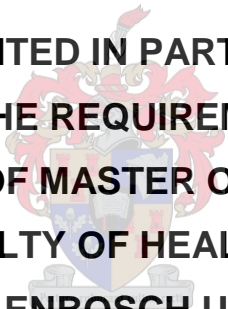


**ASSESSING THE KNOWLEDGE AND OPINIONS OF REGISTERED
NURSES WITH REFERENCE TO QUALITY INDICATORS IN CLINICAL
NURSING WITHIN A TERTIARY HEALTH INSTITUTION IN SAUDI
ARABIA**

ANYA PELSER

**THESIS PRESENTED IN PARTIAL FULFILMENT
OF THE REQUIREMENTS
FOR THE DEGREE OF MASTER OF NURSING SCIENCE
IN THE FACULTY OF HEALTH SCIENCES
AT STELLENBOSCH UNIVERSITY**

The image shows the crest of Stellenbosch University, which is a shield-shaped emblem with a crown on top. The crest is rendered in a light, semi-transparent red and blue color, positioned behind the text of the thesis title.

SUPERVISOR: MRS A DAMONS

SEPTEMBER 2011

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28 August 2011 -----

ABSTRACT

The quality of care nurses provide to patients is done with the expectation that skills and knowledge of each registered nurse will result in quality patient care. Compliance statistics for quality indicators (level of service indicators) or (LSI's) in the tertiary health care institution in Saudi Arabia varies, raising the following questions: "Do nurses understand the importance of quality indicators in clinical nursing and do they know how to use them to improve patient care?"

No studies done on registered nurses' knowledge and opinions of quality indicators could be found thus indicate the necessity of a research study to determine the knowledge and opinions of registered nurses on quality indicators in clinical nursing in the tertiary healthcare system in Saudi Arabia. This is the focus of this research.

The objectives of the study were:

- To determine the current knowledge and opinions of the professional nurses regarding quality indicators in a tertiary hospital in Saudi Arabia
- To identify the factors that influence identification of quality indicators in clinical nursing
- To identify the need for a training program regarding nurse sensitive quality indicators

Data was collected through a questionnaire handed to more than 200 nurses working in general wards and intensive care areas in a single Saudi Arabian hospital. Participants were selected through a randomised list. The registered nurses who have participated in the pilot study's responses were excluded from the final data analysis. No patients were included or involved in the study.

A descriptive design with a quantitative approach was applied to investigate the professional nurses' knowledge and opinions on quality indicators (level of service indicators) or (LSI's) in clinical nursing in Saudi Arabia. Research data suggests that the knowledge and opinions of registered nurses in the tertiary health care institution in Saudi Arabia are not supporting the expectations of quality assurance in clinical nursing. Registered nurses have strong opinions of quality indicators in clinical nursing but do not have the knowledge to support those opinions. Improving initial and recurring training on quality indicators provided to nursing staff with diverse backgrounds and high turnover was recommended as an essential component in using quality indicators to drive improvements in patient care.

ABSTRAKT

Die kwaliteit verpleegsorg wat verpleegkundiges op 'n daaglikse basis aan kliente bied gaan gepaard met die verwagting dat hulle oor die kennis en bevoegtheid moet beskik om kwaliteit verpleegsorg aan te wend wat 'n langdurige positiewe uitkoms met verwysing na pasiëntsorg kan bied. Die kwaliteits aanwyser statistieke in die tersiere gesondheidsorg sisteem verskil maandeliks en het die navorser geïnspireer om 'n studie te doen om te bepaal of geregistreerde verpleegkundiges verstaan wat die belangrikheid van kwaliteits aanwysers is en of hulle die kennis het oor die gebruik daarvan, in watter opsigte dit gebruik kan word en wat die voordele inhou wanneer kennis en applikasie daarvan vir kliniese verpleging toegepas word.

Literatuur met betrekking tot vorige studies omtrent kennis en opinies van geregistreerde verpleegkundiges tot kwaliteits aanwysers in kliniese verpleging kon nie deur die navorser gevind word wat gebruik kon word as agtergrond of ondersteuning tot die studie nie.

Die fokus van die navorsings studie was om geregistreerde verpleegkundiges se kennis en opinies te bepaal met betrekking tot kwaliteits aanwysers in kliniese verpleging in die tersiere gesondheidsorg sisteem in Saudi Arabie.

Die doelwitte van die studie was om:

- Die huidige kennis en opinies van geregistreerde verpleegkundiges met betrekking tot kwaliteits aanwysers in die tersiere gesondheidsorg sisteem in Saudi Arabie te bepaal
- Om faktore wat 'n invloed op identifikasie van kwaliteits aanwysers het te identifiseer
- Om die nodigheid van 'n opleidings program met betrekking tot kwaliteits aanwysers te bepaal

Die data van die studie was ingesamel deur middel van 'n vraelys wat aan die geregistreerde verpleegkundiges meesal werksaam is in algemene sale of intensiewe sorgeenhede. Deelnemers was gekies deur middel van 'n alternatiewe lys. Die deelnemers aan die loots studie was ge-elimineer van die finale data analise. Geen pasiënte was betrokke by die studie nie.

'n Beskrywende ontwerp met 'n kwantitatiewe benadering was toegepas om geregistreerde verpleegkundiges se kennis en opinies omtrent kwaliteits aanwysers in kliniese verpleging in die tersiere gesondheidsorg sisteem in Saudi Arabie te toets.

Die navorsing het bewys dat die kennis en opinies van geregistreerde verpleegkundiges in die tersiere gesondheidsorg sisteem in Saudi Arabie nie op 'n aanvaarbare standard kan geklassifiseer word nie asook nie die nodige kwaliteits versekering in kliniese verpleging ondersteun nie.

Die studie bewys dat geregistreerde verpleegkundiges beskik oor genoegsame opinies omtrent kwaliteitsaanwysers maar nie noodwendig oor die kennis om hulle opinies daarvoor te ondersteun nie.

Die studie is ook uitkoms gebaseerd omtrent die nodigheid van 'n opleidings program met betrekking tot kwaliteits versekering in kliniese verpleegkunde te implimenteer, insluitend die vakgebied van kwaliteits aanwysers in kliniese verpleging.

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CHAPTER 1

SCIENTIFIC FOUNDATION OF THE STUDY

1.1 Introduction

Batalden & Davidoff, (2007:2-3) noted that “*health care workers need to acquire more than just the professional knowledge related to their discipline to improve care. Knowledge at the site of care delivery, knowledge of quality improvements tools, measurement of knowledge, and an understanding of how to manage change are all essential knowledge bases for a health professional seeking to positively change a system of care*”. The common goal is to improve the health status of the diverse group of patients under the care of registered nurses.

It is important that the professional nurse practices within the legal framework that serves as a standard to safe nursing practice. In South African health care, nurses are regulated by the South African Nursing Council. This group sets the boundaries of safe nursing care through the Nursing Act, number 33, of 2005 as well as the regulation relating to the scope of practice of persons who are registered or enrolled under the Nursing Act (Regulation 2598, 1978).

The researcher believes that nurses with superior quality indicator knowledge will have an advantage in assuring quality nursing and be better able to manage ethical dilemmas.

Assuring quality patient care has been an integral part of a nursing service for decades. Motivating nurses, however, to embrace best nursing practices as a part of an every day continuous quality improvement program remains a challenge. Nursing has developed quality system frameworks for delivery of high quality nursing care over the years. Using quality indicators, (also known as level of service indicators), or (LSI's), to measure nursing care is a key ingredient of that framework. When nurses “buy in” to the use of quality indicators, they then actively participate in improving. To do this, they must first acquire the knowledge and skills needed to provide high quality nursing care, and then be motivated to use them.

Acquiring adequate knowledge of quality competencies through continuing education and participation in improvement activities can enhance the effectiveness as health care professionals in collaboration with health care teams. To enable them to provide quality care, nurses must acquire the knowledge to identify quality indicators and use them to prevent risks and avoid ethical dilemmas. Muller, (2006:75) defines a dilemma as “*a difficult decision between two possibilities, that is, a delicate situation in which the nurse/midwife finds herself*

or himself". Muller, (2006:68-71) further indicates that *"the nursing profession is confronted by various contemporary ethical dilemmas and describes three philosophical approaches of ethical decision making, namely, egoistical, deontological and utilitarian, which can be used when confronted when ethical dilemmas are of concern in nursing care and practice"*.

It is important that registered nurses in Saudi Arabia familiarise themselves with quality standards of care. This will help them to identify and manage quality issues in their environment. The purpose of this research is therefore to determine professional nurses' knowledge and opinions of quality indicators and learn the effects that these have on patient care in a tertiary hospital in Saudi Arabia.

1.2 Rationale

Dossey, (2005:29) explained that *"the quality of nursing practice began when Florence Nightingale identified nursing's role in health care quality and began to measure patient outcomes"*. Florence Nightingale used statistical methods to generate reports correlating patient outcomes to environmental conditions. Remarkably it was noted that over the years, quality measurement in health care has evolved tremendously and is a clear indication that professional nurses should stay up to date regarding the development of quality care approaches in clinical nursing.

American Nurses Association, (ANA) (n.d) states that all hospitals collect data on quality indicators to monitor the on-going quality of patient care. Professional nurses - an integral part of the health care delivery system - can make a tremendous impact on data collection. They also recommended that data be reported and added to the database on a quarterly basis with quarterly feedback provided to hospitals. Quality indicators are collected and reported at the unit level, stratified by type of unit and size of hospital, confidential benchmarking reports are then provided to participating hospitals. These reports permit a hospital, and its nurses to examine its own patient care, using source-sanitized data from a broader group of external entities.

An article in The National Database of Nursing Quality Indicators, Montalvo, (2007:12) confirmed that quality indicators identify structures of care and care processes, both of which in turn influence patient care outcomes. Nursing-sensitive indicators are distinct and differ from other medical indicators of quality care. For example, one structural nursing indicator is preventing patient falls during the hospitalization period. These are not often reported or recorded. Nursing sensitive indicators are those most influenced by nursing care. Montalvo,

(2007:12) reinforced that nursing's fundamental principles (which are the code of ethics for nurses and the scope of practice) and guidelines, have a responsibility to measure, evaluate and improve nursing practice.

The researcher believes that it is important to determine whether registered nurses understand what quality indicators are and how to identify them. From the researcher's experience, quality indicators in the tertiary hospital in the Kingdom of Saudi Arabia seemed to vary month after month.

This posed the following questions:

- Why is it important for professional nurses to know about quality indicators?
- Why do we emphasize monitoring and use of quality indicators?
- How is the monitoring done?
- How is the information used after data is collected?
- Can continuous quality improvement be based on the concept that improvement comes from building consistent and uniform knowledge and then applying it?

In an article by Kathy Quan, (n.d) on Cultural Differences That Affect Health Care she argued that health care must be individualized for each patient. Then, in doing so, one must account for the fact that the nursing process drives how the care is provided. One must assess all patients, diagnose their nursing needs, plan their care, and then implement and manage their care. During the implementation of the care, the registered nurse must consider who the patient is, take into account their cultural background and beliefs. Cultural differences might also have an influence on the registered nurses knowledge and opinions of quality indicators and how of quality assurance is perceived. Cultural differences also exist within the health care team. Team members will have varied beliefs and different strategies for handling patient care issues. The aim of this study does not include the impact of cultural differences on quality indicators, it is important to keep in mind that it is central to nursing care outcome.

1.3 Research Problem

There is a concern that the registered nurses working in a tertiary hospital in Saudi Arabia may not understand the importance of knowledge of quality indicators in health care which can determine the outcome of quality nursing care. If they do not understand the importance of quality indicators, do they even have adequate knowledge of them?

1.4 Research Question

The question guiding the research is:

What are the knowledge and opinions of registered nurses working in a tertiary healthcare institution in Saudi Arabia regarding quality indicators (level of service indicators) in clinical nursing?

1.5 Research Aim and Objectives

The knowledge of quality indicators are important as they lead to improvements in patient care. The objective of the study is to assess the knowledge and opinions of the registered nurse working in a tertiary hospital in Saudi Arabia with reference to nurse sensitive quality indicators in clinical nursing.

Specific sub-objectives are as follows:

- Determine the current knowledge and opinions of the professional nurses regarding quality indicators in a tertiary hospital in Saudi Arabia
- Identify the factors that influence identification of quality indicators in clinical nursing
- Validate the need for a training program regarding nurse sensitive quality indicators

1.6 Research Methodology

A quantitative approach with a descriptive research design was used to determine the knowledge and opinions of the registered nurses regarding nurse sensitive quality indicators in clinical nursing.

Burns & Grove, (2007:55) defined a quantitative approach as follows: *“a formal, objective, systematic process used to describe variables, test relationships between them, and examines cause and effect interactions among variables”*.

1.6.1 Research Design

Burns & Grove, (2007:38) explain that a research design is a blueprint for the conduct of the study that maximizes control over factors that could interfere with the study's desired outcome. The type of design drives the selection of a population, procedures for sampling, methods of measurement, and plans for data collection and analysis. The choice of research design depends on the researcher's expertise, the problem and purpose of the study and the intent to generalize the findings.

Burns & Grove, (2007:240), defines a descriptive research as *“the exploration and description of phenomena in real-life situations, it provides an accurate account of characteristics of particular individuals, situations, or groups”*.

The researcher analyzed the knowledge and opinions of registered nurses in a single Saudi Arabian hospital regarding quality indicators, using a descriptive design.

1.6.2 Population and Sampling

Brink et al., (2007:123) defines population as *“the entire group of persons or objects of interest to the researcher”*. In other words, the group meets the criteria which the researcher is studying. It also sets boundaries with regards to the elements or subjects.

Burns & Grove, (2007:29) describe sampling as *“a process of selecting subjects who are representative of the population being studied”*.

Burns & Grove, (2007:553) also defined sample size as *“the number of objects, events, behaviours, or situations that are examined in a study”*.

A tertiary hospital in Jeddah, Kingdom of Saudi Arabia was the selected organization for the proposed research to be conducted. The total accessible registered nurses (staff nurses) population was $N = 962$ as stated on the nursing database. From these, a population sample of $n = 240$ (25%) was selected. The $N = 240$ nurses selected were registered nurses that have direct contact with patients and are directly involved with quality indicators.

A stratified random sampling method was used because a large population was available from which to select subjects. To accommodate variables such as nursing areas of specialization, every 3rd or 4th name on the database were used in the random sampling method. The majority of registered nurses are female and the variable of gender was also excluded.

Burns & Grove, (2007:556) define stratified random sampling as *“the technique used when the researcher knows some of the variables in the population that are critical to achieving representativeness, the sample is divided into strata or groups using these identified variables”*.

The staff list was obtained from the Human Resource Department and the following was done to select the population:

- Every third or fourth person was chosen from the in-patient staff to make up a total of twenty samples per unit.
- All staff members from units such as Day Surgery and Endoscopy, which both consisted of small data bases of registered nurses, were included in the sample.
- When persons selected did not wish to participate in the study, the next person on the list was asked to participate

1.6.2.1 Inclusion criteria

The population consisted of registered nurses working in general wards and intensive care areas. Both day and night staff members were included in the study.

1.6.2.2 Exclusion criteria

- Professional nurses who have participated in the pilot study's responses were excluded.
- Unit managers were excluded
- Patients were excluded.

Table 1: Sample Distribution

Category	Population	Sample size (25 %)	Pilot sample (10% of sample size)
Total population of Registered Nurses (Staff Nurses) N	N = 962	N = 240	n = 24

(The term Staff Nurse refers to a Registered Nurse in the Middle East)

1.6.3 Instrumentation

Instrumentation consists of a structured questionnaire with objective questions. The questionnaire was based on the researcher's clinical observation and experience. The questionnaire is divided into sections, as follows:

- **Biographical and background information:** Length of employment, years of experience, qualification, nationality, age, assigned unit/ward, etc.
- **Monitoring of quality indicators:** Multiple questions presented in a Likert scale, ranging from "Strongly Disagree" to "Strongly Agree", criteria.

- **Nurses' knowledge of quality indicators:** Objective questions to test the nurses general knowledge on quality indicators (Level of Service Indicators) or (LSI's).

1.6.4 Pilot study

Burns & Grove, (2007:549) defines a pilot study as *“a smaller version of a proposed study conducted to develop and refine the methodology, such as the treatments, instruments, or data collection process to be used in the later study”*. The total nursing database is N = 962 registered nurses (staff nurses).

A pilot study with a population sample of (10%), n= 24, was used to refine the methodology of the larger study. The pilot study questionnaire was compiled and distributed under the same circumstances as the actual study to pre-test the instruments for ambiguity and inaccuracies.

Burns & Grove, (2007:38) list the following reasons for conducting a pilot study:

- To determine whether the proposed study is feasible
- Develop or refine a research treatment
- Develop a protocol for the implementation of a treatment
- Identify problems with the design
- Determine whether the sample is representative of the population or whether the sampling technique is effective
- Examine the reliability and validity of the research instruments
- Develop or refine data collection instruments
- Refine the data collection and analysis plans
- Give the researcher experience with the subjects, setting, methodology, and methods of measurement
- Implement data analysis techniques

The data analysis of the pilot study will be reported in Chapter 3 in the thesis.

1.6.5 Reliability and Validity/Trustworthiness

The reliability and validity of this study will be supported with the pre-testing (pilot study) of the instrument to be used in the study. Burns & Grove, (2007:45) describes reliability as the *“consistent measurement of a variable or concept and validity if an instrument actually measures what it is supposed to measure”*.

Additionally, the researcher has consulted a nurse research methodologist and statistician, Prof M Kidd of Stellenbosch University to assist with the design of this protocol. Regular periodic consultation has been used with these experts to establish content validity for the instrument.

Brink et al., (2007:118) explained that *“reliability of the study is concerned with consistency, stability and repeatability of the informant’s accounts as well as the researcher’s ability to collect and record information accurately”*. The underlying issue is whether the process of the study is consistent, reasonably stable over time and across researchers.

Validity is concerned with the accuracy and truthfulness of scientific findings. Establishing validity requires, firstly, determining the extent to which conclusions effectively represent empirical reality and, secondly, assessing whether constructs devised by researchers represent or measure the categories of human experience that occur. Brink et al., (2007:165) explain further that *“reliability and validity are closely related. There is no point in using an instrument that is not valid, however reliable it may be. Should an instrument measure a phenomenon of importance but the measurements are not consistent, it is of no use”*. Reliability is part of validity in that an instrument that does not yield reliable results cannot be considered valid.

1.6.6 Data Collection

Burns & Grove, (2007:536) define data collection as *“identification of subjects and the precise, systematic gathering of information (data) relevant to the research purpose or the specific objectives, questions, or hypothesis of a study”*.

A structured questionnaire was divided into three sections. Section one and three consisted of close ended questions; Section two’s data was presented in a Likert scale, **1** = Strongly Disagree, **2** = Disagree, **3** = Neutral, **4** = Agree and **5** = Strongly Agree. The questionnaire consists of both objective and subjective questions. Consent forms were hand delivered to each voluntary participants. The informed consent form was signed and returned in a separate envelope provided to the mailbox of the researcher before participating in the research study. The questionnaire consisted of questions based on information regarding quality indicators in the hospital in Saudi Arabia where the researcher is employed where the study was conducted in its entirety. The initial page of the questionnaire has a short outline of the study, participants were assured of confidentiality of their responses and a statement with reference to signed consent to the respondents was included in the questionnaire.

Participants returned the questionnaires to the researcher to an internal mailbox.

Those who did not wish to complete the questionnaire had the right to decline participation anytime during the research study; it is therefore regarded as voluntary.

1.6.7. Data Analysis

Mouton, (2008:108) refers to analysis as “*breaking up*” the data into manageable themes, patterns, trends and relationships. The aim of analysis is to understand the various constitutive elements of one’s data through an inspection of the relationships between concepts, constructs or variables, and to see whether there are any patterns or trends that can be identified or isolated, or to establish themes in the data.

With the assistance of the statistician the data analysis was done by using computerized statistical programmes, such as “*descriptive and inferential statistics, e.g., tabulations, correlations, regression analysis, factor analysis and the use of statistical graphics (bar charts, plots, pie charts) for more visual presentation*”, Mouton, (2008:153). Data analysis is conducted to give meaning to the data.

A summary of the relevant statistics was conducted by calculating the usual summary measures like mean, standard deviations, frequency tables etc.

Recommendations of the findings were made based on the scientific evidence obtained in the study.

1.6.8 Ethical Considerations

The proposal was submitted to both the hospital in Jeddah, Saudi Arabia’s ethical committee as well as the Faculty of Health Sciences, Stellenbosch University for the approval of both. Consent was obtained from the heads of both institutions to be able to conduct the research study. Informed consent forms were sent to all participants and confidentiality was maintained throughout the research study.

The table below summarizes the Ethical principles applicable to the participants, institution, researcher as well as the ethics pertinent to the research topic.

Table 2: Basic Ethical Principles

	BASIC ETHICAL PRINCIPLES			
	Autonomy	Justice	Beneficence	Non-maleficence
Participants	Informed consent from all willing participants.	Right to privacy and fair treatment.	Freedom from harm, no exploitation of participants	Willing participation, freedom to withdraw at any time.
Institution	Right to privacy protected	Anonymous data collection and consent for publication.	No known conflict of interest.	Institutional review board
Researcher	Full disclosure of factual data.	Confidential data collection procedures.	Use of appropriate study methods.	Free from bias and submission of own ideas.
Ethics pertinent to research topic	Protecting the rights of the participants by publishing factual events.	Fairness towards participants in relation to care delivery standards – non exploitation.	Use of appropriate study designs, non-exploitation of vulnerable population groups.	Completing true, factual research design.

(Table 2)

Stommel & Wills (2004:377-383)

1.6.9 Limitations to the Study

The following limitations were encountered during the study:

- Only one health care institution was involved in the study. This narrowed the results and recommendations.
- There appear to be no similar studies done in the Middle East that could be used to validate, or challenge study results.

1.7 Conceptual Framework

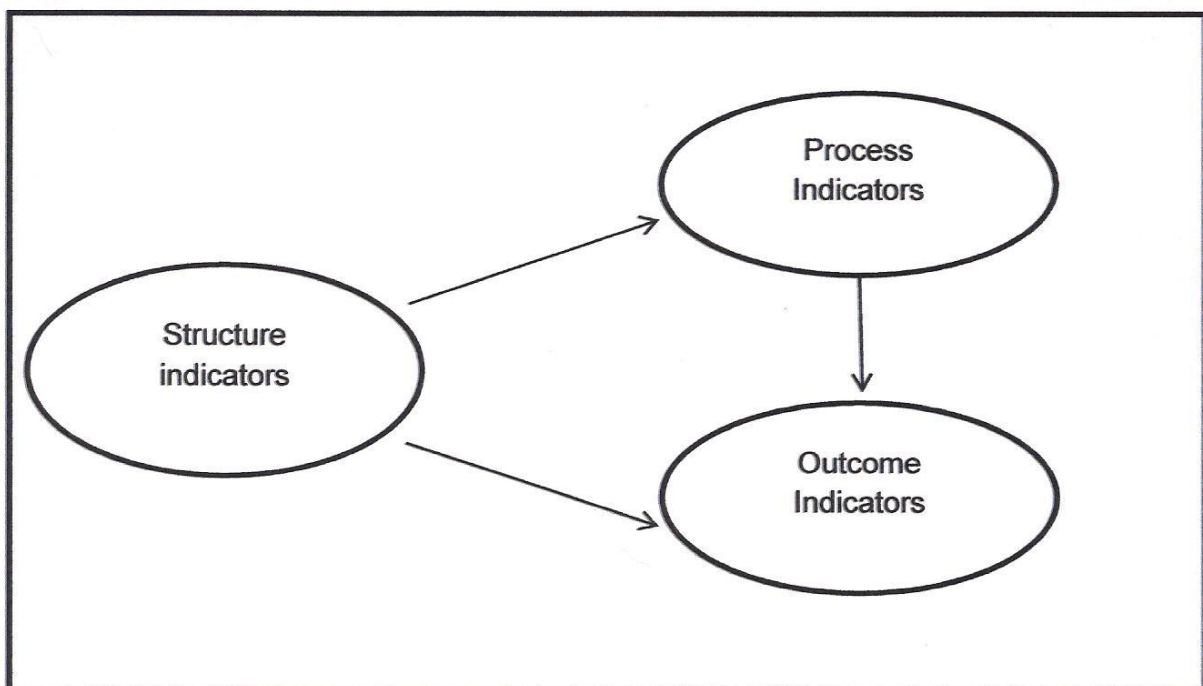
De Vos et al., (2007:34), defines a conceptual framework as “a conceptual model, or an organising image that determines which questions are to be answered by the research, and

how empirical procedures are to be used as tools in findings answers to these questions. It starts off with a set of ideas – whether vague or clearly formulated prepositions about the nature of the phenomenon”.

Burns & Grove, (2007:189), view a conceptual framework as “a brief explanation of the theories, concepts, variables or parts of theories that will be tested by the study”.

Brink, (2007:199), describes a conceptual framework as “a background or information for a study; a less well developed structure than a theoretical framework. Concepts are related in a logical manner by the researcher”. Donabedian’s classic framework of healthcare measures includes categories of structure, process and outcome and will be further discussed in Chapter 2.

Figure 1: Donabedian’s Classic Framework of Healthcare Measures (Kunkel & Westerling 2006:104 - 108)



Quality is assessed in order to find out whether it meets the standard set and to lay the ground work for improving it. Helminen, (2000:2) states that “the most enduring framework of quality seems to be Donabedian’s (1966) conceptual framework which includes three dimensions: structure indicators – relating to the facilities, equipment, personnel and organization available for provision of care, process indicators – referring to actual provision of care, and outcome indicators – denoting effects of care on patients’ health status”. Each of these dimensions can be assessed separately or in combination and ideally if both the structure and process

elements are well attended to, we can then expect a positive health outcome for a patient receiving care in the tertiary health care system. Most approaches to evaluating quality are based *“to some extent on the tripartite model of Donabedian’s quality model”*. Adopting the conceptual framework of quality benefits the patient care outcome in many ways, such as measuring valid quality indicators and making changes in response to this data, providers and evaluators will be able to have a high satisfaction outcome to patient care, to offer services associated with improved clinical outcomes as well as supporting policymakers and administrators in making informed decisions about the care patients are receiving, (Salzar et al., n.d). Quality can be examined by assessing any one of its three components. *“The classic framework of Donabedian continued to be a useful method for categorizing indicators of health care quality”*, (Kelley & Hurst, 2006:16).

1.8 Operational Definitions

Benchmarking

Benchmarking is *“the continuous process of measuring products, services, and practices against the company’s competitors or those companies renowned as industry leaders”*, (Tran, 2003:18).

Nursing Sensitive Quality Indicators

Are *“those indicators that capture care or its outcomes most affected by nursing care”*, (American Nurses Association, n.d).

Structure Standards

These standards describe *“the resources required being able to facilitate quality service delivery, such as infrastructure, systems (i.e. information management system), human, physical and financial resources”*, (Muller, Bezuidenhout & Jooste, 2007:500).

Outcome Standards

Outcome standards are *“a description of the end results, outcomes or performance indicators”*, (Muller, Bezuidenhout & Jooste, 2007:500).

Process Standards

Process standards describe how the act or intervention is performed. Process standards *“relates to all the managerial, clinical and non-clinical processes, interactions or interventions”*, (Muller, Bezuidenhout & Jooste, 2007:500).

Professional Nurse

"Professional nurse" means "a person registered as such in terms of section 31"; as defined by the South-African Nursing Council (SANC, 2005:5).

Quality

Quality is defined as: "the extent of resemblance between the purpose of healthcare and the truly granted care", (George, Veigas & Issac, n.d).

Quality Improvement

Refers to "a formal process whereby standards are set, work performance is measured and evaluated against the set of pre-determined standards and actions are taken to solve or counteract problems in order to improve the quality of service delivery and performance outcomes", (Muller, Bezuidenhout & Jooste, 2007:491).

Quality Indicator

"Is a quantitative measure of an important aspect of service that determines whether the service conforms to established standards or requirements", (George, Veigas & Issac, n.d).

1.9 Duration of the study

The research study will be structured in the following order:

- Ethical approval – after the proposal has been approved for further studies, the ethical approval of both institutions (the tertiary hospital in Saudi Arabia and Stellenbosch University) were obtained
- Data collection was scheduled for a period of six weeks
- Data analysis was done by the statistician of Stellenbosch University and thereafter the interpretation there of is scheduled for a period of eight weeks
- Integration of results and reports was scheduled for a period of six weeks
- Completion and submittance of thesis for MCUR was scheduled for a period of twelve weeks

1.10 Chapter Outline

Chapter 1

Scientific foundation of the study – this chapter presents a description which led to the rationale, problem statement, the goals and objectives, the research methodology as well as the conceptual framework.

