioners have to work. This was priority since final definitions had to be written up in the MPCCQ which medical practitioners had to complete. An iterative process was again followed in the conceptualising of the latent compassion dimensions. During the evaluation process of the dimensions, *mindfulness*, *caring with kindness* and *compassion action orientation* were not altered.

Mindfulness

> The extent to which the medical practitioner focuses on and fully lives in the present moment; registering sensations in a non-judgmental and undistorted manner; grasping what is not clearly seen; registering the current moment accurately.

Caring with kindness

> The way in which the medical practitioner reaches out to patients with kind-heartedness during the medical encounters where both parties need to join to ensure connectedness; by giving attention to patients; listening and supporting them; acknowledging the patient's vulnerability, showing genuine concern and interest in the patient by acting responsibly and by being dedicated and having the courage to be appropriately involved with the patient. Focus on the quality of the engagement, the quality of the medical practitioner's concern and the nature of the medical practitioner's commitment to the patient.

Compassion action orientation

> The extent to which the medical practitioner initiates tangible action that is appropriate in the given context aimed at alleviating suffering, not looking the other way, not expecting help to come from somewhere else. Relieves emotional distress; meets with the family if needed; relieves the suffering of the person and does not only provide treatment; assists in making sense of the suffering, assists in finding meaning in the suffering in wanting to relieve the patient's suffering by taking action.

The definitions of *investing the self*, *recognition of emotions* and *gaining and communicating an empathic understanding* were, however, slightly adapted in the subsequent manner:

Investing the Self

Original Version

> *The extent to which the medical practitioner invests his/her self into the patient-practitioner relationship; the extent to which the practitioner does not remain distant; the extent to which the practitioner gives him-/herself to the patient; the extent to which the practitioner commits him-/herself to the relationship.*

Updated Version

> *The extent to which the medical practitioner invests his/her self into the patient-practitioner relationship; the extent to which the practitioner does not remain distant; the extent to which the practitioner gives him-/herself to the patient; the extent to which the practitioner commits him-/herself to the relationship; the extent to which the practitioner is authentically present in the encounter.*

The original definition stated that medical practitioners "give" and "commit" themselves to patients. This however changed to medical practitioner's committing "themselves" to the relationship and not the patient as such. The theme of being 'authentically' present during the medical encounter was also added to the definition.

Recognition of Emotion

Original Version

> *The extent to which the medical practitioner recognises the emotional state of a patient when and where it occurs as an emotional cue profile pointing to an unresolved problem that causes suffering, by making a conscious effort not to dismiss the emotion; but to identify and understand the verbalised cues and the non-verbal behaviour related to the emotion.*

Updated Version

> *The extent to which the medical practitioner recognises the emotional state of a patient and how this acts as a cue to unresolved problems that cause suffering, by making a conscious effort not to dismiss the emotion; but to identify and understand the verbalised and non-verbalised cues related to the emotion.*

This definition was altered by taking out some wording such as "profile pointing" and shortening the definition to more accurately capture the medical practitioner behaviour underpinning this dimension.

Gaining and communicating an empathic understanding

Original Version

> *The extent to which the medical practitioner develops an understanding of the patient's story of the illness and suffering that assists the medical practitioner in his/her decision-making. Communicating his/her understanding of the patients lived experience of the illness and suffering by showing insight and appreciation of the feelings, concerns and perspectives of a patient by perceiving the patient's internal frame of reference accurately through reflection. Shaping the management plan by the patient's understanding of the illness and suffering. Probing for further information to ensure greater insight; identifying how treatment would relieve the medical problem. Putting oneself in the shoes of another.*

Updated Version

> *The extent to which the medical practitioner develops an understanding of the patient's story of the illness and suffering that assists the medical practitioner in his/her decision-making. The extent to which the medical practitioner perceives the patient's internal frame of reference accurately. Communicating his/her understanding of the patients lived experience of the illness and suffering by showing insight and appreciation of the feelings, concerns and perspectives of a patient through reflection. Shaping the management plan to fit the patient's understanding of the illness and suffering. Probing for further information to ensure greater insight; identifying how treatment would relieve the medical problem as well as the suffering. Putting oneself in the shoes of patients*.

The gaining and communicating an empathic understanding definition was changed by moving the order of sentences to make more sense for the medical practitioners, for by example shifting 'the extent to which the medical practitioner perceives the patient's internal frame of reference accurately' to the

beginning of the definition. Also including wording such as "patients", thus not "putting oneself in the shoes of another", but in the "shoes of patients".

8.3.2 Results and Findings from the Qualitative and Quantitative Research Data

The results and findings that were derived from the qualitative and quantitative research components of the study, are presented in the subsequent sections.

8.3.2.1 *Qualitative: CIT Interviews – additional themes*

As part of the qualitative phase of the data gathering process, twelve medical practitioners were interviewed with the CIT interview. The objective of the interviews was to generate behavioural denotations of the six latent medical practitioner compassion dimensions that could be used as the basis of the items of the MPCCQ. During the interview process, medical practitioners also volunteered facets of information other than the structured questions asked, which was interpreted as a plea for further assistance in future. Two topics were highlighted namely, the overpopulation of patients and professional psychological support for medical practitioners.

Since the public healthcare sector in South Africa provides medical care to approximately 80% of the population (Healthcare in South Africa, 2012) the medical practitioner-patient ratio seems to be a challenge. To take a case in point, the number of physicians per 10 000 people in Sub-Saharan Africa is 2.7 compared to the American ratio of 21.5. More specifically the number of physicians per population of 10 000 in South Africa, is 7.8 (Agyepong et al., 2017). This illustrates the high workload that South African medical practitioners have to deal with in a third world country. The following was verbalised during the qualitative interviews:

> "Well, I include myself here as well. I think sometimes it is not about the person that you are, but about time. We are so busy and pressed to do things, it must be done in the correct way, which you sometimes forget that part that you actually need to show a little bit of compassion or interest in the patient. I think it is just because of time, we are pressed for work, you have to be here and you have to be there. Our patient load is a lot …we see about a 120-160 patients per day. So we don't always finish at 16h00, sometimes you leave here at 17h00/17h30 – you go home, you eat, you sleep, tomorrow you are back here at the clinic. So that is usually for a whole week" (Participant 11).

> "… they would say for one patient on the day, they would give 75%; some people quantify it and for the rest it would be 20%. At least for one patient they gave 75%. Because they need to see so many people. I don't know if it is self-protected, but in a way it is how they rationalise the energy they invest in their consultations. And it will sometimes be given as a word of advice to more junior doctors, they would say 'Look, yes, you can – how to get

through a busy clinic, there are so many patients, if you are going to give everything for every patient, you are not going to finish and you can burnout, so you have to…' It is actually sad that people have come up with formulas and solutions that are completely opposite to what the departments' vision is in terms of healthcare 2030 in terms of person centred quality of care" (Participant 7).

"… one of the other high pressurised environments is the emergency centre, knowing that you are on call for the hospital, so you have to cover the emergency centre, maternity and the wards and yes, you can call on your second on call or third on call doctor to help you, but normally that is intended to help you with theatre cases because someone need anaesthesia or needs to assist in theatre or so. But it is sort of seen as a weakness or incompetence if you are unable to manage the load in the emergency centre. So you know you are pressurised, you see 80 or how many patients a day. Depending on where you work, at some places the nurses would see some patients, but where I work now, every patient that goes through the door, has to be seen by the doctor. Whether it is a clinic case, it is cold symptoms through to a heart attack. Then obviously one can understand that something that is not urgent, you are not going to waste time with them, those are quick patients you can tuck out and continue" (Participant 7).

"…there are 50 patients in casualty which is made for 20 patients, they measure a hospital as being full when your bed occupancy rate goes past 80%, 85% because it sort of means that when you have an influx there is no beds to … Our hospital occupancy rate at Tygerberg Hospital runs at a 160%" (Participant 9).

In addition to the effect that the overpopulation of patients has on medical practitioners, a need for professional support and assistance was also emphasised. Some medical practitioners experience high levels of work stress that cause fatigue and that may eventually lead to burnout if the relentless stress is prolonged too long, whereas others are utilising medication in order to cope with normal workday stressors. Even though stress is not described as a disease, prolonged duration and high intensity can lead to mental and physical ill-health. Work-related stress is defined as exposure to various different work demands which exceeds a person's competence and capacity to cope (Chirico, 2015). In the event that stress is prolonged under the same intensity, the probability of experiencing burnout, increases. The WHO has recently acknowledged 'burnout' in its International Classification of Diseases (ICD) handbook, which is utilised as a benchmark for medical diagnosis in healthcare. This is a small step in the right direction, since medical experts would now be allowed to diagnose it as a treatable condition based on a definition of the burnout syndrome. Job burnout emerged as an important concept in the 1970's (Schaufeli, Leiter & Maslach, 2009). Credit for the term is given to Herbert Freudenberger and to Maslach (1982) who more or less simultaneously, but independently of each other, came up with the term. Maslach and Jackson (1981, p. 99) define burnout as follows:

Burnout is a syndrome of emotional exhaustion and cynicism that occurs frequently among individuals who do "people-work" of some kind. A key aspect of the burnout syndrome is increased feelings of emotional exhaustion. As their emotional resources are depleted, workers feel they are no longer able to give of themselves at a psychological level. Another aspect is the development of negative, cynical attitudes and feelings about one's clients. Such negative reactions to clients may be linked to the experience of emotional exhaustion, i.e. these two aspects of burnout appear to be somewhat related. This callous or even dehumanised perception of others can lead staff to view their clients as somehow deserving of their troubles (Ryan, 1971), and the prevalence among human service professionals of this negative attitude toward clients has been well documented (Wills, 1978). A third aspect of the burnout syndrome is the tendency to evaluate oneself negatively, particularly with regard to one's work with clients. Workers feel unhappy about themselves and dissatisfied with their accomplishments on the job.

Currently, the WHO defines burnout as "a syndrome conceptualised as resulting from chronic workplace stress that has not been successfully managed" (Demko, 2019, para. 2). This syndrome is characterised by the following three dimensions: "1. Feelings of energy depletion or exhaustion; 2. Increased mental distance from one's job, or feelings of negativism or cynicism related to one's job; and 3. Reduced professional efficacy" (Casella, 2019, para. 7). The way in which these dimensions influence medical performance outcomes should not be underestimated since clinical outcomes such as poor quality of patient care, dysfunctional relationships with colleagues and more medical errors have been associated with the occurrence of burnout, also a higher risk of substance abuse, risk of depression and suicidal thoughts as well as a stronger inclination to leave the medical profession (Adams, 2019). Supplementary to the idea of professional support and assistance to these professionals, the occurrence of trauma experienced by the medical practitioner should also be acknowledged. The observation of multiple patient deaths contributes to trauma experienced by some medical practitioners. The following was stated:

"…is the emotional burden on yourself, because obviously if you are hearing everyone's sad story every day, it starts to affect you and maybe sometimes it is better not to go down that road, I don't know" (Participant 10).

"…very high rates of burnout amongst us…" (Participant 10).

"It is very difficult; I was very depressed on Monday night after all these things happened. …Many of us are on antidepressants, I am on antidepressants. Often we use each other as support … actually debriefing with each other. I think a lot of time, it is probably not the ideal and how it should be, I do think we really do need professional people who come and do the debrief with us, but we don't really have access to that…" (Participant 10).

"It is a difficult one and it is one I struggle with, because I tell you, if you give yourself to the patient, you end up being absorbed, and the patient becomes part of you. And you know what is worse, if you lose that patient" (Participant 12).

"The following day I went home, because I was not on call and then I couldn't sleep. In the morning I went back to her. Unfortunately, she didn't make it. That killed me. I broke down, because I was not expecting it. I really think that it is a disadvantage, as a result, I couldn't help it, I cried ... I had to take leave, and work through the depression and they told me 'you tried and did everything', this was just a high risk patient. Unfortunately you break up, this one is dangerous. It is tricky and I become emotionally involved, I think most doctors as well. Especially in our domain, because usually our patients don't die. It is very rare, like we have two maternal deaths per month, three is actually a lot. You know, where as other department, internal medicine or trauma, they see people dying every day, so for them it is normal, but for us, it is difficult, I am sorry – it is still traumatic" (Participant 12).

The current study constitutes a plea for interpreting the performance construct of medical practitioners more broadly, so that it goes beyond the technical medical aspects associated with prevention and treatment of disease, to the treatment of the whole person. More specifically, the current study constitutes a plea for the inclusion of compassion as an important latent behavioural performance dimension in the medical practitioner performance construct. This plea, however, now seems to conflict with the results obtained via the CIT interviews. Does the current study's plea for medical practitioners to display compassion, not increase the risk of burnout and compassion fatigue? Earlier it was theorised that the display of authentic other-directed compassion can satisfy the higher-order need for self-transcendence (Maslow, 1971). Compassion can therefore be rewarding, meaningful and fulfilling. However, to make compassion sustainable over time it was theorised that compassion needs to result in a discernibly positive outcome. Although such positive results can be communicated instantaneously by the patient (e.g. via a glance, a tear, a word, a hug …), medical practitioners in the public healthcare system are at a disadvantage in this regard as they typically cannot build a relationship with a patient over repeated visits, and thus have fewer chances to experience a positive response to their compassion. Earlier it was in addition theorised that mindfulness and self-compassion are two important competencies necessary to sustain compassion.

Although prevention is crucial, burnout and compassion fatigue will inevitably present itself in some medical practitioners. Medical practitioner burnout and compassion fatigue are conditions that should not be ignored as the unfortunate, inevitable consequences of the nature of the working conditions of a medical practitioner in the public health sector. Korczak, Wastian, and Schneider (2012) searched relevant literature across 31 electronic databases for research published between 2006 and 2011 on the effectiveness of different burnout treatments using burnout, therapeutic intervention and treatment outcome as key words. They have located 314 abstracts and from these two, independent reviewers

selected 47 studies that satisfied the Oxford level of evidence criteria (Oxford Centre for Evidence-Based Medicine, 2011). From these 17 studies have been identified that examined the efficacy of burnout therapies. In 14 studies burnout was treated with cognitive behaviour therapy (CBT), stress management training, roots of Rhodiola rosea, physiotherapy, Qigong or music (Korczak et al., 2012). Self-help groups, interventions at the working place and meditation were additional treatment approaches. One study reports the use of a multi-modal psycho-, activity- and relaxation-therapy. Besides that, psychotropic drugs were used – primarily antidepressants and anxiolytics. Korczak et al. (2012) report a lack of convincing evidence in favour of a specific form of treatment.

Given the background of the needs articulated during the qualitative interviews, possible additional recommendations could include the following. The development of resilience workshops offered exclusively to medical practitioners. In other words, utilising positive psychology as an approach in designing custom made workshops for medical practitioners working in the public healthcare sector in South Africa, pro-actively addressing topics such as psychological capital (PsyCAP), purpose, self-care etc. A top down approach should be followed at all institutions, allowing by-in, acceptance and support to build medical practitioner capacity. In addition, also looking at the possibility of working in collaborating with multidisciplinary professional psychological training institutions, mobilising intern psychologists to do practical training at certain sites, thus offering a monthly counselling service for not only addressing dysfunction, but also optimising wellness in the workplace. Wellness interventions aimed at ensuring medical practitioners work-life balance can be offered pro-actively at different central sites for medical practitioners.

The matter concerning the overpopulation of patients, however, remains a challenge since it is a systemic issue on macro level in the healthcare system. In addressing this challenge a bigger organisational design process would probably be needed on a national healthcare level were interdisciplinary teams address topics such as population sensitisation programmes, medical practitioner capacity training, management of infrastructure and equipment as well as leadership. Another option could be to benchmark and learn from other countries experiencing similar challenges. To take a case in point, Mozambique, a third-world country in Africa, experienced similar challenges as South Africa with regards to delivering a healthcare service in widespread geographical areas as well as the overpopulation of patients. The Mozambican healthcare system introduced "técnico de medicina" (TC) during 1984 which is a mid-level medical practitioner trained to perform emergency surgery, obstetrics and traumatology. The reason for the creation of this practice category was the worsening of the civil war which necessitated the availability of additional trained personnel in rural hospitals. The TCs are selected from the best mid-level practitioners or nurses. They do not have a medical degree, but have substantial medical experience in the rural areas. In addition, they also have to undergo an intensive training programme comprising of two years at an approved hospital, as well as a one-year internship in a provincial hospital. Initially some staff perceived TCs as second-class professionals resulting in a lack

of dedication in the pursuit of their education and training. Nevertheless, TCs are sometimes the only 'surgeon' available in some remote areas where a hospital and operational theatre is accessible (Cumbi et al., 2007). South Africa has indeed incorporated some of these learnings by introducing the role of clinical associates in 2008. The first cohort of clinical associates graduated in 2011. Clinical associates are recruited from rural areas and need to work in those areas for three years after graduation (Agyepong et al., 2017).

8.3.2.3 Quantitative: Subscale Item Analysis

The connotative meaning of compassion was explicated in terms of the six latent compassion dimensions identified during the research, the structural relationships that were theorised to exist between them and the manner in which these six structurally interrelated latent compassion dimensions are embedded in a larger nomological network of medical practitioner competency potential and medical practitioner outcome latent variables (these were at the same time patient competency potential latent variables) that were theorised to be affected by the compassion competence of medical practitioners. The critical incidents generated via the series of CIT interviews were used, in conjunction with literature study, to write items to measure these six latent compassion dimensions in the MPCCQ.

All six subscales were analysed using classical measurement theory item analysis in order determine whether the test items reliably and validly measured the latent dimension it was intended to measure. An acceptable Cronbach alpha (above .80) was obtained for three of the subscales, namely recognition of emotion (.832), gaining and communicating an empathic understanding (.868) and caring with kindness (.825). Less satisfactory internal consistency reliability coefficients were obtained for the investing the self dimension (.620) and compassion action orientation (.797). Further statistical analysis into the investing the self dimension, indicated B16 as a problematic test item. After deletion of item B16 a marginally more acceptable, but still not satisfactory, Cronbach alpha of .669 was obtained. Also, in the compassion action orientation subscale, test item B67 was deleted, resulting in an increase of the Cronbach alpha (.803). The mindfulness subscale that obtained a Cronbach alpha of .736 was the only subscale where the deletion of test items proved not to be an option to improve subscale reliability, since for none of the items deletion would increase the Cronbach alpha. Mindfulness tested as a multidimensional subscale; in other words, two factors were identified for this subscale (see paragraph 8.3.2.4 below). The multidimensional nature of the subscale violates the unidimensionality assumption made by Cronbach's alpha and therefore in part explains the less than satisfactory reliability finding obtained for this subscale.

These results necessitate further development of the investing the self and mindfulness subscales. The investing the self subscale tested as a unidimensional subscale, with a low Cronbach alpha. A recommendation to improve the reliability of this subscale would be by developing and adding more

test items to the subscale. With regards to the mindfulness subscale, which is a multidimensional subscale, the same recommendation applies. In the case of the mindfulness subscale, however, the question needs to be answered whether both of the identified mindfulness factors should be retained and whether the existing subscale should be split into two separate mindfulness facet subscales? These questions are examined in the subsequent paragraph (8.3.2.4).

8.3.2.4 *Quantitative: Subscale Dimensionality Analysis and Second-order Subscale Measurement Models*

The six latent compassion dimensions were originally conceptualised as unidimensional latent compassion competencies. The six subscales were therefore all developed to reflect medical practitioners' level of competence on a single, indivisible latent compassion competency. It was therefore also deemed necessary to test whether this design intention guiding the development of the MPCCQ succeeded. Three of the six subscales tested as multidimensional, namely mindfulness, recognition of emotion and compassion action orientation. In all three cases, two factors had to be extracted to obtain a valid and credible explanation of the subscale inter-item correlation matrix.

In the case of all three subscales where factor fission was found, the factor fission was considered to be meaningful. The extracted factors were interpreted as follows:

- Mindfulness:
  - A living in the moment factor that refers to the extent to which medical practitioners allow the sensations of the moment to be consciously experienced and registered in an undistorted manner without judgement (measured by three items);
  - A psychologically present factor that refers to the extent to which medical practitioners allow the sensations of the moment to be accurately experienced in the present moment (measured by three items);
- Recognition of emotion
  - A recognition and labelling of emotion factor that represents the extent to which medical practitioners take seriously and accurately interpret the emotions that patients' experience (measured by four items);
  - An emotional probing factor that represents the extent to which medical practitioners probe and explore the emotions that patients experience to gain greater clarity (measured by two items);
- Compassion action orientation
  - Organising resources around the patient factor that represents the extent to which medical practitioners assist patients with realising wishes and solving problems related to their illness (measured by three items);

o   A compassion action factor that represents the extent to which medical practitioners assist patients in coping with the distress and suffering associated with their illness (measured by three items).

The factor fission raises the question how future versions of the MPCCQ should respond to the three subscales that were originally developed to measure single, indivisible latent compassion dimensions but that in reality measured two facets of the original latent compassion dimension. A first question is whether the distinction between the two factors that were extracted for each subscale, is sufficiently important and useful to justify obtaining separate scores. The distinction should be regarded as important and useful if the extracted factors differentially affect important outcome variables (see Figure 2.16). A distinction between the two extracted factors obtained for each subscale, moreover, becomes more likely important to the extent that the two factors correlated low with each other. In all three cases though the factor intercorrelation were moderately high varying between .631 and .709. The current study concluded that a formal distinction between the two extracted factors obtained for the mindfulness, recognition of emotion and compassion action orientation subscales was not currently warranted.

To determine whether the items of these three subscales could be utilised in a future version of the MPCCQ to reflect a second-order mindfulness, recognition of emotion and compassion action orientation factor the three first-order measurement models implied by the pattern matrices obtained via the EFA were fitted. The first-order mindfulness and compassion action orientation measurement model showed sufficiently acceptable fit to allow the fitting of a second-order measurement model for these two subscales in order to determine whether the second-order factor, indirectly, via the extracted first-order factors, expressed itself statistically significantly ($p < .05$) in the subscale items. In the case of both these subscales, the direct effects of the second-order factors on all subscale items were statistically significant ($p < .05$).

The first-order recognition of emotion measurement model, however, did not show sufficiently acceptable fit to allow the fitting of a second-order measurement model. The modification index values calculated for the off-diagonal of theta-delta suggested that a bi-factor model might fit. The recognition of emotions bi-factor model did in fact achieve excellent fit (after constraining ϕ_{12} to .40). The items loaded statistically significantly ($p < .05$) on the two narrow *recognition of emotion* factors (but for B32 that loaded insignificantly on factor 1) and statistically significantly ($p < .05$) on the broad, general factor. The broad general recognition of emotion factor (rather than the narrow, more specific factor) was the stronger, more dominant determinant of the item response, with the exception of items B34 and B35 where the narrow, more specif factor was the more dominant influence..

The current study interpreted these results as indicative of the fact that the item scores of the three multidimensional subscale may legitimately be combined into a single total score that either reflects a

unidimensional second-order (mindfulness or compassion action orientation) factor or a multidimensional recognition of emotion construct comprising two narrow recognition of emotion factors and a broad, general recognition of emotion factor orthogonal to the two narrow factors.

The factor fission resulted in the measurement of the extracted sub-dimensions by only a limited number of test items varying between 2 and 4. The recommendation is therefore to develop more test items for each of the three subscales identified; at least 5-6 test items per first-order or narrow factor. Following the development of additional test items, reliability of the extended mindfulness and compassion action orientation subscales, should be tested again with Nunnally's (1978) formula for the reliability of an unweighted linear composite or with the stratified alpha formula (Kamata, Turhan, & Darandari, 2003). McDonald's ω, extended to scales with a multidimensional-factor structure (Kamata et al, 2003) would be appropriate to use to calculate the reliability of the extended recognition of emotion subscale.

8.3.2.5 *Quantitative: Comprehensive Medical Practitioner Compassion Competency Structural Model*

The MPCCQ measurement model, in which the latent compassion dimensions were operationalised via the individual subscale items, achieved close fit (p > .05). Moreover, all the retained MPCCQ items statistically significantly (p < .05) reflected the latent compassion dimensions they were designated to represent and the completely standardised factor loadings for all items fell above the cut-off value of .50, except for two items (B13 and B25). In addition, all the retained MPCCQ items were statistically significantly (p < .05) afflicted by systematic and random measurement error. All completely standardised error variances, but two (B13 and B25), fell below .75. All the retained MPCCQ items, but two (B13 and B25), provided valid explanations of the latent dimensions they were designed to reflect (R² ≥.25) when using the critical cut-off value set for the completely standardised factor loadings as basis. All the latent inter-correlations were statistically significant (p < .05). None of the correlations were excessively high. None of the 95% confidence intervals included unity. Collectively these findings served to support the hypothesis that the construct referenced inferences derived from the dimension scores were construct valid.

