

Student Views On Their Early Clinical Learning Experiences

By

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DECLARATION

I, Farahnaz Bray, hereby declare that the entirety of the work contained herein is my own, original work, that I am the owner of the copyright thereof (unless to the extent explicitly otherwise stated) and that I have not previously submitted it, in its entirety or in part, at any university for a degree.

Signature: _____
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ABSTRACT

Aim

The aim of this study was to explore second year medical students' perceptions of their early clinical experiences with a view to improving curriculum development so as to enhance early clinical training programmes at Stellenbosch University (SU).

Methodology

A qualitative, interpretive study, based on semi-structured focus group discussions with second year medical students was conducted in order to capture the relevant data that would provide information about their attitudes, feelings, beliefs and views on their early clinical learning experiences during their first year of studying medicine at SU. Thirty seven students participated in four focus group discussions after a process of selection of candidates using purposive sampling methods and stratification criteria to obtain the research sample. The interviews were moderated by an external facilitator, and were audiotaped and transcribed verbatim. The data transcripts were analysed and manually coded, and four broad categories with subthemes which illustrated the findings of the study, were identified and decided upon by the researcher and verified by the supervisor.

Results

Early clinical exposure was generally positively perceived by students. It fostered a sense of vocation and feeling like real doctors, leaving students motivated and enhancing their learning interest. Early clinical skills training led to students' professional development, acquiring the technical skills of a doctor, familiarisation with basic clinical terminology, and normal clinical findings which prepared them for later clinical studies. The new setting of practical learning in a simulated environment required students to adapt to small group learning and student clinical demonstrations which developed new learning styles and study skills. Some of the challenges that students encountered in the transition to clinical learning were, understanding the new subject of clinical medicine, having limited background knowledge to acquire basic clinical skills, and student clinical demonstrations. Although the strategy of peer physical examination was perceived to be effective, some ethical dilemmas emerged for students in terms of autonomy, and no opportunities available to practice on female models. Acting as a simulated patient proved to have both positive and negative outcomes on students' skills acquisition. Factors that had a negative outcome on clinical skills learning were limited practice opportunities due to high student to teacher ratios per clinical session, and the variability of teaching content and practical techniques taught by various clinical tutors with different teaching strategies. The most stressful experience for

students was the OSCE since it was a new method of assessment. Stress was attributed to uncertainty about the correct clinical content and techniques resulting from the teaching variability, while performance anxiety during the exam was related to inappropriate examiner behaviour. The OSCE was a positive learning experience because its format simulated the hospital setting which fostered students' critical thinking abilities and time management.

Conclusion

Early clinical exposure and practice have a great impact on junior medical students' academic growth, and have positive learning outcomes. However, further development by the faculty in the areas of didactic skills, addressing the ethical issues related to student clinical demonstrations, and supporting students to enable a smooth transition to clinical learning will enhance and optimise their early clinical training.

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LIST OF ABBREVIATIONS

CSC	Clinical skills centre
FMHS	Faculty of Medicine and Health Sciences
GMC	General Medical Council
ICM	Introduction to Clinical Medicine
OSCE	Objective Structured Clinical Examination
SU	Stellenbosch University

CLARIFICATION OF TERMS AND CONCEPTS

It is essential to understand the concept of early clinical experience before analysing its impact on medical education. It is important to define the following terms that are used in relation to clinical learning.

“Clinical skills” this term embraces history taking, physical examination, clinical investigation, diagnostic reasoning, professionalism and team working (Kneebone & Nestel, 2005).

“Competence” means to perform a task by integrating knowledge, skills and attitudes (Fraser, 2003).

“Early” refers to what would traditionally have been regarded as the preclinical phase, which is usually the first two years of the medical undergraduate course (Dornan, Littlewood, Margolis, Scherpbier, Spencer & Ypinazar, 2005).

“Early clinical experience” refers to clinical learning that occurs during the first two years of studying medicine, which is acquired through the experience of direct interaction with patients or persons in a clinical context that enhance learning.

“Experience” is the authentic (real patient) human contact in a social or clinical context that enhances learning of health, illness or disease, and the role of the health professional” (Dornan & Bundy, 2004).

“Skills” may be defined as ‘actions (and reactions) which an individual performs in a competent way in order to achieve a goal’ (Rolfe & Sanson-Fisher, 2002).

“Student demonstrations” refers to student clinical demonstrations.

LIST OF ADDENDA

Addendum A: Questionnaire

Addendum B: Informed Consent

Addendum C: Discussion Guide Prompts

CHAPTER ONE: INTRODUCTION AND BACKGROUND TO THE STUDY

1.1. Introduction

Early exposure to clinical skills is at the forefront of medical education. It aims to ensure that medical students achieve competence in core areas such as physical examination and basic clinical skills (Dornan, 2006; Lam, Irwin, Chow & Chan 2002).

Medical curricula are continually being analysed and adapted to shape the educational goals for early clinical learning when training medical students (ten Cate, Snell, Mann, & Vermunt, 2004). The constructivist philosophy (when learners construct new knowledge on an existing knowledge framework), has underpinned the shift towards early clinical learning which has led to an increase in the use of novel teaching techniques to enhance the learning and training of medical students who are expected to develop clinical competence (Burke, et al. 2007).

The main challenge that medical institutions face is the current trend of introducing basic clinical skills training to first year medical students (McMillan, WJ. 2007). Medical curriculum developers hold the view that first year students have the fervour to engage with the educational setting of basic clinical skills training, as it would be an exciting shift for them from the largely pre-clinical and science laden MBChB I curriculum (McMillan, 2007). It is hoped that laying the foundation of basic physical examination skills in first year will facilitate the development of proficient clinical competence required for their clinical years (Allen, Miller, Ratner, & Santilli, 2011). It is known that teaching an introductory course is often more difficult than teaching an advanced course in the same discipline, especially in clinical medicine (Ramani, 2008). Therefore clinical teachers have to implement clinical skills modules systematically and effectively during this introductory phase of the medical course, which will lay a sound foundation for students to develop clinical competence, in order to produce safe and competent doctors (Ramani, 2008; Grantcharov & Reznick, 2008).

A considerable amount of literature and evidence have focussed on the critical aspects of clinical teaching to develop teaching strategies that will enhance student learning during clinical skills training (Martens, Duvivier, Van Dalen, Verwijnen, Scherpbier & van der Vleuten, 2009; Henning, Pinnock, Shulruf, & Hawken, 2013). Many studies describe the role of clinical teachers, and effective teaching strategies that have been developed for the success of clinical learning. However little is known about the desired clinical learning experience especially during the early phase of clinical learning (Martens et al, 2009; Henning et al, 2013; Dornan & Bundy, 2004).

The early introduction of clinical skills teaching seems to have a positive impact on junior medical students' learning interest as well as achieving mastery of key clinical competencies in preparation for their later clinical years (Lam et al, 2002; Hibshi, Eldeek, Ayoub, & Aboella, 2010). However, the transition to clinical learning can be difficult for young students who have just started their medical studies (Hibshi et al, 2010; Widyandana, Majoor & Scherpbier, 2012). A review of the literature reveals that medical students feel daunted especially when they enter the clinical environment for the first time (Dornan, 2006), but the rewards of motivation and satisfaction that students gain during early clinical exposure helps them to overcome the stresses that they may encounter (Hibshi et al, 2010; Dornan, 2006). Not much attention has been given to analysing students' perceptions about the impact of clinical learning experiences during the initial stage of their clinical training. Establishing how medical students can be supported through their transition to the clinical learning environment may generate valuable information for the future curriculum to optimise early clinical training programmes (Martens et al, 2009; Henning et al, 2013).

1.2. Aim of the Study

The aim of this study was to explore and gain an understanding of the views of second year medical students at Stellenbosch University (SU) about their early clinical experiences during their first year, and provide them with a platform to define and prioritize changes that they considered would improve their learning.

An insight into students' perceptions and their experiences of early clinical learning may assist clinical teachers to enhance and optimize the implementation of early clinical training programmes.

1.3 Research Question

What are the perceptions of second year medical students at Stellenbosch University on their clinical learning experiences during the Introduction to Clinical Medicine (ICM) module in their first year of study, which may contribute to the enhancement of the design of the module?

CHAPTER TWO: LITERATURE REVIEW

2.1. Background of Early Clinical Exposure

The aim of the undergraduate medical curriculum is to produce graduates who are competent to serve the health needs of communities. It is the task of medical institutions to ensure that medical students achieve competence in core areas such as physical examination and basic clinical skills (Allen et al., 2011). It is our job, as clinical teachers, to ensure that future doctors are prepared to deliver absolute excellence in patient care (Harden & Crosby, 2000; Ramani, 2008).

The roots of medical education are deeply grounded in history, and it is alleged that the Flexner report of 1910 sparked off a major revolution for reform in medical education, with the aim of promoting optimal health care and delivery (Dent & Harden, 2005; Ludmerer, 2010). It is under Flexner's influence that medical curricula became structured into preclinical and clinical phases. The preclinical phase was largely science based and provided students with the theoretical background which would prepare them for the clinical phase which required the integration of theory and practice in the clinical environment (Dornan, 2006). Didactic teaching was confined to lecture theatres and supplemented by teaching in the laboratories, dissecting rooms and libraries and was the pedagogy during the preclinical phase. Students were exposed to the clinical environment only in the clinical phase where they were attached to clinicians in hospitals, using apprenticeship principles to integrate theory and practice as the pedagogy (Dornan, 2006; Ludmerer, 2010). The traditional medical curriculum emerged from this era of medical reform of preclinical courses in biomedical sciences, followed by the experiential, hands-on pedagogy to promote academic excellence and public service (Dornan, 2006; Ludmerer, 2010; Stubenberg, 2013).

But the Flexner paradigm was placed under pressure by twentieth century advancements in science, technology, the burgeoning knowledge base of medicine as well as the changing health profile of communities. Learners and patients became more empowered, which resulted in changes in clinical practice, and the doctor's role was continually evolving in a process of negotiation between the medical profession and the society it serves. This negotiation of roles had implications for medical education, and educationists became critical of the traditional medical apprenticeship and its pedagogic methods. Alongside the rapid changes in health, there had to be a parallel revolution in medical education that would produce competent doctors who will promote and maintain a positive health system (Ludmerer, 2010; Frenk, Chen, Bhutta, Cohen, Crisp, Evans, Fineberg, Garcia, Ke, Kelley, Kristnasamy, Meleis, Naylo, Pablos-Mendez, Reddy, Scrimshaw, Sepulveda, 2010).

Medical education needed to respond to the context in which it operated by refreshing, refining and improving the standards of medical training to align with changes in technology and in the health status of populations in order to produce doctors who were able to serve the needs of communities and adapt to the ever-changing health care environment (Frenk et al. 2010; Stubenberg, 2013). The traditional medical curriculum was under scrutiny by various scholars of medical education who identified that shortcoming in the traditional medical curriculum were the disconnection between preclinical and clinical training, as well as the lack of lengthy clinical experiences (Ludmerer, 2010; O'Brien & Poncelot, 2010). O'Brien and Poncelot (2010) also highlighted that the disconnection between the two parts of the traditional undergraduate curriculum resulted in students being underprepared to engage with the clinical environment. Medical educationists recognized that academic medicine needed to bridge this educational gap by introducing early clinical exposure, establishing a learning environment rich in skill and interaction, and increased ambulatory training. The shift towards early clinical exposure seemed to provide a more comprehensive orientation to clinical settings and enable students to make connections between preclinical and clinical concepts and skills (O'Brien and Poncelot, 2010). These medical reforms aimed to produce doctors who are critical thinkers and agents of change who will be competent to serve communities effectively and have a positive effect on their health status (Frenk et al. 2010; Stubenberg, 2013).