Chapter 2

Literature Study – A discussion of existing literature concerning the topic.

Chapter 3

Research methodology – The research methodology applied to conduct the research is described.

Chapter 4

Data analysis, interpretation and discussion - The knowledge obtained in the study is revealed, analysed and interpreted.

Chapter 5

Conclusion and Recommendations – Conclusions and recommendations are presented based upon study evidence.

1.11 Conclusion

Quality assurance has been an integral part of nursing for decades. Long, (2003:280) described the work of Donabedian which was widely embraced by nurses. His concepts of structure indicators, process indicators and outcome indicators are still used in quality programs today. In most healthcare services presently, nurses have developed quality frameworks for nursing. These have been used first for accreditation purposes, through policy and procedure manuals, care planning and committee structures. The researcher focuses on the professional nurses' knowledge and opinions of quality assurance such as quality indicators.

The literature review supports the aims and objectives of the study which will be discussed in Chapter 2.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

Improving the quality of health care cannot be delegated to hospital quality specialists. In today's health care systems, all providers are expected to participate and contribute. Many health professionals completed their education prior to the introduction of quality concepts into health professions curricula. As a result a dedicated effort is needed to teach the knowledge and skills required to excel, (Hall, Moore & Barnsteiner, 2008:417- 426).

Although many nurses may lack formal training in the use of some quality improvement tools, developing a working familiarity with these tools heightens the likelihood that changes implemented during improvement work will be targeted at high-yield areas and will produce enduring results, (Hall et al., 2008:417- 426). The researcher expects that the results of this study will provide information regarding the importance of quality in clinical nursing as well as the involvement of quality indicators.

2.2 Reviewing and presenting the literature

The quality of nursing is central to the success and reputation of every health care institution. Measuring the quality impact of nursing interventions on patient outcomes is neither simple nor straightforward, (NHS Improvement Scotland, 2005:7).

Nursing, in the opinion of the researcher, is a complex mix of knowledge, skills, personal care and compassion. The literature review starts with an understanding of quality indicators and their involvement in the pursuit of quality nursing care.

Nursing is never practiced in isolation. It is embedded and intertwined in a myriad of healthcare processes. The desire of nurses to provide high quality care motivates nurses to be involved in health care institutions quality activities. The literature revealed what quality indicators are and identified the different types of quality indicators prevalent in health care services, their meaning and implementation, assessment and benchmarking.

2.3 Findings from the literature

"Quality nursing care in the words of nurses", is a study done in the **USA** by Burhans & Alligood, (2010:1689-1697) to determine the meaning of quality nursing care for practicing

nurses. The researchers believed that if current outcome measures and quality criteria failed to motivate practicing nurses, they would slow the pace of improvement in quality nursing care, determining the research question, as follows: *“what is the lived meaning of quality nursing care for practicing nurses”*. An interview process (qualitative study) was used as a means for exploring and gathering experiential narrative material. The interviews were analyzed, interpreted and synthesized using van Manen’s (1990) qualitative hermeneutic phenomenological research approach.

The study revealed six essential themes or lived meanings of quality nursing care in the words of the study participants:

- Advocacy was interpreted in phrases such as: *‘look out for your patient’*, *“protecting them”*, *“calling, and “questioning physicians and patient advocates all the way.*
- Caring was found in words and phrases such as: *‘caring’*, *“kind”*, *“a caring heart”* and *“has aspect of caring”*.
- Empathy was interpreted in phrases such as: *“appreciating the patient’s experience”*, *“treat and view the patient as either yourself or your loved one”* and *“being empathetic with the patient”*.
- Intentionality, was described as the nurse’s intention to deliver quality nursing care, was revealed in phrases such as: *“actually wanting to give that good care”*, *“giving the best I can to the patient”*, *“just day to day commitment to doing”* and *“we know when we do it”*.
- Respect was interpreted in phrases such as: *“treat them all with respect and dignity”*, *“don’t lie to them”*, *“meet patient choice and desire”*, and *‘take that sacred trust to the bedside every time”*.
- Responsibility was revealed in words and phrases such as: *“assuming your responsibilities”*, *“make sure that things aren’t missed and omitted”*, and *“doing the right thing”*.

Burhans & Alligood, (2010:1694) explained the iterative process of analyzing anecdotes and stories related by nurses as they uncovered the six themes discussed above. Their descriptions suggested that clinical nursing skills were less important as a determinant of quality nursing care than these six themes. These resided predominantly within the art of nursing and are highly valued by practicing nurses. Responsibility, respect and empathy in this theory of the art of nursing were identified as being related with the concept of caring,

thus, four of the six themes were identified as the essence or lived meaning of quality nursing care.

Limitations to the above mentioned study were as follows:

- Findings were limited to the individuals interviewed and to their personal experience.
- Results were not generalized to nursing populations with differing educational preparation, in different care delivery settings or geographic locations, nor to male nurses.
- The findings from the phenomenological study are subject to alternative interpretations.

The above mentioned research was done to determine the *“meaning of quality nursing care in the words of nurses”*, the below research study focuses on *“moving from the concept of quality to a core competency”*.

An article by Hall et al., (2008:417-426) *“Quality and Nursing: Moving from a Concept to a Core Competency”* identified the growing focus on providing high quality care that is mostly nurse-related and stated that this trend is likely to increase in coming years. The article defines the meaning and importance of quality as follows: is *“the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge”*.

The article further concluded that knowledge and skills required to improve the quality of care delivered were not emphasized during nurses training programs. They also argued that by learning more about quality competencies through continuing nursing education and participation in improvement activities, nurses can enhance their effectiveness as members of health care teams and can accelerate the pace of change within their workplace. Continuous quality improvement is based on the concept that improvement comes from building knowledge and applying it appropriately. It is also a process of providing care that is more economical and/or care that yields improved outcomes, using systematic methods and inter professional teamwork.

One positive benefit has been serving as a patient advocate while executing core nursing functions. These core functions include care integration, providing emotional support, patient and family education, assistance with compensation for loss of function and monitoring overall

patient status and care, thus leaving nurses to play an important role in safer, more efficient systems of care.

This research identified the link between quality care and achieving joy and satisfaction in work, and stated that this link is of significant value. When nurses believe that they are not just giving care but improving care, a “higher calling” the job satisfaction they derive from their work increases. This, in turn increases the ability to solve problems, to take responsibility for their actions and to create new systems. This in turn creates a feeling of being more useful and more creative, working as part of a team and to contribute to a larger purpose.

As it is important for nurses to move from having their own meaning of quality care, then move to the concept of implementing competency in quality care, the following research study incorporates nurses as agents to improve health care values by being involved in quality activities.

The above mentioned research was done to determine the *“meaning of quality nursing care in the words of nurses”*, the below research study focuses on *“moving from the concept of quality to a core competency”*.

Hall et al., (2008:417 - 426) speaks about *“nurses as agents to improve health care values”*. As value-driven health care is emerging, the concept of value in health care relates to the return realized on investment made in care. The current generation of nurses must help health care systems leaders design systems of care that use information resources to improve quality and safety while preserving time for bedside nursing functions. Nurses must get started by developing personal competencies such as knowledge, skills and attitudes if a nurse is to deliver high quality, safe, patient-centered care as a member of the health care team. Nurses must understand tools required to improve care and develop a working familiarity with these tools. This will ensure that changes implemented are high quality and will produce enduring results. The ultimate importance as described by Hall et al., (2008:417-426) is that continuous quality improvement relies on the concept that improvement comes from building knowledge and applying it appropriately.

Further into the literature review, a study entitled: *“Quality indicators for health promotion programmes”* Ader, et al., (2001:18-195) described quality assurance as a development tool in health promotion. The purpose of this study was to establish important aspects of successful health promotion projects and to demonstrate how these aspects have been transformed into

indicators and a question pro-forma/a template for quality assurance in these projects. Health promotion is confirmed to be a process that can only be evaluated and confirmed when a lengthy period of time has elapsed. The concept of quality assurance is important as it encompasses methods for describing, measuring, evaluation and taking measures aimed at improvement of quality. The measurement of quality assurance stems from defining key areas of importance. One of these areas refers to quality indicators. According to the authors, a quality indicator is “*a key concept in the context of quality assurance*” and can be defined as “*a specially selected measure or attribute that may indicate and point to good or poor quality*”, (Ader et al., 2001:188). They further describes Donabedian’s triad of structure, process and outcome standards which was the point of departure within this study. Each of the processes was described in the content of indicators which have been operationalized into a question pro-forma in which it was tested.

The study revealed that the project is plausible and demonstrated that the method is usable. The reported test of the indicators and the question pro-forma provided a basis upon which persons in charge of a quality program can change the program for the better.

A research study done specifically in an intensive care setting, “*Implementing quality indicators in intensive care units: exploring barriers to and facilitators of behavior change*” by de Vos et al., (2010:52) done in the **Netherlands**, have identified that quality indicators are increasingly used in health care but concluded that barriers hinder their routine use. Quality indicators are increasingly being used in healthcare to support and guide improvements in quality of care. The purpose of using quality indicators as a tool to assist quality improvement is to periodically report and monitor indicator data in order to improve care. In several countries, the development of indicators has emerged and examples of sets of indicators for quality of hospital care are available. Although quality indicators are used as tools to guide the process of quality improvement in healthcare, hospitals that adopt them are faced with problems concerning implementation.

This exploratory study also revealed that, in general, health care professionals are familiar with the concept of using quality indicators to improve care and have positive attitudes toward their implementation. Behavioural barriers must be addressed before health care professionals and managers become willing to work actively towards implementation. In addition, administrative support, additional education and effective feedback of indicator scores and education in quality improvement were identified as strategies to lower the

barriers. Successful implementation was critical to maximise the effect of quality indicators on the quality of care.

Limitations to the above mentioned study:

- No validated questionnaires were available on this subject; the value of the questionnaire must be confirmed
- The respondents represented healthcare professionals who volunteered to attend training sessions in order to implement quality indicators at their intensive care unit. Accordingly, results might give a more positive picture than elsewhere; respondents may be more motivated compared to the total population of ICU professionals.

In general, little is known about the knowledge and opinions of registered nurses regarding quality indicators in specialized or general areas of practice.

Where does nurses involvement come into account in measuring quality indicators and what types of nurse sensitive quality indicators can be measured? The study done by the National Quality Forum (NQF) defines “*nursing-sensitive*” measures as those that are “*affected, provided, and or influenced by nursing personnel – but for which nursing is not exclusively responsible*”. The study: “*Piloting Nursing-Sensitive Hospital Care Measures in Massachusetts*” by Smith, Harmon & Jordan (2006:23-33) described a pilot test of six selected measures, the report on pilot test measure data, participant feedback on the tested measures and observations on lessons learned from the pilot test. A workgroup comprising nursing, quality improvement, infection control professionals and technical support personnel selected measures most suitable for testing and implementation by Massachusetts hospitals. Criteria such as public acceptance, relevance for nursing care improvement, feasibility and burden of data collection, and fit with other existing or imminent measurement and reporting initiatives were used. A pilot test with six selected measures was conducted. Data collection was prospective. Participating hospitals reported their data using a web based entry process, with reports generated from the resulting data.

An important part of the pilot study was to obtain feedback from participants to guide decision making. An online survey instrument was used for the purpose and sought to assess participants’ views on several criteria and how well the measures selected would meet study goals.

The pilot test demonstrated the feasibility of collecting selected nursing-sensitive data across a large number of hospitals. The distribution of rates across hospitals justified the adoption of a starter set of nursing sensitive measures for quality improvement and public reporting to enhance consumer decision making.

The most significant aspect of this study was that the measures were introduced among hospitals for implementing in their facilities.

Limitation to the above mentioned study:

- It was viewed as a challenging process in the early stages of implementation.
- Consistency across measurement initiatives needs frequent updating.

Guidance and implementing a measure maintenance program was recommended to address the issue.

A study done on *“New Nurses’ Views of Quality Improvement Education”*, Kovner, Brewer, Yingrengreung & Fairchild, (2010:29-35) revealed the most significant background information regarding nurses views on quality improvement education. The researchers of this study indicated that quality improvement is a focus of hospital managers and policy makers. They also stated that the role of registered nurses in quality improvement in hospitals is vital because they are patient care givers. They argued that quality improvement skills are necessary to identify gaps between current care and best practice and to design, test and evaluate, and implement changes that are essential. They were also convinced that newly-licensed nurses could have an impact on quality improvement even if they lacked sufficient knowledge, concepts and tools required to improve quality.

A survey over a two year period was done on a population of newly licensed registered nurses in 34 states, asking questions about their quality improvement education and program participation. The study revealed the need for quality and safety education from leaders. It also identified competency definitions and the knowledge, skills and attitudes related to the competencies. Furthermore it stated that education is essential in that it must assess the actual performance of graduates, measure change and address the deficiencies. According to Kovner et al., (2010: 29-35) while there is a strong focus on quality improvement in hospitals, new nurses do not necessarily see the connection between quality education in nursing programs and successful job performance. The failure to institute educational programs on quality improvement may be a result of registered nurses lacking sufficient knowledge,

concepts, skills and tools required for quality improvement. Registered nurses need skills such as seeking information about outcomes of care and quality improvement projects, using tools such as flow charts, participating in root cause analysis, using quality measures to measure performance and using tools for understanding variation in practice.

Limitations to the above mentioned study:

- The study did not assess knowledge of quality improvement but rather asked what nurses thought they had been taught.
- New nurses were asked to describe events three years in the past; memories thereof could be influenced by events occurring during that period.
- No diploma or master or higher degree respondents were chosen, only respondents with a Bachelor of nursing degree.

2.4 Supportive literature

As limited information on knowledge and opinions of registered nurses with reference to quality indicators in clinical nursing in Saudi Arabia could be found, the researcher used the following supportive literature towards the research study.

2.4.1 What are quality indicators?

The NHS Information centre of Scotland (n.d) argues that indicators of health, performance, quality and efficiency can provide valuable insight into how care is being delivered. There has not been an emphasis on using quality indicators to improve services; it brings assured indicators together into one place, allows one to benchmark and measure quality and encourages clinical teams to work together to improve services.

Kunkel et al., (2007:104-108) mentions that clinicians, nurses and managers in hospitals are continuously confronted by new technologies and methods that require changes to working practice. Quality systems can help manage change while maintaining high quality care. The model of quality systems inspired by the works of Donabedian has three factors: structure, process and outcome indicators.

In modern health care, Joint Commission International Accreditation Standards for Hospitals, also known as (JCIA), (2011) is also emphasizing the quest for quality patient care through a universal set of standards applicable in any health institution. Health institutions must go through an accreditation process. The accreditation process in turn must create a culture of

safety and quality within an organization that strives to continually improve patient care processes and results. In doing so, organizations improve public trust that the organization is concerned for patient safety and the quality of care:

- Provide a safe and efficient work environment that contributes to worker satisfaction;
- Negotiate with sources of payment for care with data on the quality of care;
- Listen to patients and their families, respect their rights, and involve them in the care process as partners;
- Create a culture that is open to learning from the timely reporting of adverse events and safety concerns;
- Establish collaborative leadership that sets priorities for and continuous leadership for quality and patient safety at all levels.

Through the patient safety goals set out by the Joint Commission Accreditation Standards for Hospitals, (JCIA), nurse sensitive quality indicators evolved in the tertiary hospital in Saudi Arabia. These included monitoring patient falls, monitoring patient identification before procedures are scheduled, correct site - correct procedure before surgery, etc.

The Ottawa Hospital (2003:2) described quality indicators as a measurement or flag used as a guide to monitor, assess and improve the quality of patient care, support services, and organizational functions affecting patient outcomes.

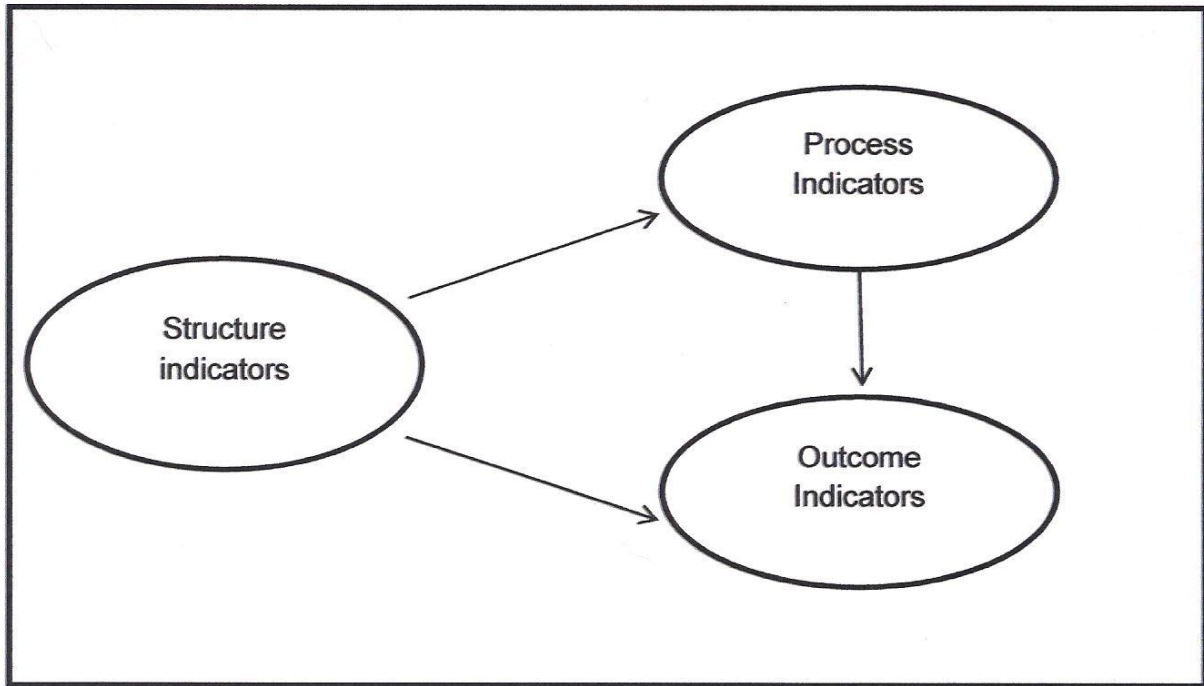
Kitson & Straus, (2010:73) is of opinion that: quality indicators should be developed through consideration of the best available evidence. This is done through needs assessments determining the size and nature of the gap between current and more desirable knowledge, skills, attitudes, behaviors and outcomes. The classification of needs as described by Kitson & Straus, (2010:74) includes: "*felt needs*" (i.e., what people say they need), "*expressed needs*" (i.e., what people do), "*normative needs*" (i.e., what experts say), and "*comparative needs*" (i.e., group comparisons). Before anything can be done to improve the quality of care it is important to assess current care in a simple, reliable way. Quality indicators can be used as a basis for assessing gaps and are used to monitor, assess and improve the quality of care and organizational functions that affect patient outcome.

2.4.2 Structure, Process and Outcome Standards

Salzer et al., (1996:3) discussed the "*holy trinity*" of structure, process and outcome. They argue that most approaches used to evaluate quality care are based to some extent on

Donabedian's tripartite model of quality. The model addresses three domains; structure, process and outcome standards which still exists in the current era of health care. This model of Donabedian was discussed in Chapter 1.

Figure 2: Donabedian's classic framework of healthcare measures (Kunkel & Westerling 2006)



Structure Standard

According to Salzer et al., (1996:3), structure refers to the relatively stable characteristics of the care providers' tools and resources at their disposal and the physical and organizational settings in which they work. Five structural categories are thought to be important in assessing the quality of service structure:

- access
- institutional characteristics
- provider characteristics
- community characteristics
- client characteristics.

The Ottawa Hospital, (2003:2) describes characteristics of the setting that supports and has an impact on care (examples: availability of approved least restraint devices on a unit, another example is the RN: patient ratio).

Process Standard

Salzer et al., (1996:3), focused primarily on treatment process, including interpersonal process factors and technical skill in the delivery of services. Interpersonal process refers to the therapeutic relationship and rapport, communication, information dissemination, and shared decision-making that occur as part of treatment. Technical skill encompasses knowledge of state-of-the-art intervention techniques, the ability to assess which intervention provides the best match for the client's problems or diagnosis, and the skill to effectively deliver the best matching intervention.

The Ottawa Hospital, (2003:2) describes process indicator as a system that measures an activity that is carried out to care for patients. It focuses on the nature and amount of care nurses provided during the hospital stay (examples: rate of patients on fall prevention program, nurse satisfaction).

Outcome Standard

Salzer et al., (1996:3) confirmed that the last component of quality is outcome. Donabedian defined outcome as *"a change in the patient's current and future health status (symptoms and functioning) that can be attributed to antecedent health care"*. In this same article, Donabedian also included patient attitudes about treatment such as patient satisfaction, health-related knowledge, and behavioural change in areas that contribute to health problems.

The Ottawa Hospital, (2003:2) described outcome indicators as the patient's status at the defined time following care interventions. *"It measures the result of nursing care/process (examples: pressure ulcer prevalence rate, fall injury rate)"*.

An article by Nivel, *"Quality assessment/improvement in primary care"* (n.d). states that assessing and improving the quality of care is a major function in any health care system. Quality can focus either on structure of care, the process of care or the outcomes of it; this is the well-known framework developed by Donabedian. **"Structure"** refers to physical characteristics (such as premises, equipment, human resources, the organisation and management of resources, teamwork). **"Process"** refers to the actual delivery of primary care (in particular the clinical and interpersonal aspects). **"Outcomes"** are the results or consequences of the process of care (health status or evaluations by patients). Concrete quality assessment and improvement mechanisms and activities can be classified on the basis of this framework.

The importance of process, structure and outcome indicators are found in an article by Given, et al., (n.d) identified that the rapid changes in the health care system and the demand for professional accountability becomes paramount in providing nursing care. Nurses are challenged to articulate and document the quality of their contributions to the health outcomes of the patient. Quality indicators have been discussed within a conceptual framework which includes **structure of care, process of care and outcomes of care**. They focused on the importance of the framework which includes the evaluation of quality care and the effectiveness of treatment. Nurses are accountable for promoting and upholding standards of care and practice by being able to track the results of their care through nursing sensitive patient outcomes.

Savitz, Jones & Bernard, (2003:377) mention that in general, there are three primary ways indicators can be used to assess outcomes sensitive to nursing care:

- Indicators can be used for quality improvement purposes in applied settings, to monitor performance and progress and to support evidence based decision-making.
- Indicators can be used to support informed policy analysis related to regulatory or accreditation requirements, workforce development, and reimbursement.
- Indicators can be used to research the role of nursing care to determine patient safety outcomes by examining structure-outcome, process- outcome, and structure-process-outcome relationships.

2.4.3 Nurse Sensitive Quality Indicators

Nursing-sensitive quality indicators are those indicators that capture care or its outcomes most affected by nursing care. The Ottawa Hospital (2003:3) defined nurse sensitive quality indicators as *“the measurements of patient care that is sensitive to nursing interventions”*.

Nursing-sensitive indicators reflect the structure, process and outcomes of nursing care. The structure of nursing care is indicated by the supply of nursing staff, the skill level of the nursing staff, and the education/certification of nursing staff. Process indicators measure aspects of nursing care such as assessment, intervention, and registered nurses' job satisfaction. Patient outcomes that are determined to be nursing-sensitive are those that improve if there is a greater quantity or quality of nursing care (e.g., pressure ulcers, falls, and intravenous infiltrations), American Nurses Association (n.d).

Staff shortages, failure to recognize quality indicators or lacking knowledge of them can have devastating consequences on patient care. The quality of nursing care nurses render to

patients daily is done with the expectation that the skills and knowledge of each professional nurse produce a positive outcome in the patient condition and care. The most commonly quoted definition for health care quality is provided by the Institute of Medicine, (2001:44), describing quality as *“the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge”*.

This was emphasised by Montalvo (2007:12), that since the quest for quality outcomes in patient care evolved and the focus shifted towards standards such as nursing-sensitive indicators which identify structures of care and processes of care, both in turn influence outcomes of patient care. Nursing sensitive indicators are distinct and specific to nursing, thus most influenced by nursing care as referred by Montalvo (2007:12). These indicators are vitally important as a supporting factor in measuring patient satisfaction and have an undisputable focus on quality patient care.

2.4.4. Implementing Quality Indicators to Evaluate Nursing Care

For the sake of the research study done in the tertiary healthcare setting in Saudi Arabia it is important to know and understand where quality indicators originated from and why.

According to the literature, the very first meeting of NDNQI was held in 2007. Taking that into account, it is evident that the NDNQI are relatively inspiring but still in a developing phase and will enable researchers to fine tune their research questions and identify additional associations between nursing workforce characteristics and processes and the observed patient outcomes, (Montalvo, 2007:12).

When nurse-sensitive quality indicators have been implemented they should be monitored and evaluated with respect to a “before and after quality management” view to determine whether the new system is improving results towards quality of nursing care rendered to patients. Quality indicators are increasingly being used in healthcare to support and guide improvements in quality of care. The purpose of implementing quality indicators as a tool to assist quality improvement is to periodically report and monitor indicator data in order to improve quality of care, (de Vos et al., 2010:52). Successful implementation is critical to maximise the effect of quality indicators on the quality of care, (Weiner et al., 2006: 310).

Using an indicator is a multi-step process that includes evaluating the evidence that a specified indicator is nurse-sensitive. An outcome indicator is deemed to be nursing-sensitive

if there is a correlation or multivariate association between some aspects of the nursing workforce or a nursing process and the outcome. Montalvo, (2007:13) describes the nursing indicator development process as follows:

1. Review scientific literature for:
 - a. Evidence that some aspect of nursing care has an effect on a patient outcome
 - b. Specific definitions of the indicators
 - c. Evidence that the indicators can be validly and reliably measured
2. Collect information from researchers on threats to reliability and validity
3. Conduct expert review of draft indicator definitions, data collection guidelines and data collection forms
4. Distribute revised definitions, guidelines and forms to clinical experts for comments on face validity and feasibility of reliable data collection
5. Incorporate clinical expert feedback and develop revised versions of definitions, guidelines, and forms
6. Conduct a pilot study using the draft data collection materials and review data, also interview hospital study coordinators to identify additional threats to reliability and validity
7. Finalise definitions, data collection guidelines and forms
8. Train database participants in standardized data collection practices

Montalvo, (2007:13) focused on the national database of nursing quality indicators' history, purpose, how the national database of quality indicators operates and how indicators are developed and tested. This would provide valuable information to registered nurses interested in understanding the background and evolution of quality indicators.

This study includes development of nationally accepted measures to assess the quality of nursing care, improvements in training procedures for data submission, identification of nursing workforce structures and processes that influence outcomes and sharing best practices for improving outcomes.

The limitation of the above mentioned study is:

- The development of methods for measuring unit-level acuity and improving the reporting of national database nursing quality indicators (NDNQI) so that more comparisons of very specific type of unit can be made.

2.4.5 Assessing Indicators after implementation

Healthcare quality indicators must be judged against criteria *which indicate whether they are likely to fulfil their intended purposes*. According to Boyce et al., (1997:16-17), the following is the process of assessment criteria:

Reliability

The degree to which an indicator is free from random error, is reproducible (or stable) over time and shows inter-rater agreement at one point in time.

This includes the concepts of:

- Internal consistency
- Test/retest stability
- Inter-rater reliability

Reliability will be largely dependent on the adequacy of the operational definition for the indicator and the rigour of data collection, data analysis and data audit.

Validity

Given the quality monitoring purpose for which it is intended, do inferences regarding quality of care based upon the indicator accurately reflect the quality of care delivery?

Validity is a matter of degree and must be judged with an understanding of the intended application of an indicator (that is, is it valid for its intended purpose). Judgments of validity are based upon review of:

- **Face validity:** Does the indicator appear to relate to quality of care?
- **Content validity:** How closely does the indicator relate to quality of care and how well are relevant aspects of care quality covered by the indicator?
- **Construct validity:** What relation does the indicator have to other measures of quality?
- **Predictive validity:** How well does an indicator of good/poor care predict that good/poor care was delivered?

Within validity determinations lie knowledge of quality indicator sensitivity, its “*true positive*” rate and specificity, its “*true negative*” rate.

Responsiveness

How does the indicator change as quality of care changes? Is the indicator capable of detecting the sorts of differences in quality of care typically experienced in acute healthcare services?

Interpretability

Does the indicator make sense? Does it communicate a consistent message to those who use it?