8.3.2.6 *Quantitative: Comprehensive Medical Practitioner Compassion Competency LISREL Model*

The comprehensive LISREL model achieved close fit (p > .05). Moreover, only one of the hypothesised paths between the latent compassion dimensions was not statistically significant (p > .05), namely the path from *investing the self* to *gaining and communicating an empathic understanding*. This means that *investing the self* does not have a direct effect on *gaining and communicating an empathic understanding*. This implies that a medical practitioner cannot simply invest him/herself in the medical

encounter hoping that this in and by itself will result in successfully gaining and communicating an empathic understanding. Rather the effect of authentically *investing the self* in the practitioner-patient encounter on *gaining and communicating an empathic understanding* is indirect. The effect of *investing the self* in the practitioner-patient encounter on *gaining and communicating an empathic understanding* is mediated by *mindfulness* and *recognition of emotions*. A medical practitioner investing him/herself in the patient-practitioner relationship will, because of this, tend to be more psychologically and physically present in the moment (*mindfulness*) and more competent at recognising emotions. The practitioner will, because of both the increased competence at being mindful as well as recognising emotions, be more competent at *gaining and communication an empathic understanding*. Given the feedback from the analysis it is thus recommended that the proposed structural model (Figure 8.3) is slightly adjusted to reflect this important finding.
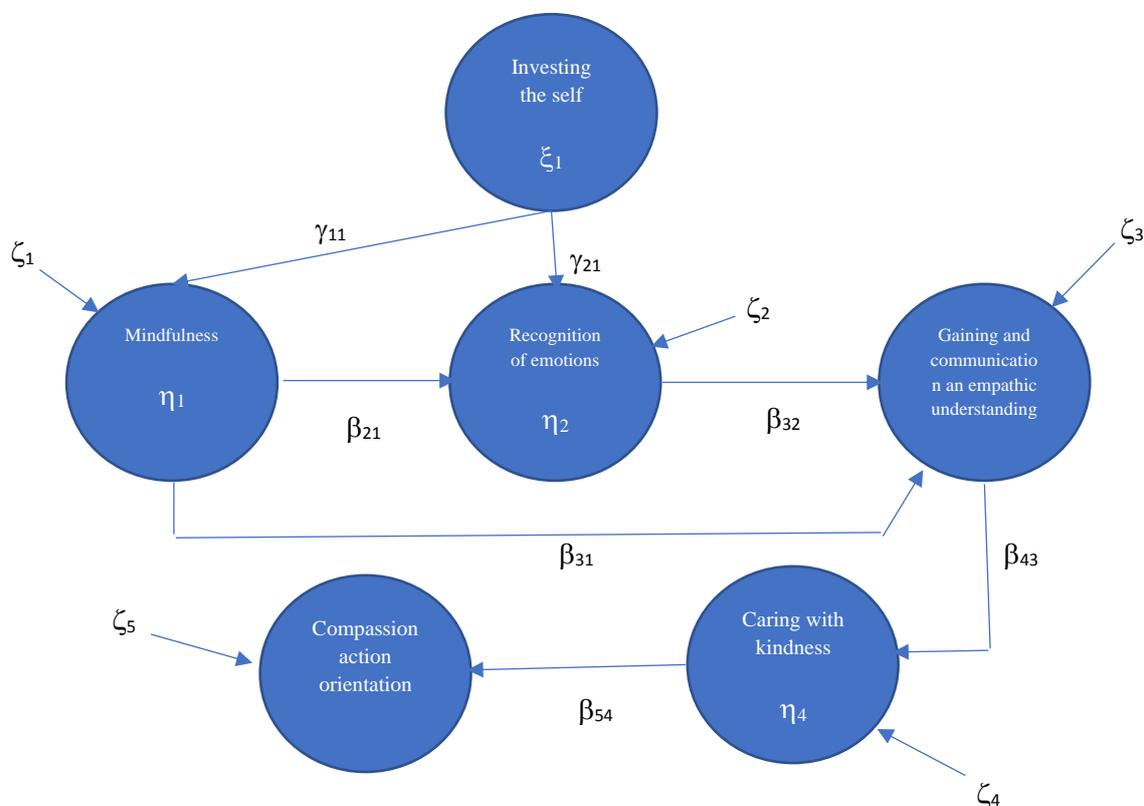
Figure 8.3. Revised medical practitioner compassion structural model with insignificant investing the self direct effect on gaining and communicating an empathic understanding, deleted.

The fact that:

- The MPCCQ measurement model showed close fit;
- The unstandardised factor loadings of the items on their designated latent compassion dimensions were all statistically significant ($p < .05$);
- The completely standardised factor loadings of all items but for B13 and B25 were satisfactorily high (i.e. $\lambda_{ij} \geq .50$);

- The measurement error variances were all statistically significant;

- The completely standardised measurement error variances of all items but for B13 and B25 were satisfactorily small (i.e. $\theta_{\delta ii} \leq .75$);

- The latent inter-dimension correlations were all statistically significant ($p < .05$) but were not excessively large (i.e. $\phi_{jk} < .90$);

- The latent compassion dimensions explained satisfactory proportions of the variance in all the items that were designed to reflect them but for B13 and B25 (i.e. $R^2 \geq .25$);

- The comprehensive LISREL model reflecting the design intention of the MPCCQ and the conceptualised internal structure of the multidimensional compassion construct showed close fit; and

- The structural paths were all statistically significant ($p < .05$), but for the direct effect of *investing the self* on *gaining and communicating an emphatic understanding*, constitutes strong support for the construct validity and discriminant validity of the construct-referenced inferences derived from the dimension scores.

8.4   LIMITATIONS

As in any study, a few limitations have been identified and need some consideration for the purpose of presenting information on how future studies can contribute to the questions highlighted in this study. Methodologically, the first limitation was the sample size of 234 medical practitioners that partook in the questionnaire completion phase. Originally, it was planned to secure a sample of between 250 and 300 medical practitioners. The operational requirements of the medical practitioners made it difficult to get hold of them, especially for the questionnaire completion phase. Formal presentations had to be done at each department during a formal meeting scheduled for that department after which questionnaires were left at the departmental secretary's office for completion. Medical practitioners often either forgot, or were simply too busy, to complete the questionnaires. This resulted in going back to certain departments and doing more presentations; taking note that some hospitals were geographically quite widespread. Data gathering at the National Family Physicians Congress, however, seemed more successful than data gathering at the hospitals. Even though this worked well, a point of criticism can be that the majority of medical practitioners attending the congress were family physicians, who are classified as SME's trained, probably more than other medical practitioners, in the biomedical-psychosocial model of medical encounters. Secondly, a sample representative of the demographic profile of South Africa was difficult to obtain, even though it was attempted. The sample of medical practitioner consisted of both male and females, but was not well representative of all the different races in South Africa. Thirdly, the sample for the qualitative interviews was only drawn from the Western Cape Province, whereas one could probably in future repeat these interviews in other provinces to ensure representability.

The current study only utilised classical measurement theory item analysis to identify and eliminate poor items from the MPCCQ and not item response theory (IRT) item analysis. This is acknowledged as a methodological weakness. The advantage of item response theory item analysis over classical measurement theory item analysis is that it allows the evaluation of items in terms of their ability to discriminate at a specific point on the latent trait continuum (De Ayala, 2009).

The current study combined the reliability and item analysis into a single analysis. In addition, the item analysis was performed prior to the dimensionality analysis. Finally, the dimensionality analysis was performed via EFA. With the wisdom of hindsight, these decisions have to be acknowledged as methodological limitations[121]. Cronbach's alpha assumes unidimensionality but also assumes that the measurement model is essentially tau-equivalent (Graham, 2006)). The latter assumption means that the slope of the regression of the items on the single latent variable (i.e. the factor loadings) are the same for all items. This means that it would have been wiser to first determine whether the unidimensionality assumption had been met before calculating the Cronbach alpha and, even when the unidimensionality assumption has been met, to rather calculate a reliability coefficient that makes less stringent assumptions (like MacDonald's omega that assumes a congeneric measurement model (i.e., factor loadings, intercepts and error variances are allowed to differ across items)). Moreover, if the unidimensionality assumption was not met, the appropriate course of action then was to calculate a reliability coefficient like the Stratified alpha, MacDonald's multidimensional omega (Kamata, Turhan, & Darandari, 2003; Widhiarso & Ravand, 2014) or Nunnally's composite reliability coefficient (Nunnally and Bernstein, 1994). In response to this (*post hoc*) realisation the researcher calculated McDonald's omega for those subscales that met the unidimensionality assumption and calculated the stratified alpha and MacDonald's multidimensional omega for the three subscales that failed the unidimensionality assumption (see Appendix G). The researcher still contends, however, that there is merit in first conducting the item analysis before proceeding to the dimensionality analysis. This allows the identification of problem items that could cause misleading artefact factors to appear in the dimensionality analysis. Important, however, is that in the item analysis strong reliance should not be placed on the reliability coefficient value or the Cronbach alpha if item deleted statistics.

Technically the decision to use EFA to examine the assumption that each of the MPCCQ subscales measure a unidimensional latent compassion competency was not wrong. It can, however, be criticised as not formally reflecting the fact that the subscales were developed to measure unidimensional latent competencies. EFA is an exploratory technique and not a hypothesis testing technique (Tabachnick & Fidell, 2007). Explicitly testing whether a single-factor measurement model can adequately explain the observed inter-item variance-covariance matrix via CFA would have constituted a more intellectually

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[121] The beauty of being involved in academia is that one continuously learns and grows. Sometimes the road to Damascus growth points come at less opportune moments. In the current study new perspectives on these aspects were obtained during the period that the dissertation was under examination but before the examiner reports were received.

honest approach to test the design intention that each subscale should measure a unidimensional latent compassion competency. In response to this realisation separate single-factor measurement models were fitted via CFA for each subscale. The results are shown in Appendix H. The baskets of fit statistics indicate that the CFA also corroborated the unidimensionality assumption[122] for those three subscales for which the unidimensionality assumption were corroborated via the initial EFA (*investing the self*, *gaining and communicating an empathic understanding* and *caring with kindness*). For two of the three subscales for which the unidimensionality assumption were not corroborated via the initial EFA (*mindfulness* and *recognition of emotions)* the baskets of fit statistics portrayed a somewhat ambivalent picture in that the RMSEA fit statistic indicated poor model fit whereas the rest of the array of fit statistics indicated at least reasonable model fit. When bringing the tendency of the RMSEA statistic to underestimate the fit of small df models (Kenny et al., 2015) it could be argued that the remaining fit statistics can be interpreted as corroborating the unidimensionality assumption for these two subscales as well[123]. At the same time, it needs to be taken into account that Kenny et al. (2015) found in their simulation study that in the case of a model with 5 degrees of freedom and a sample of 200 observations the estimation bias in the RMSEA was only .02. For one of the three subscales for which the unidimensionality assumption were not corroborated via the initial EFA (*compassion action orientation*) the baskets of fit statistics corroborated the unidimensionality assumption[124]. On the other hand it is very difficult to argue the fact away that for three of the subscales the single-factor factor structure that was extracted based on the Kaiser rule, failed to convincingly explained the observed inter-item correlation matrix., that a subsequent two-factor structure did provide a more convincing explanation and that the inferred identity of the two extracted factors made substantive theoretical sense. These results emphasise the importance of replication (or cross-validation) research on the MPCCQ (see discussion below and recommendations for future research).

The small sample in conjunction with the small degrees of freedom of the subscale first-order, second-order and bi-factor measurement models caused the tests of exact and close fit of these measurement models to have low statistical power. This is acknowledged as a methodological weakness. In addition, in models with small degrees of freedom the RMSEA fit statistic has been shown to too often falsely indicate a poor fitting model (Kenny, Kaniskan & McCoach, 2015). Kenny et al., 2015) recommend that the RMSEA fit statistic should not be given the same prominence in interpreting the fit of small df models, especially the sample size is small, as given to the evaluation of the fit of high df models. The current study failed to take this weakness of the RMSEA fit statistic into account when interpreting the fit of the subscale measurement models that were fitted where factor fission was indicated by the EFA. This is acknowledged as a methodological weakness. Moreover, the anomaly between the standard errors of the loading of the items on the first-order factors in the first- and second-order measurement

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[122] The exact fit null hypothesis was not rejected for these subscales (p > .05) and the basket of descriptive fit statistics indicated good model fit. The low statistical power and the weakness of RMSEA to small df models should, however, be kept in mind.
[123] For the *recognition of emotions* subscale, 4 of the standardised residuals (circa 19%) were statistically significant (p < .01).
[124] Only 1 of the 15 unique standardised variance-covariance residuals was statistically significant (p < .01).

models is acknowledged as a methodological concern. The inconsistency was referred to Scientific Software International (SSI) but not the explanation that was received was not regarded as satisfactory[125].

A single study cannot convincingly claim to have led sufficient evidence to warrant the confident use of an instrument like the MPCCQ in practice. This is inter alia reflected in the suggestions for further research on the MPCCQ. To justify the use of the MPCCQ in practice, the results obtained (and adjustments made based on the results) need to be cross-validated. The ideal would have been if a sufficiently large sample of responses could have been obtained on the MPCCQ to allow the initial sample to have been split into a validation sample and a cross-validation sample. The initial psychometric evaluation (i.e. the analyses that were performed in the current study) would then have been performed on the validation sample. Adjustments could have been made to the instrument based on the findings of the validation study. The extent to which the findings generalise to a second sample taken from the same target population (i.e., the cross-validation sample) could then have evaluated by repeating the analyses on the cross-validation sample. Multi-group CFA and SEM could have been used for this purpose (Dunbar et al., 2011; Theron & Spangenberg, 2016). This is acknowledged as a limitation.

The version of the MPCCQ that was submitted to psychometric evaluation consisted of relatively small number of items per subscale. This left very little leeway in culling questionable items and very little discretion in choosing final sets of optimally functioning items for each subscale. Methodological best practice dictates that the original experimental version of the instrument should contain substantially more items than are desired in the final version of the instrument. The ideal would have been to have the initial version of the MPCCQ comprise at least 74 or more items developed a relatively small pool of items from which the final items for the questionnaire were drawn. This would have allowed the researcher greater freedom of choice in determining the final composition of the questionnaire. This is acknowledged as a limitation. The practical reality was, however, that participants already regarded the MPCCQ with its six subscales and circa 6 items per subscale as a "long" questionnaire that tended to dissuade them to participate in the research. The use of a planned missingness design for the collection of data in future should be considered. A further consideration was that, given the nature of the items, the items in the current study were rather difficult to write. In a certain sense the format used in the current study actually combines three traditional Likert scale items (anchored with the traditional response options strongly agree/ almost always to strongly disagree/almost never) in a single item.

Lastly, a psychometrically sound MPCCQ was developed and standardised for the purpose of this study. At this stage, no scoring guide nor interpretation matrix or norm table is available to assess what a

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[125] The response received from SSI stated "Ek glo dat die vryheidsgrade vir die 2 modelle behoort te verskil en gevolglik is die 2 modelle nie ekwivalent nie" (Gerhard Mels, personal communication, 18 June 2019).

participant's score implies and how he/she can address development areas identified on specific latent dimensions. This was not part of the original research objectives. Developing such a scoring guide with customised interventions would have enlarged the scope of the current study and is rather recommended for future research.

8.5 RECOMMENDATIONS FOR FUTURE RESEARCH AND PRACTICAL INTERVENTIONS AIMED AT ENHANCING COMPASSION COMPETENCE

It is recommended that future research studies should focus on the following suggestions. Firstly, it is recommended that the MPCCQ in its current form be administered to a sample of 400-500 medical practitioners from the public health sector. Item analysis (with little emphasis on the alpha and alpha if item deleted estimates), dimensionality analysis via CFA and EFA[126] and reliability analysis (conditional on the outcome of the dimensionality analysis) should be performed on the new data set.

Secondly, it is recommended that the MPCCQ 2 (self-assessment version) be developed as an extension and refinement of the current MPCCQ, by deleting the two problematic items (B16 and B67) and by writing additional items for the investing of the self, mindfulness, recognition of emotion and action orientation subscales, taking into account the nature of the factor fission. The MPCCQ 2 should then again be administered to a sample of 400-500 medical practitioners from the public health sector. The analyses conducted during the current study should then be repeated on the new data set. The item and dimensionality analyses on the MPCCQ 2 subscales should, however, take into account the factor fission that was obtained in the current study (i.e. in the case of the three fissioned subscales, the analyses should be performed on the facet level). The self-assessment version of the MPCCQ 2 should also be adapted into an other-rater version. This version of the MPCCQ 2 should also be validated in future research along with the self-assessment version. This would require the fitting of a measurement model with correlated latent compassion competencies and correlated raters (CFA-CCCR) (Marsh & Grayson, 1995).

It is thirdly recommended that IRT item analysis also be performed in addition to the classical measurement theory item analysis. IRT methods use mathematical models to explain relationship between underlying traits and their indicators (observed performance outcomes). The modelling techniques can analyse item level data and result in rich item level information which is advantageous for such research (Edelen & Reeve, 2007). In the current study, IRT, item analysis would have been problematic on the three fissioned subscales due to the multidimensional character of the subscale and the length of the facet scales.

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[126] It is recommended that EFA also be used in the replication study to allow comparison with the findings of the current study.

Fourthly, the dimension scores obtained on the MPCCQ (and on the future MPCCQ 2), in isolation, do not have any meaning. Nothing meaningful can be inferred from the dimension scores in the absence of appropriate norm tables (Murphy & Davidshofer, 2005). Two types of inferences can be derived from observed dimension scores. Construct-referenced inferences can firstly be derived from the dimension scores about medical practitioners' standing on the latent compassion dimensions comprising the compassion construct and that were measured by the MPCCQ. Criterion-referenced inferences can secondly be derived from the dimension scores about patients' standing[127] on a latent variable (e.g. adherence to prescribed medication schedule) that was not measured by the MPCCQ, and that is difficult to measure at the point in time that information on the variable is required for decision-making, but that is systematically related to the latent dimensions of the compassion construct.

To allow the derivation of meaningful construct-referenced inferences from the dimensions scores obtained on the MPCCQ 2 construct-referenced norm tables need to be developed. The construct-referenced norm tables serve the function of describing medical practitioners' standing on the latent compassion dimensions relative to the standing of a large representative sample of South African medical practitioners working in the public healthcare sector. The MPCCQ 2 therefore, needs to be administered to a large representative sample of South African medical practitioners working in the public healthcare sector. The resultant distribution of raw scores on each of the six dimensions then need to be transformed to one or more appropriate norm score scales, like a percentile rank scale or a sten scale (Murphy & Davidshofer, 2005). Such construct-referenced norm tables (one for each dimension) will make it possible to meaningfully interpret the dimension scores achieved by a medical practitioner by inferring the relative standing of the practitioner on the six latent compassion dimensions, by comparing the scores he/she achieved on the dimensions, with a norm group representative of the South African medical practitioner population in the public healthcare sector. In support of this recommendation it will also allow the development of a scoring guide that will build up to a comprehensive medical practitioner compassion profile. This profile will enable the medical practitioner to gain insight into which specific latent compassion dimension/s, assistance is needed for further improvement as well as what behaviours should be addressed.

To allow the derivation of meaningful criterion-referenced inferences from the dimensions' scores obtained on the MPCCQ 2 criterion-referenced norm tables need to be developed. Such criterion-referenced norm tables serve the function of predicting patients' future standing on a latent variable that is systematically related to one or more of the latent compassion dimensions. To allow the derivation of meaningful criterion-referenced inferences from the dimensions' scores obtained on the MPCCQ 2 criterion-referenced norm tables need to be developed (one table for each latent criterion variable). The

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[127] Criterion-referenced norm tables can in principle also be developed to predict the standing of medical practitioners on some latent criterion variable that is difficult to measure at the point in time that information on the variable is required for decision-making. It, however, seems more likely that the latent variables of interest would be latent outcome variables that characterise the patient that are sensitive to the compassion competence of the medical practitioner.

criterion-referenced norm tables serve the function of predicting the standing of patients of the medical practitioner on latent criterion constructs from the medical practitioners' standing on the latent compassion dimensions. The MPCCQ 2 therefore, needs to be administered to a large representative sample of South African medical practitioners working in the public healthcare sector and measures of the latent criterion construct(s) need to be obtained from the patients of the practitioners. The nature and strength of the relationship between practitioners' standing on the latent compassion dimensions, and the standing of their patients on the latent criterion variable then needs to be described via multiple regression analysis. Based on the description of the systematic relationship between the compassion dimension scores and measures of the latent criterion construct, the observed compassion dimension scores can then be transformed to criterion-referenced norm scores in the form of expected criterion scores ($E[Y|X_i]$) or conditional risk estimates ($P[Y < Y_{critical}|E[Y|X_i]])^{128}$.

Fifthly, the development and evaluation of training interventions aimed at each compassion dimension is suggested. This, however, raises the important question what such training interventions should focus on. Two possibilities exist. The first possibility is to focus on the malleable latent competency potential variables and the malleable latent situational variables that directly and/or indirectly determine the level of compassion that medical practitioners display on the latent compassion competencies, and attempt to change them to levels more conducive to the display of compassion. Such interventions also can focus on non-malleable latent competency potential variables with the intent to develop an appreciation in medical practitioners as to why their compassion competency profile looks the way it does. Both the malleable and non-malleable determinants of compassion competence are currently unknown. The current study can therefore, not make any specific development recommendations when development is approached from this perspective. The second possibility is to focus on the compassion competencies *per se* without attempting to influence the (malleable) determinants that underpin them. In leadership development programmes this, more often than not, is the approach that is followed. Workshops can, for example, be offered as Continuing Professional Development (CPD) activities where compassion competence can be enhanced. The disadvantage of a development intervention that attempts to change behaviour without changing the underlying drivers of the behaviour is that it could potentially cause medical practitioners to surface act compassion. This in turn requires the allocation of more psychological sources since the display of compassion under such conditions does not come naturally. These two approaches to the development of compassion competence in medical practitioners, moreover, need not be approached as mutually exclusive.

Workshops, in addition, need not necessarily be the platform on which compassion competence development programmes are offered. An alternative platform could be the introduction of

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[128] $Y_{critical}$ refers to some minimally acceptable standard set on the criterion measure.

developmental centres for medical practitioners[129]. A developmental centre focuses on the diagnoses of developmental needs, making recommendations and providing all-inclusive feedback on participant results (Thornton & Byham, 1982). The process is highly facilitative, where trained observers would observe medical practitioner behaviour during different exercises throughout the developmental centre. The fundamental worth of the developmental centre is argued to be the insight into one's own profile, the development that takes place after the centre as well as how it improves job performance (Fisher & Engelbrecht, 1992).

As a further variation of the development centre proposal, a medical practitioner compassion checklist, similar to the one used in the development centre, can be developed for medical practitioners in training, where an actual (i.e. not simulated) medical encounter is videotaped and subsequently evaluated via the checklist.

A sixth recommendation is to evaluate the MPCCQ 2 for gender and race measurement bias via a measurement invariance and equivalence study (Dunbar et al., 2011). This recommendation is not motivated by the desire to comply with the Employment Equity Act's (1998) prohibition on unfair indirect discrimination. The use of unbiased instruments is not sufficient to prevent unfair indirect discrimination when the measures of the instrument are used to derive criterion referenced inferences or construct-referenced inferences (Theron, 2007; 2009). Rather measurement bias (i.e. construct bias, uniform bias, non-uniform bias and error variance bias) (Dunbar et al., 2011) should be avoided in the interest of proud psychometric workmanship.

A seventh recommendation is to test the medical practitioner compassion structural model (utilising the MPCCQ 2) incorporating behavioural outcomes derived as part of this study and shown in Figure 2.16. It may also be necessary to theorise the impact compassion has on physiological outcome measures, such as blood pressure, blood sugar levels, pain control and/or other relevant indicators (Roter & Hall, 2006) and to include these effects in the structural model shown in Figure 2.16, and test the fit of the model. In addition, it is proposed that future research should expand the structural model shown in Figure 2.16 by explicating the most influential medical practitioner latent competency potential variables (and latent situational variables) that affect compassion competence and structurally map these onto the latent compassion competencies. This would assist in the derivation of further stock and flow interventions (Milkovich et al., 2008) aimed at affecting the non-malleable and malleable determinants of compassion competence.

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[129] This at the same time implies the need then to modify the MPCCQ 2 into an observer checklist that could be used to rate medical practitioners' performance on the latent compassion dimensions in a number of exercises designed to elicit denotations of these various compassion competencies.

It is lastly also possible to include compassion in the current performance agreement document for medical practitioners issued by the Department of Health and to evaluate the effectiveness of this intervention via a longitudinal study. Similar methodology could be utilised to dissect related complex constructs such as social interaction and communication, which is deemed necessary for the biopsychosocial approach in healthcare.

8.6   CONCLUDING REMARKS

This study contributes to the public healthcare sector of South Africa and the industrial psychology fraternity by providing insight into a complex medical practitioner competency, namely compassion, as well as providing the initial evidence to develop a psychometrically sound instrument to measure this construct when displayed by medical practitioners in practice. The research outcomes achieved, offer a range of possibilities not only for medical practitioners, but also for other professional healthcare institutions, accreditation bodies and formal training associations. In addition, it also allows for synergy with interdisciplinary fields such as psychology and human resources management in healthcare, by making a contribution in areas such as performance management, recruitment and selection as well as learning and development for medical practitioners.

Every aspect of this research was aligned with contributing to the crafting of the complex construct called "medical practitioner compassion". Novel questionnaire items were developed for the MPCCQ, with a focus on not only capturing the DNA of the construct but also writing it in a manner that embraces the unique South African context in which these medical professionals work. Subsequently the results for both the measurement and comprehensive structural model, serving as a blue print for the construct and questionnaire, showed good fit. Understanding medical practitioner compassion allows for the opportunity to develop it further, thus contributing to medical practitioner performance in the interest of improved healthcare. In closing, one hopes that this research will assist in giving more clarity on "compassion" as incorporated in the formal pledge that medical practitioners in training agree to during graduation:

> Health Professionals Pledge
>
> "I, freely and humbly pledge to be a health professional who respects people; cares for myself; and treats others with dignity, integrity and *compassion*.
>
> I value who I am and can become, as much as I value others for who they are and can become.
>
> I shall strive at all times to maintain patient confidentiality and to uphold the highest ethical standards in my practice.
>
> In an ever-changing world, I shall remain a curious, creative and reflective health professional; respecting diverse ideologies, ideas, contexts and solutions which matter to people, communities and populations.
>
> I shall work with others as equal partners in striving for excellence in person-centred care.

I commit to being an advocate for social justice, working to improve the living conditions, care experiences and health outcomes of those entrusted to my care.

I accept my responsibility to help build a sustainable future for all by using resources with care, creativity and diligence.

Finally, I will at all times endeavour to provide care that helps and does no harm."