2.1.1. The shift to early clinical exposure and training

Two decades ago the General Medical Council (GMC) made a call on medical institutions around the world to introduce basic clinical skills early in the medical curriculum, emphasising that enhanced clinical training was needed in order to produce competent doctors (GMC, 1993; Swamy, Bloomfield, Thomas, Singh & Searle, 2013). The rationale for the early introduction of clinical skills was that these skills may take a significant time to develop. Moreover, early introduction of these skills was likely to facilitate the integration of clinical and basic science knowledge. The objectives of early clinical training in general were for students to develop basic skills in communication, history taking, as well as the identification of vital signs and normal clinical findings (GMC 1993; Kiguli, 2010).

In response to these recommendations medical curriculum developers had to transform the traditional medical curriculum of preclinical/clinical divide into a curriculum that introduced the acquisition of clinical skills, history taking, and developing professional attitudes as early as first year (GMC, 1993).

New medical curricula have led to an increase in the use of novel teaching techniques to enhance learning and training of medical students who are expected to develop clinical competence (Burke, et al. 2007). A plethora of techniques for implementing such changes have evolved and terms such as 'problem based', 'self-directed', and 'student-centred' abound in discussions about curriculum reform. At a glance, medical education has transformed in three phases over the past century (Frenk et al., 2010). The largely science-based curriculum at the start of the century evolved into the problem-based curriculum of the mid-century, and a third shift to the current vision of a systems-based curriculum with early clinical exposure (Frenk et al., 2010). Clinical skills training is still under the spotlight, and is constantly being revised and updated with the aim of producing competent doctors.

Medical institutions around the world, in countries such as Indonesia (Widyandana, 2012), Saudi Arabia (Hibshi et al, 2010), Hong Kong (Lam et al, 2002), Uganda (Kiguli, 2010) and in the USA (The Mayo Medical School in Minnesota, The University of Chicago, and the University of Washington), (Dornan & Bundy, 2004; Dyrbye, Harris, Rohren, 2007, Wenrich et al, 2013) have adapted their medical undergraduate curricula with the stated goal of early clinical exposure and training of clinical skills. Following this overhaul of the traditional curriculum, a subsequent study by Lam and colleagues, which evaluated the impact of early clinical exposure at the University of Hong Kong, emphasised this growing trend to introduce clinical skills training early in the medical curriculum (Lam et al, 2002). It has been shown that there has been a growing movement towards international standardisation of medical curricula with a trend towards early clinical exposure and practise in many medical institutions globally (Issenberg & McGahie, 2002).

2.1.2. The challenges of early clinical exposure and training

For medical educationists, the main challenge of early clinical exposure has been to lay the foundation for medical students to acquire a range of practical skills that they must have for their future professional life as doctors and its coordination with later stages of training. To ensure that medical students develop proficient clinical skills during the preclinical phase, medical developers are continually designing effective clinical teaching strategies (Ramani & Leister, 2008).

The successful outcomes of early clinical training programmes have been attributable to how clinical teachers implement clinical skills modules to lay a sound foundation for students to develop clinical competence, in order to produce safe and competent doctors (Burke, Fayaz, Graham, Matthew, Field, 2007). Thus it is the task of medical teachers to implement clinical training programmes effectively and systematically to enable a smooth transition for medical

students to the clinical learning environment across all the phases of their clinical training (Swamy et al, 2013; Hibshi et al, 2010; Dyrbye, Harris, Rohren, 2007).

However, medical institutions that have integrated clinical skills training early in their medical curricula have been faced with common teething problems. According to Issenberg & McGaghie (2002) some of these problems include:

- Lack of correlation of clinical modules with basic science subjects;
- Overloading the existing curriculum with the addition of clinical components;
- Greater focus is placed on the summative assessment (OSCE) than on formative assessment and feedback;
- Lack of sufficient time for students to practise clinical skills;
- Unenthusiastic and poorly prepared clinical teachers;
- Poorly defined learning outcomes for both students and faculty;
- Lack of real patient encounters for students to transfer and apply their clinical skills.

To overcome some of the above problems of clinical education, research has been focussed on effective clinical teaching strategies and how clinical teachers facilitate learning, with the aim of striving for excellence in clinical teaching. It is only recently that the focus of research has shifted to how learners respond to their clinical learning environment to generate information that will enhance early clinical training and curriculum development (Dornan, 2006). It is important to examine students' experiences of their transition from preclinical to clinical training as it provides a lens to see educational opportunities for enhancing medical student preparation (O'Brien and Poncelot, 2010).

To be informative, research needs to be student focused, exploratory, and broad enough in its scope to reflect the effects of early clinical exposure on the preclinical medical student, and be open to the changes that occur as they progress through the curriculum (Dornan et al, 2005). Understanding student perspectives about the clinical teaching setting offers philosophical contributions to the field of medical education based on their personal experiences and how those experiences are interpreted and contribute to curriculum development (Cote & Turgeon, 2005). Therefore, as clinical teachers we need to take a step back and analyse the impact that early clinical exposure has on the experiences of medical students in their training to become competent doctors.

2.1.3. Impact of early clinical exposure and training on medical students

The general trend towards early clinical exposure and practice has revolutionised the medical school experience by having a great impact on students' perceptions, resulting in positive

academic growth with positive learning outcomes (Lam et al, 2002). A published consensus survey by Dornan highlighted the personal benefits of early clinical experience for medical students, and documented that this curriculum reform has tipped medical curricula towards the social context of practice (Dornan & Bundy, 2004). Early clinical exposure is intended to prepare students before they enter the clinical environment, thus facilitating their professional and academic development (Dyrbye et al, 2007).

Recent researchers who have explored learning outcomes of early clinical experiences from a medical student perspective have recognised that this medium is positively perceived by students (Dornan et al, 2005; Dyrbye et al, 2007; Lam et al, 2002; Widyandana, 2012; Wenrich, 2013). For students, positive outcomes of early clinical learning are associated with their acquisition of clinical knowledge and skills, professional development, increased motivation to study medicine, building their confidence to approach patients, acclimatising them to the clinical environment, and creating learning that is more real and relevant. The early shift to clinical learning has helped socialise junior medical students to their chosen profession. One of the greatest advantages of early introduction of a clinical component is the enhancement of students' learning interest, sparking their clinical curiosity and the sense of satisfaction that they feel in studying medicine (Dornan et al, 2005; Dornan, 2006; Lam et al, 2002; Dyrbye et al, 2007; Widyandana, 2012; Wenrich, 2013).

Although early clinical exposure and training is positively perceived, medical students are still anxious and find the transition to clinical learning stressful. This is mainly attributed to their lack of a strong foundation in basic sciences which limit their understanding and the acquisition of basic clinical skills (Hibshi et al, 2010; Lam et al, 2002). More insight into how these early clinical experiences affect students is needed to provide further support for the academic value and personal worth of such experiences (Widyandana et al, 2012).

2.2. Summary

The development of physical examination skills is essential for doctors in training. All medical students are expected to develop clinical competence to deliver good healthcare (Ramani, 2008).

The main theme of the GMC (1993) was the need in academic medicine to ensure that medical students achieve competence in core areas such as physical examination and basic clinical skills (Allen, Miller, Ratner & Santilli, 2011). The shift to early clinical exposure and practice was recommended and the inclusion of clinical skills training into the preclinical curriculum of medical students has seen a tremendous growth over the past two decades (Issenberg & McGaghie, 2002; Dornan et al, 2005).

It has been a challenge for medical institutions to develop effective clinical training programmes providing early clinical exposure. There is sufficient evidence to support the value of exposing students to the clinical environment in the preclinical phase, as well as extensive literature that has addressed the development of clinical teaching (Henning et al, 2013). New trends in medical education that shifted the focus towards early clinical learning embraced the models of outcome-based education (OBE), competency driven approaches which were complemented by the new educational strategies of 'student-centred learning', 'problem-based learning' and 'self-directed learning' (ten Cate, O., Snell, L., Mann, K. & Vermunt, J. 2004).

There is limited information in the literature about students' experiences when they are exposed to early clinical learning and their transition from being a predominantly pre-clinical science student, to the clinical status of a medical student when role playing as doctors in the clinical environment. Exploring the impact that the early transition to clinical learning has on medical students provides a different perspective for clinical teachers to enhance core educational strategies and be better equipped for teaching medical students, and at the same time optimise this clinical educational experience (Dornan, 2006).

CHAPTER THREE: METHODOLOGY

3.1 Research Setting

Keeping pace with the international trend towards early clinical learning and practice, the Faculty of Medicine and Health Sciences (FMHS) at SU has also adapted their medical curriculum by introducing a clinical module in the first year of the MBChB undergraduate course in 2010.

The intended outcome of the Introduction to Clinical Medicine (ICM) module is for first year medical students to acquire the knowledge and skills of the basic principles of physical examination. The focus is on introducing them to clinical terminology, and making them familiar with the aspects of normal clinical findings. The module design consists of introductory lectures followed by practical sessions in the clinical skills centre (CSC), and is assessed in the format of an OSCE (Objective Structured Clinical Examination) and a theoretical examination at the end of the four week block.

For the practical sessions the students are divided into small groups of 20 to 25 students per clinical tutor. Each group is scheduled to attend three, two-hour clinical teaching sessions in the CSC. In each session the basic principles of physical examination of each of the major systems are covered, namely: the cardiovascular; respiratory; and the gastrointestinal systems. Emphasis is placed on learning the normal clinical findings, surface anatomy, clinical terminology and the correct techniques of physical examination. The clinical tutor demonstrates the clinical skill, and students then practice on their fellow students, under the guidance of the clinical tutor. At the end of the rotation students are assessed on their clinical skills competency in an OSCE, which consists of five clinical stations where students have to demonstrate specific aspects of the physical examination on normal simulated patients. A multiple choice test on the university's internet learning system (webCT) also takes place to test theoretical knowledge of the module content.

The significant benefits of introducing clinical learning in the preclinical phase have been clearly outlined. It seems that students need guidance and support to enable a smooth transition to the clinical learning environment (Lam et al, 2002; Dornan et al, 2005; Dyrbye et al, 2007). An insight into students' perceptions and their experiences of early clinical learning is needed which may assist clinical teachers to optimise and enhance this educational experience, and contribute towards clinical teaching excellence.

The present study conducted focus group discussions to explore and gain insight into the early clinical experiences of first year medical students, to establish how their clinical learning can

be further supported in order to enhance their clinical skills training, with the aim of optimising the design and efficacy of this introductory clinical module.

3.2 Research Methodology

3.2.1 Research design

The selected research design of the study is an interpretive study, using qualitative research strategies to explore the experiences of the second year medical students and gain insight into their attitudes, feelings, beliefs and views about their early clinical learning experiences during their first year of studying medicine at SU (Maree, 2007; Denscombe, 1998). The underlying philosophy of the qualitative approach is to determine behaviours, experiences, attitudes and social processes which cannot be investigated by quantitative methods (Skinner, 2007). In the context of this research study, this philosophy implies an interpretive approach with a focus on how the respondents, second year medical students, experienced and understood the context of their early clinical exposure and training during the ICM module at the end of their first year of studying medicine (Skinner, D 2007).

To answer the research question of this study, a qualitative research methodology was used to get an in-depth sense of the views of the second year medical students about their early clinical exposure and how they perceived this learning experience during the preclinical phase of their medical studies by interviewing them and interpreting their responses to reveal how they can be supported during the transition to the clinical environment (Skinner, D 2007).