Significance

Does the indicator reflect aspects of care that matter to users of the indicator and are relevant in current healthcare contexts?

Burden

How difficult or costly is indicator data collection and indicator construction?

Utility

Has the indicator been proven to be of value when used in acute healthcare (either for accountability, directing consumer decisions or quality improvement)?

Vulnerability to Undesired Effects

What is the likelihood that use of the indicator would create perverse incentives for healthcare providers (such as to corrupt indicator data or alter healthcare provision in undesirable ways)?

Availability of Alternate Forms

Can the indicator be altered to allow its use in different target populations (e.g. those requiring language or cultural adaptations)?

Amenity to Independent Corroboration

Can indicator data be confirmed by others? Final judgements on the utility of indicators involved assessments of all available information regarding indicators and the potential for local collection of requisite information, (Boyce et al., 1997:16-17).

The literature of Boyce et al., (1997:16-17) revealed the critical review of Australian and overseas knowledge regarding the development and use of quality of care and health outcome indicators in acute care services. It specifically sought to identify those performance indicators that contribute to improvements in the quality and outcomes of care to help inform the development of a set of nationally consistent quality of care and health outcome indicators for acute healthcare services in Australia. The study, although a little out dated provides beneficial information to researchers in assessing indicators for implementation.

2.4.6 Current Status of Indicator Development

Measuring Instruments

The major program for determining the quality indicators for the tertiary hospital where the research study was conducted is the Joint Commission of International Accreditation (JCIA) guidelines towards annual patient safety goals, the assessment of incident occurrences, benchmarking projects and best practice programs in the tertiary hospital in Saudi Arabia. In general, the indicators descriptions promote nursing quality and engage the nursing force in nursing interactions. The following nurse sensitive quality indicators are monitored in the tertiary hospital in Saudi Arabia:

- All needle stick/sharps injuries occurring in nursing units and clinics to nursing employees
- All nursing staff certified in basic life support within their first month of employment
- Patient falls per inpatient days per month
- The total of unusual occurrences related to consents, blood ordering, receiving, labelling, infusion and documentation towards blood transfusion
- Pressure ulcer prevalence
- Immediate reporting of unusual occurrences

With time and advancement in medical science, technology and techniques, the suitability of these indicators are assessed annually towards quality outcomes for continuation or amendment, (Total Quality Management development, 2010:8).

Indicator Guidelines

All nursing units, after implementing quality indicators, monitor the hospital-wide and discipline- specific indicators as part of the system improvement activity. The senior management teams collect and analyse the indicators on a monthly basis. Sentinel events are analysed as soon as possible. The hospital steering team analyse the quality indicator reports every three months and submit these reports to the headquarters, (TQM development, 2010:8)

Setting targets

The methods used to decide the targets of monitoring the quality indicators are decided upon in the military services and at the national level. It includes benchmarking on international level and best practice and research. All targets are decided upon with consensus amongst experts, (TQM development, 2010:9).

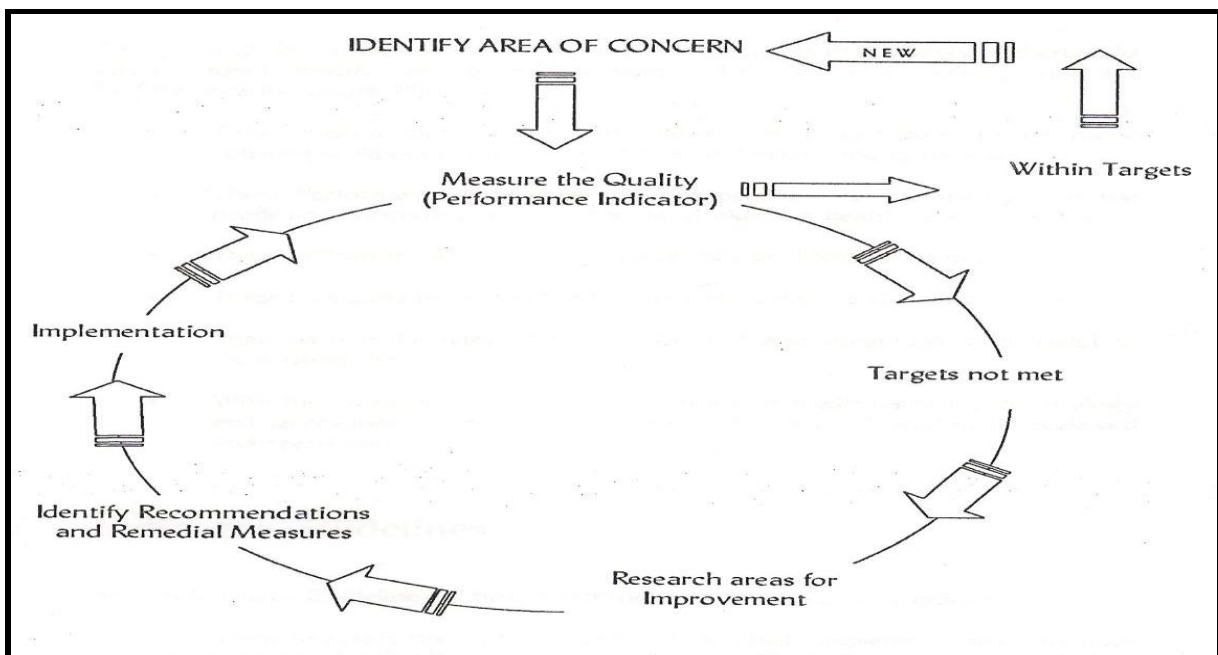
Monitoring areas for improvement

Departments within military hospital services and the hospital steering team monitor areas for improvement based on targets and develop an action plan, (TQM development, 2010:9).

Continuous quality improvement

Continuous quality improvement, (CQI) is a formalized process of setting standards, monitoring, analyzing and evaluating compliance with these standards, and taking remedial action/steps to maintain the standards, improve existing performance and output, and to facilitate change by means of capacity building. It is a cyclic process, Muller et al., (2007:499). Since the turn of the century, reliance on the use of performance measurement data has become a mainstay in the quality improvement programs of health care organizations. In today's health care environment, the collection and meaningful portrayal of relevant quality data and information are vital to health care organizations. Through such reliance on performance data, health care organizations and individual practitioners can determine priority areas for quality improvement, accrediting and regulatory bodies can evaluate performance, and purchasers and consumers can make informed health care judgments and decisions. Increased recognition of the value of performance data has stimulated the development of major performance measurement initiatives and databases, Joint Commission International Accreditation (2008:8).

Figure 3: The Continuous Quality Improvement Process in the Tertiary Hospital in Saudi Arabia, Total Quality Management Development (2010:7).



2.4.7 Using benchmarking to improve practice

Benchmarking is one of the methods used in continuous quality improvement and clinical effectiveness programs. It is a management process that is being used in health care organizations benchmarking for clinical and management purposes.

Improving the quality of healthcare may be achieved without actually measuring it, for example, through supporting the use of guidelines or peer review. However, measurement has an important role. This role includes a means to monitor effectiveness, protection of patient safety, informed decision-making and ensuring value for money. At the same time, identifying meaningful measures suitable for capturing the quality of care in different dimensions remains a challenging aspiration. There has been considerable work in the development and use of quality indicators, reviewed in detail elsewhere. While most approaches to monitoring the quality of care tend to use a combination of different types of measures, to assess structure, process and outcomes, there is an ongoing debate on the relative usefulness of process versus outcome measures. Process measures offer an important tool for assessing the current quality of care being delivered by a system and they are useful for evaluating whether interventions have led to improved quality of care. Outcome measures focus *“the attention of policy makers on whether systems are achieving the desired goals”* and towards the patient (rather than the service). An emphasis on outcomes may promote innovation through for example encouraging providers to experiment with new models of care to improve patient outcomes as well as supporting the adoption of long-term health promoting strategies. Both process and outcome indicators have merits and risks which need to be taken into account when developing measures to assess the quality of care, (Nolte, 2010:2-3).

Nolte, (2010:2-3) focuses on the quality of care provided by healthcare systems, the major development and validation of quality indicators, the systematic analysis of the suitability of existing datasets and the development and implementation of standard definitions and algorithms to improve the comparability of national data systems. The literature revealed a considerable body of evidence and actual data that allow for cross national comparison of healthcare quality in selected areas of care. The limitation to the study is the possible consideration of using a range of indicators to capture different aspects of a given aspect of healthcare.

Using nursing quality benchmarks in operational dashboards and translating data to drive performance excellence is a strategic imperative. Integrating benchmarks into clinical

dashboards can be invaluable to clinicians, administrators, and policy maker who share a common commitment to expediting evidence-based improvement in patient care safety, outcomes and excellence. Leveraging nurse-related benchmark dashboards to expedite performance improvement and document excellence may benefit from organizational investment in the expertise of a clinical quality analyst able to collaborate with administrators, managers, and clinicians to create customized and drill down reports as well as continuously ensure the validity and reliability of data sources and analytical processes, (Donaldson et al., 2005:163-164).

The literature emphasized the importance of certain nurse sensitive quality indicators by integrating them into a dynamic multi-use dashboard that provides users with a strategic view of operations, quality, safety and outcomes that may be helpful in optimizing performance improvement and expedites activities related to licensing and accreditation readiness. The benchmarks applicable to the study are helpful in establishing processes to improve organizational performance. No limitations to this study could be identified.

Managers can benchmark to help decide a variety of factors:

- Where to allocate resources more efficiently
- When to seek outside assistance
- How to quickly improve current operations
- Whom to reward for performance
- Whether customer requirements are being adequately met, and
- Whether future goals are worthwhile or achievable, (Tran, 2003:18 - 23).

Tran, (2003:18-23) also discussed the benchmarking tool which serves four main functions:

1. **Analysis of the operation:** Benchmarking firms must assess the strengths and weaknesses of their current work processes, analyse critical cost components, consider customer complaints, spot areas for improvement and cycle time reduction, and find ways to reduce errors and defects or to increase asset turns.
2. **Knowledge of competition and industry leaders:** Benchmarking first must determine who the best of the best is.

3. **Incorporation of the best of the best:** Benchmarking firms must learn from leaders, uncover where they're going, learn from the leaders' superior practices, including why they work, and emulate these best practices.
4. **Established superiority:** Benchmarking firms must strive to become the new benchmark.

Tran's study of *"taking benchmarking to the next level"* is a comprehensive overview of benchmarking. It focuses on the benchmarking tool that serves main functions, the actual process of preparing benchmarking and how to analyse it. The tips for successful benchmarking available in the literature are positive and structured. The possible limitation towards this study is that the information is more advanced and applicable to individuals and or groups with knowledge and background on benchmarking.

Nurses who are passionate about improving nursing care and who are committed in providing high quality evidence based nursing care will find benchmarking a very effective way of engaging with colleagues. It will help demonstrate changes in practice and makes a positive impact on patients in their care, (Royal College of nursing, 2007:7).

The Royal College of nursing (2007:4), has designed a model of clinical practice in benchmarking called the benchmarking wheel.

The aim of this benchmarking wheel is to review the existing benchmarks or to develop new. If an existing benchmark is used for example, you can go straight from point 1 to 7 on the benchmark wheel. If evidence is reviewed, use points 2, 3, 4, and 5. If you update your benchmarks, go to point 11.

Figure 4: The benchmarking wheel, Royal College of nursing (2007:4)



The following is an explanation of the benchmarking wheel:

Identify area of practice

Which area of practice would you like to improve? This can refer to national or local surveys, an area of good practice, an area of clinical practice that has been developed?

Expert input

Consider patients, families, as well as other professional groups. Are any guidelines available? What current research or evidence-based practice is available from an expert point of view?

Patient focus outcome

Keep in mind that clinical practice benchmarking aims to improve care. The outcome must reflect this.

Identify measurement factors

These are elements of practice that, if achieved, would support achieving a patient-focused outcome.

Identify benchmark of best practice and explore evidence

What is best practice? Is this supported in the evidence? Is this achievable?

Construct scoring method

Construct a scoring method for each factor, from poor to best. As confidence with benchmarking and the process increases, many organizations move to benchmarking against a best practice statement.

Score current practice

Assess current status against the factors in the scoring method, or against the best practice statement. Evidence is needed to support the score.

Compare with best practice score

Identify the area or organization with the best practice. Obtain copies of their evidence, arrange a professional visit, discuss with practitioners for a quality outcome.

Share examples

What is considered best practice by one area could be improved through the sharing of practices, document examples, policies and guidelines?

Action plan

Plan the intervention to improve evidence and scores and dates for reviews need to be set. An assigned person must be responsible to maintain the progress. The success of benchmarking in an organization often rests with the determination and skills of this person.

Update

If an existing benchmark is used, it is important to ensure that the benchmark is still valid and up to date. Benchmark statements can be re written to reflect new evidence.

Rescore

Reassess your area/organization to identify areas of improved practice and the progress that has been made. New areas for development must be highlighted, (Royal College of Nursing, 2007:4-5).

The Royal College of Nursing's literature on understanding benchmarking can be used by registered nurses as it supports them in effectively meeting patient's needs. The wheel of benchmarking proves that nurses can develop practice through action planning and implementation as well as to make changes in practice. Although the literature is based on registered nurses working with children and young people, it can also be a useful tool for care of adult patients.

2.5 Discussion of the Proposed Conceptual Framework

The conceptual framework below was developed from literature studies done by the researcher. The framework of Donabedian as discussed by Kunkel & Westerling (2006:104-108) and Muller, Bezuidenhout & Jooste (2007:500) forms the framework foundation. The researcher used the information within the conceptual framework and as discussed below to compile a structured questionnaire with open and closed questions to collect the data from the registered nurses working in Saudi Arabia.

The following is a description of the standards as indicated within the conceptual framework. Helminen, (2000:2) states that the most enduring framework of quality seems to be Donabedian's (1966) conceptual framework, which includes three dimensions: structure indicators – relating to the facilities, equipment, personnel and organization available for provision of care, process indicators – referring to actual provision of care, and outcome indicators – denoting effects of care on patients' health status. Each of these dimensions can be assessed separately or in combination. Ideally, one could argue that if both the structure and process elements are well attended to, one can then anticipate a positive health outcome for a patient receiving care in a particular provider system. The classic framework of Donabedian continued to be a useful method for categorizing indicators of health care quality, Kelley & Hurst, (2006:16). Therefore the researcher based the study on the framework as discussed above.

Structure Standards

These standards describe the resources required to facilitate quality service delivery, such as infrastructure, systems (i.e. information management system), human, physical and financial resources, (Muller, Bezuidenhout & Jooste, 2007:500).

Process Standards

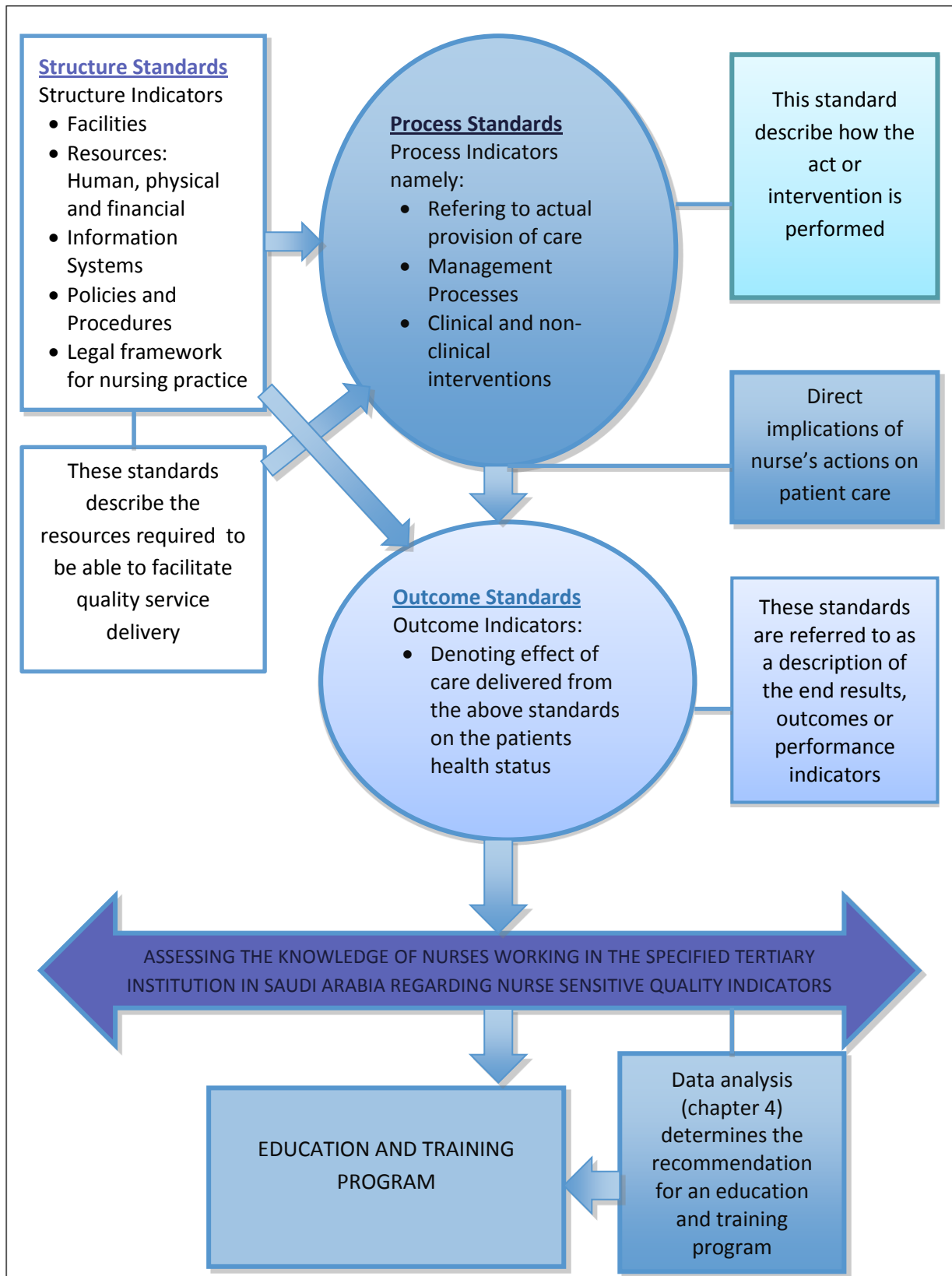
These standards describe how the act or intervention is performed. Process standards relate to all managerial, clinical and non-clinical processes, interactions or interventions, (Muller, Bezuidenhout & Jooste, 2007:500).

It is important to note that the registered nurse is responsible for her actions within the care that she delivers and will be held responsible for her actions. These actions have a direct effect on the quality of nursing care rendered to the patient.

Outcome Standards

Is referred to as *“a description of the end results, outcomes or performance indicators”*, (Muller, Bezuidenhout & Jooste, 2007:500).

Figure 5: Hypothetical framework for quality indicators, as indicated by the researcher with the assistance from Mrs. A Damons (Supervisor); adopted from the Donabedian's quality assessment framework and descriptions by Muller, Bezuidenhout & Jooste (2007:500)



2.6 Conclusion

This chapter expands the conceptual framework (figure 1) illustrated in the first chapter. Attention was given to what quality indicators are and the different types of quality indicators that are used in health care services. The meaning of nurse-sensitive quality indicators was addressed. Further, steps in implementing quality indicators as well as assessment of implemented quality indicators were addressed. Attention to benchmarking of quality indicators was added. Most of the literature used in this review supported the importance of quality indicators in health care institutions in improving the quality of patient care.

In the following chapter, the researcher will discuss the research methodology applied to conduct the study.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

The assurance of quality has been an integral part of the nursing service for decades *and “the work of Donabedian was widely embraced by nurses and his concepts of structure, process and outcomes are still evident in quality programmes of nurses today”*. In most healthcare services, *“nurses have developed structures and processes as frameworks for nursing care and these are well demonstrated for accreditation purposes through policy and procedure manuals, care planning and committee structures,”* (Long, 2003:280-284). The researcher’s objective is to focus on professional nurses’ knowledge and opinions of quality indicators in clinical nursing.

In the preceding chapters, the background and rationale of the study were described. A comprehensive literature review provides the quality indicator concepts used in this study.

This chapter describes the research methodology used by the researcher to investigate nurses’ knowledge and opinions on quality indicators in a tertiary hospital in Saudi Arabia.

3.2 Research Goal

To enhance the knowledge of registered nurses with reference to quality indicators in clinical nursing that can ultimately lead to quality nursing care.

3.3 Objectives of the Study

The objectives set for this study are:

- Determine the current knowledge and opinions of the professional nurses regarding quality indicators in a tertiary hospital in Saudi Arabia
- To identify the factors that influence identification of quality indicators in clinical nursing
- To identify the need for a training program regarding nurse sensitive quality indicators

3.4 Research Methodology

3.4.1 Research Design

A descriptive design with a quantitative approach was applied to investigate the professional nurses knowledge and opinions on nurse sensitive quality indicators (level of service indicators) in clinical nursing in Saudi Arabia.

The research design is the category or type of research plan followed by the researcher such as “*survey*” or “*experimental*” design. Each follows certain principles and serves a specific research purpose, (Holland & Rees, 2010:291).

The research design according to Polit and Beck, (2004:49) is the “...*architectural backbone of the study*”. The research design describes the strategies that researchers select in order to generate evidence that is accurate and interpretive. It incorporates important methodological decisions that researchers make, (Polit & Beck, 2004:162).

In quantitative research the research design flows directly from the particular research question or hypothesis and from the specific purpose of the study. Simply stated, the research design is the set of logical steps taken by the researcher to answer the research question. It forms the blueprint of the study and determines the methodology used by the researcher to obtain sources of information, such as subjects, elements and units of analysis to collect and analyse the data and to interpret the results, (Brink et al., 2007:92).

The survey designs are classified together because, logically, they also belong together. They are often of a more quantitative nature, requiring questionnaires as a data collection method. Respondents are ideally selected by means of randomised sampling methods, (de Vos et al., 2007:137).

3.4.2 Research Question

The question guiding the research is: “*What are the knowledge and opinions of registered nurses working in a tertiary healthcare institution in Saudi Arabia regarding quality indicators (level of service indicators) in clinical nursing?*”

3.4.3 Population and Sampling

The target population (registered nurses) is $N = 962$ as currently stated on the nursing database. From these, an accessible population of 25%, $n = 240$, was selected. The subjects were registered nurses who have direct contact with patient care and are directly involved with the outcome of quality indicators. After the questionnaires were distributed, $n = 223$ subjects returned their completed questionnaires.

A stratified random sampling method was used because a large population was available from which to select subjects. To accommodate variables such as nursing areas of specialization,

every 3rd or 4th name on the database were used in the random sampling method. The majority of registered nurses are female and the variable of gender was also excluded.

A stratified random sampling method is the technique used when the researcher knows some of the variables in the population that are critical to achieving representativeness, the sample is divided into strata or groups using these identified variables, Burns & Grove, (2007:556). This type of sampling is suitable for heterogeneous populations because the inclusion of small subgroups percentage-wise can be ensured. Stratification consists of the universe being divided into a number of strata which are mutually exclusive, and the members of which are homogeneous with regard to some characteristics such as gender, home language or age, (de Vos et al., 2007:200).

The staff list was obtained from the Human Resource Department and the following was done to select the population:

- As the inpatient areas consist of a large nursing data base, every 3rd or 4th person were chosen to make up a total of twenty samples per unit.
- Units such as Day Surgery and Endoscopy which consist of a small data base of registered nurses, all staff members were included in the sample.
- Persons who wished not to participate in the study, the next person on the list would be asked to complete the questionnaire until the required sample size has been obtained.

Population refers to all elements (people, objectives, events, or substances) that meet the sample criteria for inclusion in a study; it is also referred to as the target population, (Burns & Grove, 2007:549).

A sample is a subset of the population that is selected for a particular study, and the members of a sample are the subjects. Sampling defines the process of selecting a group of people, events, behaviours, or other elements with which to conduct a study, (Burns & Grove, 2007:40).

3.4.3.1. Inclusion Criteria

Inclusion sampling criteria are the characteristics that the subject or element must possess to be part of the target population, (Burns & Grove, 2007:324). The inclusion criteria according to Stommel and Willis (2004:299) are "...delineated..." according to characteristics that will differentiate study participants from the rest of the targeted population.

The population consisted of:

- Registered nurses working in general wards and intensive care areas. Both day and night staff members will be included in the study.

3.4.3.2 Exclusion Criteria

Exclusion sampling criteria are those characteristics that can cause a person or element to be excluded from the target population, Burns & Grove, (2007:325). From the accessible study population the researcher may exclude some members who are lacking in one or more characteristics needed in the study, (Stommel & Willis, 2004:299).

The exclusion criteria for this study include the following:

- Registered nurses who have participated in the pilot study's responses were excluded from the final data analysis.
- Unit managers and divisional managers have been excluded in the study.
- No patients were included in the study.

3.5 Instrumentation

Method of measurement is the process of allocating numbers to objects or events or situations based on specific rules. A component of measurement is instrumentation which is the application of specific rules to the development of a measurement device or instrument, (Burns and Grove, 2007:40).

3.5.1 Format, Content and Construction of Instrument

The instrumentation consisted of a structured questionnaire presented in three sections. Section one and three consisted of objective questions and section two consisted of a Likert scale ranging from strongly disagree to strongly agree. Closed ended questions were used to test nurses knowledge and opinions on quality indicators (level of service indicators) in the tertiary health care institution in Saudi Arabia. The questions designed were based according to the literature review and personal experience and observation of the researcher.

The questionnaire layout was divided into three sections, as follows:

- **Biographical and background information:** length of employment, years of experience, qualification, nationality, age, assigned unit/ward, etc.
- **Monitoring of quality indicators:** Multiple questions presented in a Likert scale.

- **Nurses' knowledge of quality indicators:** closed ended questions to test the nurse's general knowledge on quality indicators (Level of Service Indicators).

Closed questions provide the opportunity to selecting (according to instructions) one or more response choices from a number provided. The closed question is advantageous when a substantial amount of information about a subject exists and the response options are relatively well known, (de Vos et al., 2007:174).

3.5.2 Cover Letter of Introduction and Consent to Participate

The cover letter distributed with the questionnaire, contained information regarding the study with reference to the following:

- The title of the study
- Introduction to the research study
- Objectives of the study
- Purpose of the study
- Ethical considerations
- Confidentiality
- Contact details of the researcher
- Participant consent or withdrawal at any given time during the study

3.6 Pilot Study

A pilot study is defined as the process whereby the research design for a prospective survey is tested. It can be regarded as a small – scale trial run of all the aspects planned for use in the main inquiry, (de Vos et al., 2007:206).

A pilot study is a “mini” version of a study used to check the accuracy of the tool of data collection and to ensure that any practical problems with data collection are identified before the main study begins, (Holland & Rees, 2010:290).

A pilot study also attempts to test the instrument for ambiguity and accuracy and is a trial run, done in preparation for a major study, (Polit et al., 2001:467).

The pilot study was conducted in the tertiary healthcare institution in the Kingdom of Saudi Arabia where the researcher is employed. The total available nursing database is N = 962 registered nurses (staff nurses). A pilot study with a population sample of 10%, n= 24, was

used to refine the methodology of the larger study. The pilot study consisted of a questionnaire handed to participants under the same circumstances as the actual study to pre-test the instrument for ambiguity and inaccuracies.

The results of the pilot study were similar to the main study done by the researcher. A population of $n = 24$ subjects were given questionnaires after written approval were obtained to participate in the study. All questionnaires were completed and returned to the researcher.

3.6.1 Section A: Biographical and background information

The majority of respondents in the pilot study $n = 13$ (54.16%) have been employed at the tertiary healthcare institution between one to five years. It was interesting that the majority of respondents, $n = 11$ (45.83%) have between six to ten years nursing experience and $n = 11$ (45.83%) are between the ages of 26 – 35. The highest qualification obtained by the respondents reflected that the majority $n = 17$ (70.83%) have a Bachelor of Science in Nursing degree and all of the subjects were from the Philippines. There was no respondent with a Master Degree.

It was fascinating to see that the majority of respondents, $n = 15$ (62.5%) were involved in some quality projects monthly, whereas only $n = 1$ (4.16%) has never been involved in any quality projects. A large number of respondents $n = 20$ (83.33%) received feedback on their units' compliance to the Level of Service Indicators or (LSI's) and $n = 19$ (79.16%) received the feedback during their units' monthly meeting.

Section A of the pilot study was found to have similar results as the main study done by the researcher.