(MBChB Pledge Committee, 2019)

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APPENDIX A:

Ethics approval letters from Research and Ethics Committee (REC)

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jou kennisvennoot • your knowledge partner

APPROVED WITH STIPULATIONS
REC Humanities New Application Form

11 June 2018

Project number: IPSY-2018-6416

Project title: The Development and Psychometric Evaluation of a Medical Practitioner Compassion Competency Questionnaire

Dear Mrs. Michelle Visser

Your REC Humanities New Application Form submitted on 23 May 2018 was reviewed by the REC: Humanities and approved with stipulations.

Ethics approval period:

Protocol approval date (Humanities)	Protocol expiration date (Humanities)
11 June 2018	10 June 2021

REC STIPULATIONS:

The researcher may proceed with the envisaged research provided that the following stipulations, relevant to the approval of the project are adhered to or addressed:

1) The researcher is reminded that institutional permission is required before active recruitment and data collection may commence.

2) This is a two-phase project, where phase two relies on the results of phase one. This approval is confirmed for phase one only; for phase two, the researcher should submit an amendment for the approval of Phase two.

HOW TO RESPOND:

Some of these stipulations may require your response. Where a response is required, you must respond to the REC within **six (6)** months of the date of this letter. Your approval would expire automatically should your response not be received by the REC within 6 months of the date of this letter.

Your response (and all changes requested) must be done directly on the electronic application form on the Infonetica system: https://applyethics.sun.ac.za/Project/Index/6687

Where revision to supporting documents is required, please ensure that you replace all outdated documents on your application form with the revised versions. Please respond to the stipulations in a separate cover letter titled "**Response to REC stipulations**" and attach the cover letter in the section **Additional Information and Documents**.

Please take note of the General Investigator Responsibilities attached to this letter. You may commence with your research after complying fully with these guidelines.

If the researcher deviates in any way from the proposal approved by the REC: Humanities, the researcher must notify the REC of these changes.

Please use your SU project number (IPSY-2018-6416) on any documents or correspondence with the REC concerning your project.

Please note that the REC has the prerogative and authority to ask further questions, seek additional information, require further modifications, or monitor the conduct of your research and the consent process.

FOR CONTINUATION OF PROJECTS AFTER REC APPROVAL PERIOD

Please note that a progress report should be submitted to the Research Ethics Committee: Humanities before the approval period has

expired if a continuation of ethics approval is required. The Committee will then consider the continuation of the project for a further year (if necessary)

Included Documents:

Document Type	File Name	Date	Version
Research Protocol/Proposal	Propsal PhD MVisser 2018	06/03/2018	9
Data collection tool	Semi-structured Interview Guide PhD MVis 2018	06/03/2018	1
Default	Fieldworker Introductory Letter PhD MVis 2018	06/03/2018	1
Default	Fieldworker Training Booklet PhD MVis 2018	06/03/2018	1
Non-disclosure agreement	MICHELLE VISSER Fieldworker Confidentiality Agreement	11/03/2018	2
Informed Consent Form	MICHELLE VISSER Consent and Questionnaire	11/03/2018	2
Informed Consent Form	MICHELLE VISSER Consent Interview and Focus Group	11/03/2018	2
Request for permission	Permission to do research at NFPC PhD MVis 2018	11/03/2018	2
Request for permission	Permission to do research in Hospitals Dept of Health WC PhD MVis 2018	11/03/2018	2
Data collection tool	MICHELLE VISSER Consent and Questionnaire	11/03/2018	2
Request for permission	Permission to do research at US Dept Research and Planning PhD MVis 2018	11/03/2018	2
Informed Consent Form	MICHELLE VISSER Consent and Questionnairerev2 (Phase 3)	15/05/2018	V2
Informed Consent Form	MICHELLE VISSER Consent Focus Group (Phase 2)	15/05/2018	v2
Informed Consent Form	MICHELLE VISSER Consent Interview (Phase 1)	15/05/2018	v2
Data collection tool	Semi Structured Interview Guide PhD MVis 2018v2 (Phase 1)	15/05/2018	V2
Data collection tool	MICHELLE VISSER Consent and Questionnairerev2 (Phase 3)	15/05/2018	V2
Request for permission	Permission to do research at US Dept Research and Planning PhD MVis 2018v2	15/05/2018	V2
Request for permission	Permission to do research in Khayelitsha Hospital PhD MVis 2018	15/05/2018	V1
Request for permission	Permission to do research in Hospitals Dept of Health WC PhD MVis 2018v2	15/05/2018	V2
Request for permission	Permission to do research in Karl Bremer Hospital PhD MVis 2018	15/05/2018	V1
Request for permission	Permission to do research in Tygerberg Hospital PhD MVis 2018	15/05/2018	V1
Request for permission	Permission to do research in Worcester Hospital PhD MVis 2018	15/05/2018	V1
Default	Fieldworker Training Booklet PhD MVis 2018v2	15/05/2018	V2
Default	MICHELLE VISSER Fieldworker Confidentiality Agreementv2	15/05/2018	V2
Default	DESC report M Visser 26 04 18 MVis Commentsv2	15/05/2018	V2

If you have any questions or need further help, please contact the REC office at cgraham@sun.ac.za.

Sincerely,

Clarissa Graham

REC Coordinator: Research Ethics Committee: Human Research (Humanities)

14 August 2018

Project number: 6416

Project Title: The Development and Psychometric Evaluation of a Medical Practitioner Compassion Competency Questionnaire

Dear Mrs. Michelle Visser

Your REC Humanities Amendment submitted on 13 August 2018 was reviewed and approved by the REC: Humanities.

Please note the following for your approved submission:

Ethics approval period:

Protocol approval date (Humanities)	Protocol expiration date (Humanities)
11 June 2018	10 June 2021

GENERAL COMMENTS:

The researcher is reminded to submit proof of permission from participating health authorities once these have been obtained.

Please take note of the General Investigator Responsibilities attached to this letter. You may commence with your research after complying fully with these guidelines.

If the researcher deviates in any way from the proposal approved by the REC: Humanities, the researcher must notify the REC of these changes.

Please use your SU project number (6416) on any documents or correspondence with the REC concerning your project.

Please note that the REC has the prerogative and authority to ask further questions, seek additional information, require further modifications, or monitor the conduct of your research and the consent process.

FOR CONTINUATION OF PROJECTS AFTER REC APPROVAL PERIOD

Please note that a progress report should be submitted to the Research Ethics Committee: Humanities before the approval period has expired if a continuation of ethics approval is required. The Committee will then consider the continuation of the project for a further year (if necessary)

Included Documents:

Document Type	File Name	Date	Version
Data collection tool	PhD MP Compassion Competency Questionnaire MVis Draft	13/08/2018	1
Research Protocol/Proposal	PhD Proposal MVisser April 2018 Phase 2 and 3	13/08/2018	2

If you have any questions or need further help, please contact the REC office at cgraham@sun.ac.za.

Sincerely,

Clarissa Graham

REC Coordinator: Research Ethics Committee: Human Research (Humanities)

Investigator Responsibilities Protection of Human Research Participants

Protection of Human Research Participant

Some of the general responsibilities investigators have when conducting research involving human participants are listed below:

1. Conducting the Research. You are responsible for making sure that the research is conducted according to the REC approved research protocol. You are also responsible for the actions of all your co-investigators and research staff involved with this research. You must also ensure that the research is conducted within the standards of your field of research.

2. Participant Enrollment. You may not recruit or enroll participants prior to the REC approval date or after the expiration date of REC approval. All recruitment materials for any form of media must be approved by the REC prior to their use. If you need to recruit more participants than was noted in your REC approval letter, you must submit an amendment requesting an increase in the number of participants.

3. Informed Consent. You are responsible for obtaining and documenting effective informed consent using only the REC-approved consent documents, and for ensuring that no human participants are involved in research prior to obtaining their informed consent. Please give all participants copies of the signed informed consent documents. Keep the originals in your secured research files for at least five (5) years.

4. Continuing Review. The REC must review and approve all REC-approved research proposals at intervals appropriate to the degree of risk but not less than once per year. There is no grace period. Prior to the date on which the REC approval of the research expires, it is your responsibility to submit the continuing review report in a timely fashion to ensure a lapse in REC approval does not occur. If REC approval of your research lapses, you must stop new participant enrollment, and contact the REC office immediately.

5. Amendments and Changes. If you wish to amend or change any aspect of your research (such as research design, interventions or procedures, number of participants, participant population, informed consent document, instruments, surveys or recruiting material), you must submit the amendment to the REC for review using the current Amendment Form. You may not initiate any amendments or changes to your research without first obtaining written REC review and approval. The only exception is when it is necessary to eliminate apparent immediate hazards to participants and the REC should be immediately informed of this necessity.

6. Adverse or Unanticipated Events. Any serious adverse events, participant complaints, and all unanticipated problems that involve risks to participants or others, as well as any research related injuries, occurring at this institution or at other performance sites must be reported to Malene Fouch within five 5) days of discovery of the incident. You must also report any instances of serious or continuing problems, or non-compliance with the RECs requirements for protecting human research participants. The only exception to this policy is that the death of a research participant must be reported in accordance with the Stellenbosch Universtiy Research Ethics Committee Standard Operating Procedures. All reportable events should be submitted to the REC using the Serious Adverse Event Report Form.

7. Research Record Keeping. You must keep the following research related records, at a minimum, in a secure location for a minimum of five years: the REC approved research proposal and all amendments; all informed consent documents; recruiting materials; continuing review reports; adverse or unanticipated events; and all correspondence from the REC

8. Provision of Counselling or emergency support. When a dedicated counsellor or psychologist provides support to a participant without prior REC review and approval, to the extent permitted by law, such activities will not be recognised as research nor the data used in support of research. Such cases should be indicated in the progress report or final report.

9. Final reports. When you have completed (no further participant enrollment, interactions, interventions or data analysis) or stopped work on your research, you must submit a Final Report to the REC.

10. On-Site Evaluations, Inspections, or Audits. If you are notified that your research will be reviewed or audited by the sponsor or any other external agency or any internal group, you must inform the REC immediately of the impending audit/evaluation.

APPENDIX B:

Participant Consent – Interview and Focus Group (Qualitative Research)

STELLENBOSCH UNIVERSITY

Consent to participate in research

The Development and Psychometric Evaluation of a Medical Practitioner Compassion Competency Questionnaire (MPCCQ)

You are asked to participate in a PhD research study conducted by Ms Michelle Visser, under the supervision of Prof Bob Mash from the Division of Family Medicine and Primary Care and Prof Callie Theron, from the Department of Industrial Psychology at Stellenbosch University. The research will contribute to the PhD of Ms. Visser. You were selected as a participant in this study because of your position as a medical practitioner.

1. PURPOSE OF THE STUDY

The purpose of the study is to develop an instrument for the measurement of compassion as displayed by medical practitioners in the public healthcare sector. Semi structured interviews, followed by a focus group will be conducted to gain a better understanding of certain dimensions believed to contribute to the competency of medical practitioner compassion. This will allow the researcher to develop and draft a measurement of compassion for medical practitioners. The long term objective is to develop a medical practitioner compassion competency model for the South African context that reflects the inherent dimensions necessary for successful medical practitioner performance outcomes. A validated medical practitioner compassion competency model will serve as foundation from which focussed learning and development initiatives can be developed as well as the development of performance management contracts that will assist in growing better medical practitioners for the South African context.

2. PROCEDURES

Depending on the research phase that is contracted with you, the following procedures will be required:

Research Phase 1: Critical Incident Interview

- Participants are required to participate in a semi-structured interview.
- The interviews will be conducted in a private setting with only the interviewer and participant present.
- The length of the interview will probably last an hour.

Research Phase 2: Focus group and Questionnaire Pilot Testing

- Interested members who participated in the critical incident technique interview are requested to also participate in the subsequent focus group in order to validate the obtained data from the critical incident interviews.
- The focusgroup would last about an hour.

- In addition, participants will also be required to pilot-test a draft medical practitioner compassion competency questionnaire (MPCCQ)
- Feedback concerning the questionnaire will be required.
- It is estimated that the questionnaire would take approximately 20-30 minutes to complete.
- The focusgroup and pilot testing process would take about one hour and thirty minutes to complete.

3. POTENTIAL RISKS AND DISCOMFORTS

Other than the discomfort of having to set aside time to participate in the interview, focus group and completing the questionnaire, the researchers anticipate no risk to the participants. Information gathered from the participant will be kept confidential and the participant's position within his/her work institution will not be affected.

4. POTENTIAL BENEFITS TO SUBJECTS AND/OR TO SOCIETY

There are no direct benefits to the participants in the study.

5. PAYMENT FOR PARTICIPATION

Participants will not be receiving remuneration for their participation in this research study.

6. CONFIDENTIALITY

Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission or as required by law. You as the interviewee will not be required to provide your identity or particulars in the recording of the interview, unless you give permission thereto. A coding procedure will be used to establish and maintain anonymity. Your interview will be combined with all the other interviews, and subsequently analysed to find common themes relating to medical practitioner performance. Information that can be identified with you will remain confidential. Only with your written permission or as required by law, will any personal information be disclosed.

Should you give information related to a very specific incident which might lead to the disclosure of any organization or person, the interviewer will only report back on the general behaviour of the medical practitioner, and not disclose specific information related to the incident. The results of this study will be published in a completed PhD thesis (note that only the integrated findings will be published and not the actual interviews). Confidentiality of all respondents will be maintained, unless otherwise agreed on in writing.

7. RECORDING

Your interview will be recorded by means of an audio recorder whilst the interviewer will also take notes during the interview. If you agree that your interview may be recorded, please give your written consent by signing this consent form. You will be afforded the opportunity to audit your contribution to the research by reviewing the transcriptions of your interview, if you feel the need to do so. In order to access this right, please contact the principle investigator (contact information available in section 9) should you wish to do so. In addition the focusgroup session would also be recorded by means of an audio recorder. . If you agree that the focusgroup may be recorded, please give your written consent by signing this consent form.

8. PARTICIPATION AND WITHDRAWAL

You can choose whether to be in this study or not. If you volunteer to be in this study, you may withdraw at any time without consequences of any kind. You may also refuse to answer any questions you don't want to answer and still remain in the study. The investigator may withdraw you from this research if circumstances arise which warrant doing so.

9.   IDENTIFICATION OF INVESTIGATORS

If you have any questions or concerns about the research, please feel free to contact:

Principal Investigator
Ms Michelle Visser
021 8082961

Supervisor
Prof Callie Theron
021 808 3009

Co-Supervisor
Prof Bob Mash
021 938 9061

10. RIGHTS OF RESEARCH SUBJECTS

You may withdraw your consent at any time and discontinue participation without penalty. You are not waiving any legal claims, rights or remedies because of your participation in this research study. If you have questions regarding your rights as a research subject, contact Ms Maléne Fouché [mfouche@sun.ac.za; 021 808 4622] at the Division for Research Development at Stellenbosch University.

SIGNATURE OF RESEARCH PARTICIPANT OR LEGAL REPRESENTATIVE

The information above was described to me by _____ [*name of relevant person*] in *Afrikaans/English* and I am in command of this language or it was satisfactorily translated to me. I was given the opportunity to ask questions and these questions were answered to my satisfaction.

I hereby consent voluntarily to participate in this study under the stipulated conditions. I have been given a copy of this form.

□ Yes □ No

I consent to the researcher anonymously quoting statements made by me in the thesis by referring to my identity code [e.g. participant/interviewee 7].

□ Yes □ No

I consent to the researcher quoting statements made by me in the thesis by referring to my name and surname.

□ Yes □ No

I hereby give consent to the researcher to audio record the interview process.

□ Yes □ No

I hereby give consent to the researcher to audio record the focus group session.

□ Yes □ No

_____   _____

Signature of participant   Date

I declare that I explained the information given in this document to _____ [*name of the subject/participant].* He/she was encouraged and given ample time to ask me any questions. This conversation was conducted in *Afrikaans/English* and no translator was used.

_____   _____

Signature of Investigator   Date

APPENDIX C:

Semi Structured Interview Guide: Critical Incident Technique

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jou kennisvennoot • your knowledge partner

Semi Structured Interview Guide: Critical Incident Technique

Instructions:

The semi structured interview guide can be utilized during the interview process for record keeping purposes as well as standardization. The interviewer need to explain the purpose of the research to the participant after which the participant needs to give his/her consent to participate in the process. Subsequently the critical incident interview process can start by asking biographical information either by filling in the open spaces or ticking the appropriate box with a cross (X). Next the critical incident questions can be asked; open spaces are provided in which responses can be written. The critical incident interview can be concluded by asking the participant to rate the specified dimensions underlying compassion on a seven point Likert scale (see section D). Lastly, the interviewer will ask for final remarks or questions and close the session by thanking the participant for his/her time and collaboration during the research process.

Section A: Biographical Information: Subject matter expert (SME)

A1 Code number of SME: …………..

A2 Race:

Black African	Coloured	Indian	Asian	White

A3 Gender:

Male	Female

A4 Age Category:

20 - 29	30 - 39	40 - 49	50 - 59	60 - 69	70+

A5 Language:

Afrikaans	English	Ndebele	Northern Sotho	Sotho	Swazi	Tsonga	Tswana	Venda	Xhosa	Zulu

A6 Job Title: …………………………………………………………………………..……

A7 Job Category:

Medical Practitioner   Specialist

If Specialist, please specify category: …………………………………………………..….…..

A8 Core Discipline:

| Family Medicine | Internal Medicine | Paediatrics | Obstetrics and Gynaecology | Surgery | Other |

If "Other" please specify discipline: …………………………………………………….………..

A9 Healthcare System Level:

Primary Level   Secondary Level   Tertiary Level
District   Regional
Hospital   Hospital

A10 Years of Experience: ....……………………………..…………….…….………...

(Note: Excluding internship and community service)

A11 Hospital Name: …………………………………………………………………..….…..

A12 Hospital Region: ……………………………………………………………….………

A13 Period in Position (e.g. 1999-2016): …………………………………………….………

Section B: Contextualization of research

In this research study the construct compassion is described as a medical practitioner competency; thus demonstrated behaviour that a medical practitioner exhibits when interacting with a patient. A competency can also be described as bundles of related behaviour. When a medical practitioner demonstrates this behaviour, it is probable that positive outcomes are achieved. Medical practitioner outcomes can be defined as the criteria that can be used to describe if medical practitioners are performing optimally in their jobs or not.

Section C: Critical Incident Interview

Background

Remind participants that they need to think of specific incidents and not visualization of ideal future incidents, in other words *not* a wish list. In addition the context must be specified – incidents from the public healthcare sector should be explained. Lastly, the participants should be sensitized that the dimensions specified should have a link to one or more medical practitioner outcomes.

Questions

1. *Think of a medical practitioner, who is one of the best performers on the performance dimension XXX. The performance dimension XXX is defined as: ...*

(Provide definition here)

Please explain your point of view by describing specific incidents that illustrates the medical practitioner's competence on the target dimension. What did he/she do that illustrates his/her competence on the specific dimension?

………
………
………
………
………

2. *Think of a medical practitioner, who is one of the poorest performers on the performance dimension. The performance dimension is defined as:...*

(Provide definition here)

Please explain your point of view by describing specific incidents that illustrates the medical practitioner's competence on the target dimension. What did he/she do in the specific incident that illustrates his/her competence on the specific dimension?

………
………
………
………
………
……………………

The process should be repeated for each dimension that was selected for the interview schedule.

Section D: Rating of Dimensions

Instruction

Ask the participant to rate the importance of the following dimensions underlying the competency called compassion for medical practitioners. Use the following 7 point Likert scale:

1. Not important	2. Low importance	3. Slightly important	4. Neutral	5. Moderately important	6. Very Important	7. Extremely Important

Dimension	**Importance Rating**
Compassion action orientation	
Emotional Recognition	
Caring with Kindness	
Gaining and Communicating	
Empathic Understanding	
Investing the Self	
Mindfulness	

Section E: Concluding the Critical Incident Interview

Ask the participant if he/she would like to add any comments or ideas additional to the research or if he/she have any related questions?

....

....

....

....

....

Thank the participant for his/her time and valuable contribution and collaboration. Any additional questions regarding the research may be referred to the research supervisors, Prof. Bob Mash (Division of Family Medicine and Primary Care, Stellenbosch University) and Prof. Callie Theron (Department of Industrial Psychology, Stellenbosch University).

APPENDIX D:

Qualitative Interview Data

Participant One

The first participant presented as friendly and willing to assist. He is a while male white extensive experience in the public healthcare sector of South Africa. He participated actively and was very passionate about patients being treated with dignity and respect as well as medical practitioners showing a cultural awareness of the context from which the patients came. Table D1 presents the critical incidents that emanated from the dimensions elicited during the interview with Participant One.

Table D1

Themes Stemming from Personal Constructs: Participant One

No.	Dimension	Definition	Quotes: Critical Incidents	Quotes: Performance Outcomes
1	Investing the Self	Extent to which the medical practitioner invests his/her self into the patient practitioner relationship: the extent to which the practitioner does not remain distant; the extent to which the practitioner gives him-/herself to the patient; the extent to which the practitioner commits him/herself to the relationship; the extent to which the practitioner is authentically present in the encounter.	"Not to keep himself separate from the culture which he practices, but actually to build himself a house in the community." "Learn the language of the community in an effort to be somebody to which they can relate to." "If there is an acute emergency at home, you are an approachable person, you are not faking a 'very kind me' in the consultation and afterwards saying 'don't come knocking on my door'. So there is real evidence of someone functioning in the community and who is compassionate. So it is not only a perception, it is actually living it." "To be available for emotional comfort when someone experiences emotional distress."	

Table D1

Themes Stemming from Personal Constructs: Participant One (continued)

No.	Dimension	Definition	Quotes: Critical Incidents	Quotes: Performance Outcomes
2	Mindfulness	The extent to which the medical practitioner focusses on and fully lives in the present moment; registering sensations in a non-judgemental and undistorted manner; grasping what is not clearly seen; registering the current moment accurately.	"They give time, they listen and think about what they are hearing. They don't just rush it off." "Someone who listens, who allows the patient to talk."	
3	Recognition of Emotions	The extent to which the medical practitioner recognises the emotional state of a patient, when and where it occurs as an emotional cue profile pointing to an unresolved problem that causes suffering, by making a conscious effort not to dismiss the emotion; but to identify and understand.	"Thus, where do I stand if I were outside of myself and looking at myself – how would this appear?" "They don't care that much in terms of what the patient experience is, because you are in a position of power and it is just the two of you in the room." (-)	

Table D1

Themes Stemming from Personal Constructs: Participant One (continued)

No.	Dimension	Definition	Quotes: Critical Incidents	Quotes: Performance Outcomes
4	Caring with Kindness	The way in which the medical practitioner reaches out to patients with kind-heartedness during the medical encounters where both parties need to join to ensure connectedness; by giving attention to patients; listen and support them; acknowledging the patient's vulnerability, show genuine concern and interest in the patient by acting responsibly and by being dedicated and having the courage to be appropriately involved with the patient. Focus on the quality of the engagement, the quality of the medical practitioner's concern and the nature of the medical practitioner's commitment to the patient.	"They try to establish rapport with the patient. They try and make the patient understand that in some way they care about how the patient feels." "A lady who gave us an emergency talk whose husband had cancer, had taken him to the tertiary hospital. The doctor walked in without introducing himself, and walked around her husband in a kind of semi-circle and said that this is the problem and this is what should be done." (-) "Try to make the patient feel that they are safe, that they are at ease, and listens in a way that whichever way would be culturally appropriate for that context." "When it comes to physical examination and whatever needs to be done physically, they do it carefully." "They examine them in a rough way." (-) "It is careful and gentle eliciting of whatever finding you want to establish." "People who are rough, who pull of blankets and shake their people up, don't introduce themselves when they go about the ward." (-)	

Table D1

Themes Stemming from Personal Constructs: Participant One (continued)

No.	Dimension	Definition	Quotes: Critical Incidents	Quotes: Performance Outcomes
			"Some people will just walk up to the patient while they are sleeping and just pull their blankets off, 'Sit up please, we are talking to you'." (-)	
			"Examine the patient in an unsympathetic way" (-) "Not to explain to a patient 'I am trying to see whether your ligaments are lax or not'. He wouldn't just pull on this and pull on that and poke with his finger here and there –' I am just trying to elicit whether there is a re-bound tenderness or I just want to try and feel – whether I can feel the edge of a certain organ or whatever.'" (-)	
			"While you are busy with a patient, not just turning the head to look in the ear, but say – 'Would you mind me looking in the ear?',"	

Participant Two

Participant Two is a white female who recently qualified as a medical practitioner and works in a rural district hospital. She was very friendly and participated keenly during the interview. She tended to think intensely and carefully about the situations asked as part of the CIT, and always checked if she was understanding the questions correctly. Table D2 tabulates the critical incidents that emanated from the dimensions elicited during the interview with Participant Two.

Table D2

Themes Stemming from Personal Constructs: Participant Two

No.	Dimension	Definition	Quotes: Critical Incidents	Quotes: Performance Outcomes
1	Gaining and Communicating an Empathic Understanding	The extent to which the medical practitioner develops an understanding of the patient's story of the illness and suffering that assists the medical practitioner in his/her decision-making. Communicating his/her understanding of the patients lived experience of the illness and suffering by showing insight and appreciation of their feelings, concerns and perspectives of a patient by perceiving the patient's internal frame of reference	"He/she would listen to the patient, ask clarifying questions and reproduce what the patient has said in a clarifying way." "It will be more of a one-way conversation" (-) "State things as it is." (-) "Bad body language would be not facing the patient, having a negative posture – slouching, not making good eye contact, closed arms, more closed kind of posture." (-) "Also your tone. Where a good tone would be more happy, neutral, whereas a bad tone would be 'kort-af', using more negative words." (-) "You understand where the patient is coming from." "Also their body language, their posture, if they are insecure or if they are more outgoing." (-)	"If you are not communicating well and empathic, then you can't really make a good decision, because you don't have all the info or you can't make the best decision because you don't have all the information." "For example if a patient comes in with a surgical problem at a primary care hospital and they need a referral to a secondary hospital and you don't enquire about work or transport – maybe you want them to be there tomorrow, but they can't be there tomorrow." "Your patient will not disclose as much when you are not empathic."