The interpretive study design, which is a systematic inquiry that aims to describe and explain the phenomenon of interest, enabled the researcher to develop a rich and comprehensive understanding of the perceptions and experiences of the second year medical students about their clinical learning during the ICM module, which may enhance the instructional design of the module (Maree, 2007). The researcher was given an opportunity to conduct a multi-perspective analysis from the focus groups of the study population to obtain a deeper understanding of the experiences of the students during the introductory clinical module (Maree, 2007).

3.3 Sample

The target population was defined as all 260 second year medical students who were registered in the MBChB II undergraduate degree course at SU in 2013. These students completed the ICM module about six months prior to when the data were collected. All the second year MBChB students of 2013 were contacted by email to invite them to participate in this research study (Addendum A). The aims and objectives were explained in the letter, which described how the study would be conducted through their voluntary participation in

focus group discussions, maintaining the confidentiality of their information and anonymous identity (Addendum A).

One hundred and ten students responded to this invitation (Addendum A), and volunteered to participate in this study. Out of this group of students purposive sampling was applied to form a sample that would generate the most valuable data for the purpose of this study.

The stratification criteria of gender, race, and the OSCE (Objective Structured Clinical Examination) results that students obtained at the end of the ICM module in first year was used to select candidates to ensure that the sample range covered the full range of possible characteristics of interest. By applying these criteria the researcher obtained a sample that aimed to represent all the important subgroups of the medical student population at SU (i.e. White, African, Asian, Coloured), which included the voices of both male and female students from all cultures and societies, as well as students from varying levels of performance that represented the top students, average students, and poor performers. The aim of these criteria was to gain a wider insight into the students' perceptions and their experiences during the ICM module (Skinner, 2007). This selection process resulted in a sample of students that had the distinct characteristics and possessed the required traits to gather information about students' early clinical exposure (Maree, 2007).

After applying these stratification criteria, 50 students were selected and a second invitation was sent to them by email to attend scheduled focus group discussions in the CSC. From this group, 37 students attended the focus group discussions which constituted the sample population (Maree, 2007). This sample was regarded as representative of the total population of the second year medical students at SU who completed the ICM module, which is the selected context of this study (Maree, 2007; Patton, 1990).

3.4 Ethical Considerations

Approval to explore the perceptions of second year medical students about their first year clinical learning experiences was obtained from the Health Research Ethics Committee (HREC) at the Faculty of Medicine and Health Sciences of SU. Participation in the focus group discussions was voluntary. Informed consent was obtained in writing from each participant prior to the interviews and the students were aware that they could withdraw from the study at any point (Addendum B). Students were allowed to communicate in their preferred language. There was no need for an interpreter. All audio recordings were deleted after transcription, analysis and verification of data. The information and responses remain confidential and are presented in an anonymous manner.

3.5 Data Collection

3.5.1 Focus group discussions

Semi-structured focus group discussions were organised and conducted with consenting students in accordance with guidelines described by Skinner to explore their perceptions about their early clinical learning during their first year of studying medicine (Skinner, 2007). It is documented that focus group interviews produce data that are rich in detail, and that is difficult to achieve with other research methods (Maree, 2007).

The main purpose of focus group interviews was to gain insight into the attitudes, perceptions, and opinions of the students about their experiences of the ICM module (Skinner, 2007). Students were able to reflect on their experiences of the ICM module even though they completed the module six months prior to the interviews, as the facilitator opened the focus group discussions with a brief review of the educational setting of the ICM module.

The advantage of group interaction during focus group interviews, is that it can be productive in gaining or widening the range of responses by the students (Maree, 2007). Students are able to engage with each other in focus group discussions, and not only with the facilitator thus generating rich data (Maree, 2007; Skinner, 2007). An experienced external facilitator, who was not familiar to the students nor had any previous contact or interaction with them, was used to conduct the interviews so that students could feel at ease and contribute to the discussion in a spontaneous way. This reduced the likelihood of students generating biased responses during the focus groups.

3.5.2 Participants

Thirty seven students volunteered to participate in the focus group discussions and constituted the sample population to represent the total second year medical student population in the selected context. One of the disadvantages of focus group interviews is that students might feel threatened by the setting and forum of the discussion (Skinner, 2007). Some students may feel threatened by the nature of the interview process and retract from participation, thus losing vital data.

Taking this into consideration students were grouped according to their OSCE results clustering together the top, average, and weaker students to generate rich data (Skinner, 2007). Another reason for clustering students together according to their academic performance is that during discussions some students can be dominant and outspoken enough to cloud the views of less assertive students. Therefore possible peer pressure within the group may prevent students from expressing their experiences and beliefs. These aspects can result in the collection of biased data from students who are inhibited in expressing their

opinions. It is for these reasons that students were clustered together according to their academic performance in the OSCE.

If students were randomly selected to be in a group, the views of poor performing students may be suppressed by top performing students who may be dominant and outspoken. Weaker students may feel that their contributions are not valuable enough, or the fear of being embarrassed in front of their peers may limit their participation. Group dynamics can differ greatly, however to assist data generation, in-depth interaction between participants can be facilitated when students with similar characteristics are kept together, and in this study, students were clustered together according to their OSCE results (Skinner, 2007)

3.5.3 Group moderation

An external facilitator who has experience in focus group discussions moderated each session. The facilitator conducted the interviews using a discussion guide (see Addendum C) which outlined general open and specific prompts that were used in every session in order to collect in-depth qualitative data about the group's perceptions and experiences about the ICM module (Maree, K 2007). Students were further prompted to elaborate on a topic if it did not arise spontaneously during the discussions (Maree, 2007; Skinner, 2007).

It is known that when students do not know the facilitator, it helps to stimulate the discussion and they feel free to reveal opinions that they might not reveal if they were familiar with the person conducting the interviews. Having an external facilitator to conduct the focus group interviews enabled students to clarify their attitudes, beliefs and opinions without any hindrance (Skinner, 2007). Allowing students to express themselves freely further encouraged the debate and discussion of topics related to early clinical experiences (Maree, 2007). In this way the element of biased information being provided by students was reduced (Skinner, 2007; Maree, 2007).

3.5.4 Format

Four focus group discussions were scheduled which took place in the private setting of the Clinical Skills Laboratory during the students' lunch hour. Students did not receive any financial compensation for participating in the study, however lunch was provided. The groups varied in size, ranging from four to ten students. This group size conformed to the guidelines outlined by Skinner, 2007 of focus group discussions. The same discussion guide (Addendum C) was followed in each session, with further exploration or clarification of interesting views if any emerged. The broad range of qualitative data provided by the participating medical

students was sampled until no new themes emerged, and enabled data saturation. Each session lasted approximately one hour and was audiotaped and later transcribed verbatim for analysis.

3.6 Data Analysis

The principles of content analysis were followed and the data sets (transcriptions) were read by the researcher herself to develop a general impression as well as an understanding of the context of specific statements. The transcribed interviews were subjected to a process of manual coding in keeping with inductive exploration (Patton, 1990) to identify and group related narratives and quotations. Codes were identified and matched with data extracts. After all the data were coded, and guided by the principles of thematic analysis, the researcher re-read the responses to identify patterns that were grouped into main themes (Braun & Clarke, 2006; Patton, 1990), which explored the context of students' early clinical learning experiences. Four broad categories were identified with related subthemes, which were identified by the researcher to illustrate the findings of the study. The research supervisor was consulted during the analysis process of these interviews.

CHAPTER FOUR: RESULTS AND DISCUSSION

4.1. Results of the Data

The data from the focus group discussions were coded and were placed in four broad categories with themes that described the experiences and perspectives of medical students about their early clinical learning. Four categories emerged.

Category 1: Positive outcomes of early clinical learning.

Category 2: Challenges of early clinical learning

Category 3: Negative experiences of early clinical learning

Category 4: Enhancing early clinical learning.

Category 1: Positive outcomes of early clinical learning

On the whole students were positive about their early clinical experiences during the ICM module. Students' narratives reveal that this practical learning experience was an enriching experience that was fun, motivational and encouraging for them. Four themes were identified.

Theme 1: 'Real doctors'.

Theme 2: Clinical skills training.

Theme 3: The OSCE 'A positive learning experience.

Theme 4: Academic benefit of early clinical learning.

Theme 1: 'Real doctors'

Positive attitudes

Students welcomed the shift from their largely science based studies to this practical, interactive clinical module. Students described this early clinical learning experience as fun and said that it motivated them to study medicine.

If we left the year without doing something like that, I would have felt why am I studying medicine...I wouldn't be passionate anymore.

.... it was completely different to the theoretical classes we had....you actually felt like you are studying to become a doctor.

It was a very pleasant experience because it was completely different to the theoretical classes we had...it actually felt like you are studying to become a doctor.

Sense of vocation

The practical experience of acquiring basic clinical skills reaffirmed students' choice of studying medicine. Students were reminded of their sense of vocation, as for the first time they felt like 'real doctors' working with simulated 'patients'. Students were excited when finally they were taught to use their stethoscopes, measure temperature, blood pressure, and started

acquiring the technical skills of a doctor. While they were learning the basic techniques of physical examination they could visualise their role as future doctors.

It actually made me feel like I'm becoming a doctor for the first time in the year...finally learnt how to actually use my stethoscope.

We were all in first year and sometimes people are not sure if this is the right thing for them...I think it was good that we did the clinical module because it was like the actual thing that you were going to do later on.....it helped to make sure if you're doing the right course.

Theme 2: Clinical skills training

The first year students were enthusiastic to learn clinical skills during the 'hands-on' practical sessions. Learning how to auscultate, palpate and percuss was not only exciting but proved to be an 'unforgettable', meaningful and deep learning experience which further ignited their curiosity about clinical medicine. *"The highlight was the curiosity of trying to find out do I have this, or does somebody else have this.... curiosity about finding out more".*

Small group learning

When students were divided into small groups for the clinical sessions it afforded them with an opportunity to interact with each other, as for the entire first year they were all together in the big classroom lectures. Working in small groups or in pairs fostered a deeper understanding of their diverse profiles and helped them to establish possible future working partnerships.

It was very interactive and very enjoyable....you were able to remember so much more as opposed to learning on a piece of paper.

Each person in my group actually got to demonstrate something because we were quite small groups and doing it myself I learnt it well.

I think you definitely should practise with fellow students and that can't hurt.

It's a good thing to work with your friends....helps you to see what it's like in the future to work with future colleagues because they are going to be your colleagues...It helps for this year where you have to choose your clinical partners.

you see how well you work with certain people and how they work and your methods. It's a good experience to get to know each other.

Students felt that a positive, yet comfortable learning environment was established in the small group clinical sessions. Students felt that there was a degree of individual attention given to them by the clinical tutor. They felt free to ask questions, and if they made mistakes they felt comfortable to be corrected by the clinical tutor or their peers. These sessions created a

supporting learning environment for them where they could share their knowledge which helped them to build confidence in their examination techniques.

If you do something wrong, your friends will tell you immediately you're doing this wrong or maybe try this out or try something else out.... advising you in this way.

...you're comfortable by practicing on each other, rather make a mistake on one of your peers than make a mistake on a patient

Our demonstrator called me up, I remember I did it incorrectly and it was really embarrassing, but because she corrected me and having her there she showed me no, this is wrong and how to do it, to this day I know how to percuss.... I will never get it wrong.... so it was positive to have her there to correct our mistakes.

We all feel embarrassed together.... I think in a good way.