3.6.2 Section B: Monitoring of Quality Indicators

Table 3: Registered nurses' opinions of quality indicators – a comparison between criteria “Strongly Disagree” versus “Strongly Agree” (Pilot Study)

Criteria	Description	Strongly Disagree	Strongly Agree
11	It is important to monitor quality indicators (LSI's) in any nursing unit	0%	58.33%
14	I am willing to implement quality indicators (LSI's) in daily practice	0%	54.16%
15	Feedback on quality indicators (LSI's) stimulates me to adjust my nursing practice	0%	58.33%
16	Monitor of quality indicators (LSI's) stimulates quality improvement	0%	50.20%

17	Monitor of quality indicators (LSI's) does not take too much time	0%	29.16%
18	Monitoring of quality indicators (LSI's) fits into the daily routine of the hospital setting	0%	50%
25	Nursing staff should often discuss the results of the quality indicators (LSI's) and or improvements to promote quality nursing care	0%	58.33%
26	All deviances on the quality indicators (LSI's) are reported promptly	0%	58.33%
27	Feedback on quality indicators (LSI's) in the unit is part of the commitment to improve the quality of nursing care	0%	58.33%
28	As a colleague, I report any deviance pertaining to quality indicators (LSI's) as I know it will improve nursing care	0%	45.83%
29	When errors to quality indicators (LSI's) occur, I feel supported by my unit manager	0%	45.83%
30	It is a learning experience for all staff members when deviances on quality indicators (LSI's) occur and that it be discussed with all nursing staff during the unit's monthly meeting	0%	58.33%
31	In your opinion, quality indicators (LSI's) contributes to improved patient care	0%	62.5%
32	I understand all there is to know about quality indicators (LSI's)	0%	41.66%
Average percentage of strongly disagree versus strongly agree		0%	56.19%

Section B of the questionnaire consisted of the knowledge and opinions of registered nurses involved in the pilot study regarding quality indicators in clinical nursing. The criteria of this section varied between “Strongly Disagree” to “Strongly Agree”. The results are significant that registered nurses have sound opinions about quality indicators in clinical nursing but not necessarily have the knowledge to support those opinions.

Table 4: Registered nurses’ knowledge of quality indicators – a comparison between “Strongly Disagree” versus “Strongly Agree” criteria (Pilot Study)

Criteria	Description	Strongly Disagree	Strongly Agree
12	I am familiar with the use of quality indicators (LSI's) as a tool to improve quality of care	0%	41.66%
13	I understand the importance of using quality indicators (LSI's)	0%	58.33%
19	To monitor quality indicators (LSI's) indicates the quality of care patients receive	0%	54.16%
20	To create quality awareness through in service is a useful way of	0%	66.66%

	improving patient care		
21	For quality indicators (LSI's) to be managed and improved it must be understood, defined and the existing quality of care must be established and measured	0%	79.16%
22	Measurement is a vital part of improvement of quality indicators	0%	62.50%
23	Assessing and measuring the quality of care in a way that it enables it to be quantified is an essential ingredient for quality indicators	0%	54.16%
24	Reporting deviances pertaining to quality indicators (LSI's) increases the quality of nursing care	0%	62.50%
33	Nursing sensitive quality indicators (LSI's) are "those indicators that captures care or it's outcomes most affected by nursing care"	0%	50%
34	Process Indicators – "evaluates the manner in which care is delivered, e.g., the process of pain management"	0%	29.16%
35	Structure Indicators – "evaluates the structure or systems for delivering care, e.g., to check if forms documenting restraint use are completed correctly"	0%	29.16%
36	Outcome Indicators – "evaluates the end result of care delivered, e.g., adherence to medication therapy"	0%	45.83%
Average percentage of strongly disagree versus strongly agree		0%	50.34%

3.6.3 Section C: Nurses Knowledge of Quality Indicators (Pilot Study)

Predominantly closed ended questions were used in this section to test nurses' general knowledge of quality indicators (Level of Service Indicators) or (LSI's). The pilot study revealed similar results to the main research study done by the researcher. It was important to the researcher to determine the true knowledge of registered nurses towards quality indicators in clinical nursing in the tertiary healthcare institution in Saudi Arabia.

The majority of respondents n = 15 (62.5%) knew exactly which quality indicators are monitored in the healthcare institution and n = 13 (54.16%) could describe in their own words what a quality indicator is. It was a disappointing n = 15 (62.5%) of respondents who could describe the meaning of quality nursing care. A large number of respondents n = 16 (66.66%) knew exactly which quality projects are monitored in the tertiary healthcare institution whereas a concerning n = 12 (50%) of the respondents could name at least two advantages of quality indicators. As the majority of respondents n = 17 (70.83%) could reflect the process to follow if there is a deviance to one of the quality indicators, only n = 13 (54.16%) could identify factors that can have an influence on quality indicators in clinical nursing. The respondents

who were knowledgeable on identifying “structure, process and outcome indicators were a mere n = 13 (54.16%).

Table 5: Summary of Section C: Nurses Knowledge of Quality Indicators (Pilot Study)

No	Criteria	Correct	Incorrect
37	List the quality indicators (LSI's) that are monitored in the hospital and indicate the target of each indicator	62.5%	37.5%
38	Describe in your own words what a quality indicator (LSI) is	54.16%	45.84%
39	Describe the meaning of quality nursing care	62.5%	37.5%
40	Name the quality projects that are practiced in the healthcare setting in Saudi Arabia	66.66%	33.34%
41	Name at least two (2) advantages of quality indicators (LSI's) in clinical nursing	50%	50%
42	Describe the process to be followed if any deviance to one of the quality indicators (LSI's) occurs	70.83%	29.62%
43	Identify at least 5 (five) factors that can have an influence on quality indicators in clinical nursing	54.16%	45.84%
44	Select the indicator (process, outcome or structured) that best fit the statement (process, structure or outcome standard)	54.16%	45.84%
TOTAL		59.37%	40.63%

In general the general knowledge of registered nurses as determined by the pilot study is a concern as it reflects the gap in insight and understanding quality indicators in clinical nursing. These results indicate that a serious effort should be implemented to increase nurses' knowledge of quality indicators in clinical nursing.

3.7 Reliability and Validity/Trustworthiness

The reliability and validity of this study was supported with the pre-testing (pilot study) of the instrument used in the study. For additional validity, the researcher was the sole person in performing the research with no additional help or influence from others and data entering was done as data collection was captured by the researcher.

The pilot study was also a means of enduring reliability as the flow of the pilot study and results thereof indicated that the main study could be performed. No obstacles were found during the pilot study.

The researcher consulted a nurse expert, research methodologist and statistician to assist with the design of this protocol and was in regular consultation with these experts during the pilot study, thus helping to establish content validity for the instrument. A statistician assisted with the design of the questionnaire and guided the researcher throughout the process.

Reliability refers to the consistency, with which an instrument measures what it is supposed to measure, (Burns & Grove, 2007:552).

Reliability relates to the accuracy or consistency of the tool of data collection and is an important criterion for the collection of sound and accurate data, (Holland & Rees, 2010:291).

Reliability testing is a measure of the amount of random error in the measurement technique. It takes into account such characteristics as dependability, consistency, accuracy and comparability, Burns & Grove (2007:365). Although it is rare to have perfect reliability, the following procedures can increase the reliability of measures, (de Vos et al., 2007:163).

- **Clearly conceptualise all constructs.** This means developing an unambiguous, clear, theoretical definition for each construct and then making sure that each measure indicates only one specific concept.
- **Increase the level of measurement.** Indicators at higher or more precise levels of measurement are more likely to be reliable than less precise measures, because the latter pick up less detailed information.
- **Use multiple indicators of a variable.** Use two or more indicators (e.g. two or more questions in a questionnaire) to measure each aspect of a variable.
- **Use pre-test, pilot studies, and replications.** Develop a draft or drafts, or preliminary versions, of a measure and test these before applying the final version in a hypothesis-testing situation.

Validity is the extent, to which an instrument measures what it is supposed to measure, (Polit et al., 2001:473).

Validity refers to the extent to which an empirical measure accurately reflects the concept it is intended to measure. Thus, the definition of validity has two aspects: "that the instrument actually measures the concept in question and that the concept is measured accurately". The

most common and useful classification schemes attempting to categorize the validities underlying measurement is content, face, criterion and construct validity, (de Vos et al., 2007:160).

- **Content validity:** This is concerned with the representativeness or sampling adequacy of the content of an instrument. To determine content validity we ask two questions: Is the instrument really measuring the concept we assume it is and does the instrument provide an adequate sample of items that represent that concept?

In the case of the study done by the researcher, the instrument did measure the intended concepts.

- **Face validity:** Is the simplest and least scientific definition of validity It concerns the superficial appearance or face value of a measurement procedure. The relevant question in this regard is: Does the measurement technique look as if it measures the variable that it claims to measure?
- **Criterion validity.** Criterion validity moves away from subjective assessments of face validity and provides more objective evidence of validity. It is essential in this approach to validation that there be one or more external or independent criteria against which to compare the scores on an instrument.

The subjects in the pilot study had no difficulty in understanding the questionnaire as support was offered by the researcher in case obstacles could occur. It was never necessary to give guidance or support to the participants in the pilot study.

- **Construct validity.** Construct validity involves determining the degree to which an instrument successfully measures a theoretical construct. As a construct cannot be seen, felt or heard, and cannot be measured directly, its existence must be inferred from the evidence at hand. To establish construct validity, the meaning of the construct must be understood and the propositions the theory makes about the relationships between this and other constructs must be identified.

Trustworthiness

To researchers, it is of utmost importance to be sure of the soundness of the study as described by de Vos et al., (2005:345), as quoted in (Marshall & Rossman, 1995:143 -145).

The trustworthiness of a project needs to be evaluated against certain criteria to which all research must respond.

These criteria include the following:

- How credible are the particular findings of the study? By which criteria can it be judged?
- How transferable and applicable are these findings to another setting or group of people?
- How can we be reasonably sure that the findings would be replicated if the study were conducted with the same participants in the same context?
- How can we be sure that findings are reflective of the subjects and the inquiry itself, rather than a creation of the researcher's biases or prejudices?

The pilot study confirmed that the instrument used in the research study was well constructed, gave clear meaning to conclusions and could therefore be found valid.

3.8 Data Collection

The researcher collected the data according to the pre-established plan. The researcher interviewed each of the subjects chosen for the study to explain the study and to obtain their written, informed consent. The informed consent form was completed and signed by the subjects and then returned in the separate envelope provided to the mailbox of the researcher before participating in the research study. The researcher was responsible for the distribution and collection of the completed questionnaires. Each subject has been given a period of three weeks to complete the questionnaire.

The questionnaire consisted of predominantly closed questions based on information regarding quality indicators (level of service indicators) or (LSI's) in clinical nursing in Saudi Arabia where the researcher conducted the study. Participants were requested to return the questionnaires to the researcher at an internal mailbox (not electronic) especially for the research purpose. The researcher logged the questionnaires received from the participants.

Those who did not wish to complete the questionnaire had the right to decline participation anytime during the research study.

3.9 Data Analysis

The analysis technique in quantitative research includes descriptive and inferential analysis and some sophisticated, advanced analysis, (Burns & Grove, 2007:41).

Data entry was done on an excel spread sheet designed by Professor Kidd from Stellenbosch University. There after the data was converted to graphs by the statistician, analysed and interpreted by the researcher. The data was analysed and represented in histograms and frequencies as recommended by the statistician of the Stellenbosch University. Recommendations of the findings were made based on the scientific evidence obtained in the study.

3.10 Ethical Considerations

The research proposal, the participant consent form as well as the questionnaire was submitted to both the tertiary hospital in Jeddah, Saudi Arabia's ethical committee board as well as the Faculty of Health Sciences, Stellenbosch University for approval. Consent was obtained from the heads of these institutions to do the research study.

Informed consent was obtained by all participants and confidentiality was maintained throughout the research study.

The data obtained from the subjects involved in the study was kept safe with restricted access to only the researcher. Once questionnaires were completed, they were placed in an envelope by the participant and sent to a central mailbox especially for the research project. Confidentiality was ensured by permitting the researcher as the only person who had access to the data received.

Privacy was secured by the confidential manner in which consent was obtained from all the participants.

According to Polit & Beck, (2004:141), if a researcher is using human beings in a study, then their rights should be protected. Rights that need protection are self-determination, privacy, anonymity and confidentiality, fair treatment and protection from discomfort and harm, (Burns and Grove, 2007:204).

3.11 Conclusion

Chapter 3 discussed the research design and methodology used to collect the data and how the data was analysed. The measuring instrument that was developed facilitated the data collecting process and allowed the data to be analysed quantitatively. The study is directed by the ethical considerations and guidelines to ensure that participant rights were protected.

The procedures involved in data analysis and interpretation will be discussed in Chapter 4 with graphical illustrations.

CHAPTER 4

ANALYSIS, INTERPRETATION AND DISCUSSION OF RESEARCH FINDINGS

4.1 Introduction

Chapter 3 described and discussed the research design and method in detail. In this chapter, research study results will be presented and interpreted from the questionnaire. The questionnaire consisted of three sections. Two of these sections were open and close ended questions; one included a five-point Likert scale, ranging from strongly-disagree to strongly-agree. The data is predominantly quantitative of nature.

A statistician and a computer expert assisted the researcher in using computer techniques to analyse the quantitative data. A specific computer program, called the SAS (Statistical Analysing System), analyzed, tabulated and presented the data as histograms and frequencies.

4.2 Presenting the Study Findings

Questionnaires were distributed to 240 participants of which, $n = 223$ were completed and returned, this indicates a 92.91% return rate and will be discussed later in this chapter. Analysis and discussion is based on the feedback of the $n = 223$ respondents. The researcher will continuously reflect on the objectives set for this study which is as follows:

- To determine the current knowledge and opinions of the professional nurses regarding quality indicators in a tertiary hospital in Saudi Arabia
- To identify the factors that influence identification of quality indicators in clinical nursing
- To identify the need for a training program regarding quality indicators

The questionnaire consisted of the following sections:

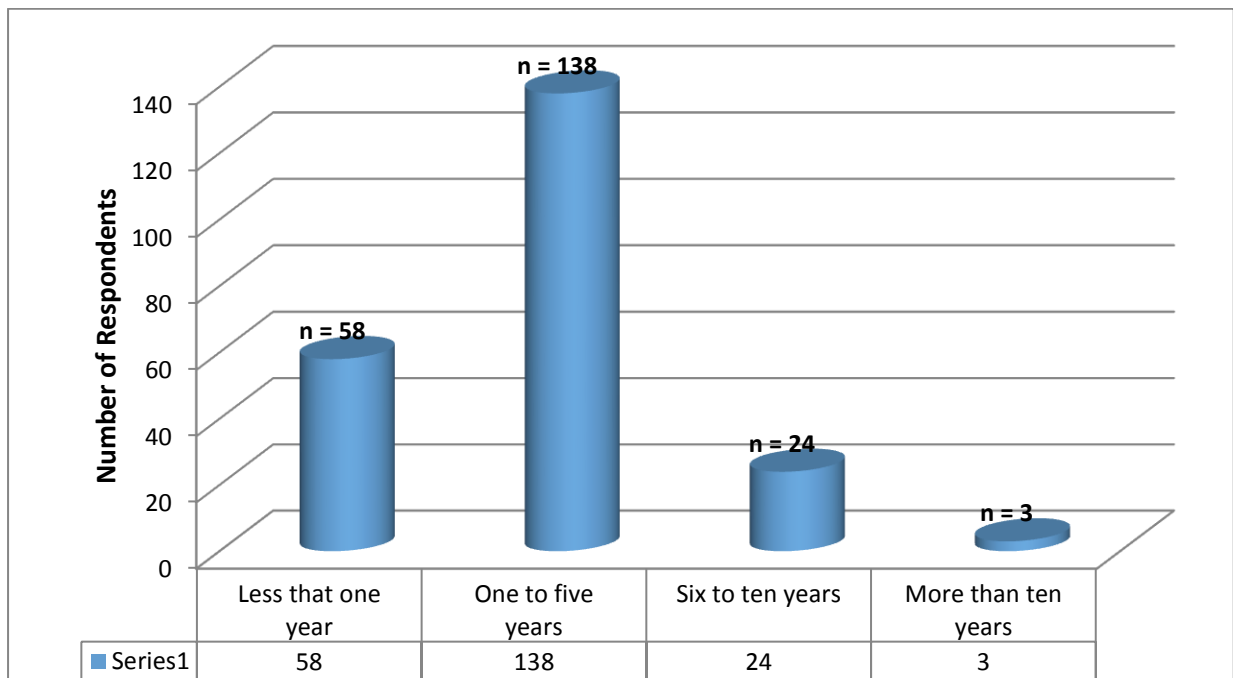
- **Section A: Biographical and background information:** length of employment, years of experience, qualification, nationality, age, assigned unit/ward, etc.
- **Section B: Monitoring of quality indicators:** Multiple questions presented in a Likert scale ranging from strongly disagree to strongly agree
- **Section C: Nurses knowledge of quality indicators:** close ended questions to test the nurse's general knowledge on quality indicators (Level of Service Indicators) or (LSI's)

4.2.1 Section A - Biographical and Background Information

Variable 1 (Question 1): How long have you been employed at your current tertiary healthcare institution in Saudi Arabia (N=223)

Figure 4.1 displays the years of employment of participants at the tertiary healthcare institution, n = 58 (26%) participants are employed for less than one year, n = 138 (61.8%) employed between one to five years, n = 24 (10.7%) are employed between six to ten years and n = 3 (1.3%) employed for more than ten years. More than seven of every eight employees, n = 87.8% are employed for less than five years. The distribution of experience is due to many factors, including recruiting, contracting and retention policies. This data would seem to suggest that most personnel come to Saudi Arabia to work for their initial contract period and few stay longer, for whatever the reason. This places a great training burden on the 10%+ of more experienced staff members in Saudi Arabia to educate new members on the importance of quality assurance. Knowledge of quality indicators used by the current healthcare institution should enable the registered nursing community to provide quality patient care in a uniform and standardized manner.

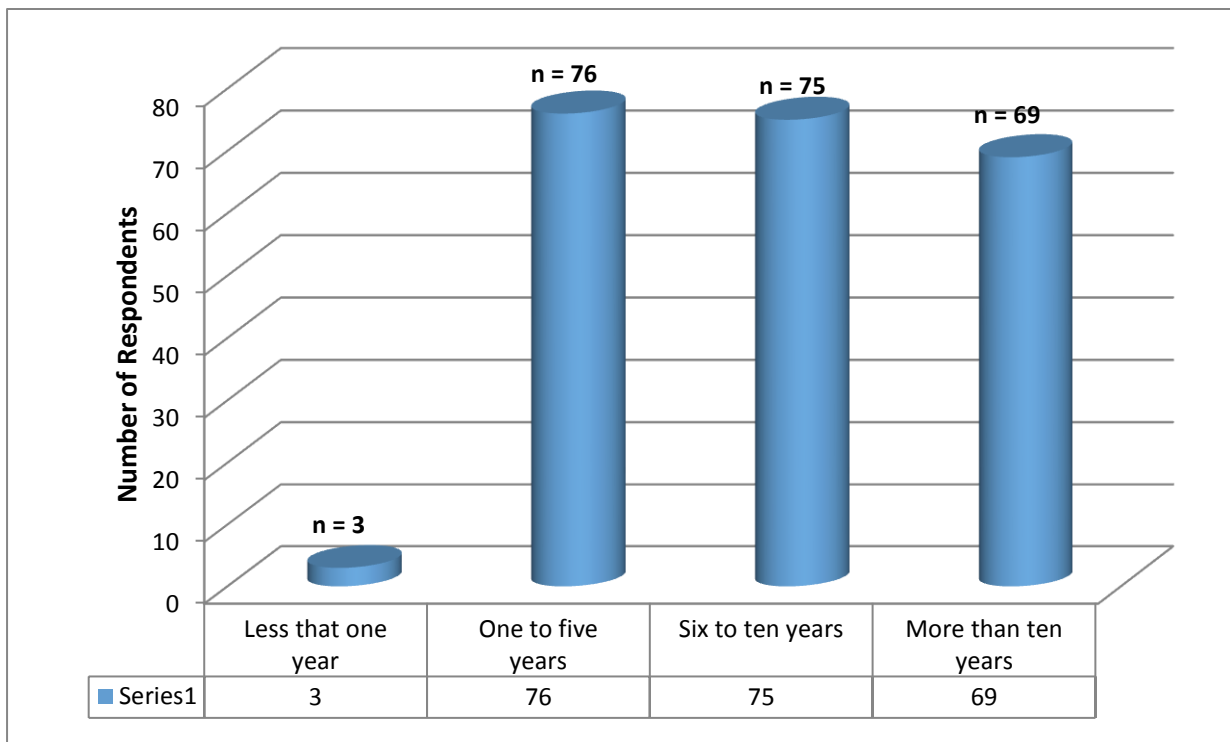
Figure 4.1: Length of employment



Variable 2 (Question 2): How many years of nursing experience do you have after registration (N=223)

In the below illustrated graph, **Figure 4.2**, the minority of respondents $n = 3$ (1%) have less than one year experience in the nursing field, $n = 76$ (34%) have experience in the nursing field between one to five years. The second highest group of the respondents $n = 75$ (33.6%) have nursing experience between six to ten years and more than ten years nursing experience, $n = 69$ (31%). While **Figure 4.1** indicated that the employment experience in Saudi Arabia is skewed to less than five years, the majority of respondents $n = 144$ (64%) have more than six years of experience as registered nurses. In fact, the distribution of total nursing experience is almost equally distributed between one to five, six to ten and more than ten years of experience. While no analysis was done on the differences in experience between nurses of different ethnic backgrounds, there appears to be a more or less uniform continuum of experience. This finding tends to confirm the conclusion that even if respondents are senior in their years of nursing exposure, it does not necessarily indicate that they are knowledgeable towards quality indicators, is able to identify the factors that can influence the identification of quality indicators, nor do they necessarily understand the concept of quality indicators. This confirmation stems from $n = 144$ (64%) of respondents who have six or more years of experience.

Figure 4.2: Years of nursing experience



Variable 3 (Question 3): Indicate your current level of nursing qualification (N = 223)

Figure 4.3 indicates the educational level of the respondents. This data tends to be consistent with **Figure 4.1**. Most nurses that come to Saudi Arabia to work appear to come for the first time, a few stay longer than their initial contract, a few come with a diploma, Bachelor in Nursing or few with a master degree. In this figure it is evident that the majority of respondents n = 184 (82.9%) have a bachelor of nursing degree, n = 30 (13.45%) have a nursing diploma, n = 5 (2.24%) have a post basic qualification and n = 4 (2%) have a master degree. With the majority of respondents that have standard nursing training, it was an assumption that the staff working in the tertiary healthcare institution in Saudi Arabia likely have relative knowledge of nurse quality indicators and their opinions will reflect reasonable insight into the subject under discussion, but that the individual knowledge may not be uniformly consistent with the standards in Saudi Arabia.

It is significant that only n = 4 (2%) of respondents (three (3) Filipino and one (1) Saudi) possessed a master's degree qualification and only n = 5 (2.24%) had a post basic qualification. Before the initiation of the research study there were no candidates with a PhD (Doctorate in Nursing) employed in the tertiary healthcare setting in Saudi Arabia. This raised a new train of thought of the ability of nurses on a higher educational level be able to early detection of quality indicators within the healthcare setting in Saudi Arabia.

Figure 4.3: Nursing qualification

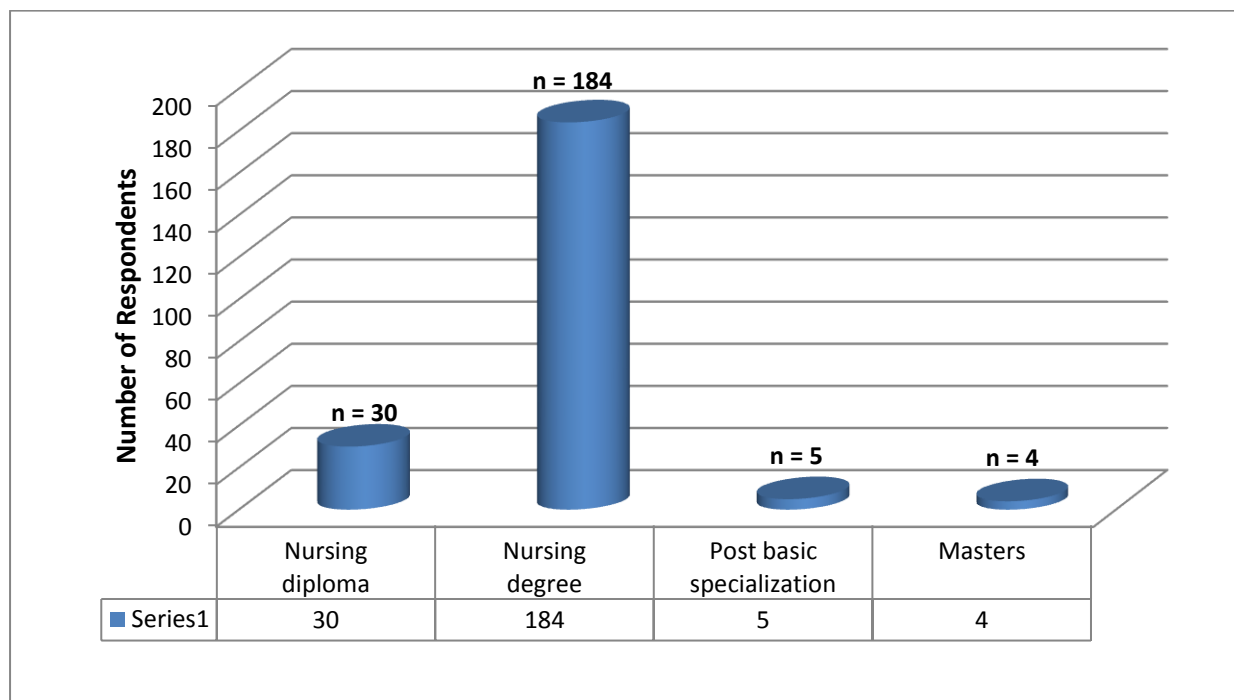
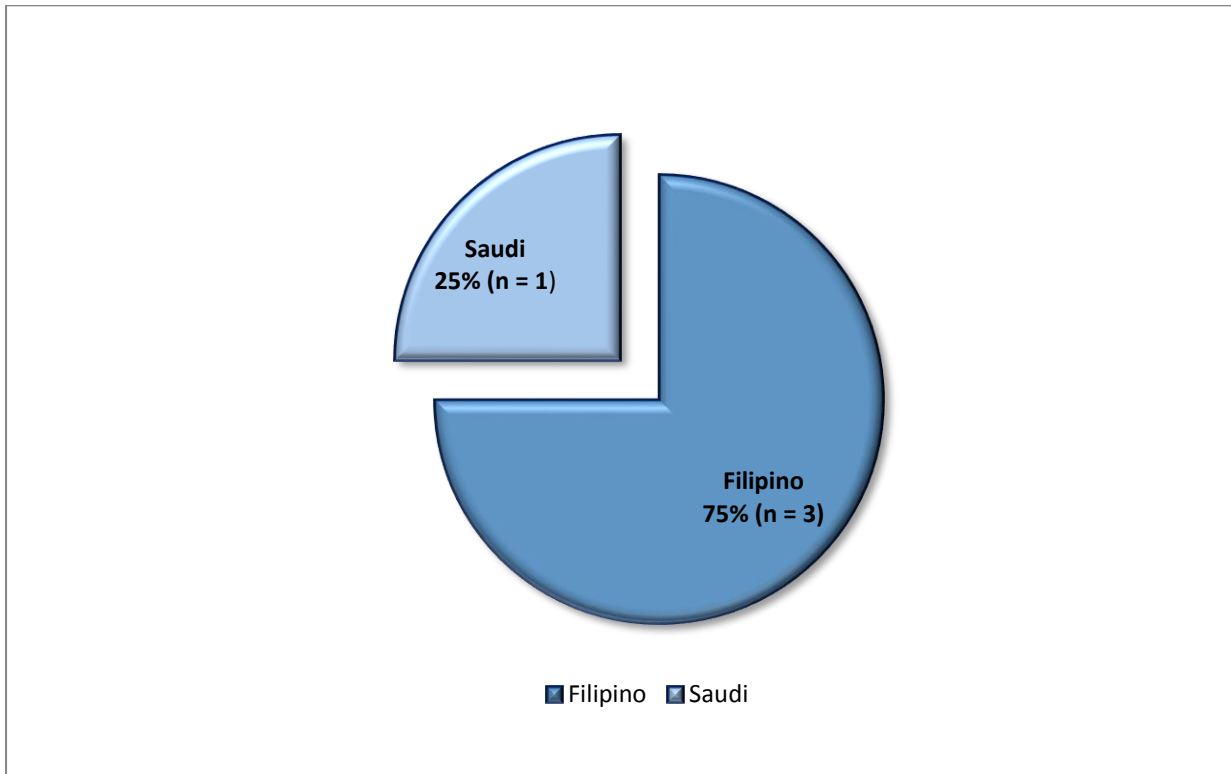