Table D2

Themes Stemming from Personal Constructs: Participant Two (continued)

No.	Dimension	Definition	Quotes: Critical Incidents	Quotes: Performance Outcomes
		accurately through reflection.	"About being blunt towards them, short answers and not engaging and assuming what their background is." (-)	
2	Caring with Kindness	The way in which the medical practitioner reaches out to patients with kind-heartedness during the medical encounters were both parties need to join to ensure connectedness; by giving attention to patients; listen and support them; acknowledging the patient's vulnerability, show genuine concern and interest in the patient by acting responsibly and by being dedicated and having the courage to be appropriately involved with the patient. Focus on the quality of the	"… this would be more body language, communication as well." "Showing that you can engage with the patient – talking, having a nice conversation, not just one-way and also with body language, showing that you care." "The caring doctor would touch the patient, not inappropriately, for example people who are quite sad." "If you have to break bad news, you sit down with them and you connect with them on a more neutral level not as the doctor and the patient, but as a human." "They are rude, they only deal with the now and then get the specific problem sorted, the hypertension and not the whole picture, not the 'why'." "They feel that they are better, at a higher level than the patient … more paternalistic consultation."	

Table D2

Themes Stemming from Personal Constructs: Participant Two (continued)

No.	Dimension	Definition	Quotes: Critical Incidents	Quotes: Performance Outcomes
		engagement, the quality of the medical practitioner's concern and the nature of the medical practitioner's commitment to the patient.		
3	Compassion Action Orientation	The extent to which the medical practitioner initiates tangible action that is appropriate in the given context aimed at alleviating suffering, not looking the other way, not expecting help to come from somewhere else. Relieves emotional distress, meets with the family if needed; relieves the suffering of the person and does not only provide treatment; assists in making sense of the suffering, assists in finding meaning in the suffering in wanting to relief the patient's suffering by taking action.	"It is about going the extra mile – maybe taking medication to a house…taking the oxygen to their house or the clinic so that the patient doesn't have to go to the hospital." "So a doctor made a system where we can prioritize patients, who need to see the ophthalmologist." …following up, see the patient again…or asking the sister what happened … maybe calling the patient, asking them." "He doesn't do anything." (-) "Not referring the patient on, or maybe just saying 'I'll find out', but never do." (-) "When a patient needs help, a good doctor would suggest possible solutions – maybe a family member can come with them whereas a bad doctor would not even think further. He would just state the problem and not solutions."	"Patients would be happier, so they will not necessarily come back and come back again and you will be happier and more satisfied, more job satisfaction." "It is just about treating numbers and trying to get through the day and not improving anything." (-)

Table D2

Themes Stemming from Personal Constructs: Participant Two (continued)

No.	Dimension	Definition	Quotes: Critical Incidents	Quotes: Performance Outcomes
4	Investing the Self	The extent to which the medical practitioner invests his/her self into the patient-practitioner relationship: the extent to which the practitioner does not remain distant; the extent to which the practitioner gives him-/herself to the patient; the extent to which the practitioner commits him-/herself to the relationship; the extent to which the practitioner is authentically present in the encounter.	"…share something personal about them … 'say that her two children were also in the NiCUE and that it is tough, but you will get through it'." "When you can admit to a patient that you don't know something." "The consultation would be quick, they wouldn't share much information, treating you as a number." (-) "Admitting to the mother there is nothing you can really do."	"…the patient would trust you more and in the end you would be able to make a better diagnoses and a better plan for the patient." "…the patient would not need to come back and take another 15 minutes."

Participant Three

Participant Three is a qualified family physician with 23 years of experience in the public healthcare sector. He has been occupying a senior position at a district hospital the last 9 years, where he also manages other medical practitioners and allied workers. He presented as very friendly and light hearted. His passion and love for his job showed in the way that he described situations in the hospital during the interview. He felt very strongly about consulting a patient in a biopsychosocial approach, never forgetting the person as a whole. He participated in the interview with notable positive energy and made the interview a pleasant experience. Table D3 tabulates the critical incidents that emanated from the dimensions elicited during the interview with Participant Three.

Table D3

Themes Stemming from Personal Constructs: Participant Three

No.	Dimension	Definition	Quotes: Critical Incidents	Quotes: Performance Outcomes
1	Mindfulness	The extent to which the medical practitioner focusses on and fully lives in the present moment; registering sensations in a non-judgemental and undistorted manner; grasping what is not clearly seen; registering the current moment accurately.	"It is about a level of self-awareness." "It is a recognition of being fallible and being vulnerable." "Moving away from trying to control everything to accepting things." "To tolerate uncertainty." "Absent from work or absent from the patient. They will physically be at work, but not at work." (-) "Easily distracted, not finishing tasks, and not being able to focus on specifics." (-)	"Resilience is a consequence of mindfulness." "Problems integrating the whole patient into a problem or a diagnoses." "A much better patient care experience." "More satisfied patients." "More complaints." "Really poor job satisfaction, there will be burnout on the medical practitioner's side."

Table D3

Themes Stemming from Personal Constructs: Participant Three (continued)

No.	Dimension	Definition	Quotes: Critical Incidents	Quotes: Performance Outcomes
			"Writing lots of notes, but when you read it, it doesn't lead to a logical conclusion or recommendation plan." (-)	
2	Recognition of Emotion	The extent to which the medical practitioner recognises the emotional state of a patient when and where it occurs as an emotional cue profile pointing to an unresolved problem that causes suffering, by making a conscious effort not to dismiss the emotion, but to identify and understand the verbalised cues and the non-verbal behaviour related to the emotion.	"Doctors are clinically minded, very scientific, they ignore emotions, they are uncomfortable with emotions." (-) "I never heard a doctor say 'I can see that you are upset'. They will say 'I can see you are in pain'." "It is very clinical." (-) "… in the busy emergency unit neither doctors, nor nurses make eye-contact because if they make eye-contact they will see the emotion." (-) "We avoid looking because if you see you may have to react or do something and you don't have the time or space."(-) "The doctor will go and console the family member of a patient that just had passed away." "…seeing the patient as a whole."	

Table D3

Themes Stemming from Personal Constructs: Participant Three (continued)

No.	Dimension	Definition	Quotes: Critical Incidents	Quotes: Performance Outcomes
			"…understand it is not just about the pain in the shoulder or in the heart, but that you are a whole being."	
			"…recognise the fear in the mom and telling her not the diagnoses but telling her that your child doesn't have appendicitis, because that is her fear."	
3	Gaining and Communicating an Empathic Understanding	The extent to which the medical practitioner develops an understanding of the patient's story of the illness and suffering that assists the medical practitioner in his/her decision-making. Communicating his/her understanding of the patients' lived experience of the illness and suffering by showing insight and appreciation of their feelings, concerns and perspectives of a patient by perceiving the patient's internal frame of reference	"It is a communication skill…reflective statements and reflective questions." "If the patient says 'I cannot sleep at night', you want to hear the doctor either ask or say 'so your mind is busy' or 'you have a lot to think about'." "It is very focussed on clinical science." (-) "Rapid fire questioning." (-) "Not listening to the patient, not giving the patient and opportunity to express their whole, but just being focussed on the disease or the chest pain." (-) "…if I ask you and you just say 'I can't sleep', and the doctor says 'your mind is busy', it makes them reflect."	"Multi-disciplinary referral… social issues that you would refer to the social worker."

Table D3

Themes Stemming from Personal Constructs: Participant Three (continued)

No.	Dimension	Definition	Quotes: Critical Incidents	Quotes: Performance Outcomes
		accurately through reflection.		
4	Caring with Kindness	The way in which the medical practitioner reaches out to patients with kind-heartedness during the medical encounters where both parties need to join to ensure connectedness; by giving attention to patients; listen and support them; acknowledging the patient's vulnerability, show genuine concern and interest in the patient by acting responsibly and by been dedicated and having the courage to be appropriately involved with the patient. Focus on the quality of the engagement, the quality of the medical practitioner's	"…making sure the patient is respected." "…it is the greeting." "…making sure the patient is comfortable." "…that they are dignified." "…seeing a patient walking down the passage and just closing the 'aaklige hospitaal jurkie'." "When you put the drip up, it is not in an uncomfortable space." "Often just put it there (the drip) and then the arm can't move." (-) "…making sure the patient is clean." "Stitching a wound and cleaning the patient afterwards." "The patient becomes an object or another problem."(-) "…very abrupt, just say 'Lie on the bed', 'Get undressed'."(-)	"…when the patient leaves, I want to see a happy complete package that is better than when they came in." "So during the consultation, growth or change must have happened or occurred." "Job satisfaction, a doctor that has worked and did that the whole day, does not leave tired. The encounter energizes instead of making them tired or depressed."

Table D3

Themes Stemming from Personal Constructs: Participant Three (continued)

No.	Dimension	Definition	Quotes: Critical Incidents	Quotes: Performance Outcomes
		concern and the nature of the medical practitioner's commitment to the patient.	"…very strict, abusive, angry, screaming at the patient." (-)	
			"…saying things like 'Don't be hysterical' or 'You are not cooperating'." (-)	
			"…'You can do this, you are doing the best you can', 'I am here to support you'."	
			"Small acts of kindness".	
			"A poor plate of food…" (-)	
			"Invasive procedures, so you will do a lumbar puncture or will put in a catheter and not explain to the patient why it is necessary or a nasal gastric tube…" (-)	
			"Respecting patient autonomy, in other words, the right to choose."	
			"Get angry when the patient wants to leave the hospital or doesn't want to take certain medication." (-)	
			"In ER they will see a patient that is angry and will then ignore the patient, instead of going to the person and saying 'I can see that you are upset, what can I do for you?"	

Participant Four

Participant Four is a family physician with extensive experience in the public healthcare sector. He occupies a senior position in a district hospital and presented as very friendly, soft spoken and 'easy to get to know'. He was strikingly passionate about patients – especially the experience that a patient goes through during a consultation. His years of experience and insight was illustrated by the depth of examples he shared during the interview. Table D4 tabulates the critical incidents that emanated from the dimensions elicited during the interview with Participant Four.

Table D4

Themes Stemming from Personal Constructs: Participant Four

No.	Dimension	Definition	Quotes: Critical Incidents	Quotes: Performance Outcomes
1	Compassion Action Orientation	The extent to which the medical practitioner initiates tangible action that is appropriate in the given context aimed at alleviating suffering, not looking the other way, not expecting help to come from somewhere else. Relieves emotional distress, meets with the family if needed; relieves the suffering of the person and does not only provide treatment; assists in making sense of the suffering, assists in finding	"…it is an active process." "…making eye contact with the patient. Being focussed on the patient … not allowing other distractions." "Also consistently involving the patient in decisions made." "Admitting limitations in our context. Saying 'Look this is something I would like to offer, but cannot necessarily – is there any other way that we can find another way of doing it?'" "Acknowledge that the patient is going through a tough or difficult time, 'I can imagine that it is hard – what do you expect from me? What do you think I can do for you?'" "There is usually something that we can do to show that we care."	"If you ask a patient who has had a consultation with someone who is compassionate, they will have a completely different experience…would feel that they had a voice." "Actually patients leave the consultation feeling better when they went in there the first place." "If the patient is happy even if I can't provide all the answers, that to me is probably a more rewarding consultation then one where there was absolutely no connection."

Table D4

Themes Stemming from Personal Constructs: Participant Four (continued)

No.	Dimension	Definition	Quotes: Critical Incidents	Quotes: Performance Outcomes
		meaning in the suffering in wanting to relieve the patient's suffering by taking action.	"…doctors who say 'There is actually nothing I can do for you, I don't know why you came here." (-) "Rudeness comes out." (-) "Short answers". (-) "…they speak in a language that makes the patient feel inferior, using medical jargon." (-) "…create a physical barrier, there will be a desk in-between the patient or a food trolley." (-)	
2	Investing the Self	Extent to which the medical practitioner invests his/her self into the patient-practitioner relationship: the extent to which the practitioner does not remain distant; the extent to which the practitioner gives him-/herself to the patient; the	"Practitioners who share their story." "Just try to identify with the patient …not trying to create the impression that the patient's experience is not unique and important, but just to identify 'I know what a tough time is like'" "I don't buy into that robot (technique) – it doesn't work for me." "When there is a disconnect – often there is a physical space." (-)	"…someone who is able to connect with patient will be a much more balanced person."

Table D4

Themes Stemming from Personal Constructs: Participant Four (continued)

No.	Dimension	Definition	Quotes: Critical Incidents	Quotes: Performance Outcomes
		extent to which the practitioner commits him-/herself to the relationship; the extent to which the practitioner is authentically present in the encounter.	"Body language is folded arms or a folder in front of me as a shield almost… people will wrap the coats around them tightly, but folded arms is a big one. Even masks…" (-) "When patients show emotion … get annoyed or say 'Ok, I will leave you and then come back'". (-) "I will come back in 10 minutes when you have calmed down." (-)	
3	Mindfulness	The extent to which the medical practitioner focusses on and fully lives in the present moment; registering sensations in a non-judgemental and undistorted manner; grasping what is not clearly seen; registering the current moment accurately.	"…it comes across in people who are genuinely interested in the person sitting in front of them." "They don't judge a person." "…we don't have a mindful approach when we try to put them in boxes that we understand, it isn't necessarily their context." (-) "It is all about me, it becomes a very selfish consultation, it is sort of paternalistic approach where there is also then a hierarchy usually about the doctor as the important one and the patient just happens to be there…" (-) "The mindful person would ask broader questions like 'How does whatever is happening to you, affect you at work, in your relationship, and with your family and does it have an impact?'"	"Patient feels respected and valued, because it is about who the patient is, not who I want the patient to be or who I think the patient would be and not bringing in my own belief system and all of that." "A lot of GP consultations are actually related to mental health issues, and you are never going to get to those if you are only going to ask about medical complaints."

Table D4

Themes Stemming from Personal Constructs: Participant Four (continued)

No.	Dimension	Definition	Quotes: Critical Incidents	Quotes: Performance Outcomes
			"The mindful person would ask broader questions like 'How does whatever is happening to you, affect you at work, in your relationship, and with your family and does it have an impact?'"	
			"The mindful person would like to see the person in the full context."	
			"…keeps cutting off patients, keeps interrupting them, because 'I know just from seeing you…" (-)	
			"There is not a negotiation between the two… not a relationship really, it is a one-way street." (-)	
4	Recognition of Emotion	The extent to which the medical practitioner recognises the emotional state of a patient when and where it occurs as an emotional cue profile pointing to an unresolved problem that causes suffering, by making a conscious effort not to	"… quite close to the patient physically, so there won't' be anything between them."	"…it might sometimes change your diagnoses to a more accurate one."
			"…they will always introduce themselves properly – a nametag is not good enough."	"…the patient experience will be much better because the minute that someone recognize or picks up on something they didn't say it actually shows that they are not just listening but also looking at me."
			"Eye contact is important."	"…it is a positive experience for the doctor."
			"You can't read emotions, if you don't look at someone. So not writing notes while you are busy interacting with the patient, you	
			"…laugh inappropriately which confuses the patient…" (-)	

Table D4

Themes Stemming from Personal Constructs: Participant Four (continued)

No.	Dimension	Definition	Quotes: Critical Incidents	Quotes: Performance Outcomes
		dismiss the emotion, but to identify and understand the verbalised cues and the non-verbal behaviour related to the emotion.	do afterwards, not busy on the cellphone while you are doing that…" "Not fiddling with your hands." (-) "…sometimes it means stopping the consultation in the sense that where it is going and say 'Look, I sense that something else is going on here, or why are you smiling when I ask that or you look sad to me – what is going on?" "Sometimes the patient doesn't share with you, you might need to speak to a family member." "…read old notes while they are asking the patient something new." (-) "…when there is a phone call answered (cellphones) in-between." (-) "…when you are scribbling notes, looking down on the paper." (-) "…they will be speaking to a patient, then they decide they want to look at an X-ray which is on the computer and they literally just walk away." (-) "…'Look I need to look at your X-ray, but I am coming back and I will explain to you what I have seen."	"It is about managing the patient holistically, it also tells you something about your skill – if you are able to pick those things up."

Table D4

Themes Stemming from Personal Constructs: Participant Four (continued)

No.	Dimension	Definition	Quotes: Critical Incidents	Quotes: Performance Outcomes
			"Body language is important …nervous twitching of the hands, or looking away, or looking down (patients)."	
			"…laugh inappropriately which confuses the patient…" (-)	
			"…patients sit there smiling and half a minute later they are crying, it is sometimes very difficult to read the cues. I just actually ask them…"	

Participant Five

Participant Five is a family physician who has worked at various different public hospitals in the healthcare sector. He is soft spoken and portrays as a humble and caring person. He seemed to enjoy the interview and his years of experience was shown by the depth and quality of examples he shared during the session. He identified with the medical practitioner compassion construct and was excited about the research for future reference. He also offered his assistance, should there be any other question or queries. Table D5 tabulates the critical incidents that emanated from the dimensions elicited during the interview with Participant Five.

Table D5

Themes Stemming from Personal Constructs: Participant Five

No.	Dimension	Definition	Quotes: Critical Incidents	Quotes: Performance Outcomes
1	Gaining and Communicating an Empathic Understanding	The extent to which the medical practitioner develops an understanding of the patient's story of the illness and suffering that assists the medical practitioner in his/her decision-making. Communicating his/her understanding of the patient's lived experience of the illness and suffering by showing insight and	"… he takes his time, he is unhurried..." "…he makes excellent eye-contact…" "…good body language – he would tend to mirror the patient, for example if patient leans forward, he will lean forward." "…the tone of voice, pace of words would usually match the patient." "He often have very empathic facial expression." "His tone of voice would convey caring."	"…patient enduring the treatment instructions…". "… actively engage in the treatment." "I think medical practitioner satisfaction could be an outcome because you have been treated as a human being." "Those little human moments can actually make your day at the end of the day." "…it is not about opportunity to see 30 diabetic patients, but an opportunity to have a conversation with 30 patients from Khayelitsha that you can get to know better."

Table D5

Themes Stemming from Personal Constructs: Participant Five (continued)

No.	Dimension	Definition	Quotes: Critical Incidents	Quotes: Performance Outcomes
		appreciation of their feelings, concerns and perspectives of a patient by perceiving the patient's internal frame of reference accurately through reflection.	"Everything is about meetings, greeting and seating the patient, a patient should be called out by name." "…the doctor sounding very autocratic …giving paternalistic instruction to the patient." (-) "…in the casualty in Khayelitsha, the doctor sitting at this desk in the consulting room and gets hold of the next folder and he literally shouts out across the room 'Next!' at the top of his voice." (-) "…doctor strides up toward him (patient) and says 'Luister meneer, if you want to stay here in this casualty you must carry on eating the chips, you know it is not allowed'. (-)	
2	Caring with Kindness	The way in which the medical practitioner reaches out to patients with kind-heartedness during the medical encounters were both parties need to join to	"Firstly making time…" "…you are discussing something emotional and the patient starts crying, it could be something as simple as just being quiet and acknowledge the emotion, it could be a gesture of handing a tissue to the patient."	"If you treat people with kindness you are more likely to get some positive affirmation." "I firmly believe that the patients feel cared for, are much more likely to comply to their medication so their endurance is better."

Table D5

Themes Stemming from Personal Constructs: Participant Five (continued)

No.	Dimension	Definition	Quotes: Critical Incidents	Quotes: Performance Outcomes
		ensure connectedness; by giving attention to patients; listen and support them; acknowledging the patient's vulnerability, show genuine concern and interest in the patient by acting responsibly and by been dedicated and having the courage to be appropriately involved with the patient. Focus on the quality of the engagement, the quality of the medical practitioner's concern and the nature of the medical practitioner's commitment to the patient.	"…bent down and with his (medical practitioner) two hands helped me physically to put my pants on." "…the practitioner offering the patient just a glass of water." "Or creating some privacy, closing the door, pulling the curtain..." "…look at the patient with gentleness and softness with our eyes." "Often in a very subtle, nonverbal gestures – sigh with the patient." "…patient is really vulnerable and needs support, going the extra mile and maybe offering your contact details." "…wrote a referral note out for the patient and told the patient exactly what to do – when he came back to the clinic on Monday, how to get there." "…patient being brought into casualty in acute pain … the one practitioner would have an argument with the	"The patient is also more likely to believe that this medication is going to work." "It builds self-efficacy, self-confidence (if the patient follows medication instructions)."

Table D5

Themes Stemming from Personal Constructs: Participant Five (continued)

No.	Dimension	Definition	Quotes: Critical Incidents	Quotes: Performance Outcomes
			ambulance personnel about the fact that the patient is not supposed to be here." (-)	
			"Forgetting about the patient and having a whole argument with ambulance personnel about inappropriateness of the referral." (-)	
			"…doctor just turn around, without acknowledging the patient and tells the nurse to give him an injection and give him some Bascopan." (-)	
3	Compassion Action Orientation	The extent to which the medical practitioner initiates tangible action that is appropriate in the given context aimed at alleviating suffering, not looking the other way, not expecting help to come from somewhere else. Relieves emotional distress, meets with the family if needed;	"…emergency unit, a young man comes in with a stabbed chest… practitioners that will fill up the IV line, administer sedatives, more morphine for pain, then they would actually infiltrate the wound with local anaesthetic and then put in a chest drain."	"Greater job satisfaction." "Less burnout." "Positive impact on junior doctors and other members of team." "Improves the whole image of the hospital, clinic and service… it improves the image of the whole service offered."
			"…I don't worry about local anaesthetic, and we are just going to stick in the chest drain." (-)	
			"…where a patient experience an emotional reaction …practitioners are uncomfortable going there." (-)	

Table D5

Themes Stemming from Personal Constructs: Participant Five (continued)

No.	Dimension	Definition	Quotes: Critical Incidents	Quotes: Performance Outcomes
		relieves the suffering of the person and does not only provide treatment; assists in making sense of the suffering, assists in finding meaning in the suffering in wanting to relief the patient's suffering by taking action.	"They often change the topic, or pat the patient at the back, hand them some tissue, try to change the topic." (-)	
			"To tolerate the discomfort, allow the patient to cry."	
			"…lack of discipline … doctors regularly arriving late." (-)	
			"…doctor arriving on time, acknowledging the long waiting times of patients."	
			"…acknowledge when you don't know something, but willing to consult with somebody else or read up on something."	
			"…going out of your way to make an appointment for a patient."	
			"…using own time after hours contacting patients giving them results."	
4	Investing the Self	Extent to which the medical practitioner invests his/her self into	"I remember talking to him softly, taking my time to examine the wound."	

Table D5

Themes Stemming from Personal Constructs: Participant Five (continued)

No.	Dimension	Definition	Quotes: Critical Incidents	Quotes: Performance Outcomes
		the patient practitioner relationship: the extent to which the practitioner does not remain distant; the extent to which the practitioner gives him-/herself to the patient; the extent to which the practitioner commits him-/herself to the relationship; the extent to which the practitioner is authentically present in the encounter.	"I took time to look out for him (patient)." "I was intentionally building a relationship with somebody that was vulnerable, that was in need…" "Doctors that maintain a very strict, biomedical role." (-) "They would have a checklist." (-) "…a whole lot of closed questions." (-) "Doctors would be very paternalistic. Doctors lecturing patients about their needs." (-)	

Participant Six

Participant Six is a family physician currently working at a healthcare centre. He is serious about his position as a medical practitioner and believes that one should focus on the patient within his/her context. He also sees himself as a "soldier working in the line of duty"; giving his best every day with all his different patients. Initially the interview started on a more formal basis, but as time progressed a more relaxed, but still very sincere interview evolved. He shared many different examples illustrating some of the compassion dimensions beautifully. Table D6 tabulates the critical incidents that emanated from the dimensions elicited during the interview with Participant Six.

Table D6

Themes Stemming from Personal Constructs: Participant Six

No.	Dimension	Definition	Quotes: Critical Incidents	Quotes: Performance Outcomes
1	Caring with Kindness	The way in which the medical practitioner reaches out to patients with kind-heartedness during the medical encounters were both parties need to join to ensure connectedness; by giving attention to patients; listen and support them; acknowledging the patient's vulnerability, show genuine concern and interest in the patient by acting responsibly and by being dedicated and	"The patients are always fond of him … when they come to the hospital they ask for him." "He is very diligent." "He listens to the patient very carefully – he tries to make them comfortable whenever he is engaging with them." "His consultation is very thorough, he maintains concentration throughout his consultation, he tries to understand the basis of why the patient has come to see you." "…the caring doctor would go the extra mile, if it is required." "… he does literally park the folders, call the patient one by one, ask what is the problem, if they have pain, give each a box of Panado…" (-)	"…he never establish re-consultation with the patient on one to one basis…" "Misdiagnoses, complications, might be a risk here."

Table D6

Themes Stemming from Personal Constructs: Participant Six (continued)

No.	Dimension	Definition	Quotes: Critical Incidents	Quotes: Performance Outcomes
		having the courage to be appropriately involved with the patient. Focus on the quality of the engagement, the quality of the medical practitioner's concern and the nature of the medical practitioner's commitment to the patient.		
2	Compassion Action Orientation	The extent to which the medical practitioner initiates tangible action that is appropriate in the given context aimed at alleviating suffering, not looking the other way, not expecting help to come from somewhere else. Relieves emotional distress, meets with the family if needed; relieves the suffering of the person and does not only provide treatment; assists in	"He goes out of his way to assist people." "Sometimes he even sees patients in his office. Most of his colleagues wouldn't see patients in their offices, they rather go to consultation rooms." "…medical practice is beyond just a calling for him, he takes pride in every patient that he sees and he enjoys every bit of help he renders to his patient." "This one come to work very late … he leaves at whatever time he wants to leave – whether he still has patients waiting or not waiting." (-) "He does delegate and off he goes…" (-)	"The patients are happy, they tell a good story about this individual… and they also market the facility (hospital, clinic)."