Simulated learning environment

The environment of the CSC with manikins, student models, and readily available clinical tutors was regarded as an ideal setting for the initial phase of their clinical learning. Simulated learning was not only viewed as fun and exciting, but students felt that this virtual clinical environment was certainly safe for them to practice the basic techniques of physical examination for the first time. They enjoyed the freedom of practising their techniques, making errors and being guided by their peers or the clinical tutors. This simulated world of medicine helped them develop novel ways of learning clinical skills as well as new study skills.

Working with the dolls and the equipment was a lot of fun and it helps to remember the stuff better.

.... you get first-hand experience of what you are supposed to look for and how to do it if you have a patient.

Yes well it is better than manikins, very hands on and you can talk to them if it hurts or not....and they can tell you if you're applying too much pressure.

Achieving competency

At the end of this introductory clinical module, students felt confident in their ability to perform a basic physical examination. They felt adequately prepared to enter the hospital where they will meet and interview patients later on. However, in retrospect they report that a revision course in second year is necessary to refresh their clinical knowledge and improve their competence in performing the clinical skills.

.... the skills you will always remember.... revision now would ensure competence. I feel rather confident and competent because you go over it every time when you are practicing for the OSCE.... learn a lot more practically.

I think at the time we had to learn it, we would probably do great, but now it's a couple of months later, there is obviously going to be certain things that I have forgotten....

so it's important to have something this year that's integrated continuously so we don't forget.

Theme 3: The OSCE 'A positive learning experience'

The OSCE (Objective Structured Clinical Examination) was rated by students as the overall highlight of this early clinical learning experience. According to students the setting of the OSCE simulated the hospital setting and was a preview of how they would encounter real patients later in the course. The various clinical scenarios provided good practice for them to examine a healthy person, which enhanced their understanding of the normal clinical findings. Students viewed their first OSCE experience as a firm preparation for their future clinical assessments.

...you did see how to work on a patient and how to act...it prepares you for what is to come.

...almost like simulating a hospital situation...like I am in an emergency room.

You are working under pressure and that's exactly how it's going to be in reality...are put in a situation that is going to be very real in the future.

In addition, they felt that the OSCE was not merely a method of assessing their level of competence in performing the clinical skills, but it made them aware of other skills that a doctor should have to develop clinical competence. Thus the format of the OSCE enabled students to develop skills in time management, critical thinking, and coping mechanisms to deal with clinical situations and consultations that they will be faced with in the future. Using simulation of real patient encounters in the OSCE also facilitated the development of professionalism as students had to act professionally like doctors.

Instead of just testing practical skill it, also tested the way you interacted with a patient ...it taught you how to cope when something went wrong. in the future we are going into a hospital and we are going to be having that whole OSCE experience.... it was cool.

because the time was so short in each station it forced you to think critically about your answers, and you had to respond quickly to what they were asking you to do.

if they didn't have the OSCE, I'm sure you wouldn't really truly know what you learnt, what you didn't know

it makes you think and keep you on your toes and I learnt time management...you need to do what you have to do within a timeframe, so time management...and its relevant when you are working with patients who you need to see as fast as you can.

The pressure was good because you're going to be under lots of pressure one day in the hospital.....a good learning experience

The general consensus was that the OSCE proved to be a motivational learning experience.

The OSCE was more like a motivational thing to learn.... it was such an adrenaline rush.... it gives you a small indication of what really happens in hospital because there you have a live patient and you need to think in those five or ten minutes, everything you have learnt the mini OSCE in first year shows you how quickly you have to think.... to solve the patients dilemma.

It helps one build up your confidence. It does something for your self-esteem immediately, because we are going to need that self-confidence because in the future we are going to be going to a hospital and we are going to have that whole OSCE experience.

Theme 4: The academic benefit of early clinical training

Students recognised the academic benefits of early clinical learning during first year. Not only was it a great way to conclude their first year of studying medicine, but it motivated and prepared them for their second year. Students regarded this early clinical learning experience as a great academic advantage in providing them with a firm background to grasp the content of the second year curriculum. It was evident that the knowledge and skills that they acquired during the introductory clinical module prepared them to engage with the systems based modules of MBChB II. They had a better understanding of the clinical terminology and pathological conditions that they were learning during second year. The acquisition of basic clinical skills and background clinical knowledge that they gained in first year certainly enhanced their comprehension of clinical medicine which boosted their confidence and encouraged them to continue their medical studies.

I think it's perfect lying at the end of first year because when you get to second year then they use all these terms and things.... you come across it and then you understand it.

It's a very good starter especially at the end of first year and then you get to build up for second year.

.... even though at that time you don't understand why you are doing this.... but now we do the theory and we understand the physiology it adds greater value.... and we can say oh okay that's why you would do that.

CATEGORY 2: Challenges of Early Clinical Learning

The challenges of early clinical learning are discussed under the two main themes that were identified.

Theme 1: Understanding the subject matter.

Theme 2: Student clinical demonstrations.

Theme 1: Understanding the subject matter

Mixed views existed about the lectures which aimed to provide the theoretical framework to initialise the student learning processes that would facilitate clinical skills acquisition in the practical sessions that followed. Some students regarded the lectures as beneficial in providing the necessary background knowledge, and in serving as a guideline or reference for them to learn the practical skills in a systematic manner

... serves its purpose in terms of what you are going to learn in the skills lab... it really helped when you got into the practical when they said something and then you've seen it before, you've heard it before, and you can see the importance of it.

You can sit in the lecture hall and not take in anything...but sometimes it does correlate if you just focus for five or ten minutes you at least pick up something of what the lecturer says...so you need to attend the lectures and it definitely does help with the practical sessions

Everyone had the lectures and everyone knows what's going on and knows what they need to do

It helps a lot cos our time is limited when I come to the skills lab and I don't want the lecturer to be lecturing cos I expect to come and practise.

Some students held the contrary view that the lectures were unnecessary since the same theoretical concepts were repeated at the beginning of each clinical small group session in a summarised form, which they preferred to the 'information overloaded' lectures.

Lots of the lectures were things where they would describe a method, or a technique or something, and it's difficult to understandpractical skills was better...they show you which way to do it

In the lecture they say this is what we're going to do...then you go to the practical session, and they're like this what we're going to do and they say exactly what they said in the lecture...it's like why did I go to the lecture when I'm learning it now...I didn't need to go to the lecture...they could've saved that time and we could have done more hands-on things

Although some students attended the lectures, they felt that they still lacked the background knowledge to fully understand the clinical terminology, and the purpose of all the steps of physical examination. Students reported that their science based subjects in first year did not prepare them enough for clinical learning and skills acquisition. *"Lack of knowledge was a constraint for me....because you don't have that module background yet"*

Furthermore, they added that the core theoretical and clinical content that they received during the lectures and the practical session was too basic, and it lacked statistical evidence about the incidence of abnormal clinical signs. These knowledge gaps seem to hinder their clinical learning as they were unable to fully grasp the subject of clinical medicine.

.... at the end of first year there is only so much that we could have learnt,.... sometimes the things that we were maybe looking out for in the examination we hadn't really learnt about in theory.

They never taught you how common this symptom or that sign is, in which patients it will be more.... hard to distinguish who will get what and how common it will be.

According to students, greater emphasis should be placed on what the normal clinical signs are. The abnormal clinical signs should be introduced later.

.... there weren't any pictures about how a normal organ looks.... first drill in the normal before they drill in the disease because this is the introduction.... and how will we know if it is a problem.

Theme 2: Student clinical demonstrations

Being a student model

Opinions differed among those students who acted as the simulated patients or models for their peers to practice on. Some students reported that it was a huge advantage to be a patient model as they knew exactly which techniques were correct and which ones were incorrect. While their peers practised the same techniques and skills repeatedly on them, their own clinical learning was also facilitated and consolidated.

.... just by people palpating on me and going through their work, I could remember it from that so I didn't have to study that much, and I could remember my work very well.

There was an advantage for you in being a patient that they practice on, so you could assess your own knowledge.

I knew my work a lot better that I would if I didn't volunteer.

However, some student models were of the opinion that being a simulated patient or model robbed them of practice opportunities, which they viewed as a major disadvantage to their clinical learning. It was then suggested by some students that clinical tutors should rotate student models, and not have one student modelling for the entire clinical session, or select the same model all the time.

I was a patient most of the week so I did not get as much practice... I did not get as much practical experience and I think part of the reason is people aren't as willing so if you have done it once it's like yeah you just go again.

I disagree...because some of those who modelled felt like they didn't get to feel other people's pulses, they don't know how it feels and so you would know the second intercostal space, jugular angle...know the landmarks but when it comes to how it feels and knowing the rhythm,...then you wouldn't know cos you just sit there and they are doing everything on you.

Male models only

Interestingly, students pointed out the limitation of practicing on male models only, and not having an opportunity to practice or demonstrate clinical skills on a female person. This view was held exclusively by the male students who felt that it created uncertainty and somehow it would hinder their competence if they had to approach a female patient. Some of the female students empathised with them, but did not raise it as a grievance as they resolved this issue by practicing on their female peers in the privacy of their own quarters. This remained a dilemma although it was suggested that a private room could be allocated to allow practice on females in the CSC, but the ethical complications will have to be addressed.

You never got to examine a female patient...maybe somewhere try and get some female patients and slowly introduce it to us.

I would have liked them to sort of give us an idea of what to do with female patients cos we use males for practical reasons and we were not told how to handle female patients, like percussing ribs on a female.

Ethical considerations

Some ethical issues emerged about the strategy of practising on fellow students in teaching clinical skills. Some students wanted clinical tutors to seek actual consent when urging them to volunteer as simulated patients or models. They were not in favour of clinical tutors who randomly selected and coerced students to model. Sometimes clinical tutors did not consider that religious or cultural beliefs would prevent students from volunteering. It was important for the students that tutors treated them with respect and dignity when they volunteered to model and allow their peers to practice clinical skills on them. Some students were not comfortable being exposed while others felt awkward to touch their fellow students' bodies due to personal factors like introverted personality traits, or religious and cultural reasons. Students agreed that clinical tutors must be made aware of the ethical issues when approaching students for the purpose of demonstrating skills on them.

...they're not comfortable...and sometimes culturally, religiously it's not always practical to just go and ask a person can I do an exam on you.

...practising on colleagues with consent, with permission would be a good thing, but a person should assess first if this person is more cultural or religious where he wouldn't appreciate you touching him...ask him and seek consent first.

CATEGORY 3: Negative Aspects of Early Clinical Learning or Constraints affecting Early Clinical Learning

Alongside the positive learning experiences, students identified various constraints in their early clinical learning. These are discussed under the following three themes.

Theme 1: Insufficient practice opportunities.

Theme 2: Didactic skills.

Theme 3: The OSCE stress.

Theme 1: Insufficient practice opportunities

Large group size

Students stated that they did not have enough opportunities to practice during the clinical skills sessions. They reported that the small group sizes of twenty students per clinical tutor were too big for each student to get an opportunity to practise:

...the group is a bit big and not all of us got a chance to practice properly, sufficiently.

Our group was a bit too big then you don't get the opportunity to practice.

Sometimes other people would come into our group then our group would be too big, then we didn't have the opportunity to practice or time ran out

Limited time

Their opportunities to practise their clinical skills were further limited by the two-hour practical session. By the time the clinical tutor explained and demonstrated the clinical skills, very little time was left for all students to get an opportunity to practice all the steps of the physical examination that had been demonstrated. *"The doctor was in with us in the session then was demonstrating all the time, so time ran out then we didn't get to practice anything."*

Theme 2: Didactic skills

Teaching variability

Variation of teaching among clinical tutors was a major concern for students. In some instances the theory that was taught by some clinical tutors differed from the notes and the text books: *"...doctors saying different things...textbook says it completely different to what the doctors are doing...that's confusing"*

Different examination techniques were also taught by some clinical tutors which caused great uncertainty for students. *"...conflict between text book versus hospital, or textbook versus*

doctor". This confusion affected students mainly when they were studying for the OSCE and their performance during the assessment. "*Different lecturers expect you to know different things*".