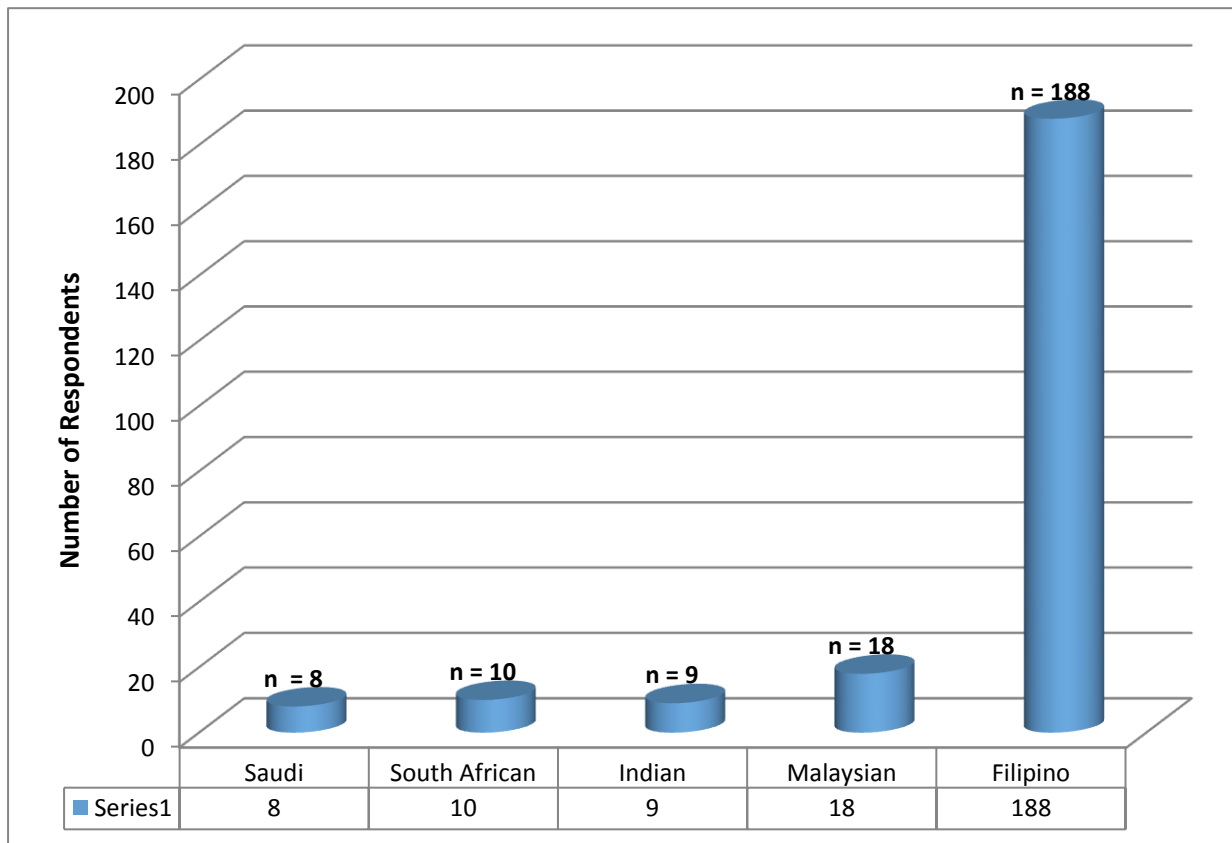
Figure 4.4 below illustrates the distribution of master's degrees of respondents in the tertiary healthcare institution



Variable 4 (Question 4): Indicate your nationality (N = 223)

Figure 4.5 displays the distribution of nationality specific to this study and reflects more or less the same distribution as with the pilot study. The majority of respondents n = 188 (84.3%) are Filipino registered nurses, followed by the Malaysian registered nurses, n = 18 (8%), n = 10 (4.48%) South African registered nurses, n = 9 (4%) Indian registered nurses, followed by n = 8 (3.58%) Saudi registered nurses. It is important to indicate that at the time the study was proposed, the database of nursing consisted of 82.2% Filipino, 4.5% Malaysian, 5 % South African, 4.3% Indian and 4% Saudi nursing employees.

Figure 4.5: Nationality



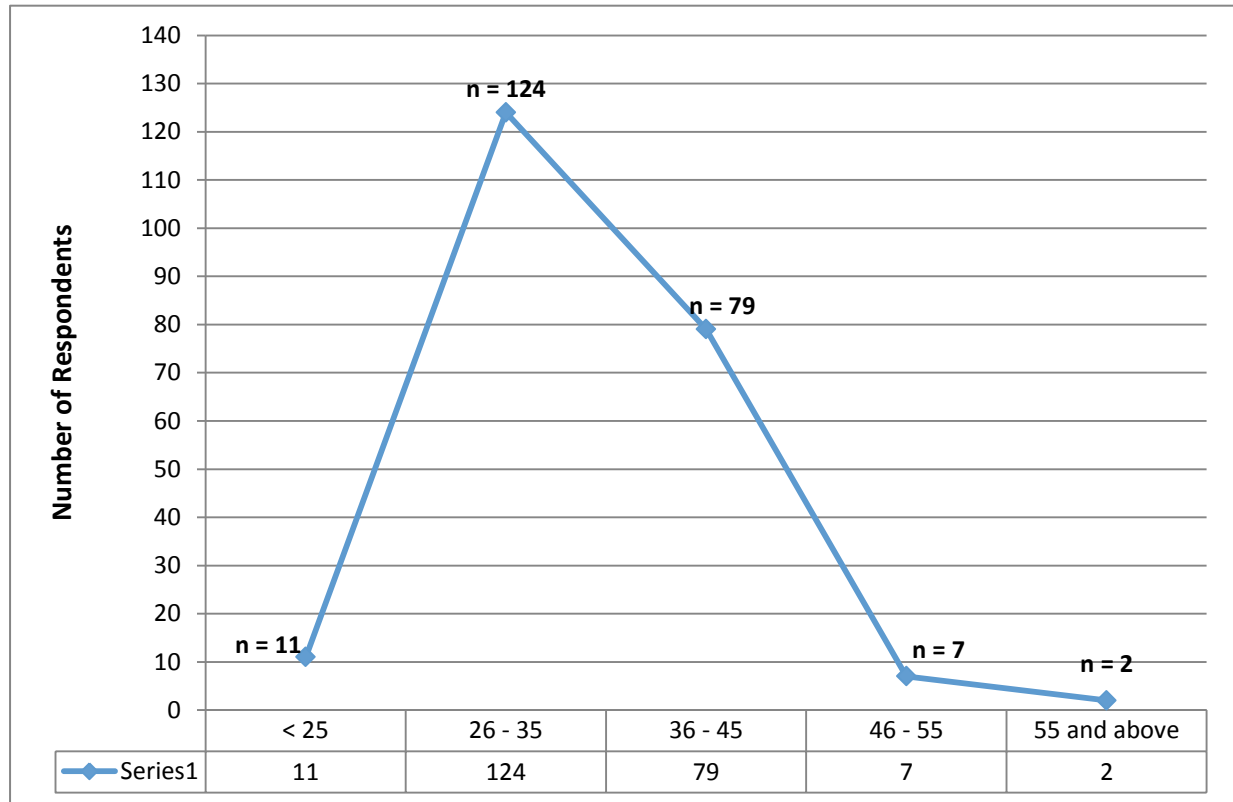
Variable 5 (Question 5): Indicate your age group (N = 223)

Figure 4.6 the line diagram displays the age range of the respondents. The majority of the respondents, n = 124 (55.6%) are between the age of 26 to 35, followed by the second highest group n = 79 (35.4%) which varies between the ages of 36 to 45, consequently it is indicated that n = 210 (94.1%) are 26 years and older with n = 2 (0.9%) of the respondents are older than 55 years of age. Only n = 11 (4.9%) of the respondents are younger than 25 years of age. Through these six charts, the data is consistent and uniform. While there is an even distribution of experience, 80% of respondents have worked in Saudi Arabia less than five years, 80% or so have a bachelor’s degree 80% or so are Filipino, and about the same percentage is between the ages of 26 and 45. There is evidence that an older nursing generation group might have significant knowledge of quality indicators in clinical nursing.

This study revealed that the majority of the workforce is mature and knowledgeable about nurse sensitive quality indicators in the tertiary healthcare setting. The question remains, are the registered nurses knowledgeable regarding quality indicators, can they identify the factors

that can influence the identification of quality indicators in nursing in their “mature” status or do they need a training program to teach them about quality in nursing?

Figure 4.6: Age group of respondents



Variable 6 (Question 6): Indicate your area of work (N = 223)

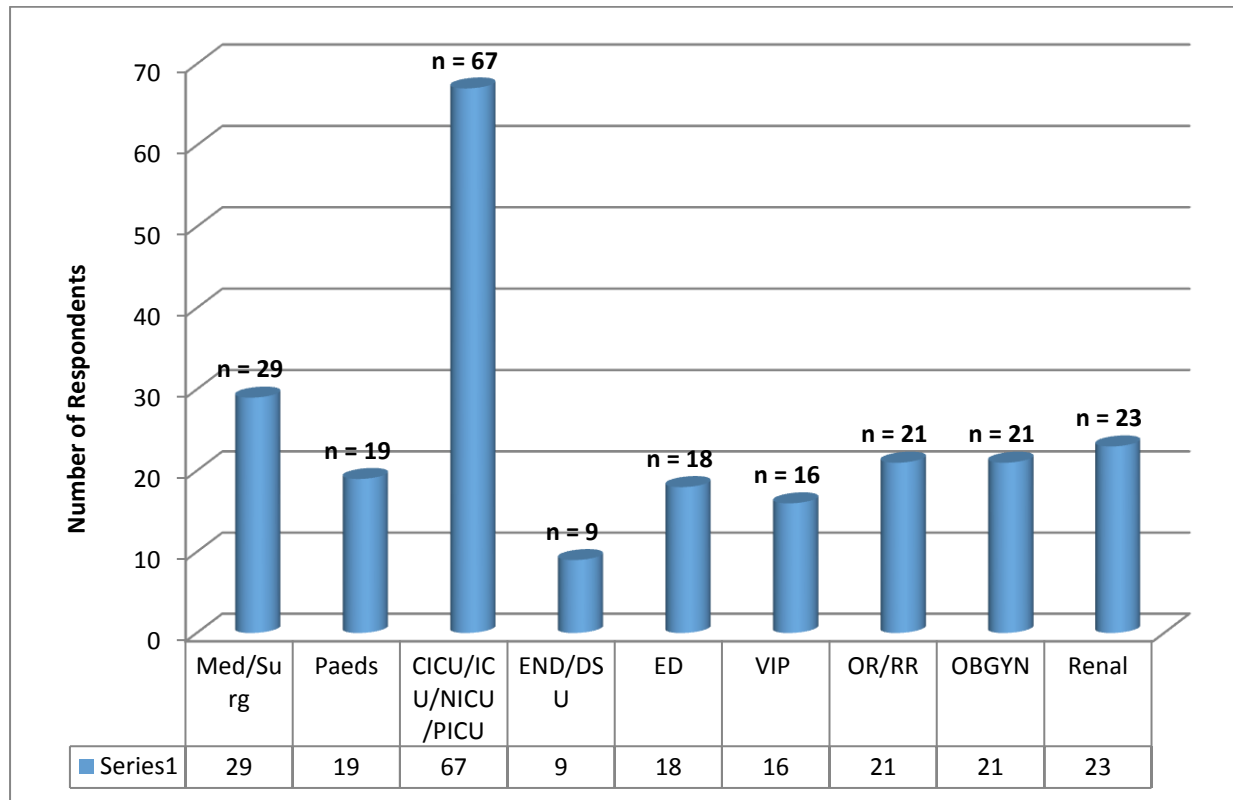
During the data analysis it was identified that the majority of respondents n = 67 (30.04%) are working in an intensive care area, followed by medical/surgical units n = 29 (13%). Thirdly nephrology nursing follows with n = 23 (10.3%). The remaining respondents percentages varies between n = 9 – 21 (4 – 9.4%), these results are significant to Endoscopy, Day Surgery, Emergency Department etc. as indicated in the illustration below.

Respondents in this study were spread within different nursing care settings and not from only one specialization. The units in the study were directly involved with patient for patients staying in the hospital for a procedure or for a day or longer.

It is important to take cognizance that the quality indicators in the specialized units such as ICU and Renal will differ from general wards and needs additional in-service in identifying

factors that can influence quality indicators in clinical nursing. This could be a result of unit specific demands allocated to quality indicators, e.g, in the ICU's one could expect ventilator associated pneumonia (VAP) as one of the quality indicators whereas in a general ward this would not be a quality indicator to be monitored.

Figure 4.7: Area of work

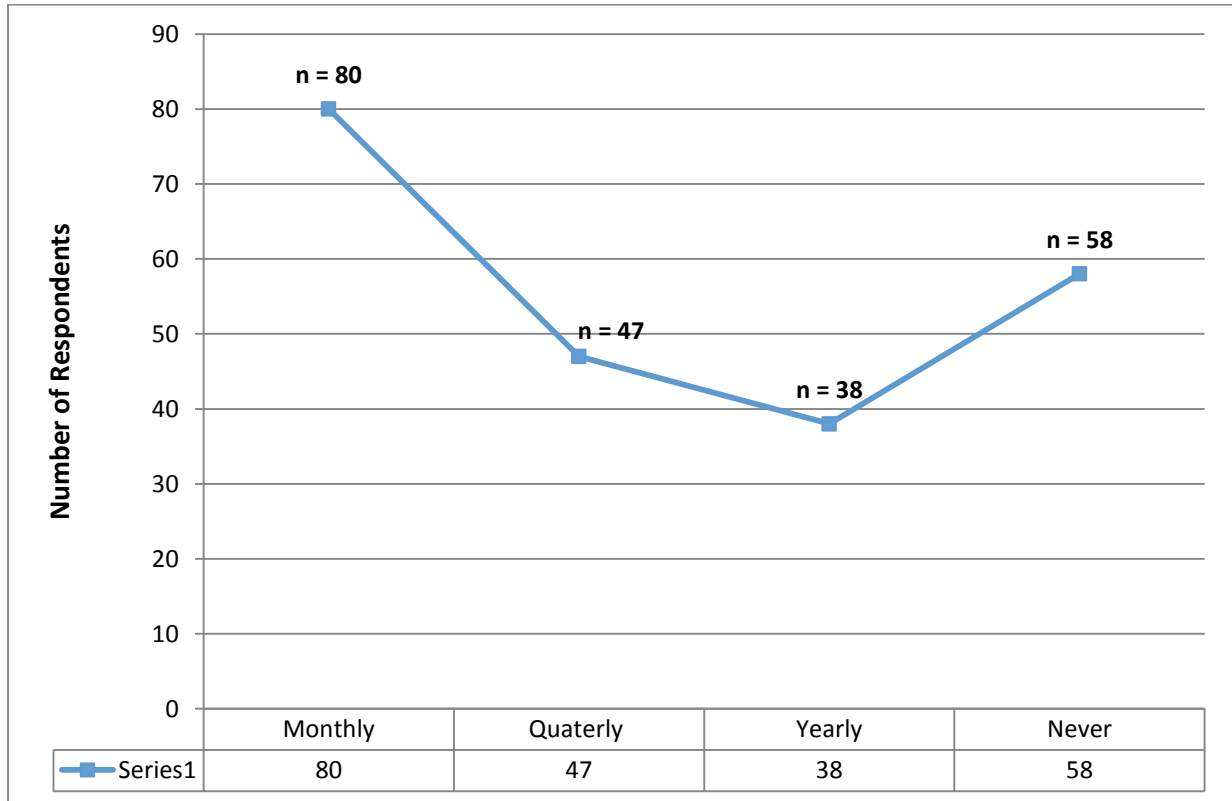


Variable 7 (Question 4.7): Participation in quality projects (N = 223)

About 1/3 of participants n = 80 (35.8%) indicated that they were involved in quality projects on a monthly basis, while slightly fewer, n = 58 (26%) of participants never had exposure to quality projects in the units. The rest of the respondents n = 39 – 47 (17% - 21%) were involved in the quality projects either yearly or quarterly as reflected in the line diagram in **Figure 4.8** below. The result of this question would seem to confirm the value of the study: the assessment of the knowledge and opinions of nurses regarding quality indicators are therefore imperative in order to ensure that quality care are rendered. The objectives “to identify the factors that influence identification of quality indicators in clinical nursing” and “to explore the factors influencing the professional nurses’ understanding of quality indicators” still needs to be determined and the researcher is of opinion that the respondents who did not take

part in quality assurance projects had a valuable input in determining the outcome of the two objectives mentioned above.

Figure 4.8: Participation in quality projects

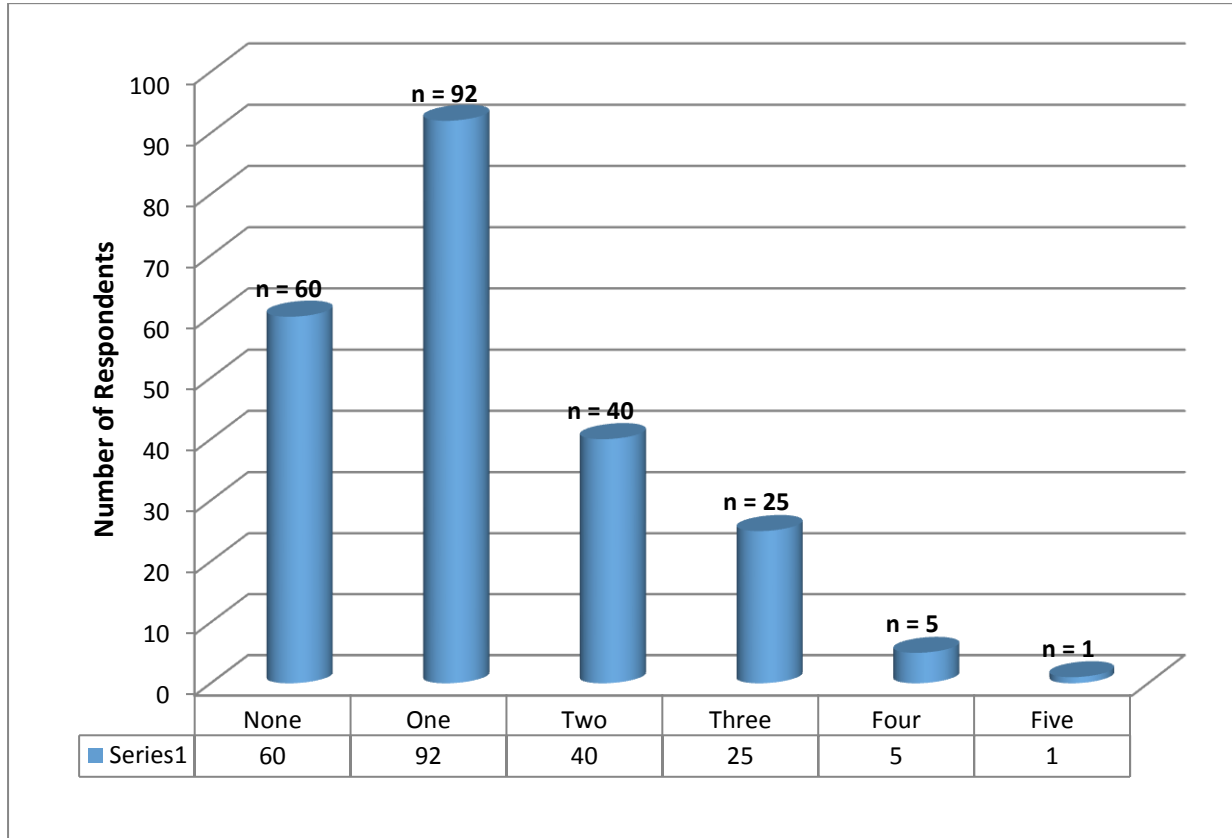


Variable 8 (Question 8): List quality projects in which you were involved (N = 223)

The researcher aimed to determine the involvement of the respondents in quality projects pertaining to nursing in the tertiary healthcare setting in Saudi Arabia as indicated in **Figure 4.9**. It is important to know the number and type of quality projects which the respondents were involved in. The majority of the respondents n = 92 (41.2%) were involved in only one quality project, n = 40 (17.9%) involved in two quality projects, n = 25 (11.2%) involved in three quality projects, n = 5 (2.2%) involved in four quality projects and n = 1 (0.44%) in five quality projects. The respondents n = 60 (26.9%) were never involved in any quality projects. Huge variation exist with reference to number of projects the respondents are involved in, i.e. n = 1 respondent was involved in 5 (five) projects while n = 92 were involved in 1 (one) quality project. It is therefore important to determine the highest qualification of the respondent with 5 (five) projects and work experience.

The disparity between the respondents that have been involved in one or more quality projects and the respondents that have never been involved indicates a need for a training program on quality management that includes quality indicators.

Figure 4.9: Respondents involvement in quality projects in nursing

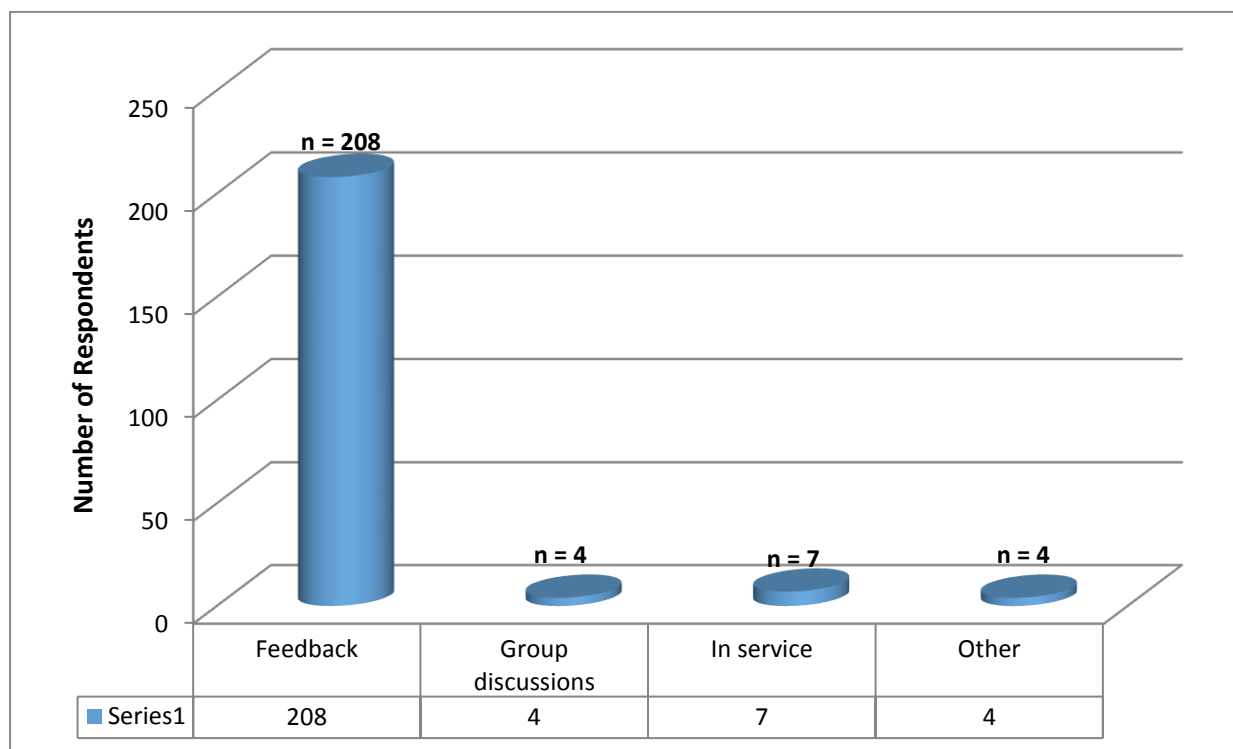


On the other hand, Variable 9 (Question 9): Do you receive feedback on your unit compliance on nurse sensitive quality indicators (LSI's) on a monthly basis (N = 223) revealed that during the data analysis of this question, the majority of respondents n = 219 (88%) do receive feedback on the units' compliance on the nurse sensitive quality indicators every month, n = 4 (2%) has never received any feedback on the compliance. Although the percentage of respondents that did not receive feedback is small, it is still a vital necessity to be well informed of the progress of quality assurance in the work place as the unit manager have to use the feedback to determine the progress or standard of practice within the tertiary healthcare setting in Saudi Arabia. The results triggered the question that reflects back to the objective "to explore the factors influencing the professional nurses' understanding of quality indicators", do the nurses truly understand the use and benefits of nurse sensitive quality indicators.

Variable 10 (Question 10): Indicate how you receive the units' compliance on nurse sensitive quality indicators (N = 223)

The data analysed in this question indicated that the majority of respondents n = 208 (93.2%) received feedback of the achievements of the nurse sensitive quality indicators (LSI's) through feedback during the units' monthly meeting. The remaining data n = 4 to n = 7 (1.7% - 3.1%) indicated that the respondents either receive the information through group discussions, in-service or other methods of communication. It is a concern that the respondents n = 4 indicated above will not be able to identify the shortcomings, limitations or even positive feedback within their units' achievements obtained.

Figure 4.10: Method of information sharing on nurse sensitive quality indicators



The significant gap of 34% between the respondents that have been involved in one or more quality projects as indicated in **Figure 4.9** and the respondents that have never been involved indicates the necessity for a training program on quality management that includes nurse sensitive quality indicators.

4.2.2 Section B: Monitoring of quality indicators

In this section the monitoring of quality indicators were addressed and the respondent identified their agreement or disagreement with the statements pertaining to nurse-sensitive quality indicators through multiple questions presented in a Likert scale, ranging from strongly

disagree to strongly agree. The questions were randomised to determine knowledge and opinions in these statements.

It was an expectation that all registered nurses should answer all the questions correctly but as the data indicates, this was not the case.