Table D6

Themes Stemming from Personal Constructs: Participant Six (continued)

No.	Dimension	Definition	Quotes: Critical Incidents	Quotes: Performance Outcomes
		making sense of the suffering, assists in finding meaning in the suffering in wanting to relief the patient's suffering by taking action.	"Even when they need to see patients, they rather ask the patient to make an appointment again." (-)	
3	Investing the Self	Extent to which the medical practitioner invests his/her self into the patient practitioner relationship: the extent to which the practitioner does not remain distant; the extent to which the practitioner gives him-/herself to the patient; the extent to which the practitioner commits him-/herself to the relationship; the extent to which the practitioner is authentically present in the encounter.	"If there is a need for me to put up a drip for him, I do it – on a personal level." "So I tried as much as I can … watching him until the drip finished." "It is like a soldier that puts his life on a line, in the line of his duty."	

Table D6

Themes Stemming from Personal Constructs: Participant Six (continued)

No.	Dimension	Definition	Quotes: Critical Incidents	Quotes: Performance Outcomes
4	Mindfulness	The extent to which the medical practitioner focusses on and fully lives in the present moment; registering sensations in a non-judgemental and undistorted manner; grasping what is not clearly seen; registering the current moment accurately.	"…using a three stage assessment … it was discovered that it was a contextual problem, within the household in which this individual (patient) lives that brought about the headache." "I had to go back to the basics – going back to the basics, involves a lot of thinking, it involves a lot of fishing, I had to widen my net, to be able to understand what was going on." "…as a practitioner a lot of colleagues get agitated and frustrated … because they think the individual is faking the symptoms." (-) "Sometimes you see it in the manner in which colleague's document stuff … it is too shallow to make head or tail of how they think. Somebody comes with back pain, and the colleagues just say 'Back pain', you kind of would like to see notes on examination …" (-)	"So that for me is fulfilment that what I have invested my life in as a practitioner actually brought about joy to a very young patient." "… the patient would be unsatisfied." "It reduces the cost on the part of the department. How that works is, if patient are properly sorted out at any given visit, then it doesn't mean multiple visits, because by visits, there is a cost involved."

Participant Seven

Participant Seven is a qualified family physician with 16 years of experience in the public healthcare sector. He presented as very friendly and sincere. He was light hearted at times and it was easy to get to know him. He thought deeply and cautiously about each question asked during the CIT interview. His passion and love for his job was illustrated by the examples he shared during the interview; especially his willingness to try and assist patients even if it meant going the extra mile. Table D7 tabulates the critical incidents that emanated from the dimensions elicited during the interview with Participant Seven.

Table D7

Themes Stemming from Personal Constructs: Participant Seven

No.	Dimension	Definition	Quotes: Critical Incidents	Quotes: Performance Outcomes
1	Recognition of Emotion	The extent to which the medical practitioner recognises the emotional state of a patient when and where it occurs as an emotional cue profile pointing to an unresolved problem that causes suffering, by making a conscious effort not to dismiss the emotion, but to identify and understand the verbalised cues and the non-verbal behaviour related to the emotion.	"…physician saw the patient and recognized the cue that the patient's effect was very blunt, patient was withdrawn and silent." "…this physician was listening but also looking at the patient. He was picking up the facial expression, the cue, the way the patient held herself." "Not being patient centred." "It was an emergency centre and it is small … one realises that his (medical practitioner) voice was raised." (-) "The doctor still rendered a service but made a scene of it... 'Ah, I probably just have to do something here'." (-)	"…if the doctor is able to recognise underlying emotion and cues, the body language, probably a better diagnostician because they can pick up the underlying reasons for presenting the mental health aspects." "So I think it is better treatment and in a way not complicating the treatment by adding another medication which would cause side effects…"

Table D7

Themes Stemming from Personal Constructs: Participant Seven (continued)

No.	Dimension	Definition	Quotes: Critical Incidents	Quotes: Performance Outcomes
2	Gaining and Communicating an Empathic Understanding	The extent to which the medical practitioner develops an understanding of the patient's story of the illness and suffering that assists the medical practitioner in his/her decision-making. Communicating his/her understanding of the patient's lived experience of the illness and suffering by showing insight and appreciation of their feelings, concerns and perspectives of a patient by perceiving the patient's internal frame of reference accurately through reflection	"… never appeared rushed in a consultation." "…he would make a lot of communication sounds, non-verbal cues that is listening and perhaps rephrasing or summarising what a patient said." "…trying to get the patient to talk and tell the story, not interrupting." "He would always appear calm. The calmness gives the impression that there is time, where often there isn't." "He doesn't appear rushed." "…also the way he would sit – he would try to position himself close to the patient." "…not write excessively whilst the patient is talking, making eye contact." "One can also think of people that would appropriately touch the patient during the conversation." "…being rushed." (-)	"So hopefully it will be a better experience." "Also for the practitioner, it is more rewarding." "…if the patient values the interaction with the practitioner, they would value the practitioner advice and guidance on the treatment plan."

Table D7

Themes Stemming from Personal Constructs: Participant Seven (continued)

No.	Dimension	Definition	Quotes: Critical Incidents	Quotes: Performance Outcomes
			"…trying to bio-medically sort out the issue and get the patient out of the room." (-)	
			"Not making any effort first understand the reason for presenting…just glance at the observations from the triage nurse." (-)	
3	Caring with Kindness	The way in which the medical practitioner reaches out to patients with kind-heartedness during the medical encounters where both parties need to join to ensure connectedness; by giving attention to patients; listen and support them; acknowledging the patient's vulnerability, show genuine concern and interest in the patient by acting responsibly and by been dedicated and having the courage to be appropriately involved	"Being able to be open for showing appreciation for the problem and the patient experience of the problem." "By involving the patient, making sure the patient is warm enough." "…privacy is looked after." "…explaining especially like an ultrasound." "Well it was a combination of me trying to visualize myself in their shoes." "…they sit next to me; it is a very small cubicle." "For some of my patient we even hug – show that personal affectional relationship is there, appreciating them."	" 'Ek het nog van waarde gevoel', known that medically speaking, there is no cure, beyond chemo…"

Table D7

Themes Stemming from Personal Constructs: Participant Seven (continued)

No.	Dimension	Definition	Quotes: Critical Incidents	Quotes: Performance Outcomes
		with the patient. Focus on the quality of the engagement, the quality of the medical practitioner's concern and the nature of the medical practitioner's commitment to the patient.	"See how her problem affects her … understanding and appreciating of what she is going through." "Just showing her and helping her find a solution of stopping it now, looking for the exact reasoning for the condition." "Try to reassure her." "Not demonstrating or …visualize that the person's perspective being in their shoes."	
4	Compassion Action Orientation	The extent to which the medical practitioner initiates tangible action that is appropriate in the given context aimed at alleviating suffering, not looking the other way, not expecting help to come from somewhere else. Relieves emotional distress, meets with the family if needed; relieves the suffering of the person and does not only provide treatment; assists in	"…he (medical practitioner) got someone in to help translate and understand." "So I think it was compassionate in being knowing that this might potentially be a painful procedure … making an effort that the child and mom understands as to what will be done and why it need to be done." "…in a way we met his need, that he wanted to be referred on. We showed that we were willing to give it another opinion, another chance." "…an individual could be normally very compassionate, but on that day and time, whatever internal and external reasons, they are not available in the moment." (-)	"…sense of reward, you feel you have contributed, made a difference…"

Table D7

Themes Stemming from Personal Constructs: Participant Seven (continued)

No.	Dimension	Definition	Quotes: Critical Incidents	Quotes: Performance Outcomes
		making sense of the suffering, assists in finding meaning in the suffering in wanting to relief the patient's suffering by taking action.		

Participant Eight

Participant Eight is a surgeon with extensive experience in the public healthcare sector. She manages a team of medical practitioners and also assist in training young medical practitioners. She loves her job and stated that a surgeon actually has a lot of contact with patients; not only in theatre as some may believe. She was easy to get to know and took the interview seriously. Even though she had other appointments after the interview, she ensured that all questions were answered as best possible. Situational awareness was a concept that she used frequently, thus "reading the situation" correctly and knowing when to give the patient time for privacy, time to reflect or just to sit in silence closely to the patient. Table D8 tabulates the crirical incidents that emanated from the dimensions elicited during the interview with Participant Eight.

Table D8

Themes Stemming from Personal Constructs: Participant Eight

No.	Dimension	Definition	Quotes: Critical Incidents	Quotes: Performance Outcomes
1	Investing the Self	Extent to which the medical practitioner invests his/her self into the patient-practitioner relationship: the extent to which the practitioner does not remain distant; the extent to which the practitioner gives him-/herself to the patient; the extent to which the practitioner commits him-/herself to the relationship; the extent to which the	"I think there are people, not only investing in themselves, but invest time in to answer the patient's question." "…to repeat it when the patient didn't understand it the first time." "For you it may be the 15th time that you have explained about the management plan, but it is the first time that they hear it." "That one doesn't rush through." "Also that you are willing to let the patient go off to think about it and digest the information first and come back with their questions."	"… one's satisfaction come from an operation well done or uncomplicated, when you imagined that the operation might go difficult and it goes smoothly, leads to you feeling happy as a surgeon." ".. the patient is pleased with a good outcome in the long term." "…the doctor is available, that the patient doesn't feel scared to come back to ask." "I will try my best not to make a mistake and the patient has to blindly believe."

Table D8

Themes Stemming from Personal Constructs: Participant Eight (continued)

No.	Dimension	Definition	Quotes: Critical Incidents	Quotes: Performance Outcomes
		practitioner is authentically present in the encounter.	"…an extremely hard moment to remain invested in the patient and the patient's care, if the patient directly opposes what you suggested."	
			"…will explain to you how it will be done and you will have it done like this." (-)	
			"You cannot force any kind of procedure or decision on the patient." (-)	
			"…but to create – even if it is just with a curtain, an atmosphere where we are now just speaking to you at the bedside, closing the curtain, that the patient feels it is a little bit private."	
			"…not also speaking on your phone or answering a bleep." "…we inflict literally with a knife or other instrument, we inflict the cure with the intent to cure and it doesn't always run smoothly."	
2	Mindfulness	The extent to which the medical practitioner focusses on and fully lives in the present moment; registering sensations in a non-judgemental and undistorted manner;	"…I think another word for it, is situational awareness." "Sometimes I sit in front of the patient, the patient is asking ten questions, and I think I must still do the ward round, we are also thinking about what else we must do…" (-) "Sometimes you have to say for yourself, 'I have explained this three times, but I should not become impatient'."	"…the patient might feel disgruntled." "A satisfied patient – a patient that feels involved and engaged in the process."

Table D8

Themes Stemming from Personal Constructs: Participant Eight (continued)

No.	Dimension	Definition	Quotes: Critical Incidents	Quotes: Performance Outcomes
		grasping what is not clearly seen; registering the current moment accurately.	"…authoritative speaking – 'You will do this', with no explanation." (-)	
3	Recognition of Emotion	The extent to which the medical practitioner recognises the emotional state of a patient when and where it occurs as an emotional cue profile pointing to an unresolved problem that causes suffering, by making a conscious effort not to dismiss the emotion, but to identify and understand the verbalised cues and the non-verbal behaviour related to the emotion.	"Sometimes you even have to ask the patient 'Who are you angry towards, or what are you upset about?' because they themselves don't know what they express in that kind of a way." "When you get the impression that the person needs to speak to another person alone, you need to facilitate that …" "There is already a level of fear coming to see a surgeon, so one must have appreciation for that." "I ask the patient 'How do you feel?', I try to probe a little bit…" "…go outside the curtain a little bit, close the curtain, so that they (patient and husband) can speak for a moment and then we will come back." "…either you don't read it or you read it incorrectly and vice versa." "Also you must be willing to listen, even if it sounds absurd to you what the patient thinks will cure them."	"…if a patient doesn't undergo the treatment as you planned, it can have a very poor patient outcome."

Table D8

Themes Stemming from Personal Constructs: Participant Eight (continued)

No.	Dimension	Definition	Quotes: Critical Incidents	Quotes: Performance Outcomes
			"…you have to sit there and make a note, I will say to the patient 'I am writing this in the notes, you feel differently from me for this reason."	
4	Gaining and communicating an empathic understanding	The extent to which the medical practitioner develops an understanding of the patient's story of the illness and suffering that assists the medical practitioner in his/her decision-making. Communicating his/her understanding of the patient's lived experience of the illness and suffering by showing insight and appreciation of their feelings, concerns and perspectives of a patient by perceiving the patient's internal frame of reference accurately through reflection.	"…important to show an awareness of the social impact of what we do and what the disease condition is." "…you can get a patient a new wheel chair, meanwhile they live in a shack with sand outside, so you can't push the wheelchair through the sand." (-)	"…patient satisfaction…" "…patient compliance…"

Participant Nine

Participant Nine is a white male with over 15 years of experience in the public healthcare sector and a specialist in internal medicine. He is also involved in clinical training for young medical practitioners at an academic hospital. He engaged passionately during the interview and shared many practical stories and examples of medical practitioners that enthused him. The session continued for about one and a half hours due to the willingness of the participant to share his insights on the topic. A lot of detail was given in trying to contextualise the environment in which these medical practitioners were required to work. Table D9 below captures the critical incidents that emerged from the session with Participant Nine.

Table D9

Themes Stemming from Personal Constructs: Participant 9

No.	Dimension	Definition	Quotes: Critical Incidents	Quotes: Performance Outcomes
1	Investing the Self	Extent to which the medical practitioner invests his/her self into the patient practitioner relationship: the extent to which the practitioner does not remain distant; the extent to which the practitioner gives him-/herself to the patient; the extent to which the practitioner commits him-/herself to the relationship; the extent to which the practitioner is authentically present in the encounter.	"Instead of saying 'No, the sister must come and do it', just walk around the corner and grab a bedpan yourself and bring it to the patient. It does show the patient that you actually see their discomfort and that it is important for you." "Go the extra mile and do something yourself, even though it is not in your job description". "It is about reading between the lines, not only what the patient tells you, but how they tell you. It is one thing treating their fracture, but for them the fracture is not the issue, but the pain." "The general tendency is to do the ward round as fast as possible, but in doing that you are not really spending enough time with the patient, so if you want to talk about investing yourself it is probably going a little bit slower, sitting a little bit longer with each patient."	"If you invest yourself and spend more time explaining and discussing and giving them more time…we are going to have a more compliant patient that is less likely to come back."

Table D9

Themes Stemming from Personal Constructs: Participant 9 (continued)

No.	Dimension	Definition	Quotes: Critical Incidents	Quotes: Performance Outcomes
			"Investing yourself would be to take it a bit slower and not worry about the others that are still waiting, making sure that each little complaint, patients tend to complain about minor things, for example 'I have a rash here', which is not really their main problem, but to also make sure what the rash is and address it. To just take time."	
2	Mindfulness	The extent to which the medical practitioner focusses on and fully lives in the present moment; registering sensations in a non-judgemental and undistorted manner; grasping what is not clearly seen; registering the current moment accurately.	"For you to actually realize what the patient is experiencing isn't necessary what you think it is, so to sort of put yourself in the patient's shoes and to explain to them, 'Sorry, you have been waiting an hour, but actually that hasn't changed your outcome and now I am going to give you all the care you need'. "Even though I am frustrated because it is a naughty young girl trying to get some attention, it still points to some social issues at her home and that is where the mindfulness comes in … we are good in treating the medical issues that come along with attempted suicide, but to deal with the psychological issues that is obviously the reason for the patients ending up with us. We deal with that in the sense we refer them… and we just address the medical issues, but obviously in dealing with the medical issues you must realize that it is a human being, screaming for help, so you need to be a little bit more sensitive when you get the history and have discussion with them…you need to be mindful of the person behind the story."	"We need to be mindful that what we are doing is pattern recognition and that is why it becomes so obvious… you also need to be mindful that you have the potential of missing things. There is a reason why you need to be systematic. If somebody comes in with a severe chest pain going to the left arm, a fifty-year old man that smokes and has a beer belly, I sort of go immediately 'yes, it is a heart attack', and focus all my questions during examination to confirm it. Start with a proper what is the patient presenting and everything around it, very systematic… I need to be mindful, if you do that jump every time, every now and again you are going to miss something. You need to be mindful that if you take short cuts, there is a potential risk in doing that."

Table D9

Themes Stemming from Personal Constructs: Participant 9 (continued)

No.	Dimension	Definition	Quotes: Critical Incidents	Quotes: Performance Outcomes
			"You need to read between the lines and if you don't, whilst reading between the lines, you must spend extra time to get a more proper history and if you are not mindful of that you might actually not ask the correct questions, and you will get the wrong diagnoses." (-)	
3	Caring with Kindness	The way in which the medical practitioner reaches out to patients with kind-heartedness during the medical encounters where both parties need to join to ensure connectedness; by giving attention to patients; listen and support them; acknowledging the patient's vulnerability, show genuine concern and interest in the patient by acting responsibly and by being dedicated and having the courage to be appropriately involved	"We focus on the essence of the disease and the disease and not necessarily on the patient's all the time." (-) "Instead of just standing next to the bed and taking over the patient, if you actually go and sit next to them and put your hand on their hand, discuss the problem person to person." "Stop and speak directly to the patient and ask the patient if he has any questions, then explain in laymen's terms to the patient what is going on." "One of the big things in medicine is privacy, but in a place like casualties there is no privacy … there are 50 patients in a place that was created for 20 patients. So you do now discuss the patient's problems and there is a patient a meter down the corridor." (-)	

Table D9

Themes Stemming from Personal Constructs: Participant 9 (continued)

No.	Dimension	Definition	Quotes: Critical Incidents	Quotes: Performance Outcomes
3	Caring with Kindness	with the patient. Focus on the quality of the engagement, the quality of the medical practitioner's concern and the nature of the medical practitioner's commitment to the patient.		
4	Compassion Action Orientation	The extent to which the medical practitioner initiates tangible action that is appropriate in the given context aimed at alleviating suffering, not looking the other way, not expecting help to come from somewhere else. Relieves emotional distress; meets with the family if needed; relieves the suffering of the person and does not only provide treatment; assist in making sense of the suffering,	"It is all about the disease and not so much about the patient." (-) "We are not only there to cure a patient, but also to relief their situation, to take away the pain." "The occupancy rate at … is 160%, so there are many people in the corridor. For us it is important that patients must get out, they cannot stay another day." (-) "The patient who came in with a stroke, and they were living on their own, so they won't be able to get back to living on their own, so from day 1, you need to get the social worker involved." "Discussing with the family whether they will be able to look after the granny and what is involved in taking care of the granny. Explaining if they are not able to do it – what are the options. Making a plan to make sure the patient has somewhere to go."	"Readmission rates… can be an indicator, but the problem is there is so many, a lot of different variables that influence it, so alone it is not going to be enough as an indicator." "They were sitting two hours in casualty waiting for somebody to look after them and they would have stopped somebody and the doctor would have said 'No, I am busy, ask the sister'. A very short answer like that instead of spending 2 minutes and explaining to them why they are still waiting."

Table D9

Themes Stemming from Personal Constructs: Participant 9 (continued)

No.	Dimension	Definition	Quotes: Critical Incidents	Quotes: Performance Outcomes
		assists in finding meaning in the suffering in wanting to relieve the patient's suffering by taking action.	"I will give them my private number and say call me if there is a problem."	
			"You do get doctors that talk very harshly to patients 'Why didn't you take your medication, it is your fault that you are back, you should have drank your pills', and not realize that if you actually talk to patients you realize it is not their fault, they didn't get the medication at the day hospital."	

Participant Ten

Participant Ten is a paediatrician working in an academic hospital in the public healthcare sector. She is soft spoken and kind. She was very passionate not only about her patients, but also the parents of the little ones she is working with. She enjoyed the interview and participated actively. At times, emotional cues were observed when she spoke about very sick new born babies she had to deal with who had a very low life expectancy rate. She was touched by these examples on a personal level and this motivated her even more to give her very best every day. Table D10 tabulates the critical incidents that emanated from the decisions elicited during the interview with Participant Ten.

Table D10

Themes Stemming from Personal Constructs: Participant Ten

No.	Dimension	Definition	Quotes: Critical Incidents	Quotes: Performance Outcomes
1	Recognition of Emotion	The extent to which the medical practitioner recognises the emotional state of a patient when and where it occurs as an emotional cue profile pointing to an unresolved problem that causes suffering, by making a conscious effort not to dismiss the emotion, but to identify and understand the verbalised cues and the non-verbal behaviour related to the emotion.	"…would find a patient crying and usually she will take the mom aside and speak to her in more detail about the baby's condition and also try and find out what is happening with the mother." "…take them into a private area and speak to them about it." "…firstly, they don't recognise that mothers are depressed (…speaking in the context of neonates)." "…quite often doctors ignoring the mom for example sitting there in tears, not bonding with the baby." (-) "One needs to make the mom comfortable enough to open up to you…" "…you actually have to sit down and listen to your patients."	"…patients don't come to you because they are sick, they come to you because they want someone to listen to them."

Table D10

Themes Stemming from Personal Constructs: Participant Ten (continued)

No.	Dimension	Definition	Quotes: Critical Incidents	Quotes: Performance Outcomes
			"…patients don't come to you because they are sick, they come to you because they want someone to listen to them."	
2	Gaining and communicating an empathic understanding	The extent to which the medical practitioner develops an understanding of the patient's story of the illness and suffering that assists the medical practitioner in his/her decision-making. Communicating his/her understanding of the patient's lived experience of the illness and suffering by showing insight and appreciation of their feelings, concerns and perspectives of a patient by perceiving the patient's internal frame of reference accurately through reflection.	"So it is speaking to the patient." "Not just seeing them as a body, but a disease or a problem, it is actually to learn about them and learn about their life and how the problem that they have, impacted on them." "…maybe it comes with experience, knowing which questions to ask." "…the doctor who doesn't talk and listen to the patient." (-) "…I am the professional, I know what is best for you and this is how you are going to do it." (-) "So the inability to adapt to the patient's situation and helping them guide you what is going to be the best plan of action for them." (-) "…lack of knowledge and skill of knowing how to guide the patient to help you with your decision." (-)	"…the patient is going to leave you feeling very unfulfilled, possibly very confused and probably overwhelmed…" "…are not going to be happy with you, they won't come back to you."

Table D10

Themes Stemming from Personal Constructs: Participant Ten (continued)

No.	Dimension	Definition	Quotes: Critical Incidents	Quotes: Performance Outcomes
			"You need to sit down and you have to be honest and explain to them exactly what happened."	
3	Caring with Kindness	The way in which the medical practitioner reaches out to patients with kind-heartedness during the medical encounters were both parties need to join to ensure connectedness; by giving attention to patients; listen and support them; acknowledging the patient's vulnerability, show genuine concern and interest in the patient by acting responsibly and by been dedicated and having the courage to be appropriately involved with the patient. Focus on the quality of the engagement, the quality of the medical practitioner's	"…to actually show them that they care…" "…listening to them…" "…just talking through their issues with them." "Acting in a way that is going to be in the best interest of the patient." "…making the patient aware that you do care about them and that you want them to be better." "You don't speak to them." (-) "They just treat what they see…" (-) "I think the doctor who doesn't listen…" (-) "…who doesn't take the time to acknowledge even." (-) "…we just talk about the patient in that room, in front of the patient, 'Bed B'." (-)	"…in many cases they also blame you for the patient's condition, not getting… because you haven't showed that you care." "…they don't seem to get better…they may actually become depressed."

Table D10

Themes Stemming from Personal Constructs: Participant Ten (continued)

No.	Dimension	Definition	Quotes: Critical Incidents	Quotes: Performance Outcomes
		concern and the nature of the medical practitioner's commitment to the patient.	"She really cried for a very long time, even I (medical practitioner) started crying."	
			"…we use medical terms and the patient have no clue and they don't want to be seen stupid, I suppose, by asking you to explain things." (-)	
4	Compassion Action Orientation	The extent to which the medical practitioner initiates tangible action that is appropriate in the given context aimed at alleviating suffering, not looking the other way, not expecting help to come from somewhere else. Relieves emotional distress; meets with the family if needed; relieves the suffering of the person and does not only provide treatment; assist in making sense of the suffering, assists in finding meaning in the suffering in wanting to relieve the patient's suffering by taking action.	"…sometimes there is actually nothing you can do and then once again, just the act of listening and acknowledging." "Even if there is nothing that you can do about the problem, it is about at least acknowledging that." "Just putting them in touch with the social services…" "Giving the patient a follow-up…" "…giving the patient a contact number…" "…giving them a letter (reference)…"	"…happy patient, probably a healthier patient, more satisfied." "…the family will feel better as well." "I think you yourself, it is so satisfying if you now really helped someone."

Participant Eleven

Participant Eleven is a registrar, specialising in obstetrics and gynaecology. He arrived promptly for the interview and engaged immediately even though he did look tired. He was able to share many different stories given the questions asked during the CIT interview. He was serious about the fact that all patients should not only be treated in a humane but also with dignity and the necessary privacy. He also stated that medical practitioners should try to put themselves in the patient's shoes, before making any decisions or giving recommendations. Table D11 tabulates the critical incidents that emanated from the dimensions elicited during the interview with Participant Eleven.