Teaching style

The different teaching strategies used by different clinical tutors during the small group sessions seem to have a negative impact on students' clinical learning. The teaching styles that limited clinical learning were identified by students as the lecture-style teaching approach, using PowerPoint presentations. Some tutors did not focus on the outcomes of the lesson, or pitch their teaching at an unsuitable level for them. Students felt that these teaching strategies did not help them to demonstrate or practice the clinical skills at all:

...didn't get to practice anything because she was demonstrating and talking all the time.

We never got to practice when we got one of the doctors who came late and she spoke through the entire session.

Students wanted tutors to be prepared and have organised lesson plans which included demonstration by the tutor followed by student practice, with feedback given by the tutor. Different standards of teaching and varying teaching styles created confusion for first year students who felt that they needed a sound foundation at this stage of clinical learning.

Theme 3: The OSCE stress

The end of block OSCE

Despite the positive outcomes of the OSCE (mentioned earlier), a few students expressed the negative effects of the OSCE as a learning experience. They felt that the whole process was very stressful since it was a new assessment method for them. Some students reported that their thinking abilities were blurred and they felt pressured by the OSCE setting which may also have affected their performance. This resulted in high states of anxiety before the OSCE.

...the OSCE took me out of my comfort zone

The OSCE was very stressful for me which is a bad connotation...really stressful because we didn't know what to expect if you out there.

I was stressed cos it is a practical thing cos in a normal exam you can be calm and think in your own bubble but in the OSCE you have to think like a doctor in an emergency situation...very stressful situations.

...put you under pressure and like there was someone watching and you couldn't find the pulse and you panic and then you just make up anything.

Some students were uncertain about how to prepare or how to study for this type of practical examination. Students wanted to be briefed about the format of the OSCE in greater detail.

The OSCE put you under pressure...you panic and you just make up anything.

I was really confused as to what I am supposed to know, what to study and what they can ask...I really would have liked a page that would have said what we had to know

Examiners

Students said that inconsistencies among examiners also seem to affect their performance during the OSCE. Students reported that some examiners were strict and some were lenient. According to students, these examiner traits clearly affected the scores that they obtained which they felt was not fair.

On the other hand students seem to appreciate examiners who guided them or reassured them of their performance:

...some examiners were lenient in a sense, it helps to build up your confidence...your self-esteem.

I think everyone was nervous in the beginning...but what made it better was the examiners who were very soft, and if you didn't know something then they directed you as to how or what you have to do.

I remember the one time I didn't know what to do at all but then the doctor guided me half way so then I could figure it out.

They preferred examiners who communicated with them to those who simply gave instructions and observed their performance causing them to feel insecure and uncertain about their performance. *"There was an examiner who just sat and looked at you;...the only negative thing...some of the examiners were so cold...and not friendly and they're not helpful."*

CATEGORY 4: Enhancement of Early Clinical Learning

The students identified improvements that they felt would enhance the early clinical learning. Three themes emerged and are discussed below.

Theme 1: Didactics.

Theme 2: Practising clinical skills.

Theme 3: Improving the understanding of clinical skills.

Theme 1: Didactics

Standardise content

Students suggested that it is imperative for the faculty to standardise the teaching amongst the clinical tutors in terms of theoretical content and the physical examination techniques that they are expected to know. Students believe that this will help to set competency standards for first year medical students which will provide them with the correct guidelines to achieve the outcomes of this early clinical skills module.

For me it felt as if each doctor had their own notes that they set up, because the way they laid the information out was not the same...I think they can centralise the notes more and have a general layout for all the doctors.

It would be better if the notes that they gave you are the same, because they would tell you one thing and then you come to the clinical skills and then they teach it a bit different.

Sometimes I felt a bit confused and didn't know what is expected of us to know because some people (tutors) wouldn't give the lesson in a stepwise way and it was like an information overload.

Make the practical session more clear about how it's going to happen and that's the way all the lessons must be.

Standard teaching strategy

Students are also of the opinion that all clinical tutors should adopt the same teaching strategy of demonstration, followed by supervised student practice and giving them constructive feedback. Students seem to prefer this teaching approach as they feel that the sessions will be organised which will help them to learn the clinical skills in a sequential manner.

It comes down to coordination firstly in terms of the amount of time allocated for theory and the amount of time allocated for practicals in the clinical skills lab, and secondly in terms of the examination, coordination in terms of for example everybody is unanimous on a certain thing and technique.

I remember it was nice when sometimes they wrote all the steps on the board, cos when they just talk you forget...the steps like no. 1 you do this and no. 2 you do this then when they show it to you can follow it better.

You have your lecturer or doctor and they explain some things to you then they show you and then they check what you do.

Theme 2: Practising clinical skills

Increase practice opportunities

Students reported that they would benefit greatly if clinical tutors could create more opportunities for them to practice during the clinical skills sessions. Students went further to suggest that smaller student groups, or an extra clinical tutor per clinical session, are ways that could increase their practice opportunities. Clinical tutors should allow more time for students to practise their clinical skills during the practical sessions, rather than lecture or demonstrate for most of the session.

Sometimes we didn't have enough time to practice and I don't know how but maybe improve on that.

Maybe if they have one more person who checks if everything is okay when you practice then you don't have to wait for the doctor who is busy with someone else and some students don't know what to do and you just stand there and waste time.

One extra person to keep an eye on things when you practice...like an extra lecturer to run around and check if you doing the right thing.

Female models

Students expressed the need for the faculty to create an opportunity for them to practise on female students. Although they were aware of the ethical implications of allowing practice on female students, they felt that this concern should not be ignored. However, students remained uncertain as to how this problem should be solved. Students did not have any feasible recommendations regarding practice on females, and thus this remains a dilemma for early clinical learning.

Try and involve some female representatives just to prepare for the future...we need to be able to handle a female appropriately

It's going to be different when examining a female patient and we never ever examined a female...so I think maybe somehow, somewhere try to get some female patients and slowly introduce it to us

More time should be given for us to practice...

Theme 3: Improving the understanding of clinical skills

Students suggest that the module content should include statistics about the incidence and prevalence of common pathological signs and abnormal clinical finding. Students believe that knowing these facts will enhance their understanding of the normal and abnormal clinical

findings. This will help them to have a better grasp of the subject of clinical medicine in the early stage of their learning.

they show us lots of pictures and teach us a lot of the diseased organ...but there weren't any pictures on how a normal organ looks, so that you know how a cirrrosed liver looks with nodules...so you like compare it. Maybe you will see something else wrong with the liver, and then you will think is that a problem or is it normal

4.2. Discussion

Students clearly enjoyed learning practical skills in the preclinical phase of studying medicine, describing it as the highlight of their year. However, students also encountered some challenges and constraints that affected their learning outcomes in the acquisition of basic clinical skills. The following peaks and troughs of early clinical learning have been identified by students in this study, providing us with valuable insights into how to achieve maximum benefit from this educational experience.

4.2.1. Positive outcomes of early clinical learning

4.2.1.1 Positive attitudes

The findings of this study show that for junior medical students early clinical learning was not only a welcome respite from the largely science based curriculum, but had the following positive effects on their academic and personal growth:

- Provided a motivational element for studying medicine;
- Reminded them of their vocation to be a doctor;
- Developed professional skills;
- Familiarisation with the clinical environment;
- The 'socialisation' of their role as a clinical learner and future health professional;
- Promoted their confidence to interact with patients in the future;
- Instilled a sense of clinical inquiry, enhancing their interest in medicine;
- Improved their communication skills;
- Students gained a broader training perspective of their later clinical years.

These findings are consistent with earlier reports on clinical training in the preclinical phase (Dornan & Bundy, 2004; Dornan et al, 2005; Dyrbye et al, 2007; Lam et al, 2002; Widyanda et al, 2012). Research on the impact of early clinical exposure on medical students across various institutions revealed that students are receptive to this medium of instruction and generally describe it as an enriching experience (Lam et al. 2002; Dornan & Bundy, 2004; Widyanda et al, 2012). It has been noted that basic clinical skills training stimulated students'

interest to study medicine and gave them an impression of what it is like to be a doctor (Lam et al, 2002; Dornan et al, 2005). Furthermore, studies suggest that early clinical experiences helped students socialise to medicine, strengthened their learning and skills acquisition, and made learning more relevant, preparing them for their later clinical years (Wenrich et al, 2013, Dornan et al, 2005). Dornan's review showed that early clinical experiences fostered self-awareness, boosted students' confidence, motivated them, and helped them develop their professional identity. In addition, early clinical experience had a strong formative influence on students that could be used to foster a socially responsive career orientation, appropriate attitudes, inter-personal skills and study skills (Dornan et al 2005, Dornan & Bundy, 2004; Issenberg & McGaghie, 2002). These positive outcomes of early clinical exposure strongly support the educational shift to introduce clinical skills in the early years of their curriculum (Dornan et al, 2005).

4.2.1.2 Academic value and developing competency

Adding this introductory clinical component to the first year curriculum seems to have given a great academic advantage to students to engage with the systems based curriculum of second year. At the end of this module, students claimed that they gained sound knowledge of clinical terminology and clinical concepts which assisted them in understanding the clinical content of the second year curriculum. Evidence of this academic value of early clinical learning is documented in studies which affirm that the preclinical curriculum is known to be explicitly 'preparatory' and linked conceptually to clinical medicine (Dornan, 2006).

A further sense of academic satisfaction resonated among students when they felt competent enough to perform the basic physical examination at the end of this rotation. However, they suggested that clinical revision sessions in second year would be appreciated so as to increase their confidence in demonstrating basic clinical skills.

4.2.2. Early clinical skills training

4.2.2.1 Practical skills sessions

Students' commentaries suggest that the shift to practical learning was fun and meaningful, especially when they learnt the technical skills of a doctor which they certainly could not learn from books. Learning the techniques of auscultation, percussion, palpation, and using their stethoscopes was the most exciting part of the clinical skills sessions as it made them feel like real doctors. This sense of enthusiasm and fulfilment has also been reported in previous studies by students who had early clinical exposure and expressed satisfaction with their studies since clinical skills training gave them a preview of what it is like working as a doctor (Henning et al, 2013; Johnson & Scott, 1998; Wenrich, Jackson, Wolfhagen, Ramsey & Scherpbier, 2013, Dornan et al, 2005). Moreover, these students simply appreciated learning

how to take a history and perform simple physical examination steps and basic clinical skills. On the whole, students seem to enjoy learning when they role play as doctors and find this experience stimulating (Henning et al, 2013; Johnson & Scott, 1998; Wenrich, Jackson, Wolfhagen, Ramsey & Scherpbier, 2013, Dornan et al, 2005).

In addition, the sense of academic satisfaction was further embedded when students felt that they achieved a level of competence in performing the basic steps of physical examination at the end of this clinical rotation. Despite this confidence in their clinical abilities, students suggested that clinical revision sessions in second year would be appreciated, and necessary to develop proficiency in demonstrating basic clinical skills. This need for revision can be explained by the principles of learning which indicate that revision of existing knowledge enables students to recall and consolidate the concepts that can be expanded upon and that the cognitive domain of the students is activated during the revision session (McKeachie, 1994). It is known that repetition is necessary to strengthen relevant knowledge and stabilise new knowledge (Cannon & Newble, 1989), and that repetition is necessary to develop clinical competence (Fraser, 2003).