4.2.2.1 Variables pertaining to opinions on nurse sensitive quality indicators

- Variable 11: (Question 11) – It is important to monitor quality indicators (LSI's) in any nursing unit
- Variable 14: (Question 14) – I am willing to implement quality indicators (LSI's) in daily practice
- Variable 15: (Question 15) – Feedback on quality indicators (LSI's) stimulates me to adjust my nursing practice
- Variable 16: (Question 16) – Monitoring of quality indicators (LSI's) stimulates quality improvement
- Variable 17: (Question 17) – Monitoring of quality indicators (LSI's) does not take too much time
- Variable 18: (Question 18) – Monitoring of quality indicators (LSI's) fits into the daily routine in the hospital setting
- Variable 25: (Question 25) – Nursing staff should often discuss the results of the quality indicators (LSI's) and or improvements in the unit to promote quality nursing care
- Variable 26: (Question 26) – All deviances pertaining to quality indicators (LSI's) are reported
- Variable 27: (Question 27) – Feedback on quality Indicators (LSI's) in the unit is part of the commitment to improve the quality of nursing care
- Variable 28: (Question 28) – As a colleague, I report any deviance of the quality indicators (LSI's) as I know it will improve the quality of nursing care
- Variable 29: (Question 29) – When errors pertaining to quality indicators (LSI's) occur, I feel supported by my unit manager
- Variable 30: (Question 30) – It is a learning experience for all staff when deviances on quality indicators (LSI's) occur and it can be discussed with all nursing staff during the unit meeting

- Variable 31: (Question 31) – In your opinion, quality indicators (LSI's) contribute to improved patient care
- Variable 32: (Question 32) – I understand all there is to know about quality indicators (LSI's)

4.2.2.2 Variables pertaining to knowledge on nurse sensitive quality indicators (LSI's)

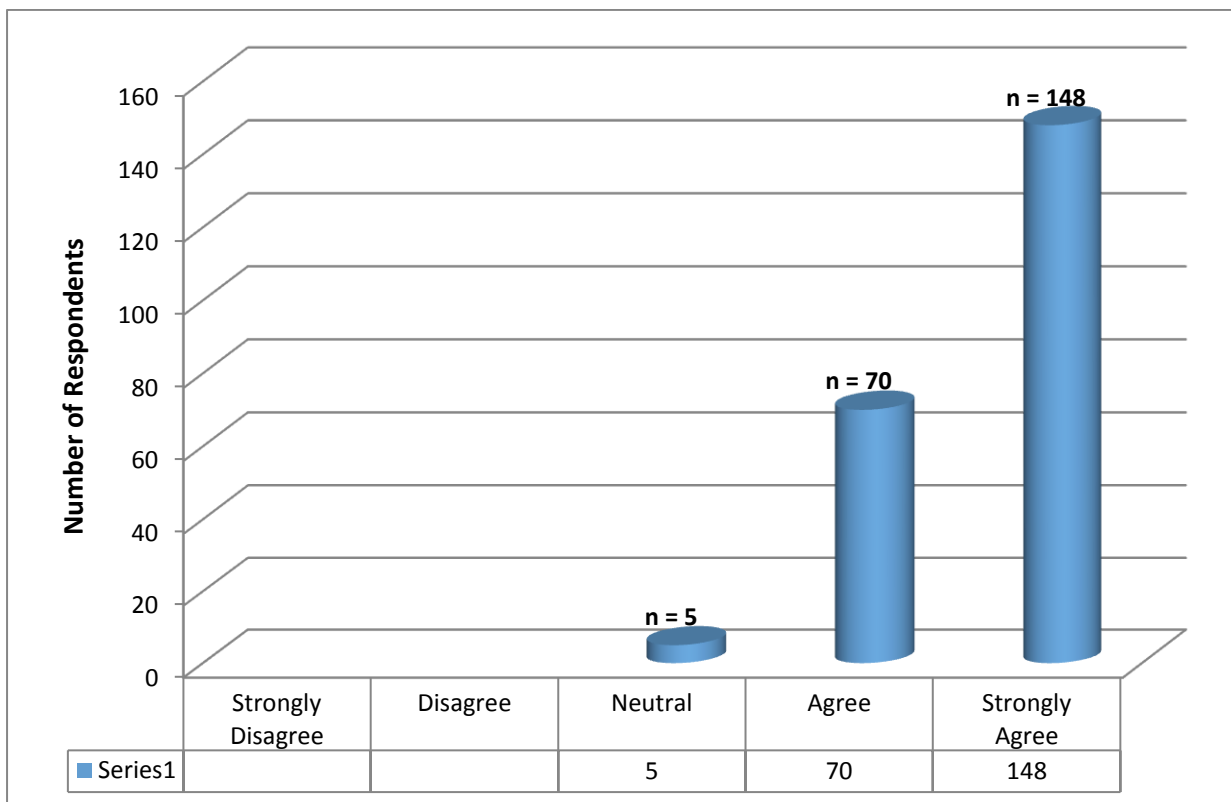
- Variable 12: (Question 12) – I am familiar with the use of quality indicators (LSI's) as a tool to improve quality care
- Variable 13: (Question 13) – I understand the importance of using quality indicators (LSI's)
- Variable 19: (Question 19) – To monitor quality indicators (LSI's) indicates the quality of care patients receive
- Variable 20: (Question 20) – To create quality awareness through in service is a useful way of improving patient care
- Variable 21: (Question 21) – For quality indicators (LSI's) to be managed and improved it must be understood, defined and the existing quality of care must be established and measured
- Variable 22: (Question 22) – Measurement is a vital part of improvement of quality indicators (LSI's)
- Variable 23: (Question 23) – Assessing and measuring the quality of care in a way that it enables it to be quantified is an essential ingredient for quality indicators (LSI's)
- Variable 24: (Question 24) – Reporting deviances pertaining to quality indicators (LSI's) increase the quality in nursing care
- Variable 33: (Question 33) – Nursing sensitive quality indicators (LSI's) are “those indicators that capture care or it's outcomes most affective by nursing care”
- Variable 34: (Question 34) – Process indicators – “evaluate the manner in which care is delivered”, e.g., the process of pain assessment
- Variable 35: (Question 35) – Structure indicators – “evaluate the structure or systems for delivering care”, e.g., to check if forms documenting restrain use are completed correctly
- Variable 36: (Question 36) – Outcome Indicators – “evaluate the end result of care delivered”, e.g., adherence to medication therapy

Variable 11 (Question 11): It is important to monitor quality indicators (LSI's) in any nursing unit (N = 223)

Figure 4.11 shows that the majority of respondents n = 148 (66.36%) is in strong agreement that it is of importance to monitor quality indicators, n = 70 (31.3%) agreed that it is important and n = 5 (2.24%) are neutral. This is regarded as positive feedback however in Variable 13 (Question 13) the researcher had to establish whether the respondents understood the reason for monitoring quality indicators. The analysis of the knowledge of the registered nurses revealed that in general only 60% appears to be knowledgeable with reference to quality indicators, see analysis in question 44.

The researcher aimed to get the general impression of the respondents and whether they could objectively indicate that the monitoring of quality indicators in a nursing unit is important towards the outcome of patient care.

Figure 4.11: Importance of monitoring quality indicators

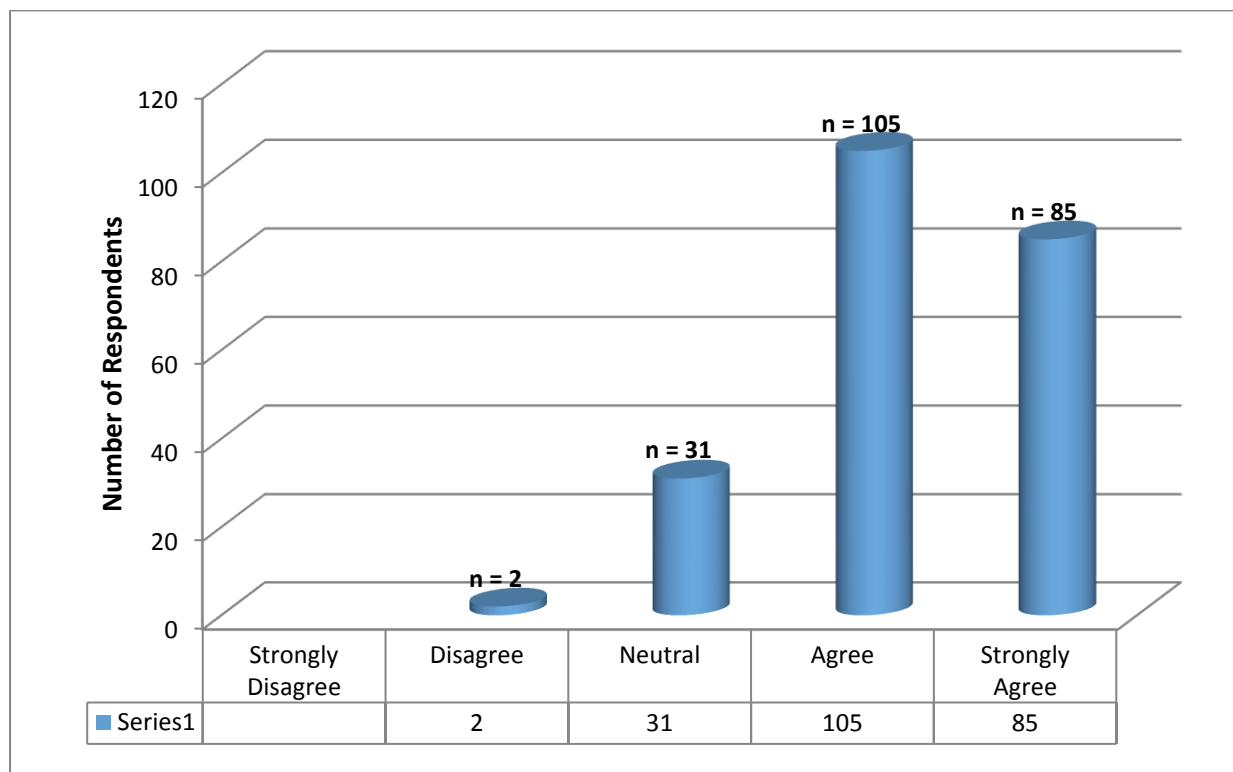


Variable 12 (Question 12): I am familiar with the use of quality indicators (LSI's) as a tool to improve quality of care (N = 223)

The majority of the respondents n = 105 (47%) indicated that they are familiar with the use of quality indicators as a tool to improve quality of care, n = 85 (38.1%) are completely familiar with the fact that quality indicators are used to improve quality of care, n = 31 (13.9%) indicated a neutral point of view. An insignificant response n = 2 (0.8%) strongly disagree with the fact that quality indicators are tools to improve quality of care. The response of the respondents on this criteria is an indication that some are not totally convinced that quality indicators can be used as a tool to measure the care that is rendered to patients and that the quality of care can improved once the results of deviances are known. It reinforces the need for an educational program towards quality management in nursing.

The Joint Commission Journal on Quality and Patient Safety, (JCIA), (2010:29), states that *“the role of registered nurses in quality improvement in hospital is vital, because most hospital - based registered nurses provide direct care to patients. Their unique position as direct caregivers could have an important impact on reviewing and improving clinical practice for continuously improving patient care”*.

Figure 4.12: Quality indicators are used as a tool to improve quality of care



Variable 13 (Question 13): I understand the importance of using quality indicators (LSI's) (N = 223)

The majority of respondents n = 119 (53.3%) indicated that they understand the importance why quality indicators are used. This indication is however not convincing as only n = 83 (37%) indicated a strong understanding which inevitably does not confirm that they are knowledgeable and committed towards the importance of using quality indicators in clinical nursing.

Gallagher et al., (2003:274) stated that *“the provision of outcome-oriented, cost-effective health care is no longer a goal. It is a mandate”. It furthers argue that “knowledge of the lack of nursing-sensitive quality indicators, the public perception that adverse occurrences reflected delivery of poor quality nursing care, decreasing levels of satisfaction of both patients and nurses with nursing care being provided”.*

In relation with **variable 4.11 (question 11)** in which respondents were asked whether it is important to monitor quality indicators, 66.36% strongly agreed. When asked whether they understand why it is important to monitor these quality indicators, only 37% indicated that they understood the importance of monitoring quality indicators. This indicates a gap of 29% and definitely a landmark that the following objectives are validated: *“to determine the current knowledge and opinions of the professional nurses regarding quality indicators in the tertiary healthcare setting in Saudi Arabia”, “to explore the factors influencing the professional nurses’ understanding of quality indicators”, “to identify the need for a training program on quality management in nursing which need to include quality indicators”.*

Figure 4.13: Understanding the importance of quality indicators

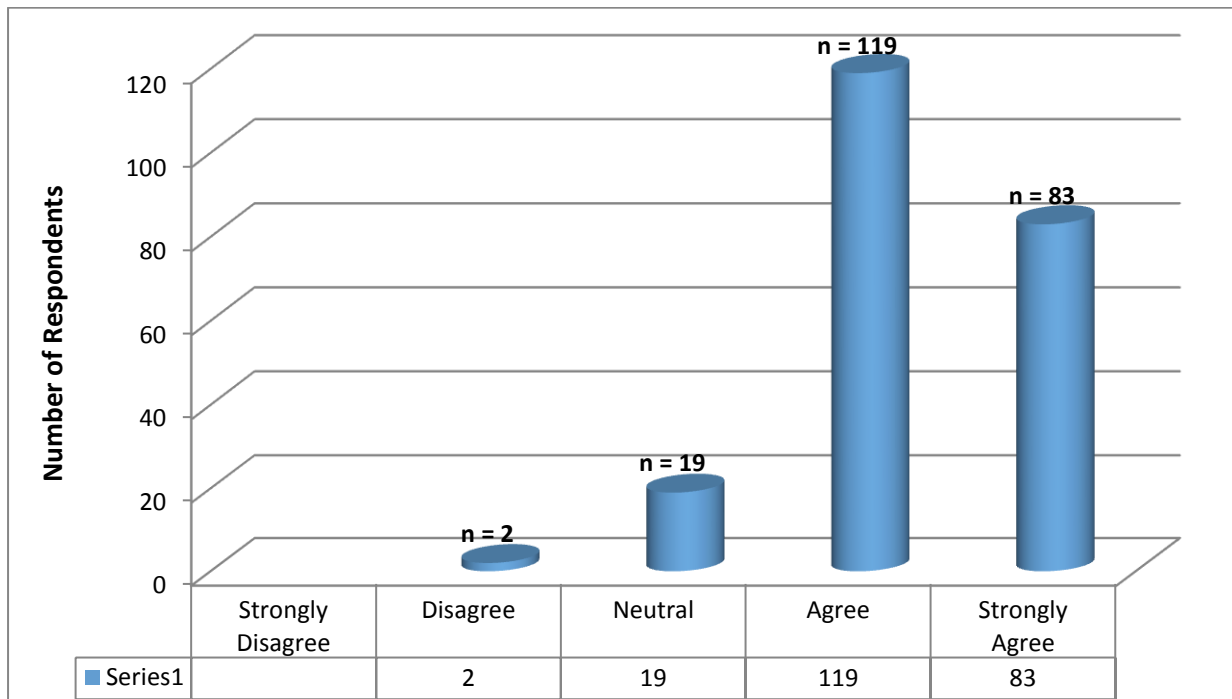
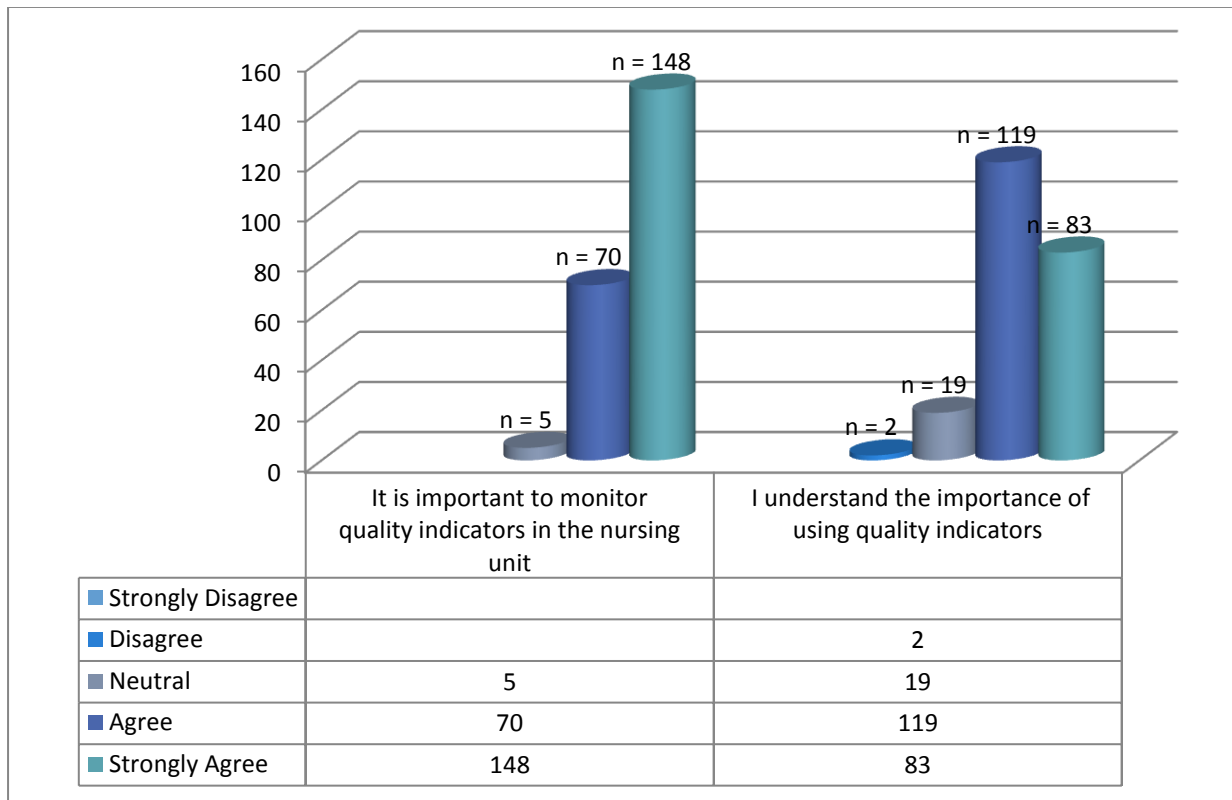


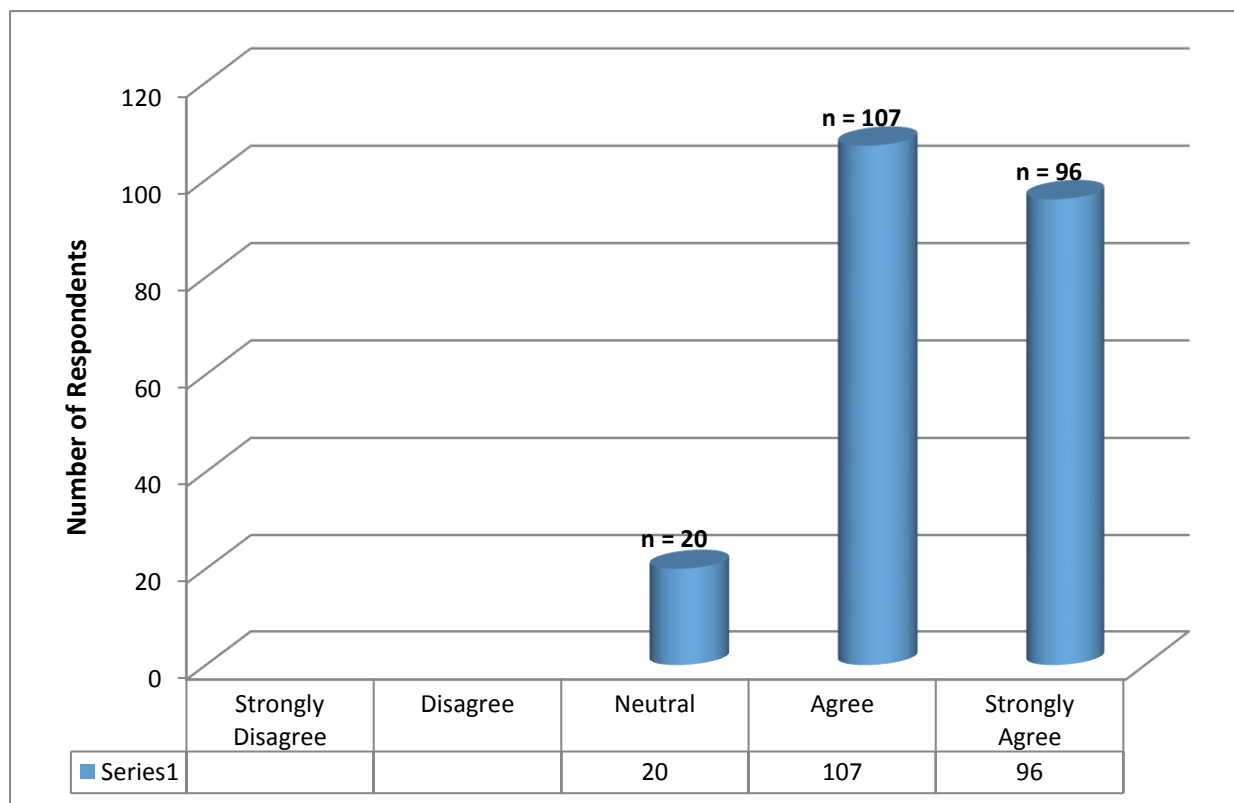
Figure 4.14: Comparison between variable 11(Question 11) – “It is important to monitor quality indicators in any nursing unit” and variable 13 (Question 13) – “I understand the importance of using quality indicators (LSI’s) as discussed above



Variable 14 (Question 14): I am willing to implement quality indicators (LSI's) in daily practice (N = 223)

The figure below, **Figure 4.15** reflects the willingness of the participants to partake in the implementation of quality indicators in daily practice. Although n = 96 (43%) strongly agree that they are willing to implement quality indicators in daily practice, the majority n = 107 (47.98%) only agree and n = 20 (8.9%) remained neutral which leaves the thought of the importance of an educational program on quality management in nursing. The assumption with this variable's feedback is that once a professional nurse is knowledgeable about the importance and use of quality indicators they will be willing to implement the use of quality indicators in patient care on a daily basis.

Figure 4.15: Willingness to implement quality indicators



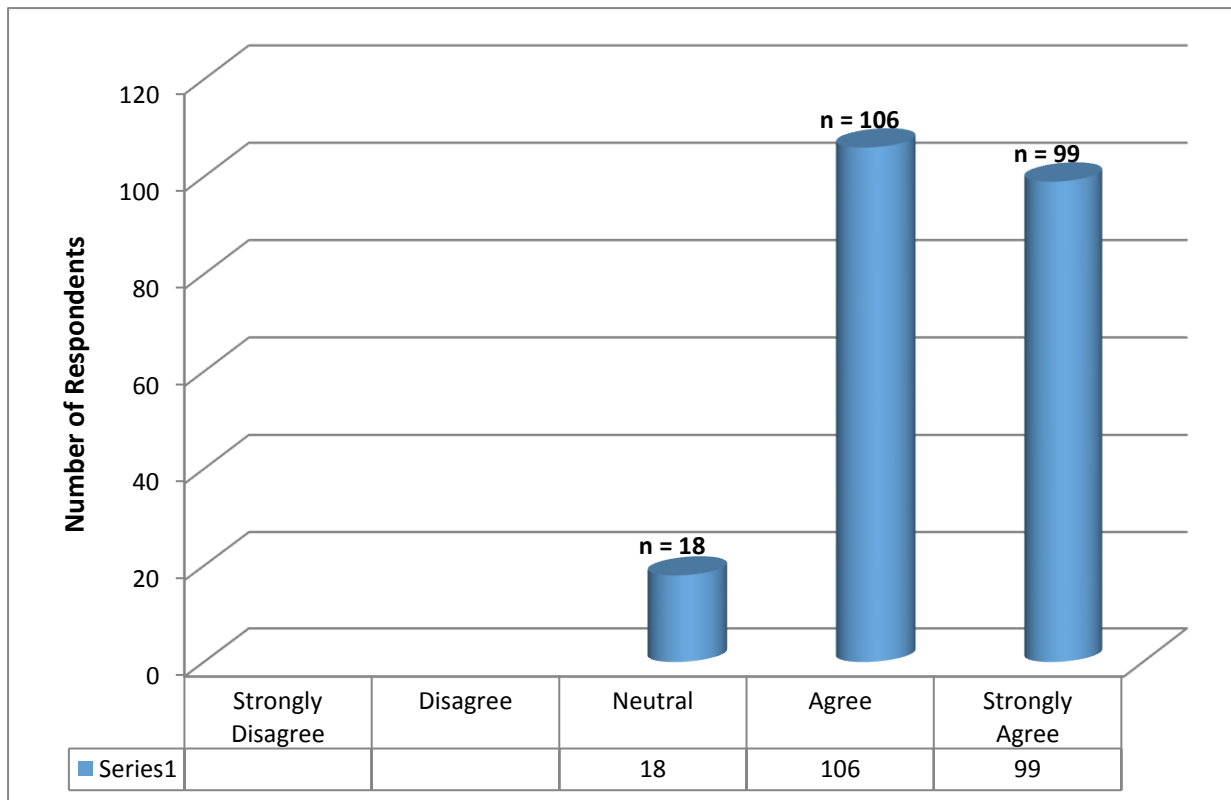
Variable 15 (Question 15): Feedback on quality indicators (LSI's) stimulates me to adjust my nursing practice (N = 223)

The below illustrated **Figure 4.16** indicates that n = 106 (47.5%) agreed that feedback on the quality indicators (LSI's) stimulated them to adjust their clinical practice. A group of

respondents, n = 99 (44.3%) strongly agreed with this statement. A total of n = 18 (8%) of the respondents indicated that they have a neutral impression of the statement.

Variable 9, (Question 9) reflects that n = 219 (88%) of the respondents do receive feedback on the units' compliance to quality indicators on a monthly basis and n = 208 (93.2%) confirmed in **Variable 4.10** that the feedback of the quality indicators are given during the units' monthly meeting. A small percentage of respondents n = 18 (18%) are neutral towards this statement. this confirms that an educational program is of the essence to introduce quality assurance in nursing which includes the subject of quality indicators in clinical nursing and perhaps a motivational program would be useful to introduce quality assurance and the subject of quality indicators.

Figure 4.16: Feedback on quality indicators stimulates to adjust practice



Variable 16 (Question 16): Monitoring of quality indicators (LSI's) stimulates quality improvement (N = 223)

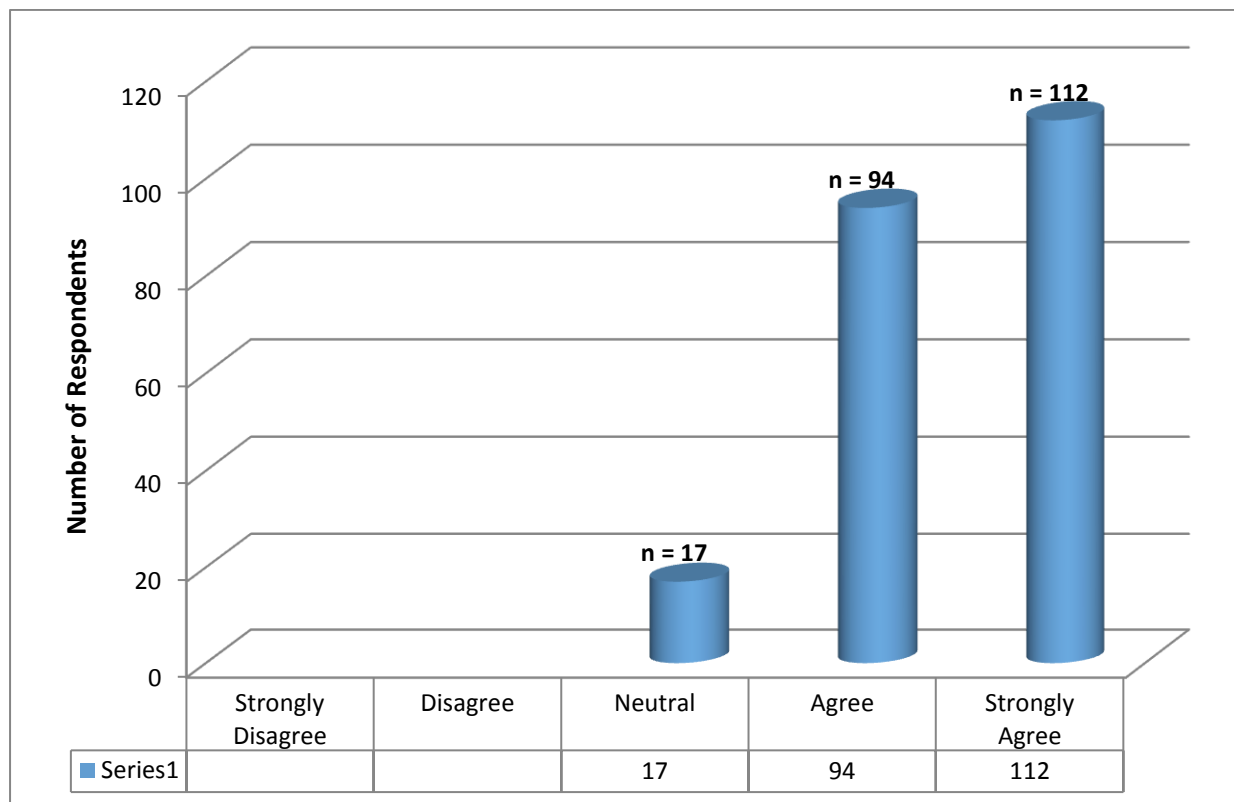
Monitoring of quality indicators as illustrated below in **Figure 4.17** stimulates quality improvement as indicated by the majority of respondents n = 112 (50.2%) who strongly agree with the statement. Although there is a majority of respondents that strongly agree with the

statement, n = 94 (42.15%) only agree and n = 17 (7.62%) are neutral about the statement. Almost half of the respondents, n = 111 (47%) needs to be convinced that the monitoring of quality indicators can stimulate quality improvement.

The American Nurses Association, (ANA) (n.d) states that *“outcome measurement is a mandate from accrediting organizations that represents one aspect of evaluating quality. Outcomes measurements can provide insights into structural components and care processes that may influence quality. Nursing has a social and professional responsibility to provide evidence or data that helps to guide and improve care”*.

This statement infers that there is a lack of knowledge regarding quality indicators in the work force. It further determined the current knowledge and opinions of the professional nurses, the understanding thereof and the need of an educational program on quality assurance in nursing that addresses the subject of quality indicators.