Table D11

Themes Stemming from Personal Constructs: Participant Eleven

No.	Dimension	Definition	Quotes: Critical Incidents	Quotes: Performance Outcomes
1	Investing the Self	Extent to which the medical practitioner invests his/her self into the patient-practitioner relationship: the extent to which the practitioner does not remain distant; the extent to which the practitioner gives him-/herself to the patient; the extent to which the practitioner commits him-/herself to the relationship; the extent to which the practitioner is authentically present in the encounter.	"…the consultant hugged the patient and cried with her." "…some consultants will ask the patient 'Do you understand what is happening, do you realize why you are here and what is going on, what our plan is for you?'." "Most of them will just walk to the next patient, without showing that interest in the patient." (-) "…the patient didn't understand what was happening, and without trying to explain it to the patient it was said 'Well, if you don't want to be here, then you are welcome to go home'." (-) "…the way he approached the nursing staff, how he talks to them…"	"…it is usually word of mouth, as you walk into the ward they will say 'Here is doctor so and so', 'You are lucky to have this doctor looking after you'." "…job satisfaction." "It makes you feel good, you appreciate that. All the long hours, all the late nights, the lack of sleep – it makes it worthwhile."

Table D11

Themes Stemming from Personal Constructs: Participant Eleven (continued)

No.	Dimension	Definition	Quotes: Critical Incidents	Quotes: Performance Outcomes
			"He will walk into the ward, greet all the sisters, he will maybe crack a joke with them, asking them how they are?"	
2	Mindfulness	The extent to which the medical practitioner focusses on and fully lives in the present moment; registering sensations in a non-judgemental and undistorted manner; grasping what is not clearly seen; registering the current moment accurately.	"…you are so focussed on something, you have seen with the one patient – that you must still sort that out that you don't always focus on the patient in front of you." (-) "Just draw the curtains so that you create that little bit of privacy with the patient…" "…if it is a difficult case that you tell the patient 'I just need to sort out this thing first, before I give you my full attention." "Sometimes you can miss important information if you don't give your full attention, if you don't listen to them." (-)	"…you can actually miss a diagnoses on a patient." "…patient satisfaction."
3	Recognition of Emotion	The extent to which the medical practitioner recognises the emotional state of a patient when and where it occurs as an emotional cue profile pointing to an unresolved	"I spoke to her and told her 'Look I can't keep you here against your will, but in you best interest it is better to maybe stay another day or two to get you healthy, otherwise your child may not even have a mother in the end of the day'." "…when you speak to a patient, as you move on to other patients, the patient may, in their indigenous language talk to other patients, and then I will ask them 'What is going on?'"	"Just put yourself in the patient's situation… you don't want 10 student doctors looking at you while you are being examined." "…when patient's realise that you are a little bit more involved … they trust you more." "…gain their (patients) trust."

Table D11

Themes Stemming from Personal Constructs: Participant Eleven (continued)

No.	Dimension	Definition	Quotes: Critical Incidents	Quotes: Performance Outcomes
		problem that causes suffering, by making a conscious effort not to dismiss the emotion, but to identify and understand the verbalised cues and the non-verbal behaviour related to the emotion.	"…brush off the patient and tell them 'I am not here for emotional support, if you need emotional support, we will get the social worker to see you'. (-) "Just put yourself in the patient's situation… you don't want 10 student doctors looking at you while you are being examined." "…you immediately defuse the situation because then they realise that you can see that they are upset and you are not ignoring it or blaming them for being upset for no reason whatsoever…"	
4	Gaining and communicating an empathic understanding	The extent to which the medical practitioner develops an understanding of the patient's story of the illness and suffering that assists the medical practitioner in his/her decision-making. Communicating his/her understanding of the patient's lived	"…asking them (patients) why they are upset." "You let the patient talk, you just take everything in, and you just let them talk, without interrupting them." "…we let the patient talk for about 10 seconds, and then we interrupt them with a question…" (-) "Also by the way that you conduct yourself." "So just by greeting them."	"…patient satisfaction…" "…word of mouth, they will tell each other 'Listen, this doctor – you can listen to what he is saying…'" "From a doctor's point of view – just to get to a diagnoses." "…just treat them (patients) in a humane way, that might also come back one day and that they might thank you." "…usually there is a complaints/compliment box, if they want to write something."

Table D11

Themes Stemming from Personal Constructs: Participant Eleven (continued)

No.	Dimension	Definition	Quotes: Critical Incidents	Quotes: Performance Outcomes
		experience of the illness and suffering by showing insight and appreciation of their feelings, concerns and perspectives of a patient by perceiving the patient's internal frame of reference accurately through reflection.	"…you first ask them 'Why are you here? Do you know why you are here? What did the doctor tell you; do you know who your doctor is?'" "…they pick up cues that the doctor is not listening… the way you conduct yourself and the follow-up questions." (-) "…it is almost like playing poker, you must not show them, even if you don't agree with that (patient's decision), not show that to them."	

Participant Twelve

Participant Twelve is a female specialist in obstetrics and gynaecology in an academic hospital in the public healthcare sector. She was very friendly, welcoming and eager to start with the interview. At the beginning of the interview she had to take a minute or two to think of examples before she could respond. As the interview progressed she responded more easily and openly. She was very serious about the fact that patients should not be seen as "numbers", but that one should spend quality time with each patient, be it for giving good news or if it meant breaking bad news. When the interview was concluded she had to leave immediately, since she was on call. The interview lasted for forty-eight minutes.

Table D12 tabulates the critical incidents that emanated from the dimensions elicited during the interview with Participant Twelve.

Table D12

Themes Stemming from Personal Constructs: Participant Twelve

No.	Dimension	Definition	Quotes: Critical Incidents	Quotes: Performance Outcomes
1	Caring with Kindness	The way in which the medical practitioner reaches out to patients with kind-heartedness during the medical encounters were both parties need to join to ensure connectedness; by giving attention to patients; listen and support them; acknowledging the patient's vulnerability, show genuine concern and	"…you start listening to the patient and their fears and understand where they are coming from." "…you try to be sensitive and you show empathy and you counsel them as a result we also involve a social worker…" "Listen to what are their fears and respect their culture." "Always put yourself in their shoes and try to understand them. If it was your mom, we are going to treat your mom the same way as we are going to treat this patient..." "…they don't listen to the patients; they will just tell the patient 'This is happening'." (-)	"…it was a bad outcome, but because throughout her labour I was there, showing her kindness … we actually had a good connection, good relationship, even the outcome was not so good." "…it does actually influence doctor patient relationships…"

Table D12

Themes Stemming from Personal Constructs: Participant Twelve (continued)

No.	Dimension	Definition	Quotes: Critical Incidents	Quotes: Performance Outcomes
		interest in the patient by acting responsibly and by been dedicated and having the courage to be appropriately involved with the patient.	"…they are very, very impatient…" (-) "They don't communicate very well with the patients as well." (-)	
		Focus on the quality of the engagement, the quality of the medical practitioner's concern and the nature of the medical practitioner's commitment to the patient.	"The doctor told the family that 'Unfortunate I did explain to the mom (of the patient), so now the mom needs to explain to the family." (-) "You still have to make time with the family and try to explain." "When you explain to the patient what is going on, take them through the process, don't leave them behind and just continue doing your work because you just want to finish this, you need to involve them, they must be part of your decision-making as well."	
2	Compassion Action Orientation	The extent to which the medical practitioner initiates tangible action that is appropriate in the given context aimed at alleviating suffering, not looking the other way, not expecting help to come from somewhere else.	"There is actually something like refusal of treatment, they sign and you just tell them 'Whatever happens outside is your responsibility, it is not my responsibility', it is easy to say that." (-) "Involving the right people."	"Some patients will always come back and say 'Thank you so much Doctor'…it makes you feel very, very good. Like I said it is not about the numbers."

Table D12

Themes Stemming from Personal Constructs: Participant Twelve (continued)

No.	Dimension	Definition	Quotes: Critical Incidents	Quotes: Performance Outcomes
	Compassion Action Orientation	Relieves emotional distress; meets with the family if needed; relieves the suffering of the person and does not only provide treatment; assist in making sense of the suffering, assists in finding meaning in the suffering in wanting to relieve the patient's suffering by taking action.		
3	Investing the Self	Extent to which the medical practitioner invests his/her self into the patient-practitioner relationship: the extent to which the practitioner does not remain distant; the extent to which the practitioner gives him-/herself to the patient; the extent to which the practitioner commits him-/herself to the relationship;	"…if you give yourself to the patient, you end up being absorbed, and the patient becomes part of you. And you know what is worse, if you lose that patient." (-)

"…I (medical practitioner) broke down, because I was not expecting it." (-)

"…a patient is just another patient, you just don't care." (-)

"It is like seeing a stranger and it is just numbers." (-)

"You don't form any relationship; you don't even try to understand their fears…" (-) | "…patient satisfaction."

"…if anything goes wrong, they (patients) are going to write a complaint…" |

Table D12

Themes Stemming from Personal Constructs: Participant Twelve (continued)

No.	Dimension	Definition	Quotes: Critical Incidents	Quotes: Performance Outcomes
		the extent to which the practitioner is authentically present in the encounter.	"…you must try to make time and understand each patient as an individual."	
4	Mindfulness	The extent to which the medical practitioner focusses on and fully lives in the present moment; registering sensations in a non-judgemental and undistorted manner; grasping what is not clearly seen; registering the current moment accurately.	"…paying all your attention to one patient." "…focus on what is happening currently."	"…they (patients) will understand the prognoses better." "So it will definitely improve how to react to treatment and their understanding of their condition."

APPENDIX E:

The Medical Practitoner Compassion Competency Questionnaire (MPCCQ)

MEDICAL PRACTITIONER COMPASSION COMPETENCY

QUESTIONNAIRE (MPCCQ)

Self-rater Version V1

STELLENBOSCH UNIVERSITY

Consent to Participate in Research

Dear Colleague

My name is Michelle Visser, and I am a PhD Student. I would like to invite you to participate in a PhD research study entitled "The Development and Psychometric Evaluation of a Medical Practitioner Compassion Competency Questionnaire". Please take some time to read the information presented here, which will explain the details of this research study and contact me if you require further explanation or clarification of any aspect of the study. Also, your participation is entirely voluntary and you are free to decline to participate. If you say no, this will not affect you negatively in any way whatsoever. You are also free to withdraw from the study at any point, even if you do agree to take part.

1.   **PURPOSE OF THE STUDY**

The purpose of the study is to develop an instrument for the measurement of compassion (called a Medical Practitioner Compassion Competency Questionnaire - MPCCQ) as displayed by medical practitioners in the public healthcare sector.

2.   **POTENTIAL RISKS AND DISCOMFORTS**

Other than the discomfort of having to set aside time to participate in the interview and completing the questionnaire, the researchers anticipate no risk to the participants. Information gathered from the participant will be kept confidential and the participant's position within his/her work institution will not be affected.

3.   **POTENTIAL BENEFITS TO SUBJECTS AND/OR TO SOCIETY**

There are no direct benefits to the participants in the study. The development and validation of an assessment tool like the MPCCQ, would however provide credible information on your standing on the various dimensions of compassion. This would enable healthcare institutions in identifying learning and development initiatives relating to compassion as well as including it in performance level agreements with medical practitioners.

4.   **PAYMENT FOR PARTICIPATION**

Participants will not be receiving remuneration for their participation in this research study; a lucky draw competition will however be held where participants could voluntary enter. Participating respondents would need to fill out a ticket for the lucky draw competition that will be kept separate from the completed questionnaire. Lucky draw prizes include a gift voucher worth R1500, a box of wine and a weekend away for two.

5.   CONFIDENTIALITY

Any information that is obtained in connection with this study and that can be identified with you, will remain confidential and will be disclosed only with your permission or as required by law. You, as a questionnaire respondent, will not be required to provide your identity or particulars when completing the questionnaire. Your questionnaire input will be combined with all the other input received, and subsequently analysed to test psychometric properties of the questionnaire. Confidentiality will be maintained by means of restricting access to the data only to myself as researcher and the two study promotors. The data will be stored on a password-protected computer. The results of this study will be published as an electronic open-source PhD dissertation on Sun Scholar (note that only aggregate statistics reflecting the psychometric properties of the MPCCQ will be reported). In addition, components of the research will also be published by means of articles in accredited scientific journals.

6.   PARTICIPATION AND WITHDRAWAL

You can choose whether to be in this study or not. If you volunteer to be in this study, you may withdraw at any time without consequences of any kind. You may also refuse to answer any questions you don't want to answer and still remain in the study. The investigator may withdraw you from this research if circumstances arise which warrant doing so.

If you have any questions or concerns about the research, please feel free to contact Ms. Michelle Visser (Principle Investigator) Tel. 021 8082961; Prof. Callie Theron (Supervisor) Tel. 021 8083009 or Prof. Bob Mash (Co-Supervisor) Tel. 021 9389061.

7.   RIGHTS OF RESEARCH PARTICIPANTS

You may withdraw your consent at any time and discontinue participation without penalty. You are not waiving any legal claims, rights or remedies because of your participation in this research study. If you have questions regarding your rights as a research participant, contact Ms Maléne Fouché [mfouche@sun.ac.za; 021 808 4622] at the Division for Research Development of Stellenbosch University. You have the right to receive a copy of the Information and Consent form.

By ticking the appropriate tick box below, I consent/do not consent to take part in the research study entitled "The Development and Psychometric Evaluation of a Medical Practitioner Compassion Competency Questionnaire" conducted by Michelle Visser under the stipulated conditions. I declare that:

•   I understand that taking part in this study is voluntary and I have not been pressurised to take part.

•   I may choose to leave the study at any time and will not be penalised or prejudiced in any way.

•   All issues related to privacy and the confidentiality and use of the information I provide have been explained to my satisfaction.

I provide consent:

☐ Yes

☐ No

STELLENBOSCH UNIVERSITY

MPCCQ Instructions

1.   INTRODUCTION

Compassion is defined as a medical practitioner competency important for healthcare in South Africa. The questionnaire attempts to assess the level of competence with which medical practitioners illustrate behaviour on the identified dimensions of compassion.

Your ratings, along with other respondent ratings, will be used to determine the suitability of questionnaire items as well as the overall performance rating to measure medical practitioner compassion. The questionnaire will help to assess which dimensions of compassion practitioners do well on and in which domains performance could be better.

2.   INSTRUCTIONS

The Medical Practitioner Compassion Competency Questionnaire consists of 37 items measuring six dimensions. The questionnaire is a self-rater questionnaire; thus you need to evaluate your own behaviour.

- Please read each item carefully and choose the appropriate response (1-5) that best describes your behaviour **over the past 12 months** for that specific dimension.
- Make a (X) over the corresponding score value.
- Do not over-think your answers and rate yourself according to your initial response.
- Completion of the MPCCQ would take about 20-30 minutes.
- The questionnaire consists of two sections, Section A - Biographical Information, Section B– MPCCQ.
- All questions must be answered as honestly as possible.

3.   **EXAMPLE**

In your response to item example 1, you should indicate to what extent you displayed the specified behaviour over a 12-month period that best describes the dimension, such as 'meeting with family' highlighted next to question B11. As an example, if you have not acted consistently by meeting with patients' family when necessary over the last 12 months, the response option 1 should be selected by placing a cross in the box below the appropriate number (see example below). If, however, you have initiated contact with family members of patients on a consistent basis **over the past 12-month period**, the "well-developed strength" or "strength" option should be marked. Please use the whole scale. Options 2 and 4 also constitute permissible response options even though they have no behavioural anchors. Response option 6 (Unable to rate) should be used as seldom as possible and only if insufficient evidence is available to provide a valid rating.

INVESTING THE SELF							
		Significant development area	**Development area**	**On par/ satisfactory**	**Strength**	**Well-developed strength**	**Unable to rate**
		1	**2**	**3**	**4**	**5**	**6**
B11	Medical Practitioner – Patient Involvement	I try not to meet with family members.		I sometimes meet with family members.	✖	I meet family members every time I have the opportunity to do so.	

SECTION A
BIOGRAPHICAL INFORMATION

Please complete the biographical section by either making an "X" in the appropriate column or filling in text where required. The information is necessary for research purposes.

A1	**Age**	**Please specify in years**										
A2	**Core discipline**	**1**		**2**		**3**		**4**		**5**		**6**
		Family Medicine		Internal Medicine		Paediatrics		Obstetrics and Gynaecology		Surgery		Other (please specify)
A3	**Years of experience[131]**	**Please specify in years**										
A4	**Home language**	**1** Afrikaans	**2** English	**3** Ndebele	**4** Northern Sotho	**5** Sotho	**6** Swazi	**7** Tsonga	**8** Tswana	**9** Venda	**10** Xhosa	**11** Zulu	**12** Other
A5	**Gender**	**1** Male						**2** Female				
A6	**Race**	**1** Asian		**2** Black African		**3** Coloured		**4** Indian		**5** White		**6** Other
A7	**Job category**	**1** Medical practitioner / General practitioner				**2** Registrar				**3** Specialist		
A8	**Healthcare system level**	**1** Primary level (e.g. clinic or health centre)				**2** Secondary level (e.g. district or regional hospital)				**3** Tertiary level (e.g. central, specialised or sub-specialist tertiary hospital)		
A9	**Name of hospital**	**Please provide name**										

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[131] (Note: Excluding internship and community service)

SECTION B

MEDICAL PRACTITIONER COMPETENCY QUESTIONNAIRE (MPCCQ)

INVESTING THE SELF The extent to which the medical practitioner invests his/her self into the patient-practitioner relationship; the extent to which the practitioner does not remain distant; the extent to which the practitioner gives him-/herself to the patient; the extent to which the practitioner commits him/herself to the relationship; the extent to which the practitioner is authentically present in the encounter.								
		Significant development area	**Development area**	**On par/ satisfactory**	**Strength**	**Well-developed strength**		**Unable to rate**
		1	**2**	**3**	**4**	**5**		**6**
B11	**Medical practitioner - patient involvement**	I see and treat each patient as just another case. I focus on my task and do not try to understand patient fears and expectations. I do not spend time in getting to know the patient.		I try to see and treat each patient as a unique person. I attempt to attune and focus myself on the patient and try to understand patients' fears and expectations, but do not always succeed. I try to spend time in getting to know the patients, but this is not always possible.		I see and treat each patient as a unique person. I attune and focus myself on the patient and develop an understanding of patients' fears and expectations. I do spend time in getting to know patients.		
		1	**2**	**3**	**4**	**5**		**6**
B12	**Medical practitioner- patient contact**	I keep myself at a distance. I keep a psychological separation between myself and patients. I project myself by being emotionally cool and clinically detached.		I present myself to patients as friendly, but still to some degree as detached.		I purposefully attempt to psychologically connect with patients. I psychologically give myself to patients. I project myself as warm and approachable.		
		1	**2**	**3**	**4**	**5**		**6**
B13	**Medical practitioner personal disclosure/ exposure**	I share only the medical diagnosis and/or management plan with patients. I do not share anything about myself with patients that is relevant to their situation.		I often think of sharing my own story with patients when discussing the diagnosis and/or management plan, but do not always follow through.		I openly share my own story/something personal when discussing the diagnosis and/or management plan when it is relevant. I reveal something about myself to patients when it is relevant to their situation.		

		1	2	3	4	5	6
B14	**Medical practitioner approachability**	I present myself to patients as aloof, distant, withdrawn and difficult to talk to and to get to know. I project myself as a bit of an enigma.		I present myself to patients as friendly, but still to some degree difficult to get to know.		I present myself as warm, accessible and easy to talk to. I aim to come across as someone that is easy to get to know.	
		1	2	3	4	5	6
B15	**Medical practitioner vulnerability**	I do not allow myself to become vulnerable by reaching out to patients.		I allow myself to become vulnerable to some degree by reaching out to patients.		I allow myself to become vulnerable by always reaching out to patients.	
		1	2	3	4	5	6
B16	**Medical practitioner - patient over involvement**	I often get overinvolved with patients, experience feelings of being absorbed and sucked in. I feel distraught if patient outcomes are not as expected. Patients become part of me.		I sometimes get overinvolved with patients and share their fears and feelings myself. I feel upset if patient outcomes are not as expected.		I am involved with patients, I enjoy understanding their fears and feelings, but do not experience them myself in the sense of feelings of being absorbed and sucked in. I am unhappy, but accept that patient outcomes are not always as expected.	

MINDFULNESS The extent to which the medical practitioner focuses on and fully lives in the present moment; registering sensations in a non-judgmental and undistorted manner; grasping what is not clearly seen; registering the current moment accurately.							
		Significant development area	Development area	On par/ satisfactory	Strength	Well-developed strength	Unable to rate
		1	2	3	4	5	6
B21	**Taking hold of the moment**	I seldom, if ever, consciously register and savour my experiences and sensations when meeting with patients.		At times I become aware of my experiences and sensations when meeting with patients, but seldom consciously savour these moments.		I purposefully focus on consciously registering and savouring my experiences and sensations when meeting with patients.	

		1	2	3	4	5	6
B22	**Being non-judgemental about experiences**	I distort, deny and/or rationalise my experiences and sensations when meeting with patients, especially when the experiences are negative.		I try to register my experiences and sensations when meeting with patients in an undistorted, non-judgemental way even when the experiences are negative, but do not always succeed.		I register my experiences and sensations when meeting with patients in an undistorted, non-judgemental way even when the experiences are negative.	
		1	**2**	**3**	**4**	**5**	**6**
B23	**Being attentive**	I tend to write a lot of notes during consultations rather than giving patients my full attention.		I give some attention to patients during consultations, but am sometimes distracted by making notes.		I give patients my full attention during consultations and do not allow note taking to distract me.	
		1	**2**	**3**	**4**	**5**	**6**
B24	**Being psychologically present**	When meeting with patients, I am mentally absent, but physically present. I do not fully live in the moment.		At times, I get distracted when interacting with patients and am not fully present in the moment.		I am mentally and physically present when meeting with patients and do not get distracted. I fully live in the moment.	
		1	**2**	**3**	**4**	**5**	**6**
B25	**Registering the current moment accurately**	When meeting with patients I struggle to turn off other areas of life and to purposely focus on registering the here and now accurately.		When meeting with patients I attempt, but often do not succeed, to turn off other areas of life and to focus on registering the here and now accurately.		When meeting with patients I purposely turn off other areas of my life and focus on registering the here and now accurately.	
		1	**2**	**3**	**4**	**5**	**6**
B26	**Opening oneself**	When meeting with patients, I psychologically close myself to the encounter and prevent myself from accurately registering my experiences and sensations in the moment.		When meeting with patients, I try, but often do not succeed, to open myself to the encounter and to allow myself to accurately register my experiences and sensations in the moment.		When meeting with patients I open myself to the encounter and allow myself to accurately register my experiences and sensations in the moment.	

		Significant development area	**Development area**	**On par/ satisfactory**	**Strength**	**Well-developed strength**	**Unable to rate**
		RECOGNITION OF EMOTIONS The extent to which the medical practitioner recognises the emotional state of a patient and how this acts as a cue to unresolved problems that cause suffering, by making a conscious effort not to dismiss the emotion; but to identify and understand the verbalised and non-verbalised cues related to the emotion.					
		1	**2**	**3**	**4**	**5**	**6**
B31	**Naming/labelling the emotion that patients experience accurately**	I don't attempt to focus on and recognise emotions that patients experience and cannot label them. I tend to brush them off as time does not allow for this.		I sometimes recognise emotions that patients experience and am able to label them.		I focus on and recognise emotions that patients experience and give them a name, i.e. fear.	
		1	**2**	**3**	**4**	**5**	**6**
B32	**Interpreting emotional cues**	I focus purely on the medical condition of patients. I do not attempt to interpret verbal and non-verbal cues that reflect their emotions.		I generally register verbal and non-verbal cues that reflect the emotions of patients and sometimes recognise the nature of the emotions.		I purposefully focus on and accurately interpret verbal and non-verbal cues related to emotions.	
		1	**2**	**3**	**4**	**5**	**6**
B33	**Probing emotional cues**	I never ask patients questions in an attempt to probe their verbal and non-verbal cues that point to underlying emotions.		I sometimes ask patients questions in an attempt to probe their verbal and non-verbal cues that point to underlying emotions.		I routinely ask patients questions in an attempt to probe their verbal and non-verbal cues that point to underlying emotions.	
		1	**2**	**3**	**4**	**5**	**6**
B34	**Getting to the underlying distress**	I purely attempt to understand the medical condition of patients and do not attempt to understand their emotional response to the medical problem.		I attempt to understand the medical condition of patients and sometimes attempt to understand their emotional response to the medical problem.		I purposefully attempt to understand both the medical condition of patients and their emotional response to the medical problem.	

		1	2	3	4	5	6
B35	**Dismissal of patient emotions**	I generally disregard patients' emotions and do not dwell on them.		I generally do not dismiss patients' emotions, but do not spend too much time thinking about them.		I pay attention to patients' emotions and reflect on them.	
		1	**2**	**3**	**4**	**5**	**6**
B36	**Emotional scanning**	I often fail to register and read patients' emotions. I am emotionally perceptive. My emotional radar is rather blunt.		I register and read patients' emotions reasonably accurately. I am reasonably emotionally perceptive. My emotional radar is reasonably sharp.		I register and read patients' emotions accurately. I am emotionally perceptive. My emotional radar is very sharp.	

GAINING AND COMMUNICATING AN EMPATHIC UNDERSTANDING
The extent to which the medical practitioner develops an understanding of the patient's story of the illness and suffering that assists the medical practitioner in his/her decision-making. The extent to which the medical practitioner perceives the patient's internal frame of reference accurately. Communicating his/her understanding of the patient's lived experience of the illness and suffering by showing insight and appreciation of the feelings, concerns and perspectives of a patient through reflection. Shaping the management plan to fit the patient's understanding of the illness and suffering. Probing for further information to ensure greater insight; identifying how treatment would relieve the medical problem as well as the suffering. Putting oneself in the shoes of patients.