4.2.2.2 Small group learning

The findings of this study revealed that students gained deep knowledge and understanding from the active processes of practicing physical examinations on fellow students. Learning in small groups under the supervision of a clinical tutor proved to be an effective strategy for students to acquire basic clinical skills in the preclinical phase of their studies. For students these small group clinical sessions fostered positive peer interaction, facilitated knowledge sharing and support which boosted their personal learning styles. These views echo the general perception of medical students elsewhere regarding small group learning (Dyrbye et al, 2007; Dornan, 2006, Henning et al, 2013; Dornan & Bundy, 2004). These researchers have documented the effectiveness of small group teaching when training junior medical students. This strategy facilitates the rapid dissemination of knowledge throughout the group, while creating a positive learning environment that nurtures positive attitudes towards learning (Ramani & Leister, 2008; Dornan, 2006; Eaton & Cottrell, 1998).

4.2.2.3 Simulated learning

It is evident from this study that for students their clinical learning experiences peaked during the clinical skills sessions which took place in the simulated learning environment of the CSC. This perception emphasises the vital role of the CSC in providing junior medical students with an ideal, supportive learning environment to start their clinical training (Rolfe & Sanson-Fisher, 2002; Bradley & Postlethwaite, 2004).

The CSC also provided students with an educational setting where they could integrate their theoretical knowledge with practical skills training without embarrassment, or fear of harming patients, whilst affording them opportunities to practice on their own in order to develop skills competency. Students' views from this study strengthen the existing idea that the CSC is a safe environment for young medical students to acquire clinical skills before they are exposed to real patients (Smith, 2006; Swamy et al, 2013; Hibshi et al, 2010; Dyrbye et al, 2007).

There is ample evidence to support the value of the simulated clinical learning environment and its contribution to clinical skills training. Medical educationists agree that the CSC provides an alternative venue for training junior medical students in communication skills, clinical examination and practical procedures (Eaton & Cottrell, 1998; Smith, 2006; Ramani & Leister, 2008; Swamy et al, 2013). Moreover, a safe learning environment is created in the CSC as opposed to training in the traditional clinical setting of the hospital where students may jeopardise patient-care during the initial stages of their clinical learning (Smith, 2006). The success of clinical training in the CSC is due to the use of simulation which enables clinical tutors to structure learning opportunities, provide standardised and reproducible experiences, and create learner centred environments where mistakes are permissible. The CSC provides the ideal environment for students to learn basic clinical skills during the preclinical phase of their medical studies (Dent, 2001; Smith, 2006; Ramani & Leister, 2008).

4.2.3. Challenges of early clinical learning

4.2.3.1 Understanding the subject matter

One of the main challenges that students experienced during early clinical learning was engaging with the new subject of clinical medicine, considering their limited background knowledge. Previous studies have also noted this drawback where students have expressed difficulties, not only with grasping new terminology but also in coping with the whole new collection of concepts, values, skills, and conventions when they entered a new discipline, (Van der Hem-stokroos, Daelmans, Van der Vleuten, Haarman, Scherpbier, 2003; Dornan, 2006) and in this study when students were introduced to the subject of clinical medicine.

In the design of the introductory clinical module the lectures aimed to provide the background knowledge for students to acquire basic clinical skills during the practical sessions. However, some students argued about the effectiveness of these lectures in achieving the purpose of helping them to create the foundational knowledge that would facilitate their learning of this new domain of clinical skills. Some students recognised the relevance of the lectures in establishing a theoretical framework to activate their learning processes to facilitate skills acquisition during the practical sessions, since they do not have previous knowledge that can be related to clinical skills training. The views of these students may be explained by the

constructivist learning theory which was described by educational theorists Dewey and Piaget that foundational knowledge is required to initialize the process of learning, which is essential for constructing knowledge where there is no existing network that it can fit into (Prosser & Trigwell, 1999; Rolfe & Sanson-Fisher, 2002; McMillan, 2007). For first year medical students, clinical skills learning and training is an entirely new subject which they have to engage in, having limited background knowledge related to clinical medicine, thus according to the constructivist theory, these students need to establish a cognitive foundation that would provide the framework for them to develop basic clinical skills.

Some students, on the contrary, considered the lectures to be irrelevant and boring because they found it difficult to fully grasp the explanations of practical skills without them visualising or doing it. These students attached greater value to their learning outcomes during the 'hands-on' practical sessions. These students argued further that the lectures were unnecessary, and stole valuable learning time since the same knowledge content was repeated during the practical sessions, and although summarised, it made much more sense when they could visualise the theoretical principles during the demonstration of the skills. The views of these students can be linked to the theory of experiential learning (Torre, Daley, Sebastian & Elnick, 2006). Once again, it is the theorist Dewey who called for education to be grounded in real experience, and experiential learning became a key part of constructivist learning (Prosser & Trigwell, 1999).

Therefore, students who preferred to attend the practical sessions, and not the lectures support Dewey's view that active, hands-on tasks lead to the construction of knowledge by actively applying new knowledge. Dewey also maintained that experiences are a means of knowledge acquisition where the capacity for growth and learning is great (Prosser & Trigwell, 1999). Students' comments are testimony that the conditions of experiential learning were present during the practical sessions which provided a cognitive apprenticeship that helped them develop their knowledge, understanding, and ability to acquire the skills of a doctor (Dyrbye et al, 2007). In addition, it is well known that medical science becomes comprehensible when experience supports the cognitive processes and strengthens the depth of learning (Ramani & Leister, 2008; Dyrbye et al, 2007).

Over the past few decades, reviews of research on lecturing have concluded that lectures, although students may consider them boring and sometimes useless, are still the most ubiquitous method of teaching to impart information and provide explanations (Brown & Manogue, 2001). Although it has been shown that practical skills are taught more effectively in CSCs and in clinics or hospitals, lectures are still relevant in the educational setting of clinical learning. Lectures cannot be substituted for practical sessions where students need to acquire

basic clinical skills. However, an analysis of learning activities in the setting of clinical learning has shown that much of the underlying methodology and theory of clinical skills acquisition may be taught in the lecture format. Lectures can also provide an entrée into a new subject; in this case introducing medical students to clinical medicine (Brown & Manogue, 2001).

Interestingly, and adding to the challenges that students experienced during early clinical learning, some students suggested that they would have understood the clinical subject better if they had more statistical information and evidence about the prevalence and incidence of normal and abnormal clinical signs. This knowledge gap was also recognised by Martens, who also noted that this was a strange but common concern among students who feel the need to attach figures and percentages to enhance their understanding of clinical medicine. He added that this perception was held mainly by students during the preclinical phase of their medical studies (Martens et al, 2009). The researcher found that there was limited research available to support this view.

4.2.3.2 Student demonstrations

Early clinical learning seemed to be further challenged by using clinical demonstrations as a teaching strategy. Practicing physical examinations on fellow students is a common strategy that has been implemented with positive learning outcomes. (Johnson & Scott, 1998; Chang & Power, 2000; Martens et al, 2009). Not much is known about how students perceive this widely used strategy of clinical teaching (Das, Townsend, Hasan, 1998). This study revealed rich data in this area of early clinical learning.

Concurring with Chang's findings, most students were comfortable with practicing physical examination on their peers, strengthening its value and appropriateness for early clinical skills training (Chang & Power, 2000). However, it is important to recognise that some students are uncomfortable with these examinations. Feelings of awkwardness that were attributed to religious, cultural and gender issues, among students were also a common sentiment of medical students elsewhere (Das et al, 1998; Hibshi et al, 2010).

The major dilemma about student demonstrations emerged when mainly the male students complained about not being afforded an opportunity to practice on female students during the practical sessions in the CSC. Despite the fact that they understood the ethical implications of their learning need, this 'missed opportunity' seemed to hinder their clinical learning regarding their competence when they would encounter female patients in the future. The issue regarding practice on female students will, however, remain a dilemma and a challenge

during early clinical training since no viable suggestions were put forward by these students which may resolve this matter.

Another ethical dilemma that emerged from this study related to using students as simulated patients during the demonstrations. Students were perturbed by clinical tutors who coerced students to act as simulated patients, appearing oblivious to any personal, cultural or religious issues which could be the reason for students' reluctance to undress or be exposed. Students simply wanted to be respected and felt that tutors should seek proper consent from those who were willing to volunteer as simulated patients. No evidence was found in existing literature to collaborate this view held by some of the students.

This study generated valuable information about the learning outcomes of students who acted as simulated patients. Student accounts echoed contrary views about the personal learning benefits of allowing peers to practice physical examination on them. For some students it was an advantage for them to be a simulated patient, because they learnt all the landmarks, surface anatomy and the correct techniques of physical examination while their peers were practicing on them. They developed a good sense of what the correct techniques were, especially when peers made errors and were corrected by the clinical tutor. In this way they could achieve the relevant clinical learning outcomes which encouraged them to volunteer.

Some students, on the other hand, felt that their clinical learning was disadvantaged when they acted as simulated patients, as they did not get the opportunity to practice the clinical skills. These varying perceptions about acting as simulated patients and their impact on early clinical learning are not reported in the literature.

4.2.4 Negative outcomes of early clinical learning

4.2.4.1 Limited practice of clinical skills

One of the main drawbacks of early clinical learning that emerged from this study, was that students had limited practice opportunities during the clinical skills sessions. The students identified the following two factors that resulted in inadequate opportunities for them to practice their clinical skills:

1. Large student teacher ratios, of twenty students to one clinical tutor during practical sessions in the CSC: - with only one clinical tutor per group, not all students got a chance to be supervised and guided when they practiced the skills that were shown during the practical session.

2. Inefficient use of the two hour clinical session: - sometimes the clinical tutor spent too much of the time teaching which resulted in not enough time left for students to practice.

It was evident that the high student teacher ratio (20:1) per clinical session was a major constraint for students to practice and develop competency in performing basic clinical skills. These constraints have also been identified in previous reports that also showed that low student to teacher ratios are preferred for effective clinical training, especially in the preclinical phase where individual students need more time to learn, practice and acquire basic clinical skills (Fraser, 2003; Ramani & Leister, 2008; Rolfe & Sanson-Fisher, 2002). Studies have shown that groups of eight students to one clinical tutor (8:1) per practical session seems to be an ideal group size for optimal clinical learning and teaching to occur (Ramani & Leister, 2008; Rolfe & Sanson-Fisher, 2002). However, for the purposes of curriculum development, decisions about group size need to be guided by the learning objectives of the clinical sessions and the available resources, which can be further investigated for this context.

4.2.4.2 Didactic skills

Student narratives described the characteristics of good clinical teachers as those tutors who were enthusiastic about teaching, created a positive learning environment by communication and interaction with students, were well prepared and organised in their teaching strategy to reach the outcomes of the practical session. Tutors with these qualities stood out in their memories because they motivated students to learn and helped them to achieve competence in performing basic clinical skills. It is well known that creating a positive learning environment is of the utmost importance in facilitating clinical skills acquisition during initial training (Fraser, 2003).

The descriptions that students gave about their good clinical teachers are also consistent with literature that has defined a good teacher to be one who helps the student to learn, and possesses important characteristics such as expressing enthusiasm for teaching, actively involving students, and communicating effectively with students (Harden & Crosby, 2000; McMillan, 2007). Since the purpose of teaching is to enhance learning (Harden & Crosby, 2000; ten Cate et al, 2004) our findings also reveal that students were extrinsically motivated to want to learn from clinical tutors who were interested in their academic growth and skills acquisition .