Figure 4.17: Monitoring of quality indicators stimulates quality improvement

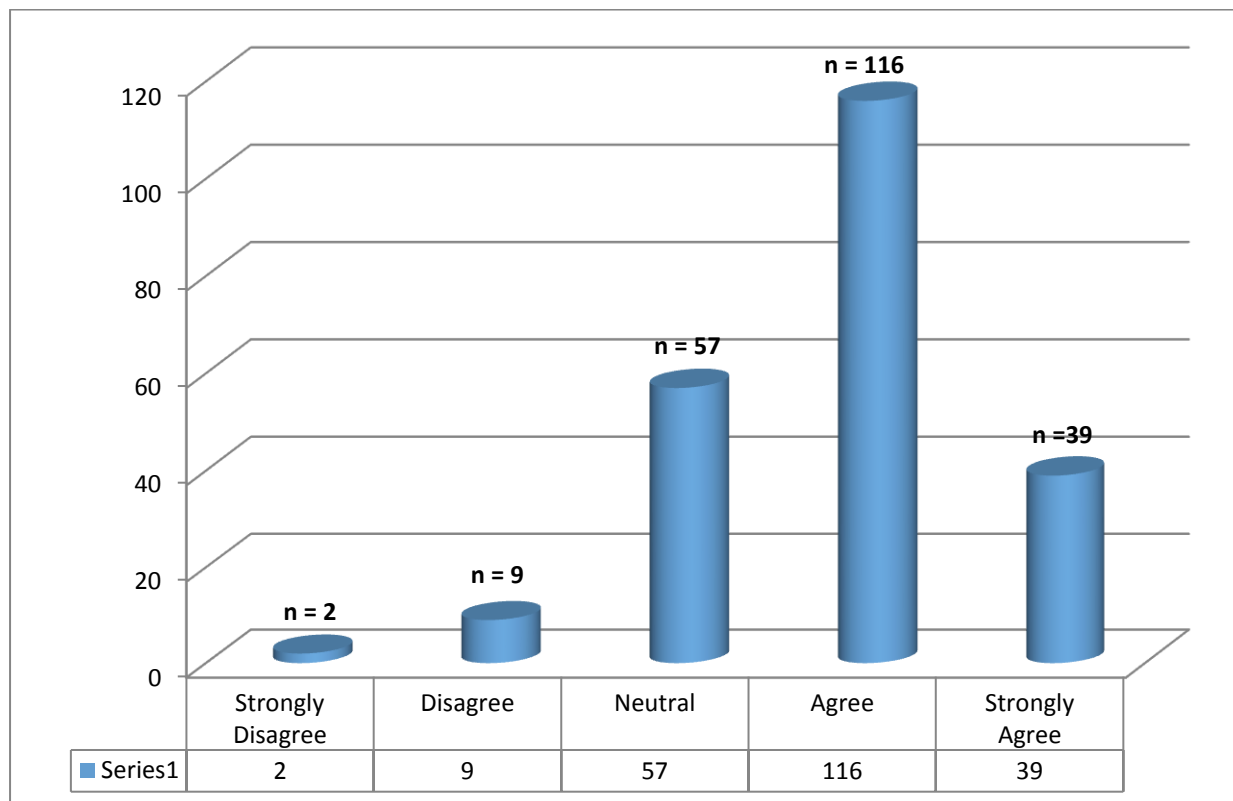


Variable 17 (Question 17): Monitoring of quality indicators (LSI's) does not take too much time (N = 223)

The responses to this statement reflect some divergent feedback as illustrated in **Figure 4.18**. Yet again, the feedback from the respondents indicate a sense of lack of information as n = 2 (0.89%) strongly disagree, n = 9 (4.03%) disagree and n =57 (25.5%) remained neutral on the statement that monitoring of quality indicators (LSI's) does not take too much time. The remaining of the respondents, n = 116 (52%) is in agreement towards the statement and n = 39 (17.4%) strongly agree that the monitoring of quality indicators (LSI'S) does not take an excessive amount time.

The divergence of these responses with a small percentage of the respondents completely disagreeing or neutral, n = 68 (30.49%), tends to confirm that the knowledge and opinions of the nurses regarding quality indicators is inadequate and that there is a need for information sharing and education towards quality assurance in clinical nursing.

Figure 4.18: Monitoring of quality indicators (LSI's) does not take time



Variable 18 (Question 18): Monitoring of quality indicators (LSI's) fits into the daily routines in the hospital setting (N = 223)

Whether monitoring of quality indicators (LSI's) fit into the daily routines in the hospital setting or not is a question where respondents had different opinions as displayed in **Figure 4.19** below. The majority of respondents n = 119 (53.36%) agreed that the monitoring of quality indicators fits into the daily routines in the hospital setting, n = 69 (30.94%) strongly agreed about this statement. The overall feedback with the positive opinion calls for n = 188 (84.3%). It is notable that between n = 1 (0.44%) and n = 33 (14.79%) either strongly disagree, disagree or a neutral opinion towards the statement that the monitoring of quality indicators (LSI's) fits into the daily routines in the hospital setting.

Although the small percentage (0.44% - 14.94%) of opinions of respondents not in favour of this statement, an educational program that would create a culture change towards quality assurance in nursing which includes the benefits and use of quality indicators in clinical nursing in the health care setting in Saudi Arabia.

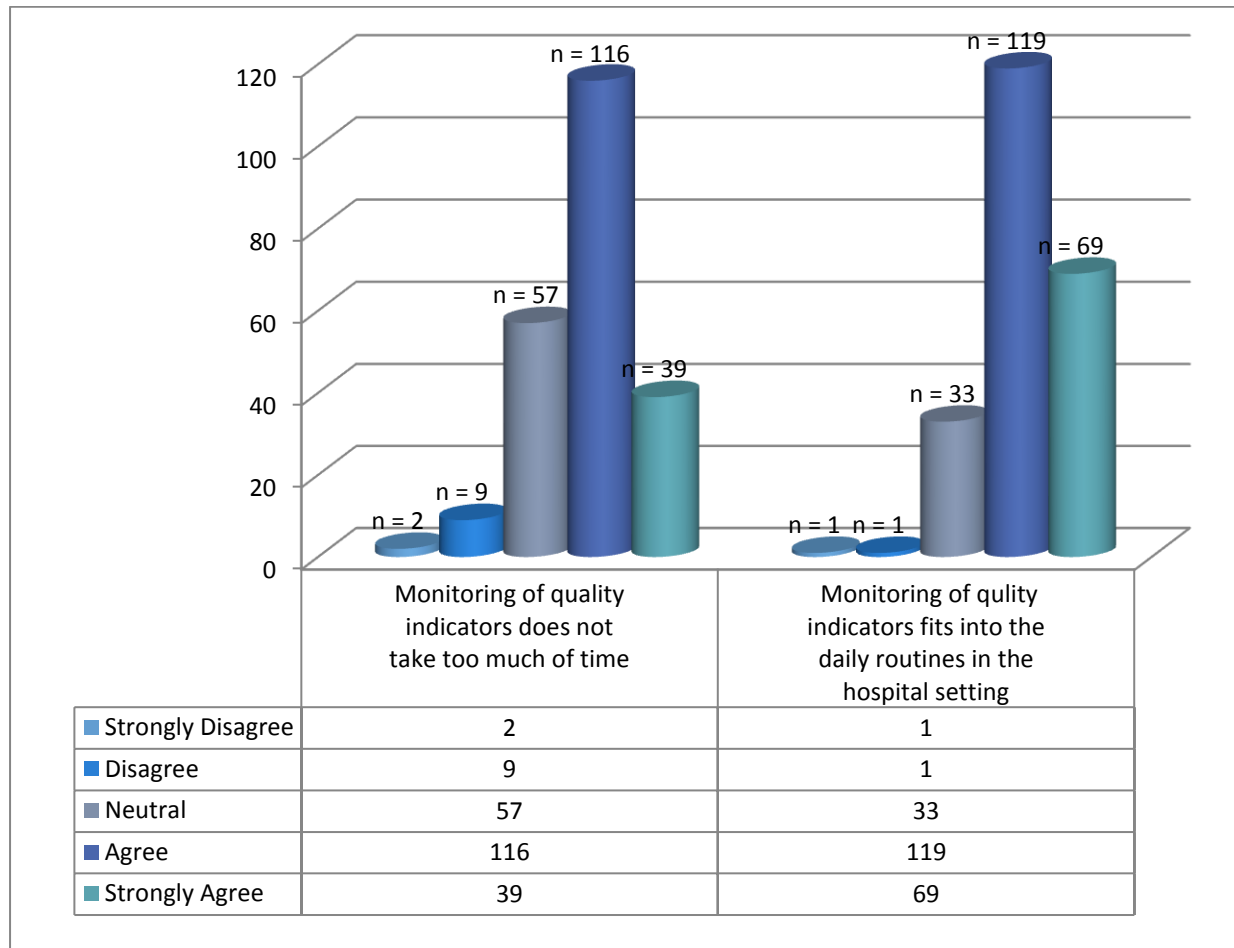
When comparing variable 17 (Question 17): "Monitoring of quality indicators (LSI's) does not take too much time" and variable 18 (Question 18): "*Monitoring of quality indicators (LSI's) fits into the daily routines in the hospital setting*", as displayed in **Figure 4.19** below, it validates the conflicting opinions of the respondents with regards to these two variables.

In variable 17 (Question 17) between n = 2 (0.89%) and n = 9 (4%) of the respondents either strongly disagree or disagree that the "*monitoring of quality indicators does not take too much time*". A fair amount of respondents, n = 57 (25.5%) remained neutral about this statement which indicate the total percentage of respondents n = 68 (30.49%) are not fully convinced about their own response to the variable. **Variable 18 (Question 18)**, "*Monitoring of quality fits into the daily routines in the hospital setting*" reflects that the respondents n = 1(0.44%) to n = 33 (14%) were indicating that they either strongly disagree or remained neutral regarding this statement. Not a convincing figure which leaves the question "does the registered nurses truly understand what they are aiming to reflect about their knowledge and opinions towards quality indicators in clinical nursing.

These conflicting opinions qualify the objectives set out for the study: "*to determine the current knowledge and opinions of the professional nurses regarding quality indicators*", " *to explore*

the factors influencing the professional nurses' understanding of quality indicators" and "to identify the need for a training program regarding quality indicators".

Figure 4.19: Comparison between Variable 17 (Question 17) – “Monitoring of quality indicators (LSI’s) does not take too much of time” and Variable 18 (Question 18) “Monitoring of quality fits into the daily routines in the hospital setting”



Variable 19 (Question 19): To monitor quality indicators (LSI’s) indicates the quality of care patients receive (N = 223)

Figure 4.20 indicates the majority of respondents n = 112 (50.2%) that agreed and n = 96 (43.04%) of respondents that strongly agreed to the statement, it validates that the respondents are in agreement that monitoring of quality indicators contributes to the quality of care patients receive. The percentage, although insignificantly small n = 15 (6.72%) is an indication that the respondents did not have full understanding of the impact of what quality indicators can have on patient care. This verifies that an educational program on quality

management in nursing is of essence and can support and promote a positive outcome in patient care.

Gayle et al., (2002:152) argues that *“efforts to quantify the quality of the care delivered to patients within their systems, healthcare institutions begun to report patient outcomes. With outcomes reporting evolving as a permanent component of the healthcare system, it is imperative that the measurement and reporting on nurse sensitive outcomes be conducted via easy and practical methods that provide meaningful and on-going information to both consumers and providers”*.

Figure 4.20: Monitoring of quality indicators (LSI's) indicates the quality of care patients receives

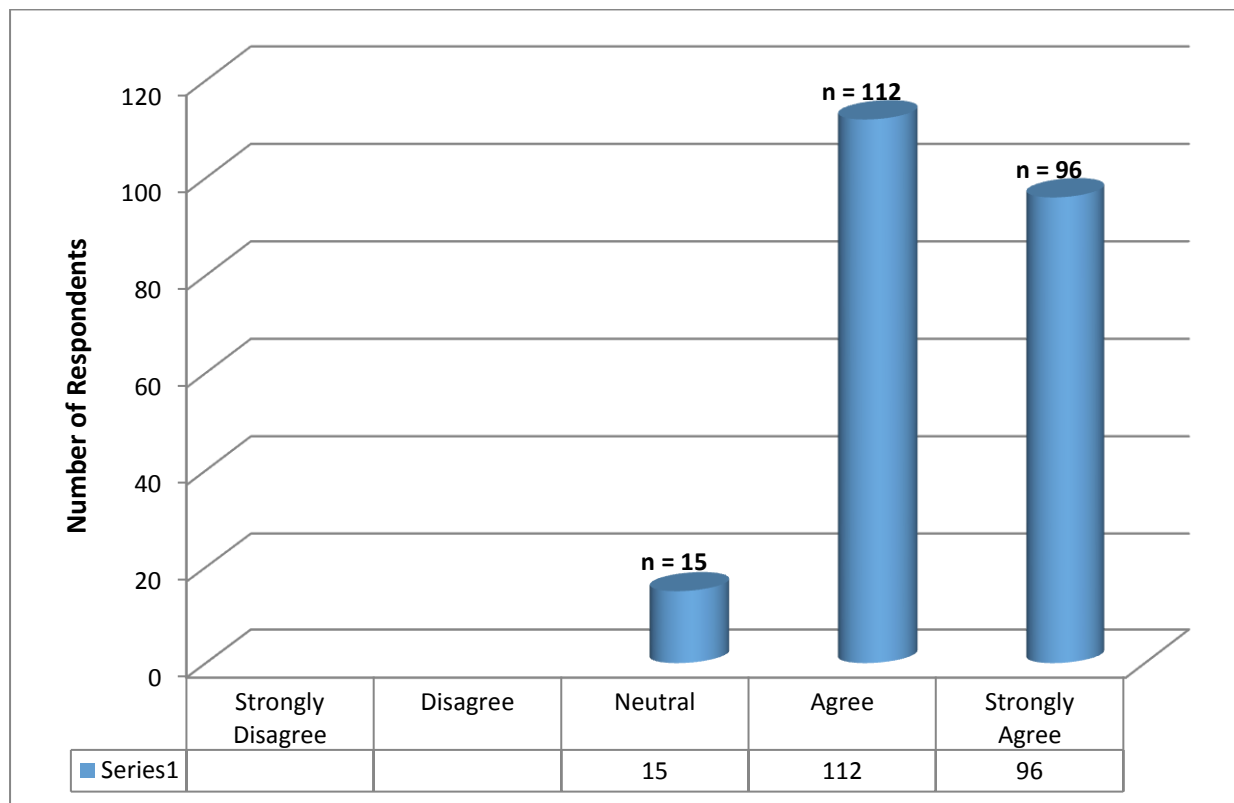
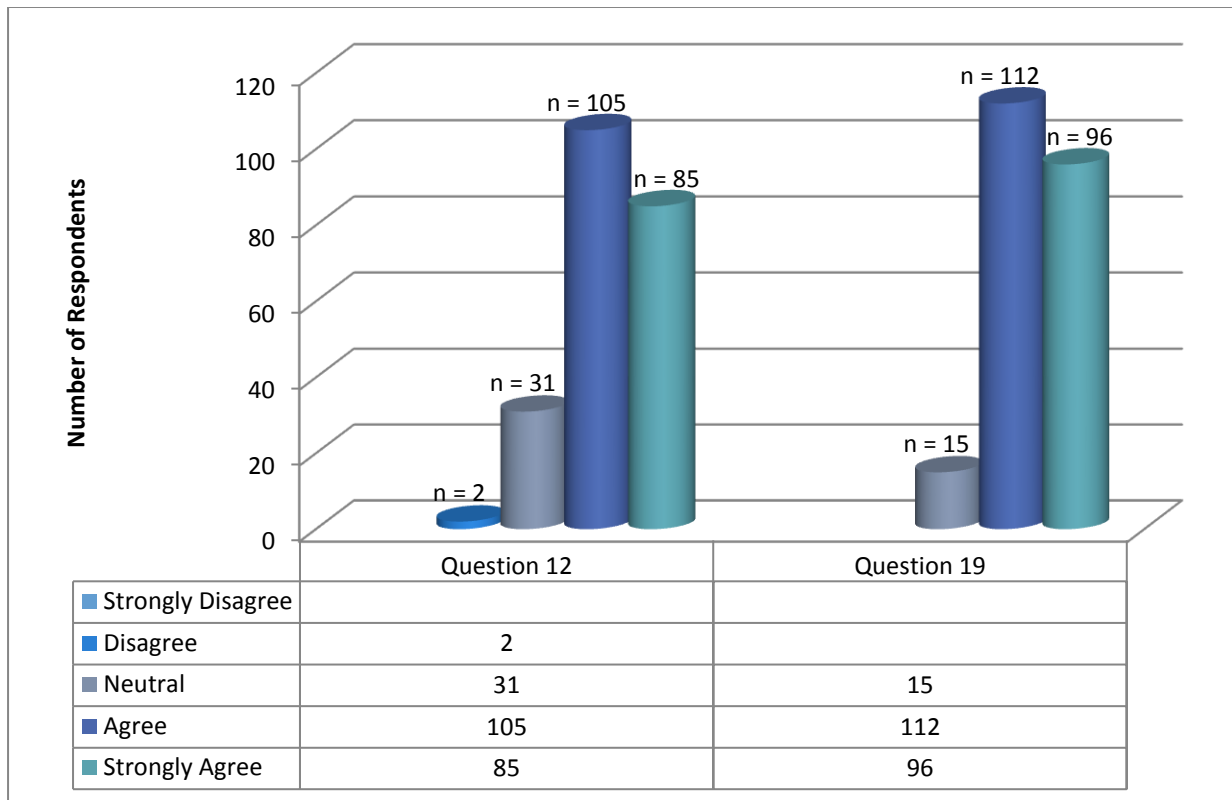


Figure 4.21 illustrates the comparison between Variable 12: (Question 12) *“I am familiar with the use of quality indicators (LSI's) as a tool to improve quality of care”* and Variable 19: (Question 19), *“To monitor quality indicators (LSI's) indicates the quality of care patients receive”*. Both variables indicate that registered nurses agree that quality indicators (LSI's) are beneficial to improvement of quality care. The respondents (Question 12), n = 190 (85.2%) indicated a strong agreement towards the fact that quality indicators can be used to improve quality of care. On the contrary, the respondents Variable 19 (Question 19), n = 208

(93.2%) indicated that quality indicators is of use to improve patient care. Although these two statements of the variables differ, the aims of the statements were to determine the respondents' current knowledge and opinions regarding quality indicators in the tertiary hospital.

Figure 4.21: Comparison between Variable 12 (Question 12) "I am familiar with the use of quality indicators (LSI's) as a tool to improve quality of care" and Variable 19 (Question 19), "To monitor quality indicators (LSI's) indicates the quality of care patients receive"



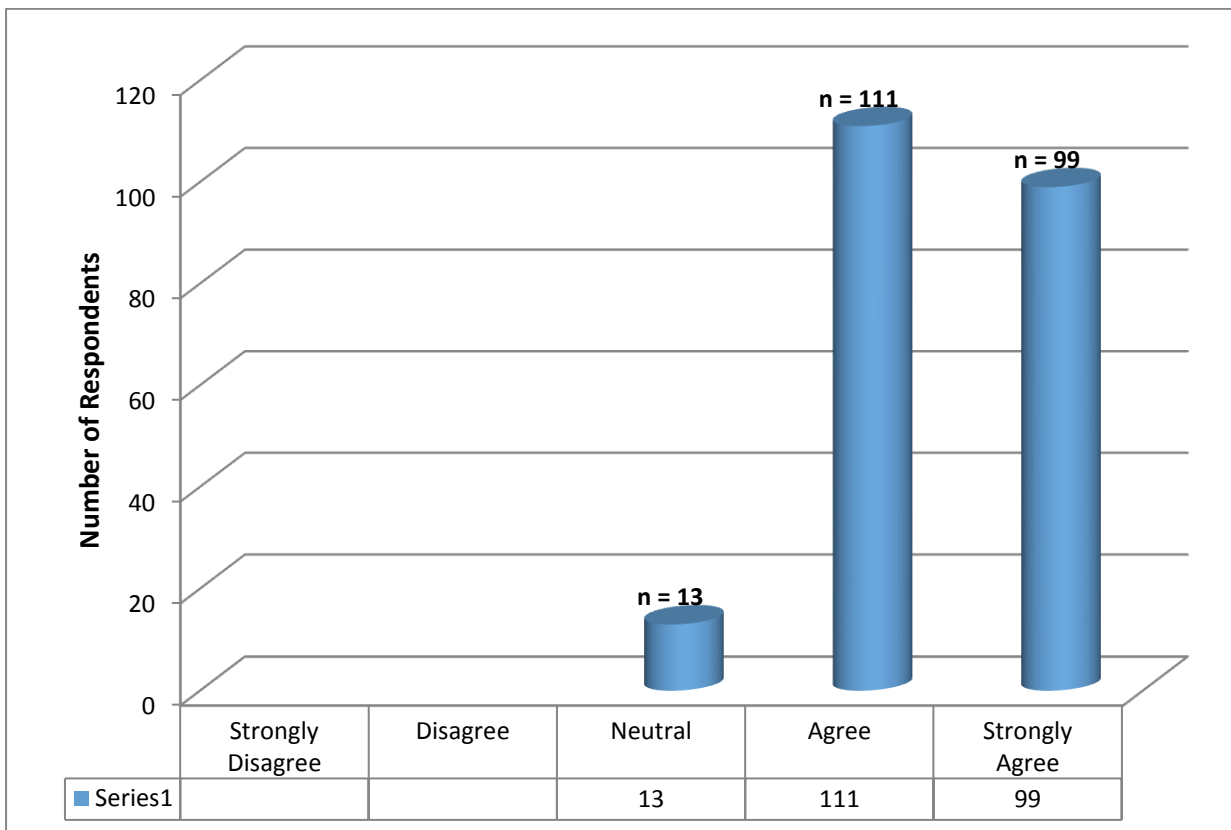
Variable 20 (Question 20): To create quality awareness through in service is a useful way of improving patient care (N = 223)

An unexpected overall positive response from the respondents as illustrated in **Figure 4.22** below, n = 111 (49.7%) are in agreement that in service is necessary to create quality awareness which inevitably can improve patient care and n = 99 (44.39%) are in strong agreement about this statement. Although a small number of respondents, n = 13 (5.8%) are neutral about this statement, it led the researcher to believe that there is room for enhancing and advancing the knowledge of respondents toward the useful benefits of quality indicators in promoting quality patient care. The positive response from the respondents strengthens the

objective set out for this study and positively influences the question “to identify the need for a training program regarding quality indicators”.

Ader et al., (2001:187) states in an article “Quality indicators for health promotion programmes” that the concept of quality assurance encompasses methods for describing, measuring, evaluating and where needed, taking measures aimed at the improvement of what, in a broad sense is described as quality. Quality assurance refers to the work that takes place within any work unit, so as to follow up and improve the unit’s own activities and to prevent mistakes from arising”.

Figure 4.22: Quality awareness through in service is a useful way of improving patient care



Variable 21 (Question 21): For quality indicators (LSI’s) to be managed and improved it must be understood, defined and the existing quality of care must be established and measured (N = 223)

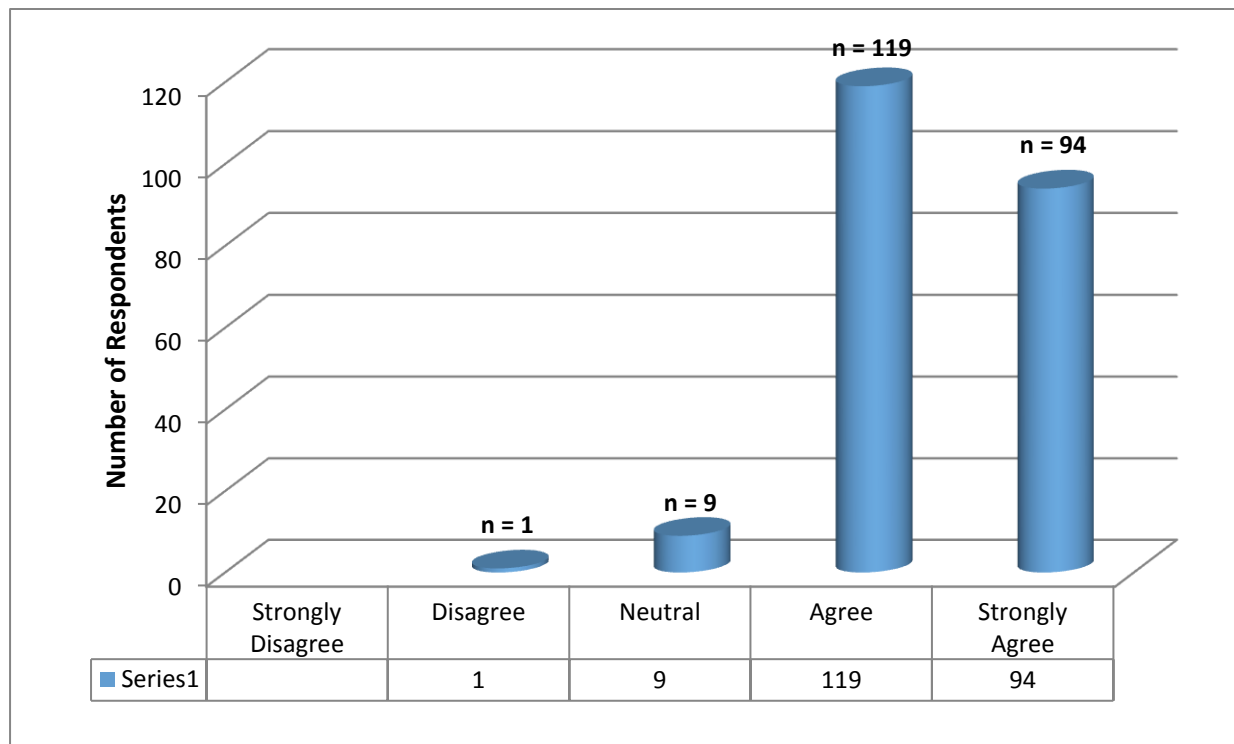
This variable tested the knowledge as well as the insights of the respondents on the management of quality indicators. **Figure 4.24** indicates that n = 119 (53.36%) of the respondents in agreement were with this statement and n = 94 (42.15%) of the respondents

were in strong agreement. There is, however, a concern that some respondents $n = 9$ (4.03%) were neutral. One respondent even disagreed with this statement. Although a small number of respondents, $n = 10$ (4.48%) either disagreed or were neutral about this statement it is notable that they may not possess the understanding, the knowledge nor probably the insight about the influence of quality indicators in clinical nursing.

The Joint Commission Journal on Quality and Patient Safety, (JCIA), (2010:30) states that *“registered nurses often know that patient care quality and safety are inadequate but they lack the knowledge of how to transform their observations of problems into an effective improvement effort. The failure to institute substantial changes to improve patient outcomes may be a result of registered nurses lacking sufficient knowledge, concepts, skills and tools required for quality improvement”*. This article indicated that the registered nurses need skills such as: seeking information about outcomes of care and quality improvement projects, using tools such as flow charts, participating in root cause analysis, using quality measures to measure performance and using tools for understanding variation in practice.

This study further indicated that there were evidence that education can increase the knowledge and awareness of registered nurses in relation to quality improvement practices.