		Significant development area	Development area	On par/ satisfactory	Strength	Well-developed strength	Unable to rate
		1	**2**	**3**	**4**	**5**	**6**
B41	**Uninterrupted listening**	I listen to patients briefly to get to the gist of their problem and then ask questions to come to a diagnosis as soon as possible.		I try to listen to the patients' stories, but often need to interrupt and ask questions to get to a diagnosis.		I listen to patients without interrupting them. I let patients tell their story. I take my time and am unhurried. I only ask my questions after patients have told their story.	

		1	2	3	4	5	6
B42	**Developing an insider perspective**	When meeting with patients, I do not attempt to understand the lived experience of their illness. I rather attempt to understand and explain their medical symptoms.		When meeting with patients, I do not only attempt to understand and explain their medical symptoms, but try to get some understanding of the lived experience of their illness.		When meeting with patients, I purposefully attempt to put myself in their shoes and to understand the lived experience of their illness as well as understanding and explaining their medical symptoms.	
		1	2	3	4	5	6
B43	**Probing to deepen insight**	When meeting with patients, I very seldom, if ever, ask questions to deepen my understanding of the lived experience of their illness. I really only ask questions aimed at clarifying their symptoms.		When meeting with patients, I ask questions aimed at clarifying their symptoms, but also regularly ask questions to deepen my understanding of the lived experience of their illness.		When meeting with patients, I always ask questions to deepen my understanding of the lived experience of their illness as well as questions aimed at clarifying their symptoms.	
		1	2	3	4	5	6
B44	**Reflecting my insider appreciation**	When meeting with patients, I very seldom, if ever, attempt to reflect back to them my understanding of the lived experience of their illness.		When meeting with patients, I try to reflect back to them my understanding of the lived experience of their illness. At times this helps me to have a deeper understanding of the patient.		When meeting with patients, I purposefully attempt to reflect back to them my understanding of the lived experience of their illness so as to deepen my understanding and to convey the message that I understand their feelings, concerns and perspectives about their illness.	
		1	2	3	4	5	6
B45	**Communicating an empathic understanding**	When meeting with patients, I seldom, if ever, attempt to convey to them that I am trying to put myself in their position. I am trying to understand and feel with them what they are experiencing from their frame of reference.		When meeting with patients, I sometimes convey to them that I am trying to put myself in their position. I am trying to understand and feel with them what they are experiencing from their frame of reference.		When meeting with patients, I purposefully attempt to convey to them that I want to and am trying to put myself in their position. I am trying to understand and feel with them what they are experiencing from their frame of reference.	

		1	**2**	**3**	**4**	**5**	**6**
B46	**Shaping the management plan to fit the patient's understanding of the illness and suffering**	I never really allow my patients' lived experience of their illness to influence the manner in which I communicate my diagnosis and recommended treatment.		Depending on the situation and time, I try to utilise my insight into the patients' lived experience of their illness when communicating my diagnosis and recommended treatment.		I purposefully use my insight into the patients' lived experience of their illness when communicating my diagnosis and recommended treatment.	

CARING WITH KINDNESS

The way in which the medical practitioner reaches out to patients with kind-heartedness during the medical encounters where both parties need to join to ensure connectedness; by giving attention to patients; listening and supporting them; acknowledging the patient's vulnerability, showing genuine concern and interest in the patient by acting responsibly and by being dedicated and having the courage to be appropriately involved with the patient. Focus on the quality of the engagement, the quality of the medical practitioner's concern and the nature of the medical practitioner's commitment to the patient.

		Significant development area	**Development area**	**On par/ satisfactory**	**Strength**	**Well-developed strength**	**Unable to rate**
		1	**2**	**3**	**4**	**5**	**6**
B51	**Communicating with a caring manner**	When meeting with patients, I seldom, if ever, attempt to communicate in a kind, soft manner in order to show that I care.		When meeting with patients, I generally, but not always, attempt to communicate in a kind, soft manner in order to show that I care.		When meeting with patients, I purposefully attempt to communicate in a kind, soft manner in order to show that I care.	
		1	**2**	**3**	**4**	**5**	**6**
B52	**Using non-verbal cues to communicate care**	When meeting with patients, I seldom, if ever, use non-verbal acts of kindness (like my facial expression, eye contact, touching, creating privacy) to show my patients that I care.		When meeting with patients, I generally, but not always, show my patients I care by using non-verbal acts of kindness (like my facial expression, eye contact, touching, creating privacy).		When meeting with patients, I purposefully use non-verbal acts of kindness (like my facial expression, eye contact, touching, creating privacy) to show my patients that I care.	

		1	2	3	4	5	6
B53	**Devote time and attention**	When meeting with patients, the time and attention they get from me is solely determined by the medical condition they suffer from. I do not spend additional time to get to know patients as individuals even if there is time available to do so.		When meeting with patients, I generally, but not always, convey that I care about them by attempting to devote some of my limited available time and attention to them as individuals and not only to the medical condition they suffer from.		When meeting with patients, I purposefully try to convey that I care about them by devoting some of my limited available time and attention to them as individuals and not only to the medical condition they suffer from.	
		1	2	3	4	5	6
B54	**Working gently, carefully, sensitively and with consideration**	When examining patients, my primary concern is getting a thorough assessment of the medical condition they suffer from and not whether they experience me as particularly gentle, careful, considerate or sensitive.		When examining patients, I generally, but not always, go about it as gently, carefully, considerately and sensitively as I can.		When examining patients, I purposefully go about it as gently, carefully, considerately and sensitively as I can.	
		1	2	3	4	5	6
B55	**Acting responsibly and with dedication**	When meeting with patients, I seldom, if ever, give comprehensive, honest feedback when the news that I have to convey is not so positive. The patient is better off by not knowing the full truth.		When meeting with patients, I generally, but not always, give comprehensive, honest feedback even when the news that I have to convey is not so positive. If one cares, one should be honest with patients.		When meeting with patients, I purposefully give comprehensive, honest feedback even when the news that I have to convey is not so positive. If one cares, one will be honest with patients.	
		1	2	3	4	5	6
B56	**Express encouragement and support**	When meeting with patients, I seldom, if ever, try to support them with small acts of kindness and to encourage them with hope and optimism.		When meeting with patients, I generally, but not always, try to support them with small acts of kindness and to encourage them with hope and optimism.		When meeting with patients, I purposefully try to support them with small acts of kindness and to encourage them with hope and optimism.	

		COMPASSION ACTION ORIENTATION					
		The extent to which the medical practitioner initiates tangible action that is appropriate in the given context aimed at alleviating suffering, not looking the other way, not expecting help to come from somewhere else. Relieves emotional distress; meets with the family if needed; relieves the suffering of the person and does not only provide treatment; assists in making sense of the suffering, assists in finding meaning in the suffering in wanting to relieve the patient's suffering by taking action.					
		Significant development area	**Development area**	**On par/ satisfactory**	**Strength**	**Well-developed strength**	**Unable to rate**
		1	**2**	**3**	**4**	**5**	**6**
B61	**Organising resources**	When treating patients, I seldom, if ever, make use of resources (e.g. hospice, social workers) to alleviate patients' suffering.		When treating patients, I generally, but not always, make use of resources (e.g. hospice, social workers) to alleviate patients' suffering. I want to alleviate suffering as quickly as possible and to the best of my ability.		When treating patients, I purposefully make use of resources (e.g. hospice, social workers) to alleviate patients' suffering. I want to alleviate suffering as quickly as possible and to the best of my ability.	
		1	**2**	**3**	**4**	**5**	**6**
B62	**Finding solutions to auxiliary problems**	I seldom, if ever, find tangible practical solutions for secondary problems that patients face that aggravate their suffering (e.g. hunger), and which prevent them from adhering to their treatment or coming in for consultation (e.g. transport or communication problems). They themselves have to find solutions.		I generally, but not always, try to find tangible practical solutions for secondary problems that patients face that aggravate their suffering (e.g. hunger), and which prevent them from adhering to their treatment or coming in for consultation (e.g. transport or communication problems). Often, however, I leave it to patients to resolve the problems themselves or I expect somebody else to help.		I personally find tangible practical solutions for secondary problems that patients face that aggravate their suffering (e.g. hunger), and which prevent them from adhering to their treatment or coming in for consultation (e.g. transport or communication problems).	

		1	2	3	4	5	6
B63	**Assisting patients with their wishes**	When meeting with and treating patients, I seldom, if ever, attempt to assist them in achieving their wishes (e.g. allowing patient to die at home) that are important to them in their cultural or socio-economic context.		When meeting with and treating patients, I generally, but not always, attempt to assist them in achieving their wishes (e.g. allowing patient to die at home) that are important to them in their cultural or socio-economic context.		When meeting with and treating patients, I purposefully attempt to assist them in achieving their wishes (e.g. allowing patient to die at home) that are important to them in their cultural or socio-economic context.	
		1	2	3	4	5	6
B64	**Initiates tangible action**	When treating patients, I often initiate action despite knowing that it is unlikely to really alleviate suffering because it is somewhat inappropriate given the patient's context. I tend to look the other way, expecting help to come from somewhere else.		When treating patients, I generally, but not always, initiate tangible action that is appropriate in the given context and aimed at alleviating suffering. I am not looking the other way, not expecting help to come from somewhere else.		When treating patients, I purposefully initiate tangible action that is appropriate in the given context and aimed at alleviating suffering. I do not look the other way or expect help to come from somewhere else.	
		1	2	3	4	5	6
B65	**Helps patients to make sense of their suffering**	When treating patients, I seldom, if ever, try to assist them to understand their medical condition and to make sense of what is happening from their perspective (e.g. why did this happen to me?).		When treating patients, I generally, but not always, try to assist them to understand their medical condition and to make sense of what is happening from their perspective (e.g. why did this happen to me?).		When treating patients, I purposefully try to assist them to understand their medical condition and to make sense of what is happening from their perspective (e.g. why did this happen to me?).	
		1	2	3	4	5	6
B66	**Relieves emotional distress**	When consulting patients, I seldom, if ever, try to relieve their emotional distress.		When consulting patients, I generally, but not always, try to relieve their emotional distress.		When consulting patients, I purposefully try to relieve their emotional distress.	
		1	2	3	4	5	6
B67	**Being a change agent**	I sometimes think that a better health system is needed, but rarely do anything about it.		I sometimes think that a better health system is needed and at times try to do something about it.		I am actively involved in the improvement of the health system.	

Thank you for completing the questionnaire.

APPENDIX F1:

Descriptive Statistics for the MPCCQ items

	N		Mean	Median	Mode	Std. Deviation	Variance	Skewness	Std. Error of Skewness	Kurtosis	Std. Error of Kurtosis	Range	Skewness z-score	Skewness statistical significance	Kurtosis z-score	Kurtosis statistical significance
	Valid	Missing														
B11	234	0	3.73	4	3	0.909	0.826	0.154	0.159	-0.668	0.317	5	0.968553459	0	-2.107255521	1
B12	234	0	4	4	4	0.889	0.79	-0.185	0.159	-0.469	0.317	5	-1.163522013	0	-1.479495268	0
B13	233	1	3.51	4	5	1.343	1.803	-0.391	0.159	-0.872	0.318	5	-2.459119497	1	-2.742138365	1
B14	233	1	4.22	4	5	0.89	0.792	-0.371	0.159	-0.318	0.318	5	-2.333333333	1	-1	0
B15	234	0	3.09	3	3	0.998	0.997	0.167	0.159	0.287	0.317	5	1.050314465	0	0.905362776	0
B16	234	0	4	4	5	1.09	1.189	-0.229	0.159	-0.415	0.317	5	-1.440251572	0	-1.309148265	0
B21	234	0	3.43	3	3	0.984	0.967	0.138	0.159	0.371	0.317	5	0.867924528	0	1.170347003	0
B22	232	2	3.56	3	3	0.919	0.844	0.534	0.16	0.065	0.318	5	3.3375	1	0.204402516	0
B23	231	3	4	4	4	0.985	0.97	-0.312	0.16	-0.095	0.319	5	-1.95	0	-0.297805643	0
B24	233	1	3.85	4	3	0.885	0.783	0.299	0.159	-0.625	0.318	4	1.880503145	0	-1.965408805	1
B25	232	2	3.98	4	3	0.978	0.956	-0.097	0.16	-0.403	0.318	5	-0.60625	0	-1.267295597	0
B26	232	2	3.63	3	3	1.036	1.073	0.286	0.16	-0.531	0.318	5	1.7875	0	-1.669811321	0
B31	233	1	4.02	4	4	0.924	0.853	0.032	0.159	-0.528	0.318	5	0.201257862	0	-1.660377358	0
B32	233	1	3.87	4	4	0.919	0.845	-0.043	0.159	-0.388	0.318	5	-0.270440252	0	-1.220125786	0
B33	233	1	3.85	4	3ª	1.08	1.166	-0.372	0.159	-0.258	0.318	5	-2.339622642	1	-0.811320755	0
B34	233	1	4	4	4	0.942	0.888	-0.187	0.159	-0.402	0.318	5	-1.176100629	0	-1.264150943	0
B35	233	1	4.08	4	5	0.959	0.92	-0.076	0.159	-0.617	0.318	5	-0.477987421	0	-1.940251572	0
B36	233	1	3.61	3	3	0.895	0.8	0.427	0.159	-0.321	0.318	4	2.685534591	1	-1.009433962	0
B41	233	1	3.48	3	3	0.915	0.837	0.296	0.159	0.89	0.318	5	1.86163522	0	2.798742138	1
B42	232	2	3.42	3	3	1.074	1.153	0.077	0.16	-0.528	0.318	5	0.48125	0	-1.660377358	0
B43	233	1	3.3	3	3	1.116	1.246	0.116	0.159	-0.511	0.318	5	0.729559748	0	-1.606918239	0
B44	233	1	3.14	3	3	1.095	1.2	0.093	0.159	-0.219	0.318	5	0.58490566	0	-0.688679245	0
B45	233	1	3.22	3	3	1.11	1.232	0.054	0.159	-0.57	0.318	5	0.339622642	0	-1.79245283	0
B46	233	1	3.62	3	3	0.993	0.986	0.363	0.159	-0.505	0.318	5	2.283018868	1	-1.588050314	0
B51	231	3	4.26	4	5	0.915	0.837	-0.436	0.16	-0.106	0.319	5	-2.725	1	-0.332288401	0

B52	230	4	4.08	4	5	1.042	1.086	-0.251	0.16	-0.769	0.32	5	-1.56875	0	-2.403125	1
B53	231	3	3.72	4	3	1.047	1.097	-0.021	0.16	-0.538	0.319	5	-0.13125	0	-1.686520376	0
B54	233	1	4.09	4	5	1.069	1.143	-0.395	0.159	-0.417	0.318	5	-2.48427673	1	-1.311320755	0
B55	232	2	4.35	5	5	0.928	0.862	-0.662	0.16	-0.198	0.318	4	-4.1375	1	-0.622641509	0
B56	232	2	3.91	4	4	1.024	1.049	-0.143	0.16	-0.256	0.318	5	-0.89375	0	-0.805031447	0
B61	232	2	4.11	4	5	0.954	0.91	-0.187	0.16	-0.925	0.318	4	-1.16875	0	-2.908805031	1
B62	232	2	3.63	3	3	1.073	1.151	0.094	0.16	-0.149	0.318	5	0.5875	0	-0.468553459	0
B63	234	0	3.97	4	5	1.072	1.149	-0.269	0.159	-0.345	0.317	5	-1.691823899	0	-1.088328076	0
B64	234	0	3.95	4	3	0.992	0.984	0.077	0.159	-0.304	0.317	5	0.48427673	0	-0.958990536	0
B65	234	0	4.08	4	5	1.001	1.002	-0.216	0.159	-0.714	0.317	4	-1.358490566	0	-2.252365931	1
B66	234	0	4.01	4	3	1.015	1.03	-0.042	0.159	-0.697	0.317	5	-0.264150943	0	-2.19873817	1
B67	234	0	3.79	4	3	1.108	1.228	-0.292	0.159	-0.33	0.317	5	-1.836477987	0	-1.041009464	0

APPENDIX F2:

One-way frequency tables for the MPCCQ items

B11

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Significant development area	1	.4	.4	.4
	Development area	10	4.3	4.3	4.7
	On par/satisfactort	99	42.3	42.3	47.0
	Strength	68	29.1	29.1	76.1
	Well developed strength	54	23.1	23.1	99.1
	Unable to respond	2	.9	.9	100.0
	Total	234	100.0	100.0	

B12

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Significant development area	1	.4	.4	.4
	Development area	5	2.1	2.1	2.6
	On par/satisfactort	67	28.6	28.6	31.2
	Strength	85	36.3	36.3	67.5
	Well developed strength	72	30.8	30.8	98.3
	Unable to respond	4	1.7	1.7	100.0
	Total	234	100.0	100.0	

B13

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Significant development area	25	10.7	10.7	10.7
	Development area	28	12.0	12.0	22.7
	On par/satisfactort	58	24.8	24.9	47.6
	Strength	51	21.8	21.9	69.5
	Well developed strength	68	29.1	29.2	98.7
	Unable to respond	3	1.3	1.3	100.0
	Total	233	99.6	100.0	
Missing	System	1	.4		
	Total	234	100.0		

B14

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Significant development area	1	.4	.4	.4
	Development area	2	.9	.9	1.3
	On par/satisfactort	52	22.2	22.3	23.6
	Strength	76	32.5	32.6	56.2
	Well developed strength	94	40.2	40.3	96.6
	Unable to respond	8	3.4	3.4	100.0
	Total	233	99.6	100.0	
Missing	System	1	.4		
	Total	234	100.0		

B15

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Significant development area	13	5.6	5.6	5.6
	Development area	45	19.2	19.2	24.8
	On par/satisfactort	105	44.9	44.9	69.7
	Strength	54	23.1	23.1	92.7
	Well developed strength	14	6.0	6.0	98.7
	Unable to respond	3	1.3	1.3	100.0
	Total	234	100.0	100.0	

B16

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Significant development area	4	1.7	1.7	1.7
	Development area	9	3.8	3.8	5.6
	On par/satisfactort	73	31.2	31.2	36.8
	Strength	58	24.8	24.8	61.5
	Well developed strength	76	32.5	32.5	94.0
	Unable to respond	14	6.0	6.0	100.0
	Total	234	100.0	100.0	

B21

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Significant development area	7	3.0	3.0	3.0
	Development area	21	9.0	9.0	12.0
	On par/satisfactort	107	45.7	45.7	57.7
	Strength	67	28.6	28.6	86.3
	Well developed strength	27	11.5	11.5	97.9
	Unable to respond	5	2.1	2.1	100.0
	Total	234	100.0	100.0	

B22

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Significant development area	2	.9	.9	.9
	Development area	10	4.3	4.3	5.2
	On par/satisfactort	123	52.6	53.0	58.2
	Strength	54	23.1	23.3	81.5
	Well developed strength	38	16.2	16.4	97.8
	Unable to respond	5	2.1	2.2	100.0
	Total	232	99.1	100.0	
Missing	System	2	.9		
	Total	234	100.0		

B23

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Significant development area	3	1.3	1.3	1.3
	Development area	7	3.0	3.0	4.3
	On par/satisfactort	64	27.4	27.7	32.0
	Strength	77	32.9	33.3	65.4
	Well developed strength	72	30.8	31.2	96.5
	Unable to respond	8	3.4	3.5	100.0
	Total	231	98.7	100.0	
Missing	System	3	1.3		
	Total	234	100.0		

B24

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Development area	6	2.6	2.6	2.6
	On par/satisfactort	87	37.2	37.3	39.9
	Strength	82	35.0	35.2	75.1
	Well developed strength	52	22.2	22.3	97.4
	Unable to respond	6	2.6	2.6	100.0
	Total	233	99.6	100.0	
Missing	System	1	.4		
	Total	234	100.0		

B25

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Significant development area	2	.9	.9	.9
	Development area	6	2.6	2.6	3.4
	On par/satisfactort	74	31.6	31.9	35.3
	Strength	72	30.8	31.0	66.4
	Well developed strength	69	29.5	29.7	96.1
	Unable to respond	9	3.8	3.9	100.0
	Total	232	99.1	100.0	
Missing	System	2	.9		
	Total	234	100.0		

B26

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Significant development area	1	.4	.4	.4
	Development area	25	10.7	10.8	11.2
	On par/satisfactort	93	39.7	40.1	51.3
	Strength	60	25.6	25.9	77.2
	Well developed strength	45	19.2	19.4	96.6
	Unable to respond	8	3.4	3.4	100.0
	Total	232	99.1	100.0	
Missing	System	2	.9		
	Total	234	100.0		

B31

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Significant development area	1	.4	.4	.4
	Development area	3	1.3	1.3	1.7
	On par/satisfactort	73	31.2	31.3	33.0
	Strength	79	33.8	33.9	67.0
	Well developed strength	68	29.1	29.2	96.1
	Unable to respond	9	3.8	3.9	100.0
	Total	233	99.6	100.0	
Missing	System	1	.4		
	Total	234	100.0		

B32

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Significant development area	1	.4	.4	.4
	Development area	10	4.3	4.3	4.7
	On par/satisfactort	74	31.6	31.8	36.5
	Strength	86	36.8	36.9	73.4
	Well developed strength	57	24.4	24.5	97.9
	Unable to respond	5	2.1	2.1	100.0
	Total	233	99.6	100.0	
Missing	System	1	.4		
	Total	234	100.0		

B33

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Significant development area	6	2.6	2.6	2.6
	Development area	15	6.4	6.4	9.0
	On par/satisfactort	69	29.5	29.6	38.6
	Strength	68	29.1	29.2	67.8
	Well developed strength	69	29.5	29.6	97.4
	Unable to respond	6	2.6	2.6	100.0
	Total	233	99.6	100.0	
Missing	System	1	.4		
	Total	234	100.0		

B34

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Significant development area	1	.4	.4	.4
	Development area	9	3.8	3.9	4.3
	On par/satisfactort	63	26.9	27.0	31.3
	Strength	83	35.5	35.6	67.0
	Well developed strength	70	29.9	30.0	97.0
	Unable to respond	7	3.0	3.0	100.0
	Total	233	99.6	100.0	
Missing	System	1	.4		
	Total	234	100.0		

B35

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Significant development area	1	.4	.4	.4
	Development area	4	1.7	1.7	2.1
	On par/satisfactort	69	29.5	29.6	31.8
	Strength	71	30.3	30.5	62.2
	Well developed strength	77	32.9	33.0	95.3
	Unable to respond	11	4.7	4.7	100.0
	Total	233	99.6	100.0	
Missing	System	1	.4		
	Total	234	100.0		

B36

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Development area	16	6.8	6.9	6.9
	On par/satisfactort	105	44.9	45.1	51.9
	Strength	71	30.3	30.5	82.4
	Well developed strength	37	15.8	15.9	98.3
	Unable to respond	4	1.7	1.7	100.0
	Total	233	99.6	100.0	
Missing	System	1	.4		
	Total	234	100.0		

B41

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Significant development area	6	2.6	2.6	2.6
	Development area	8	3.4	3.4	6.0
	On par/satisfactort	124	53.0	53.2	59.2
	Strength	63	26.9	27.0	86.3
	Well developed strength	27	11.5	11.6	97.9
	Unable to respond	5	2.1	2.1	100.0
	Total	233	99.6	100.0	
Missing	System	1	.4		
	Total	234	100.0		

B42

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Significant development area	6	2.6	2.6	2.6
	Development area	38	16.2	16.4	19.0
	On par/satisfactort	87	37.2	37.5	56.5
	Strength	58	24.8	25.0	81.5
	Well developed strength	40	17.1	17.2	98.7
	Unable to respond	3	1.3	1.3	100.0
	Total	232	99.1	100.0	
Missing	System	2	.9		
	Total	234	100.0		

B43

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Significant development area	10	4.3	4.3	4.3
	Development area	44	18.8	18.9	23.2
	On par/satisfactort	88	37.6	37.8	60.9
	Strength	51	21.8	21.9	82.8
	Well developed strength	37	15.8	15.9	98.7
	Unable to respond	3	1.3	1.3	100.0
	Total	233	99.6	100.0	
Missing	System	1	.4		
	Total	234	100.0		

B44

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Significant development area	17	7.3	7.3	7.3
	Development area	40	17.1	17.2	24.5
	On par/satisfactort	101	43.2	43.3	67.8
	Strength	45	19.2	19.3	87.1
	Well developed strength	28	12.0	12.0	99.1
	Unable to respond	2	.9	.9	100.0
	Total	233	99.6	100.0	
Missing	System	1	.4		
	Total	234	100.0		

B45

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Significant development area	13	5.6	5.6	5.6
	Development area	46	19.7	19.7	25.3
	On par/satisfactort	88	37.6	37.8	63.1
	Strength	50	21.4	21.5	84.5
	Well developed strength	35	15.0	15.0	99.6
	Unable to respond	1	.4	.4	100.0
	Total	233	99.6	100.0	
Missing	System	1	.4		
	Total	234	100.0		

B46

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Significant development area	1	.4	.4	.4
	Development area	19	8.1	8.2	8.6
	On par/satisfactort	106	45.3	45.5	54.1
	Strength	54	23.1	23.2	77.3
	Well developed strength	47	20.1	20.2	97.4
	Unable to respond	6	2.6	2.6	100.0
	Total	233	99.6	100.0	
Missing	System	1	.4		
	Total	234	100.0		

B51

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Significant development area	1	.4	.4	.4
	Development area	4	1.7	1.7	2.2
	On par/satisfactort	45	19.2	19.5	21.6
	Strength	76	32.5	32.9	54.5
	Well developed strength	94	40.2	40.7	95.2
	Unable to respond	11	4.7	4.8	100.0
	Total	231	98.7	100.0	
Missing	System	3	1.3		
	Total	234	100.0		