Students also had very clear ideas about which didactic skills were effective in facilitating their acquisition of physical examination skills and techniques. For students, clinical tutors who implemented the traditional 'see one, do one' teaching approach, and gave them constructive feedback about their performance certainly ignited their learning processes during the

practical sessions and helped them develop basic clinical skills. These observations are entirely consistent with previous research that describes the 'see one, do one' approach to be one of the most common strategies adopted in clinical training, despite being criticised later on in recent studies about clinical teaching excellence (Rolfe & Sanson-Fisher, 2002; Eaton & Cotrell, 1998; Dornan, 2006; ten Cate et al, 2004).

This study also emphasised that not all clinical teachers fulfil students' expectations of a good clinical teacher, with a resultant negative impact on clinical learning. Students have identified the following didactic factors to have limited their clinical learning during first year:

- variability of teaching approaches among clinical tutors;
- teaching strategy that lacks clear objectives and expectations of the clinical session;
- limited active participation and practice by learners resulting from a teacher centred strategy where the clinical tutor teaches most of the time (using a lecture style or PowerPoint format);
- clinical tutors not providing sufficient direct observation of learners and giving inadequate feedback when supervising students' clinical demonstrations;
- clinical tutors who provide clinical teaching content that is incongruent with the module outcomes causing confusion among students and difficulty in achieving the expected clinical learning outcomes.

These didactic skills that seem to constrain clinical learning have also been previously highlighted by scholars who have explored the area of clinical teaching excellence (Van der Hem-stokroos et al, 2003; Dornan et al, 2005; Ramani, 2008).

4.2.4.3 The OSCE

From the foregoing discussion it is apparent that early clinical learning experiences seem to have a positive effect on the emotions of junior medical students in this study which is also reflected in previous reports that explored early clinical experiences. However, a review by Dornan (2006) and a study done by Hibshi and colleagues (2009) revealed that when students start clinical learning, it can be a daunting and stressful experience (Dornan, 2006; Hibshi et al, 2009). These reports show that some students can develop clinical anxiety, depression, feel frustrated and demotivated during early clinical training due to the complex nature of the clinical learning process (Dornan, 2006).

In this study, these negative emotions emerged when students reflected upon their first OSCE experience (which occurred at the end of the clinical module) describing it as being the most emotionally charged part of this initial phase of their clinical training. The information gained from students showed that the OSCE experience generated both positive and negative

emotions which had an impact on their clinical learning outcomes. It seems that students' anxiety levels soared when they were studying for the OSCE, due to uncertainty about how to study, since this assessment method was new to them. Most stress was experienced during the OSCE, especially when students had to move from one clinical station to another, and had to complete clinical tasks in a few minutes. Some students described how the OSCE experience was overwhelmingly stressful, since they seemed to lose their identity as ambitious students in this foreign setting. In Dornan's review he also noted that students can feel very intimidated and stressed when they enter an educational setting to which they have not previously been exposed (Dornan, 2006; Hibshi et al, 2010).

Other negative emotions that have been described in the literature are that students sometimes feel unsafe, powerless and lack confidence when they enter a clinical setting that they are not familiar with. These negative emotions are attributed to students' lack of experience in the clinical area (Dornan, 2006). It is this feeling of unpreparedness that evokes emotions such as anger, frustration, and dissatisfaction, leaving students with low self-esteem and confidence which is demotivating for their studies, and this has been shown to be counterproductive for the development of clinical competence (Dornan, 2006; Hibshi et al, 2010). Some of these negative emotions were also experienced by students but resulted from how examiners behaved and interacted with them during the OSCE. Their narratives implied that examiner behaviour had an influence on the emotions of students during the assessment of their clinical performance. Examiners who were silent, non-communicative and stern invoked their anxiety and stress which the students felt had a negative impact on their performance during a clinical station. However, examiners who were congenial, communicative, and prompted students during their demonstration of the clinical tasks clearly reduced their stress levels and increased their confidence to perform better. It is interesting to note that these traits and behaviours that students have identified as having an effect on their performance have been prevalent since the beginning of the century (Osler, 1913; Postlethwaite & Bradley, 2004; McManus, Thompson, Mollon, 2006). Previous reports revealed that the difference between examiners in leniency and stringency has been linked to the inherent character and behavioural traits of the examiner as a person, which seems to remain a problem during the assessment process of clinical examinations, as seen in this context (Osler, 1913, Williams, Klamen, McGaghie, 2003; Jefferies, Simmons, Regehr, 2007). Literature further describes the behaviours of examiners who are verbally or non-verbally intimidating, or seem to have a distant stance with students as the 'hawk' effect (McManus, Thompson, Mollon, 2006). While the behaviour of examiners who are communicative, friendly, prompting and guiding students, giving feedback to students, and teaching students are referred to as the 'dove' effect (Williams, Klamen, McGaghie, 2003; McManus, Thompson, Mollon, 2006).

It is clear that students have also recognised these examiner traits and inconsistencies, which they believed directly affected their performance and results during the OSCE. This implies that the faculty should investigate this problem further and it could be addressed by offering examiner training in order to reduce the inappropriate behaviours of examiners during the summative OSCE (Williams, Klamen, McGaghie, 2003).

Further analysis of students' views of the OSCE experience reveal that negative experiences have a varying, but not a lasting, impact, as most of the students agreed that the OSCE experience was an exhilarating one. From the narratives, it seems that the OSCE was very stimulating for the budding doctors and gave them a taste of real hospital medicine when they were exposed to the simulated clinical scenarios. The OSCE setting made students feel like real doctors by giving them a preview of the pressures faced by doctors in the clinical environment. According to students, having to complete the clinical task in a short space of time whilst listening and responding correctly to the clinical question that the examiner posed, seemed to inculcate their quick thinking abilities, which they felt is an attribute that doctors need to have during clinical encounters. They equated the setting of the clinical stations in the OSCE to real hospital scenarios, which made them aware of some of the traits that they need to develop to become doctors.

The OSCE experience appeared to be a yardstick for students to measure their own levels of competence. Clinical skills learning, training and the OSCE were new experiences for them, and they felt that after the summative assessment of the OSCE, they had a clearer understanding of the level of the basic clinical skills that they were expected to acquire from the type of questions and the tasks in the clinical stations. Therefore, at the end of the OSCE students seem to be able to measure their own progress concerning their knowledge, skills acquisition, what the faculty expected them to know and what they still needed to develop. Thus the OSCE format helped them to assess their own shortcomings and guided them to develop further in their clinical learning and training over time.

CHAPTER 5: CONCLUSION

5.1. Conclusion

Early clinical exposure has been under the microscope of medical educationists and researchers for the past two decades since the GMC alerted medical institutions to the need to shift medical curricula towards early clinical learning and practice with the aim of producing competent doctors (Dornan et al.2005, Lam et al, 2002).

The new landscape of medical education has introduced clinical learning and training in the first year of the undergraduate medical curriculum. Research from medical schools around the world has established the value of early clinical experiences for students who have dedicated themselves to studying the arduous course of medicine (Dornan, 2006). Early clinical exposure has been shown to have positive outcomes on the development of clinical competency for students.

In response to the international trend towards early clinical learning and practice, SU has also developed an introductory clinical module which was implemented in 2010 to form part of the MBChB I curriculum. The main goal of this module was to introduce first year medical students to the subject of clinical medicine and acquire the basic clinical skills needed for physical examination. However, more insight into how these early clinical experiences affect the professional development of students was needed not only to justify the academic value of early clinical exposure, but to enhance this clinical learning experience and outcomes for students.

This chapter summarises the findings and identifies the limitations of this study. Recommendations for further research, and factors that may support and enhance student learning in the early stage of clinical learning and training, will be outlined.

5.2. Summary of Findings

The findings of this study show that first year medical students have the zeal and enthusiasm to engage with the educational setting of early clinical learning as it is an exciting shift from their largely science laden curriculum, reaffirming the notion held by medical curriculum developers that early clinical exposure has a positive impact on students' attitudes (McMillan, 2007).

It is evident that introducing students to clinical learning during the preclinical phase provided them with valuable experiences that helped them gain insight into the real world of medicine, doctor-patient relationships, and practice dynamics, and gave them a sense of academic satisfaction with their choice of studying medicine. The move to the clinical learning area marked their identity as medical students, leaving them satisfied, rewarded, motivated and

confident about their growth in knowledge, clinical skills and study skills. The greatest advantage of early clinical experience is that it helped students build positive attitudes, enabling them to succeed in developing clinical skills, and provided them with sound preparation for the next phase of their learning.

The emotionally charged nature of clinical learning is well reported in this study. Anxiety and tension were created when students' growth in competence seemed to be hindered by their limited background knowledge, the variability of teaching, and the stress of preparing for the OSCE which was a new method of assessment for them.

Although students identified some challenges that they encountered during this early clinical experience, it did not dim their enthusiasm to acquire the technical skills of a doctor. They simply needed support from the faculty and their clinical tutors to enhance this positive, and rewarding learning experience.

The strategy of observation and action seems to facilitate the acquisition of basic clinical skills. However, students highlighted the need for direct observation of their performance and expected clinical tutors to provide them with more feedback, as well as increased opportunities to practice. They pointed out, however, that in the current curriculum these facilities were not sufficient.

Complex as the early clinical learning process may be, a positive learning environment created by enthusiastic, passionate, well prepared clinical tutors was a key ingredient for the success of this early clinical skills module. Thus to optimise the instructional design, the students called for the faculty and clinical teachers to standardise the teaching of knowledge content and clinical technique, and to complement this by implementing a uniform teaching strategy which includes demonstration, supervision and feedback during practice sessions.

Understanding what medical students learnt, how they learnt it, and how those processes and outcomes are interlinked, has informed us how early clinical learning and teaching could be enhanced to increase the value and worth of this experience for medical students who are becoming the competent doctors of tomorrow.

This study's findings are entirely consistent with previous research about students' perceptions about their early exposure to clinical learning, emphasising the value of early clinical experiences for medical students as being rewarding, and they should be continued.

5.3. Strengths and Limitations

Knowing how learners respond to their clinical learning environment provides valuable information for faculty development (Dornan, 2006; Lam et al, 2002.), therefore the results of this study improves our understanding of early clinical skills teaching and learning, and how medical students can be supported to enhance this academic experience, with the aim of improving the curriculum.

The findings of this study add to the literature on the desired clinical learning experiences during the preclinical phase for medical students that will facilitate their acquisition of basic clinical skills.

This study revealed valuable information about the positive and negative learning outcomes for students who act as simulated patients, as well as the personal learning benefits of the OSCE experience for students. The element of recall bias from study being conducted long after students' actual experiences of the clinical module may influence the data generated.

Although the comparability of the results of the four groups suggest that saturation was reached, and the findings of this study are in line with other reports about the positive and negative outcomes of early clinical learning, further research is necessary to strengthen the claims and deductions that have been drawn from the data. The applicability of this study may be further limited by the small sample size.

5.4. Recommendations

Insight was gained into first year medical students' perceptions, opinions and attitudes of their early exposure to clinical training from the rich information that they provided about the highlights, challenges and constraints related to this early clinical learning experience. Students have suggested strategies that they feel would alleviate some of the difficulties that they encountered during their early clinical training with the aim of optimising their clinical learning. Based on their suggestions, the following recommendations are proposed which may enhance the effectiveness of this introductory clinical component in the medical curriculum at SU.

5.4.1. Recommendations for the ICM module

To optimise students' learning during the practical skills sessions in the CSC the following recommendations have been drawn:

- Standardisation of the knowledge content and techniques of the clinical skills will help students to learn the correct clinical content and skills as outlined in the outcomes of the module.
- Standardise the teaching strategy so that all the clinical tutors follow the same method of instruction. In this way students can adapt their learning to the same teaching style and lesson plan which will help them engage with the novel education setting of clinical training where they need to acquire clinical skills.
- The teaching strategy that seems to be favoured by students to facilitate their acquisition of basic clinical skills includes the steps of demonstration of the skill by the tutor, followed by supervised demonstration and practice by the students, while the tutor gives feedback to the students about their skill performance.
- Increasing the opportunities for students to practice their clinical skills during the practical skills session may be achieved by reducing the current student to clinical tutor ratio of twenty to one (20:1) to a desired ratio of eight to one (8:1). By reducing the number of students that attend one practical session, more students will get a chance to demonstrate their skills while being supervised and guided by the clinical tutor.
- Another way to increase practice opportunities for students may be to appoint an assistant clinical tutor who can supervise more students while they practice their clinical skills during the practical sessions.
- The faculty should address the needs of the students who want to practice their clinical skills on a female model so that they are prepared and confident enough to examine female patients when they enter the clinical area. The faculty also needs to plan the design of the clinical module to include female practice without any ethical constraints.
- To address the ethical issue related to the violation of autonomy of the student to serve as role player where the student feels coerced into accepting the role of a simulated patient, the faculty could consider to buy in external role players to perform this function.

To alleviate the negative outcomes of the OSCE experience that seem to hinder students' growth in clinical competency, the following suggestions should be considered:

- Students should be not only be briefed about the format of the OSCE just before the examination procedure starts, but also in advance so that they know what to expect and how to prepare for this assessment method that they are unfamiliar with, and be given an opportunity to ask questions. This may reduce the stress that is related to uncertainty about the setting of the OSCE.

- The faculty should offer training to the examiners to reduce and prevent inappropriate examiner behaviour and attitudes that could influence student performance.

These recommendations show how students could be better supported through the transition to the clinical learning environment, and what changes need to be considered for the future of clinical skills learning at SU. Clinical tutors can use the insights presented in this study to tailor their teaching approaches so as to optimise the students' clinical learning experience during the preclinical phase

5.4.2. Recommendations for Further Research

This study focussed on students' perceptions of their early clinical learning experiences. To gain more insight into the possible incongruences between students' and teachers' perceptions of effective early clinical learning, further studies should examine the clinical teachers' points of view. This can be the context for future studies about early clinical training during the preclinical phase.

From this study, the examiner inconsistencies that have been noted during the summative assessment of students in the OSCE can be further explored to determine the extent of the problem in this context which have to be addressed.

Finally, early clinical learning is well received, but support and guidance is needed to support and encourage the students' capacity for growth and learning during the preclinical phase. Further research into the impact of early clinical exposure can be extended when these students enter the next phase of their clinical learning in a lengthy study (Lam et al, 2002; Widyandana et al, 2012).

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ADDENDUM A: INVITATION LETTER TO MBCHB II STUDENTS AT SU

PARTICIPANT INFORMATION LEAFLET

Title of the research project: 'The perceptions of second year medical students of their early clinical learning experiences'.

Reference Number: _____

Principal Investigator: Farahnaz Bray

Address

Centre for Health Professions Education
Faculty of Medicine and Health Sciences
PO Box 19063
Tygerberg
7505

Contact Number: 021 938 9047

Dear Student

My name is Farahnaz Bray and I am doing my masters degree in Health Sciences Education. I would like to invite you to participate in a research project that aims to investigate your perceptions about your clinical learning experiences during the clinical skills module in your first year.

Please take some time to read the information presented here, which will explain the details of this project 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.

This study has been approved by the Health Research Ethics Committee (HREC) at Stellenbosch University and will be conducted according to accepted and applicable National and International ethical guidelines and principles, including those of the international Declaration of Helsinki October 2008.

The introductory module for clinical skills, which is part of the first year of the MBChB curriculum since 2010, has not been formally evaluated since its implementation. I would like

to learn more about your perceptions and your clinical experiences during the module. This will help us to enhance the design of the module in order to optimize the teaching of physical examination skills.

I will be conducting semi-structured focus group interviews with all the students who are selected for the study. The interviews will take place in one of the labs in the Clinical Skills Centre. The interview will be tape-recorded, but your participation in the interview will be anonymous. All information will be regarded as confidential and no names or private information will be made available to anyone. The data will be analysed by means of coding and this will also protect your privacy, as no connection will be made to your name.

Your identity will only be known to me and my research supervisor as this will be required to choose the participants for each of the group interviews.

If you have any more questions regarding this research, please feel free to ask me.

If you are willing to participate in this study please sign the attached Declaration of Consent and hand it to the investigator.

Yours sincerely

F Bray

Principal Investigator

Declaration by Participant

By signing below, I agree to take part in a research study entitled 'The perceptions of second year medical students of their early clinical learning experiences'.

I declare that:

- I have read the attached information leaflet and it is written in a language with which I am fluent and comfortable.
- I have had a chance to ask questions and all my questions have been adequately answered.
- 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.
- I may be asked to leave the study before it has finished, if the researcher feels it is in my best interests, or if I do not follow the study plan, as agreed to.

Signed at (*place*) On (*date*) 2009.

.....

Signature of participant

ADDENDUM B: INFORMED CONSENT

Reference Number _____

Participant no.

INFORMED CONSENT FORM FOR PARTICIPANT IN A RESEARCH STUDY

Research Project Title

The Perceptions of Second Year Medical Students Of Their Early Clinical Learning Experiences

Investigator: Dr F Bray

Centre for Health Professions Education, Faculty of Medicine and Health Sciences,
University of Stellenbosch.

1. Introduction

You are being asked to voluntarily take part in the research project described below. Please take your time making a decision and feel free to discuss it. Before agreeing to take part in this research study, it is important that you read the consent form that describes the study. Please ask the study researcher to explain any words or information that you do not clearly understand.

2. Why is this study being conducted?

The aim of this research is to optimise the design of the 'Introduction to Clinical Medicine' (ICM) module by examining the perceptions of second year medical students about their clinical learning experiences during this introductory module in their first year of the MBChB (Bachelor of Medicine and Bachelor of Surgery) undergraduate course.

The primary objectives of this research are:

- To determine students' perceptions about the academic value of early clinical training in their first year of the MBChB course;
- To identify the challenges and needs of first year students when they engage with the educational design of the ICM module that will promote high quality teaching of basic clinical skills;

- To determine students' perceptions about the ICM module which may enhance the implementation of the module.

The results of this study will provide the Centre of Health Professions Education with information which could lead to improving the implementation of the ICM module.

This study will potentially be published in an accredited medical/allied health/educational journal.

This study is being conducted on second year medical students. As a second year medical student currently registered in the MBChB undergraduate course at the University of Stellenbosch, you were asked to be part of this study.

3. What is involved in the study?

If you agree to take part in this study:

- The researcher will ask you questions during approximately a one hour long interview that will be held at the Clinical Skills Centre, situated in the Clinical building on the third floor of the Teaching Block of the Faculty of Medicine and Health Sciences at Stellenbosch University;
- The questions will be about your perceptions and views on your experiences of the research topic;
- The interview will be recorded.

4. What are the risks and discomforts of the study?

There are no known risks associated with this research. You may choose not to answer or to skip a question. You may also choose to stop your participation in the study completely. You will in no way be affected by your participation in this research study.

5. What are the benefits of this research study?

This research may help us understand how we can further develop the clinical environment to optimize the learning of students during their clinical education.

6. What other options are there?

You have the option not to take part in this study. There will be no penalties involved if you choose not to take part in this study.

7. Who is paying for the study?

Funding for this study is provided by the researcher.

8. Will I be paid to participate in this study?

You will not be paid for taking part in this research study.

9. What if I want to withdraw, or am asked to withdraw from this study?

Taking part in this study is voluntary. You have the right to choose not to take part in this study. If you do not take part in the study, there will be no penalty.

If you choose to take part, you have the right to stop at any time. However, we encourage you to talk to the researchers so that they know why you are leaving the study. If there are any new findings during the study that may affect whether you want to continue taking part, you will be told about them.

The researcher may decide to stop your participation without your permission, if they think that being in the study may cause you harm.

10. Who do I call if I have questions or problems?

You may ask any questions you have now. If you have questions later, you may contact

Dr F Bray (021) 938 9047

If you have questions or concerns about your participation as a research subject, please contact the Stellenbosch University's Health Research Ethics Committee 2

Mertrude Davids at 021 938 9207 or mertrude@sun.ac.za

11. What about confidentiality?

Your part in this study is confidential. None of the final data analysis will identify you by name. All records containing your name will be erased from the documentation prior to the researcher sharing the data with the statistician, study supervisor, and/or any other interested parties within the University. The collected data will be stored on computer file that will be protected by a password known only to the researcher. All records will be destroyed after the completion of the research project. Anonymity of all participants will be maintained.

12. Authorising statement

I have read each page of this paper about the study (or it was read to me). I know that being in this study is voluntary and I choose to be in this study. I know I can stop being in this study without being penalized. I will get a copy of this consent form now and can get information on results of the study later if I wish.

Participant's Name: _____ Date: _____

Participant's Signature: _____ Time: _____

Gender: Male Female

Consent form explained/witnessed by: _____

Signature

Printed name: _____

Date: _____ Time: _____

All research conducted for this project is in accordance with the guidelines set out by the Declaration of Helsinki and the MRC for ethical guidelines in medical research.

13. Informed consent for the taping of the interview

The purpose of the digital-recording for this interview and the use, storage and final destruction of the tapes has been explained to me and I understand the explanation. I have been offered to answer any of my questions concerning the procedures involved in the recording of the interview and I have been given a copy of this consent form.

Participant's Name (printed)

Date of Birth

Signature of Participant

Date

ADDENDUM C: DISCUSSION GUIDE PROMPTS

Open the discussion forum giving some of the students' general experiences and opinions about their learning during the ICM module.

- General perceptions and experiences during the clinical module / *Algemene persepsies en kliniese ervarings gedurende die module*
- Highlights of the module / *Hoogtepunte van die module*
- Any constraints when learning clinical skills / *hindernisse wat julle ervaar het gedurende die kliniese sessies*
- Views about the lectures – relevance and preparation for clinical skills lessons / *Persepsies oor die lesings – voorbereiding vir die kliniese sessies*
- Any positive or negative learning experiences about the clinical skills sessions in the Skills labs / *positiewe en negatiewe ervarings ten opsigte van leer gedurende die kliniese vaardigheids-module*
- OSCE as a learning experience / *mening oor die OSKE as 'n leerervaring*
- Competency in performing a physical examination after the module / *Hoe bekwaam/voorbereid voel julle om nou na hierdie module 'n fisiese ondersoek te doen*
- Practising clinical skills on your fellow students / *opinie oor die oefen van kliniese vaardighede op mede-studente*
- Any academic value or benefit of learning clinical skills in first year, when will they be ready to be introduced to clinical skills learning / *enige akademiese waarde of voordeel daarin om kliniese leerervarings in die eerste jaar te hê, is dit te vroeg, wanneer dink julle is dit toepaslik om kliniese vaardighede aan te leer*
- Preparation for the second year curriculum / *voorberei vir die kurrikulum van die tweede jaar.*
- Suggestions for improvement / *Wat kan verbeter word*