B52

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Significant development area	1	.4	.4	.4
	Development area	11	4.7	4.8	5.2
	On par/satisfactort	66	28.2	28.7	33.9
	Strength	54	23.1	23.5	57.4
	Well developed strength	87	37.2	37.8	95.2
	Unable to respond	11	4.7	4.8	100.0
	Total	230	98.3	100.0	
Missing	System	4	1.7		
	Total	234	100.0		

B53

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Significant development area	3	1.3	1.3	1.3
	Development area	20	8.5	8.7	10.0
	On par/satisfactort	83	35.5	35.9	45.9
	Strength	63	26.9	27.3	73.2
	Well developed strength	56	23.9	24.2	97.4
	Unable to respond	6	2.6	2.6	100.0
	Total	231	98.7	100.0	
Missing	System	3	1.3		
	Total	234	100.0		

B54

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Significant development area	3	1.3	1.3	1.3
	Development area	10	4.3	4.3	5.6
	On par/satisfactort	63	26.9	27.0	32.6
	Strength	56	23.9	24.0	56.7
	Well developed strength	89	38.0	38.2	94.8
	Unable to respond	12	5.1	5.2	100.0
	Total	233	99.6	100.0	
Missing	System	1	.4		
	Total	234	100.0		

B55

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Development area	8	3.4	3.4	3.4
	On par/satisfactort	38	16.2	16.4	19.8
	Strength	61	26.1	26.3	46.1
	Well developed strength	114	48.7	49.1	95.3
	Unable to respond	11	4.7	4.7	100.0
	Total	232	99.1	100.0	
Missing	System	2	.9		
	Total	234	100.0		

B56

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Significant development area	3	1.3	1.3	1.3
	Development area	11	4.7	4.7	6.0
	On par/satisfactort	71	30.3	30.6	36.6
	Strength	75	32.1	32.3	69.0
	Well developed strength	62	26.5	26.7	95.7
	Unable to respond	10	4.3	4.3	100.0
	Total	232	99.1	100.0	
Missing	System	2	.9		
	Total	234	100.0		

B61

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Development area	7	3.0	3.0	3.0
	On par/satisfactort	65	27.8	28.0	31.0
	Strength	64	27.4	27.6	58.6
	Well developed strength	88	37.6	37.9	96.6
	Unable to respond	8	3.4	3.4	100.0
	Total	232	99.1	100.0	
Missing	System	2	.9		
	Total	234	100.0		

B62

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Significant development area	6	2.6	2.6	2.6
	Development area	17	7.3	7.3	9.9
	On par/satisfactort	95	40.6	40.9	50.9
	Strength	61	26.1	26.3	77.2
	Well developed strength	44	18.8	19.0	96.1
	Unable to respond	9	3.8	3.9	100.0
	Total	232	99.1	100.0	
Missing	System	2	.9		
	Total	234	100.0		

B63

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Significant development area	4	1.7	1.7	1.7
	Development area	11	4.7	4.7	6.4
	On par/satisfactort	70	29.9	29.9	36.3
	Strength	64	27.4	27.4	63.7
	Well developed strength	74	31.6	31.6	95.3
	Unable to respond	11	4.7	4.7	100.0
	Total	234	100.0	100.0	

B64

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Significant development area	2	.9	.9	.9
	Development area	6	2.6	2.6	3.4
	On par/satisfactort	78	33.3	33.3	36.8
	Strength	77	32.9	32.9	69.7
	Well developed strength	58	24.8	24.8	94.4
	Unable to respond	13	5.6	5.6	100.0
	Total	234	100.0	100.0	

B65

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Development area	13	5.6	5.6	5.6
	On par/satisfactort	58	24.8	24.8	30.3
	Strength	71	30.3	30.3	60.7
	Well developed strength	81	34.6	34.6	95.3
	Unable to respond	11	4.7	4.7	100.0
	Total	234	100.0	100.0	

B66

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Significant development area	1	.4	.4	.4
	Development area	9	3.8	3.8	4.3
	On par/satisfactort	74	31.6	31.6	35.9
	Strength	65	27.8	27.8	63.7
	Well developed strength	73	31.2	31.2	94.9
	Unable to respond	12	5.1	5.1	100.0
	Total	234	100.0	100.0	

B67

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Significant development area	7	3.0	3.0	3.0
	Development area	16	6.8	6.8	9.8
	On par/satisfactort	75	32.1	32.1	41.9
	Strength	63	26.9	26.9	68.8
	Well developed strength	66	28.2	28.2	97.0
	Unable to respond	7	3.0	3.0	100.0
	Total	234	100.0	100.0	

APPENDIX F3:

Frequency table indicating the percentage medical practitioners that responded by selecting "Significant weakness" or "Weakness" on the MPCCQ items

Item	% that responded with "Significant development area" or "Development area
Investing the Self	
B11	4.7
B12	2.6
B13	22.7
B14	1.3
B15	24.8
B16	5.6
Mindfulness	
B21	12.0
B22	5.2
B23	4.3
B24	2.6
B25	3.4
B26	11.2
Recognition of Emotions	
B31	1.7
B32	4.7
B33	9.0
B34	4.3
B35	2.1
B36	6.9
Gaining and Communicating an Empathic Understanding	
B41	6.0
B42	19.0
B43	23.2
B44	24.5
B45	25.3
B46	8.6
Caring with Kindness	
B51	2.2
B52	5.2
B53	10.0
B54	5.6
B55	3.4
B56	6.0
Compassion Action Orientation	
B61	3.0
B62	9.9
B63	6.4
B64	3.4
B65	5.6
B66	4.3
B67	9.8

APPENDIX G

Reliability analysis performed on the MPCCQ subscales taking into account the outcome of the (initial) dimensionality analysis

MPCCQ subscale	Unidimensionality assumption corroborated via EFA?	McDonald's ω	Cronbach's α[132]	Stratified α	Multidimensional ω
Investing the self	Yes	.690	.669		
Gaining and communicating an empathic understanding	Yes	.869	.868		
Caring with kindness	Yes	.826	.825		
Mindfulness	No	-	.736	.745	.603
Recognition of emotions	No	-	.832		.792
Compassion action orientation	No	-	.803	.819	.715

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[132] The Cronbach α values reported for the subscales where the unidimensionality assumption was not corroborated are the values (incorrectly) obtained during the initial item analysis performed on the subscale as a whole (i.e. ignoring the fact that the unidimensionality assumption made by the statistic was not met).

APPENDIX H

Dimensionality analysis performed on the MPCCQ subscales by fitting single-factor measurement models on the subscale data

INVEST SUBSCALE

Goodness of Fit Statistics

Degrees of Freedom = 5
Minimum Fit Function Chi-Square = 10.6374 (P = 0.05906)
Normal Theory Weighted Least Squares Chi-Square = 10.4208 (P = 0.06415)
Satorra-Bentler Scaled Chi-Square = 9.1120 (P = 0.1047)
Chi-Square Corrected for Non-Normality = 13.9344 (P = 0.01603)
Estimated Non-centrality Parameter (NCP) = 4.1120
90 Percent Confidence Interval for NCP = (0.0 ; 16.7096)
Minimum Fit Function Value = 0.04565
Population Discrepancy Function Value (F0) = 0.01765
90 Percent Confidence Interval for F0 = (0.0 ; 0.07171)
Root Mean Square Error of Approximation (RMSEA) = 0.05941
90 Percent Confidence Interval for RMSEA = (0.0 ; 0.1198)
P-Value for Test of Close Fit (RMSEA < 0.05) = 0.3345
Expected Cross-Validation Index (ECVI) = 0.1249
90 Percent Confidence Interval for ECVI = (0.1073 ; 0.1790)
ECVI for Saturated Model = 0.1288
ECVI for Independence Model = 1.0202
Chi-Square for Independence Model with 10 Degrees of Freedom = 227.6961
Independence AIC = 237.6961
Model AIC = 29.1120
Saturated AIC = 30.0000
Independence CAIC = 259.9727
Model CAIC = 73.6652
Saturated CAIC = 96.8298
Normed Fit Index (NFI) = 0.9600
Non-Normed Fit Index (NNFI) = 0.9622
Parsimony Normed Fit Index (PNFI) = 0.4800
Comparative Fit Index (CFI) = 0.9811
Incremental Fit Index (IFI) = 0.9815
Relative Fit Index (RFI) = 0.9200
Critical N (CN) = 386.8270
Root Mean Square Residual (RMR) = 0.04951
Standardized RMR = 0.03990
Goodness of Fit Index (GFI) = 0.9824
Adjusted Goodness of Fit Index (AGFI) = 0.9473
Parsimony Goodness of Fit Index (PGFI) = 0.3275
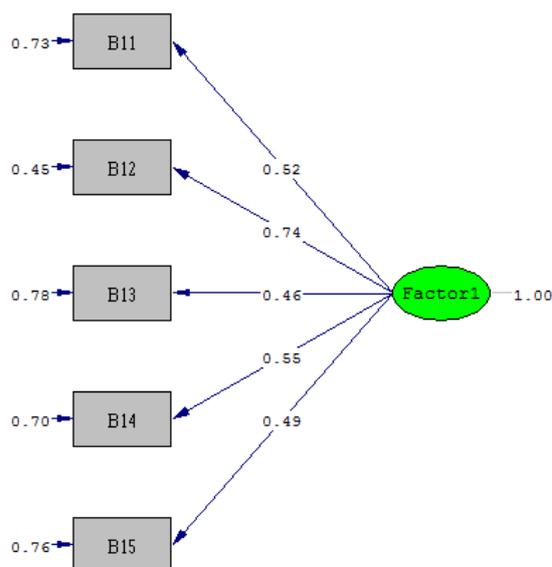
Chi-Square=9.11, df=5, P-value=0.10468, RMSEA=0.059

MINDFULNESS SUBSCALE

Goodness of Fit Statistics

Degrees of Freedom = 5
Minimum Fit Function Chi-Square = 15.0889 (P = 0.009989)
Normal Theory Weighted Least Squares Chi-Square = 15.8759 (P = 0.007208)
Satorra-Bentler Scaled Chi-Square = 14.0874 (P = 0.01506)
Chi-Square Corrected for Non-Normality = 9.8526 (P = 0.07952)
Estimated Non-centrality Parameter (NCP) = 9.0874
90 Percent Confidence Interval for NCP = (1.4675 ; 24.3051)
Minimum Fit Function Value = 0.06476
Population Discrepancy Function Value (F0) = 0.03900
90 Percent Confidence Interval for F0 = (0.006298 ; 0.1043)
Root Mean Square Error of Approximation (RMSEA) = 0.08832
90 Percent Confidence Interval for RMSEA = (0.03549 ; 0.1444)
P-Value for Test of Close Fit (RMSEA < 0.05) = 0.1025
Expected Cross-Validation Index (ECVI) = 0.1463
90 Percent Confidence Interval for ECVI = (0.1136 ; 0.2116)
ECVI for Saturated Model = 0.1288
ECVI for Independence Model = 1.0547
Chi-Square for Independence Model with 10 Degrees of Freedom = 235.7340
Independence AIC = 245.7340
Model AIC = 34.0874
Saturated AIC = 30.0000
Independence CAIC = 268.0106
Model CAIC = 78.6406
Saturated CAIC = 96.8298
Normed Fit Index (NFI) = 0.9402
Non-Normed Fit Index (NNFI) = 0.9195
Parsimony Normed Fit Index (PNFI) = 0.4701
Comparative Fit Index (CFI) = 0.9597
Incremental Fit Index (IFI) = 0.9606
Relative Fit Index (RFI) = 0.8805
Critical N (CN) = 250.5599
Root Mean Square Residual (RMR) = 0.04323
Standardized RMR = 0.04816
Goodness of Fit Index (GFI) = 0.9735
Adjusted Goodness of Fit Index (AGFI) = 0.9204
Parsimony Goodness of Fit Index (PGFI) = 0.3245
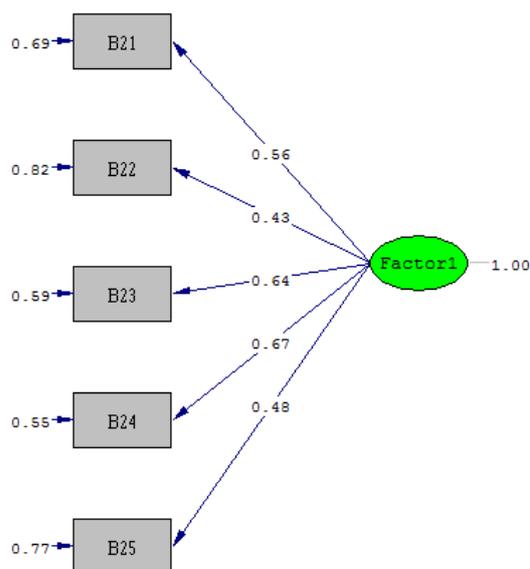
Chi-Square=14.09, df=5, P-value=0.01506, RMSEA=0.088

RECOGNITION OF EMOTIONS SUBSCALE

Goodness of Fit Statistics

Degrees of Freedom = 5
Minimum Fit Function Chi-Square = 32.3913 (P = 0.0000)
Normal Theory Weighted Least Squares Chi-Square = 30.9338 (P = 0.0000)
Satorra-Bentler Scaled Chi-Square = 24.5412 (P = 0.0001709)
Chi-Square Corrected for Non-Normality = 27.6674 (P = 0.0000)
Estimated Non-centrality Parameter (NCP) = 19.5412
90 Percent Confidence Interval for NCP = (7.6877 ; 38.9080)
Minimum Fit Function Value = 0.1390
Population Discrepancy Function Value (F0) = 0.08387
90 Percent Confidence Interval for F0 = (0.03299 ; 0.1670)
Root Mean Square Error of Approximation (RMSEA) = 0.1295
90 Percent Confidence Interval for RMSEA = (0.08123 ; 0.1827)
P-Value for Test of Close Fit (RMSEA < 0.05) = 0.004852
Expected Cross-Validation Index (ECVI) = 0.1912
90 Percent Confidence Interval for ECVI = (0.1403 ; 0.2743)
ECVI for Saturated Model = 0.1288
ECVI for Independence Model = 2.2036
Chi-Square for Independence Model with 10 Degrees of Freedom = 503.4404
Independence AIC = 513.4404
Model AIC = 44.5412
Saturated AIC = 30.0000
Independence CAIC = 535.7170
Model CAIC = 89.0944
Saturated CAIC = 96.8298
Normed Fit Index (NFI) = 0.9513
Non-Normed Fit Index (NNFI) = 0.9208
Parsimony Normed Fit Index (PNFI) = 0.4756
Comparative Fit Index (CFI) = 0.9604
Incremental Fit Index (IFI) = 0.9608
Relative Fit Index (RFI) = 0.9025
Critical N (CN) = 144.2552
Root Mean Square Residual (RMR) = 0.04843
Standardized RMR = 0.05319
Goodness of Fit Index (GFI) = 0.9496
Adjusted Goodness of Fit Index (AGFI) = 0.8487
Parsimony Goodness of Fit Index (PGFI) = 0.3165
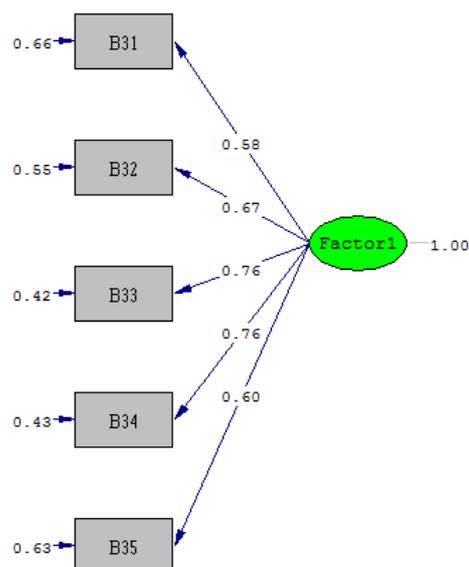
Chi-Square=24.54, df=5, P-value=0.00017, RMSEA=0.130

GAINING AND COMMUNICATING AN EMPATHIC UNDERSTANDING SUBSCALE

Goodness of Fit Statistics

Degrees of Freedom = 5
Minimum Fit Function Chi-Square = 8.7090 (P = 0.1213)
Normal Theory Weighted Least Squares Chi-Square = 8.7384 (P = 0.1200)
Satorra-Bentler Scaled Chi-Square = 7.3320 (P = 0.1971)
Chi-Square Corrected for Non-Normality = 7.0238 (P = 0.2189)
Estimated Non-centrality Parameter (NCP) = 2.3320
90 Percent Confidence Interval for NCP = (0.0 ; 13.7855)
Minimum Fit Function Value = 0.03738
Population Discrepancy Function Value (F0) = 0.01001
90 Percent Confidence Interval for F0 = (0.0 ; 0.05917)
Root Mean Square Error of Approximation (RMSEA) = 0.04474
90 Percent Confidence Interval for RMSEA = (0.0 ; 0.1088)
P-Value for Test of Close Fit (RMSEA < 0.05) = 0.4761
Expected Cross-Validation Index (ECVI) = 0.1173
90 Percent Confidence Interval for ECVI = (0.1073 ; 0.1665)
ECVI for Saturated Model = 0.1288
ECVI for Independence Model = 2.7935
Chi-Square for Independence Model with 10 Degrees of Freedom = 640.8776
Independence AIC = 650.8776
Model AIC = 27.3320
Saturated AIC = 30.0000
Independence CAIC = 673.1542
Model CAIC = 71.8852
Saturated CAIC = 96.8298
Normed Fit Index (NFI) = 0.9886
Non-Normed Fit Index (NNFI) = 0.9926
Parsimony Normed Fit Index (PNFI) = 0.4943
Comparative Fit Index (CFI) = 0.9963
Incremental Fit Index (IFI) = 0.9963
Relative Fit Index (RFI) = 0.9771
Critical N (CN) = 480.4965
Root Mean Square Residual (RMR) = 0.02670
Standardized RMR = 0.02379
Goodness of Fit Index (GFI) = 0.9852
Adjusted Goodness of Fit Index (AGFI) = 0.9557
Parsimony Goodness of Fit Index (PGFI) = 0.3284
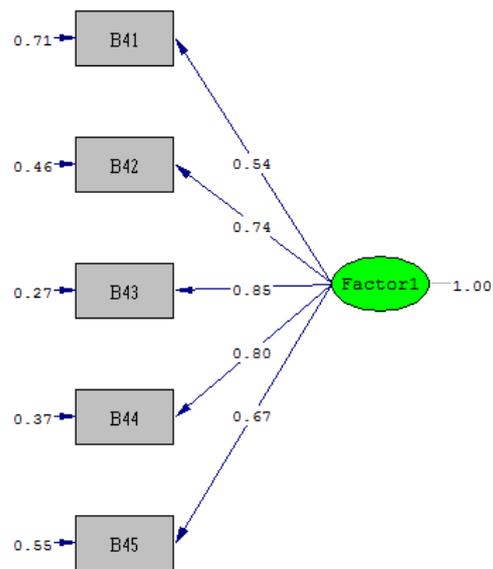
Chi-Square=7.33, df=5, P-value=0.19710, RMSEA=0.045

CARING WITH KINDNESS SUBSCALE

Goodness of Fit Statistics
Degrees of Freedom = 5
Minimum Fit Function Chi-Square = 7.6406 (P = 0.1772)
Normal Theory Weighted Least Squares Chi-Square = 8.1027 (P = 0.1507)
Satorra-Bentler Scaled Chi-Square = 5.5138 (P = 0.3564)
Chi-Square Corrected for Non-Normality = 4.4664 (P = 0.4844)
Estimated Non-centrality Parameter (NCP) = 0.5138
90 Percent Confidence Interval for NCP = (0.0 ; 10.5994)
Minimum Fit Function Value = 0.03279
Population Discrepancy Function Value (F0) = 0.002205
90 Percent Confidence Interval for F0 = (0.0 ; 0.04549)
Root Mean Square Error of Approximation (RMSEA) = 0.02100
90 Percent Confidence Interval for RMSEA = (0.0 ; 0.09538)
P-Value for Test of Close Fit (RMSEA < 0.05) = 0.6474
Expected Cross-Validation Index (ECVI) = 0.1095
90 Percent Confidence Interval for ECVI = (0.1073 ; 0.1528)
ECVI for Saturated Model = 0.1288
ECVI for Independence Model = 1.7647
Chi-Square for Independence Model with 10 Degrees of Freedom = 401.1716
Independence AIC = 411.1716
Model AIC = 25.5138
Saturated AIC = 30.0000
Independence CAIC = 433.4482
Model CAIC = 70.0671
Saturated CAIC = 96.8298
Normed Fit Index (NFI) = 0.9863
Non-Normed Fit Index (NNFI) = 0.9974
Parsimony Normed Fit Index (PNFI) = 0.4931
Comparative Fit Index (CFI) = 0.9987
Incremental Fit Index (IFI) = 0.9987
Relative Fit Index (RFI) = 0.9725
Critical N (CN) = 638.6043
Root Mean Square Residual (RMR) = 0.02754
Standardized RMR = 0.02795
Goodness of Fit Index (GFI) = 0.9863
Adjusted Goodness of Fit Index (AGFI) = 0.9588
Parsimony Goodness of Fit Index (PGFI) = 0.3288
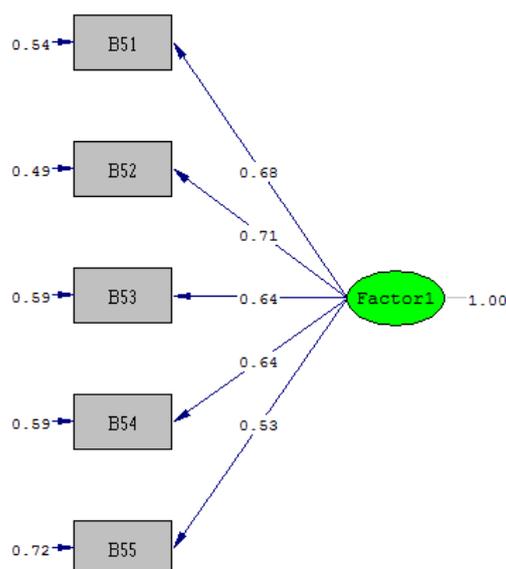
Chi-Square=5.51, df=5, P-value=0.35643, RMSEA=0.021

COMPASSION ACTION ORIENTATION SUBSCALE

| Goodness of Fit Statistics |
|---|
| Degrees of Freedom = 5 |
| Minimum Fit Function Chi-Square = 5.0748 (P = 0.4068) |
| Normal Theory Weighted Least Squares Chi-Square = 5.2222 (P = 0.3894) |
| Satorra-Bentler Scaled Chi-Square = 4.0212 (P = 0.5464) |
| Chi-Square Corrected for Non-Normality = 3.3729 (P = 0.6427) |
| Estimated Non-centrality Parameter (NCP) = 0.0 |
| 90 Percent Confidence Interval for NCP = (0.0 ; 7.7305) |
| Minimum Fit Function Value = 0.02178 |
| Population Discrepancy Function Value (F0) = 0.0 |
| 90 Percent Confidence Interval for F0 = (0.0 ; 0.03318) |
| Root Mean Square Error of Approximation (RMSEA) = 0.0 |
| 90 Percent Confidence Interval for RMSEA = (0.0 ; 0.08146) |
| P-Value for Test of Close Fit (RMSEA < 0.05) = 0.7923 |
| Expected Cross-Validation Index (ECVI) = 0.1073 |
| 90 Percent Confidence Interval for ECVI = (0.1073 ; 0.1405) |
| ECVI for Saturated Model = 0.1288 |
| ECVI for Independence Model = 1.8755 |
| Chi-Square for Independence Model with 10 Degrees of Freedom = 426.9847 |
| Independence AIC = 436.9847 |
| Model AIC = 24.0212 |
| Saturated AIC = 30.0000 |
| Independence CAIC = 459.2613 |
| Model CAIC = 68.5745 |
| Saturated CAIC = 96.8298 |
| Normed Fit Index (NFI) = 0.9906 |
| Non-Normed Fit Index (NNFI) = 1.0047 |
| Parsimony Normed Fit Index (PNFI) = 0.4953 |
| Comparative Fit Index (CFI) = 1.0000 |
| Incremental Fit Index (IFI) = 1.0023 |
| Relative Fit Index (RFI) = 0.9812 |
| Critical N (CN) = 875.2695 |
| Root Mean Square Residual (RMR) = 0.02198 |
| Standardized RMR = 0.02194 |
| Goodness of Fit Index (GFI) = 0.9911 |
| Adjusted Goodness of Fit Index (AGFI) = 0.9733 |
| Parsimony Goodness of Fit Index (PGFI) = 0.3304 |
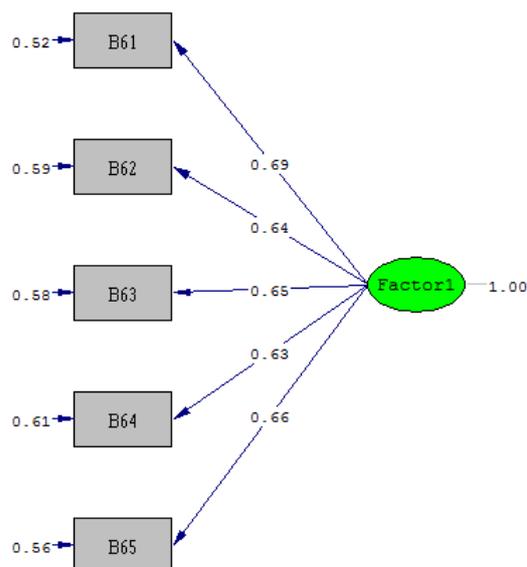
Chi-Square=4.02, df=5, P-value=0.54636, RMSEA=0.000