Figure 4.23: For quality indicators to be managed and improved it must be understood, defined and the existing quality of care must be established and measured

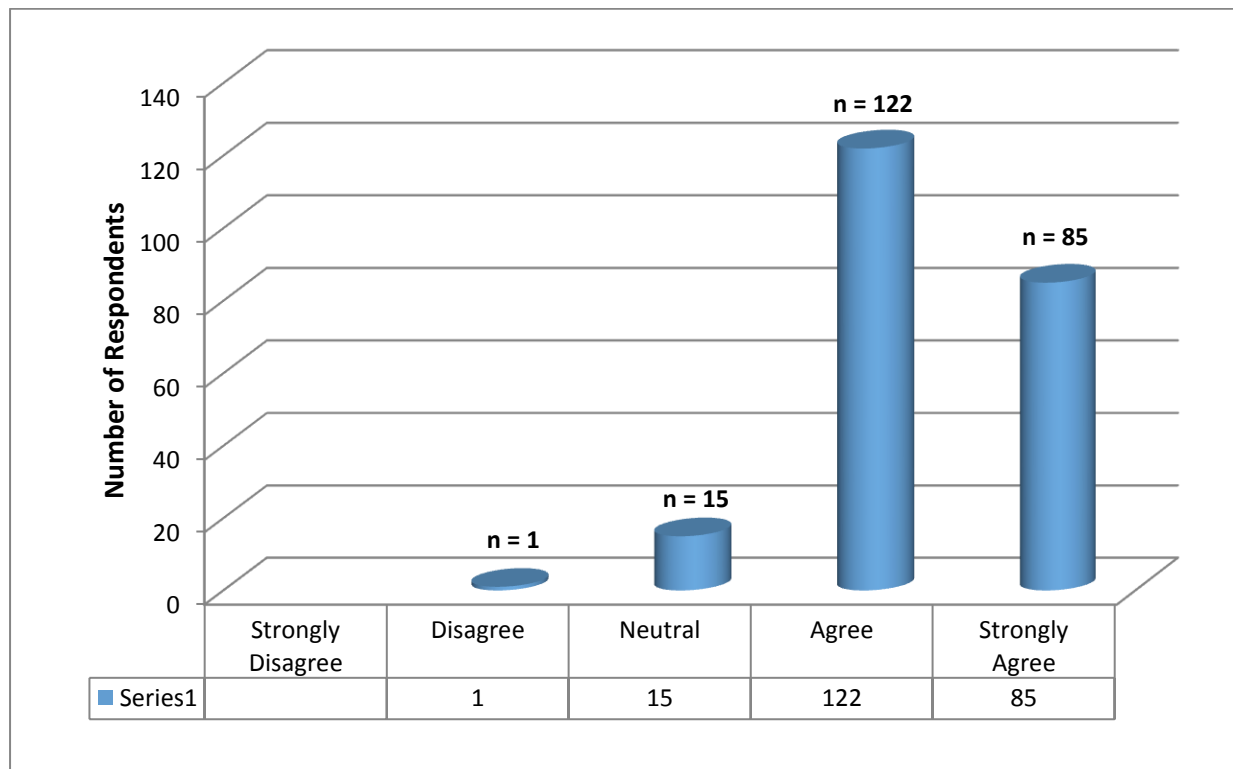


Variable 22 (Question 22): Measurement is a vital part of improvement of quality indicators (LSI's) (N = 223)

Slightly more than half of the respondents in **Figure 4.24**, n = 122 (54.7%) agreed to this statement and n = 85 (38.11%) of them strongly agreed. This supports a conclusion that they have a strong sense of the importance of the measurement of quality Indicators. The respondents that either disagreed, n = 1 (0.44%), or remained neutral, n = 15 (6.72%), one in 14, indicate the need of an educational program to equip them with the necessary knowledge and understanding of quality assurance in clinical nursing

Donaldson et al., (2005:163) states in an article *“leveraging nurse-related dashboard benchmarks to expedite performance improvement and document excellence”* that *“using nursing quality benchmarks in operational dashboards and translating those data to drive performance excellence is a strategic imperative. Integrating acute care benchmarks into clinical dashboards can be invaluable to clinicians, administrators and policy makers who share a common commitment to expediting evidence-based improvement in patient care safety, outcomes and excellence”*.

Figure 4.24: Measurement is a vital part of improvement of quality indicators (LSI's)



Variable 23 (Question 23): Assessing and measuring the quality of care in a way that it enables it to be quantified is an essential ingredient for quality indicators (N = 223)

The majority of respondents n = 134 (60.08%) and n = 68 (30.49%) in **Figure 4.25** below agree that assessing and measuring quality indicators in a way that it enables it to be quantified is an essential ingredient for quality indicators. Almost 9% of respondent's n = 20 (8.96%) that were neutral to this statement leaving the confirmation of the objectives for the study: *“to determine the current knowledge and opinions of the registered nurses regarding quality indicators”, to identify the factors that influence identification of quality indicators in clinical nursing”, and “to identify the need for a training program regarding quality assurance in nursing which includes quality indicators”.*

Figure 4.25: Assessing and measuring the quality of care in a way that it enables it to be quantified is an essential ingredient for quality indicators

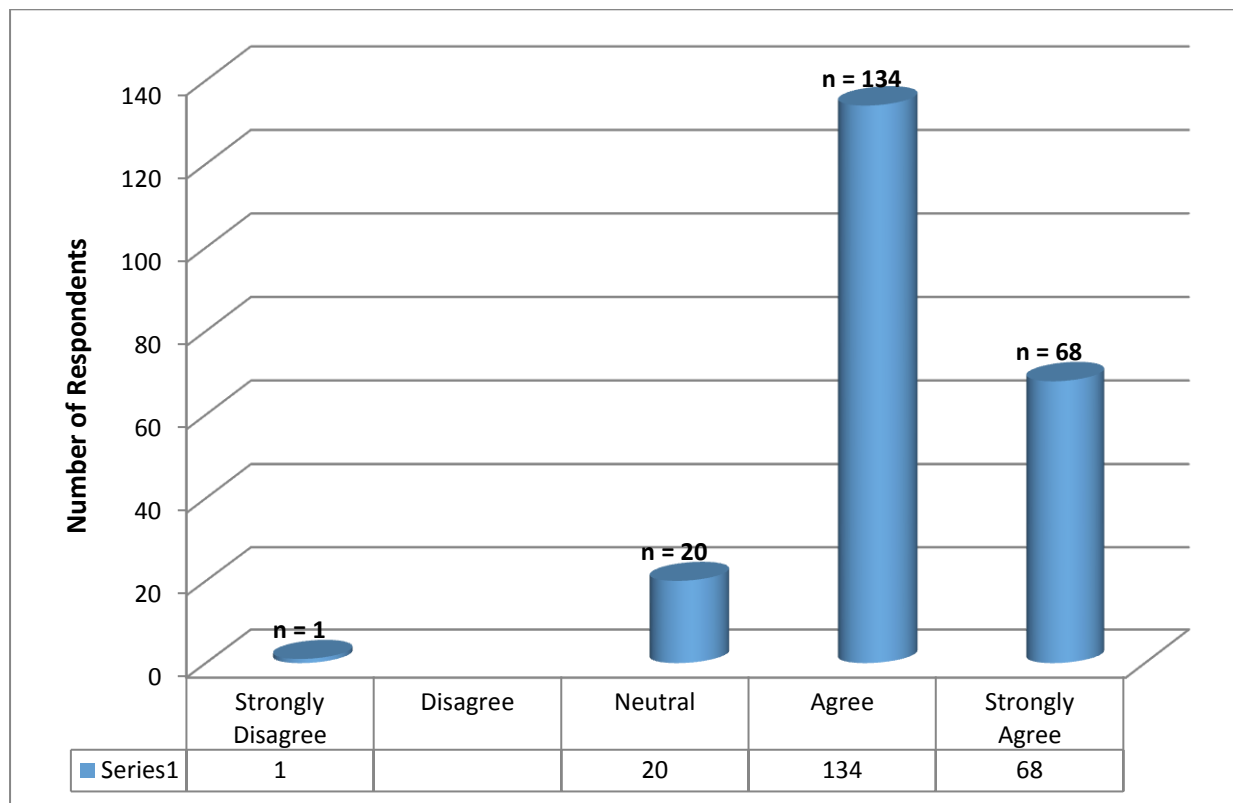
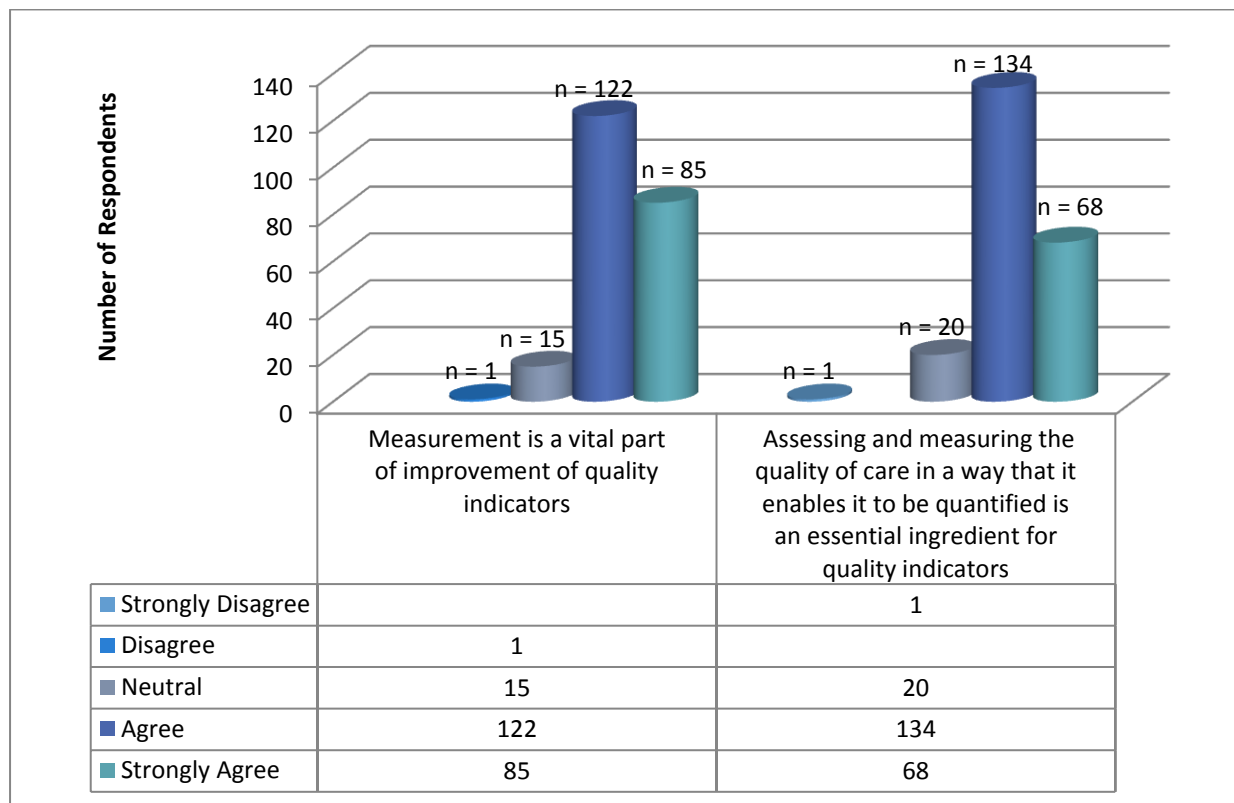


Figure 4.25 is a comparison between Variable 22 (Question 22): *“measurement is a vital part of improvement of quality indicators (LSI’s)”* and Variable 23 (Question 23): *“assessing and measuring the quality of care in a way that it enables it to be quantified is an essential*

ingredient for quality indicators". Those who responded to both questions indicated that there should be measurement of quality indicators as a means of assessing and improving. The respondent in both statements who either disagreed or was neutral remains a concern. The essential objective of quality management in nursing is that registered nurses working in the tertiary healthcare institution be knowledgeable about quality indicators and that they practice quality nursing care because they are well informed of the contribution that quality indicators can have on clinical nursing.

Figure 4.26: Comparison between Variable 22 (Question 22): "measurement is a vital part of improvement of quality indicators" and Variable 23 (Question 23): "assessing and measuring the quality of care in a way that it enables it to be quantified is an essential ingredient for quality indicators".



Variable 24 (Question 24): Reporting deviances pertaining to quality indicators (LSI's) increase the quality of nursing care (N = 223)

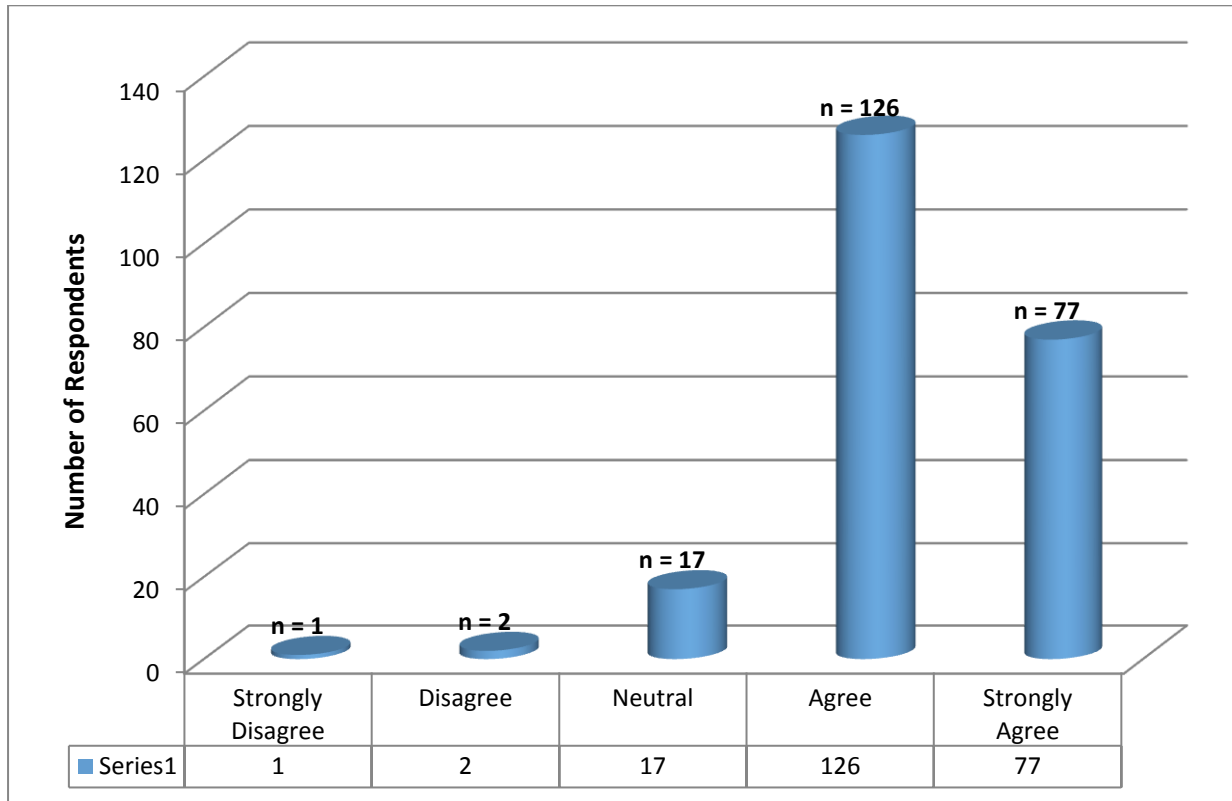
When incidents pertaining to the quality indicators (level of service indicators) in the tertiary hospital in Saudi Arabia do occur, e.g. patient fall, the policy is that the incident be reported. It is implied that the reporting of the deviances will increase the quality of nursing care. However, there is no evidence to support this hypothesis. The statement of the respondents

as mentioned in **Figure 4.26** turned out to be quite controversial towards the result expected. The majority of respondents $n = 126$ (56.5%) only agreed to the statement to whereas $n = 77$ (34.5%) strongly agreed with this statement. The number of respondents $n = 1 - 17$ (0.44% - 7.62) who strongly disagreed, disagreed or remained to be neutral confirmed that there is uncertainty of whether the practice of reporting will improve the quality of nursing care. This validate the objectives of the study, such as *“to determine the current knowledge and opinions of the registered nurses regarding quality indicators”*, *to identify the factors that influence identification of quality indicators in clinical nursing*, and *“to identify the need for a training program regarding nurse sensitive quality indicators”*.

Pronovost et al., (2007:27-33) in an article *“Using Incident Reporting to Improve Patient Safety: A Conceptual Model”* states that *“patient safety reporting systems are widely recommended as a strategy to address the important problem of patient safety. Patient safety reporting systems do not provide rates of patient safety, yet these reporting systems are useful for identifying hazards”*.

This study focussed on analysis of the methodologies used on medical incident reports to improve patient safety. The areas discussed are risk analysis, incident reporting, contributions to risk measures and event taxonomies for health care procedures. It concluded that *“most efforts for incident reporting have focused on developing even-reporting systems. Only a few efforts have educated staff regarding why and what to report, analysed and reported information back to stakeholders, and most importantly, evaluated whether this information was used to improve patient care.*

Figure 4.27: Reporting deviances pertaining to quality indicators (LSI's) increases the quality of nursing care



Variable 25 (Question 25): Nursing staff should often discuss the results of the quality indicators (LSI's) and or improvements in the unit to promote quality nursing care (N = 223)

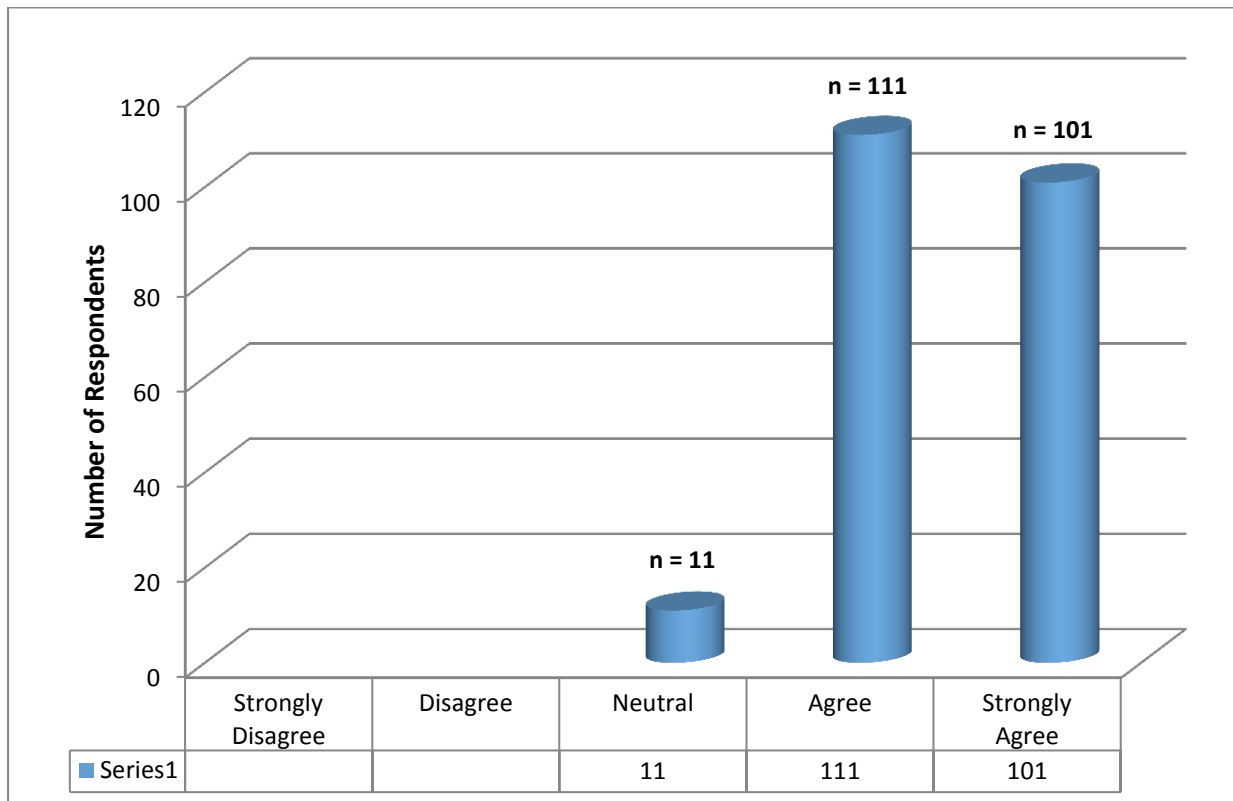
From **Figure 4.28** the majority of respondents n = 111 (49.7%) agreed to this statement and n = 101 (45.29%), strongly agreed. Overall n = 112 (95.06%) are in favour and believe that the nursing staff should discuss the results of the quality indicators (LSI') in order to promote quality nursing care. It is a hypothesis that knowledge of quality indicators will promote the quality of nursing care rendered to patients.

Variable 10 (Question 10) as indicated in **Figure 4.10** indicated that the respondents did receive feedback on quality indicators (LSI's) in some way. More than nine out of ten respondents n = 208 (93.27%) received information during the monthly meeting, n = 4 (1.79%) respondents received information through group discussions, n = 7 (3.1%) received the information on nurse sensitive quality indicators through in – service and n = 4 (1.70%) respondents received it through other ways and means. Variable 10 (Question 10) and

Variable 25 (Question 25) data seem to be consistent with one another which strengthens the validity of the variable.

Kurtzman & Jennings, (2008:240-241)...*“established recommendations for health professions education with the overarching vision of all healthcare professionals being educated to deliver patient-centered care as members of an interdisciplinary team, emphasizing evidence-based practice, quality improvement approaches, and informatics”*. It further states that *“a strong understanding (or literature) of quality must be demonstrated by nurse leaders to influence, motivate and enable others to contribute towards a commitment to quality”*.

Figure 4.28: Nursing staff should often discuss the results of the quality indicators (LSI's) and or improvements in the unit to promote quality nursing care

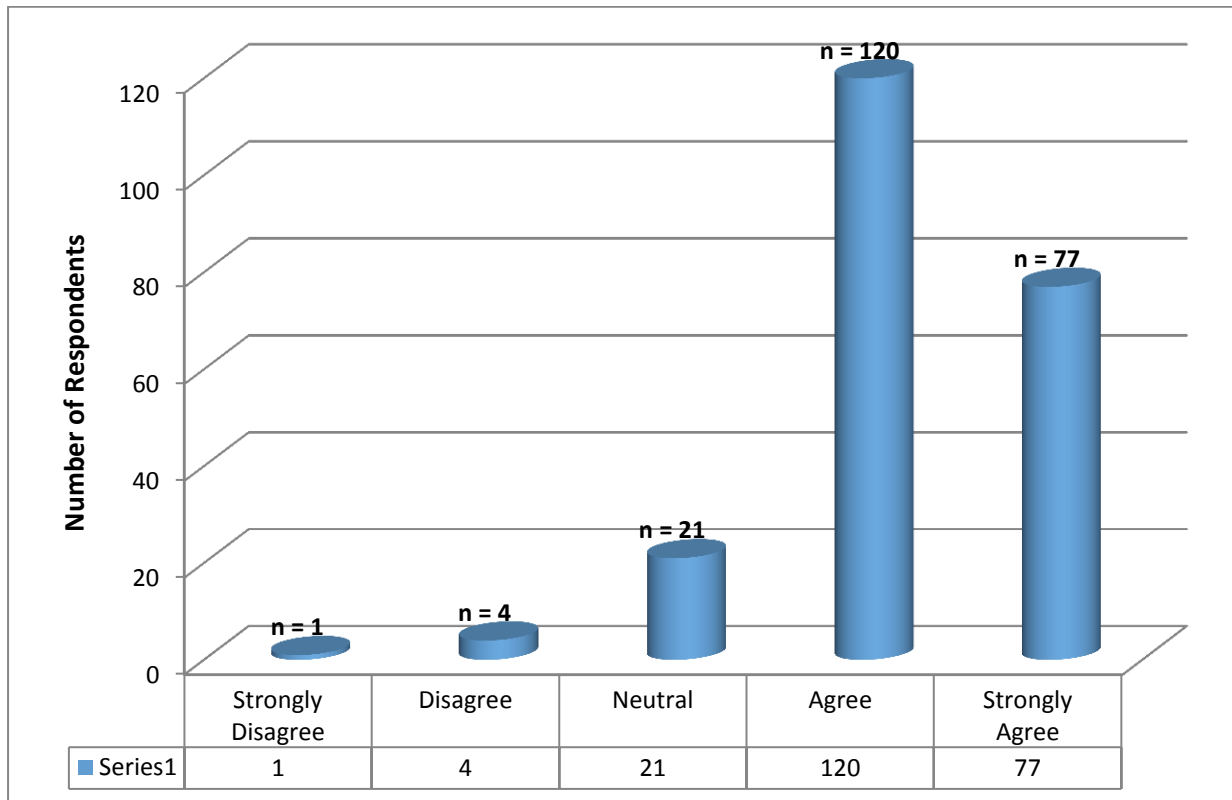


Variable 26 (Question 26): All deviances in the quality indicators (LSI's) are reported promptly (N = 223)

Slightly more than half of the respondents in **Figure 4.29** below, n = 120 (53.8%) and n = 77(34.5%) either agreed or strongly agreed that deviances regarding quality indicators are reported promptly. A small percentage of respondents either strongly disagreed, n = 1 (0.44%), disagreed, n = 4 (1.79%), or remained to be neutral, n = 21 (9.41%). This would

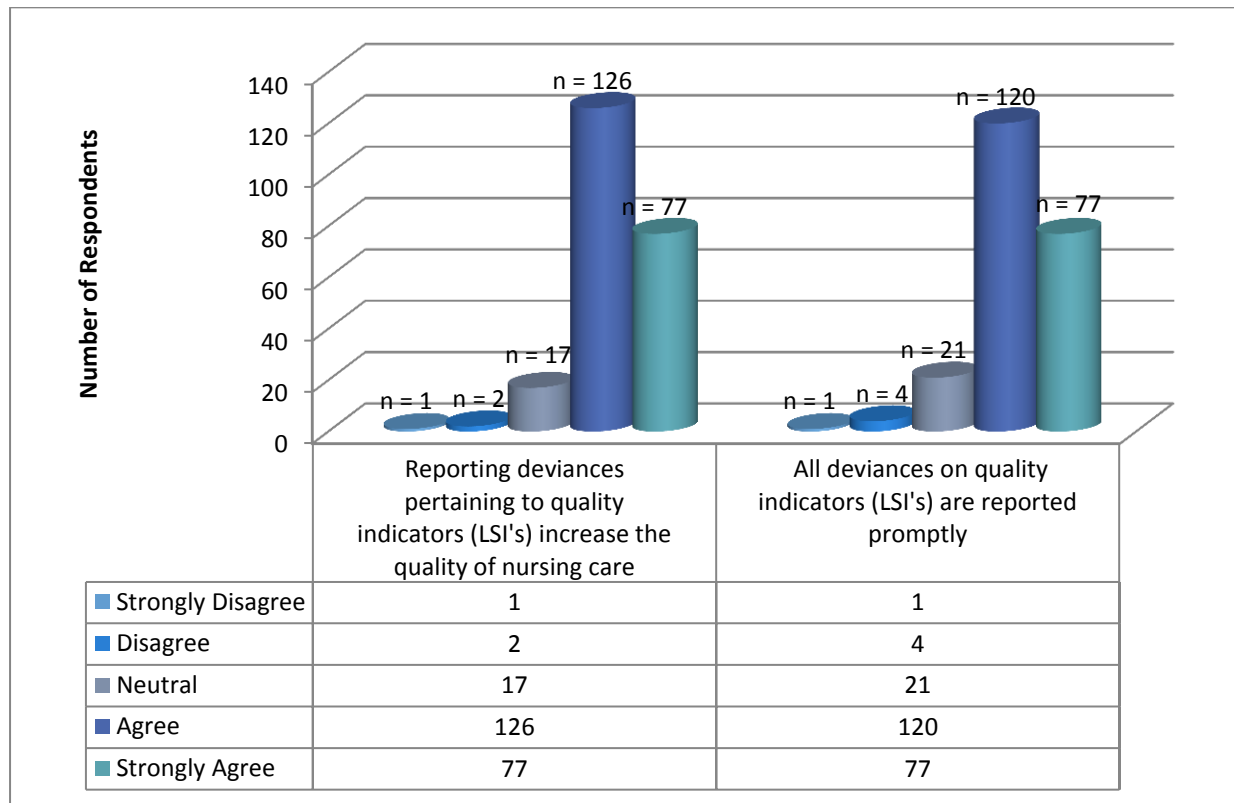
seem to be an indication of either uncertainty about the topic or a lack of insight and knowledge regarding quality indicators. This confirms the objectives set out for this study such as: “to determine the current knowledge and opinions of the registered nurses regarding quality indicators”, “to identify the need for a training program regarding quality indicators”.

Figure 4.29: All deviances on the quality indicators (LSI’s) are reported promptly



Variable 24 (Question 24), “reporting deviances pertaining to quality indicators (LSI’s) increases the quality of nursing care” also indicated a strong sense of responsibility from the respondents towards reporting of deviances. Below is a comparison between Variable 24 (Question 24) “reporting deviances pertaining to quality indicators (LSI’s) increase the quality of nursing care ”and Variable 26 (Question 26), “all deviances on the quality indicators (LSI’s) are reported promptly”. This illustration indicated the strong relationship between these two variables, securing the objectives mentioned above.

Figure 4.30: Comparison between Variable 24 (Question 24):“reporting deviances pertaining to quality indicators (LSI’s) increase the quality of nursing care” and “all deviances on the quality indicators (LSI’s) are reporting promptly”

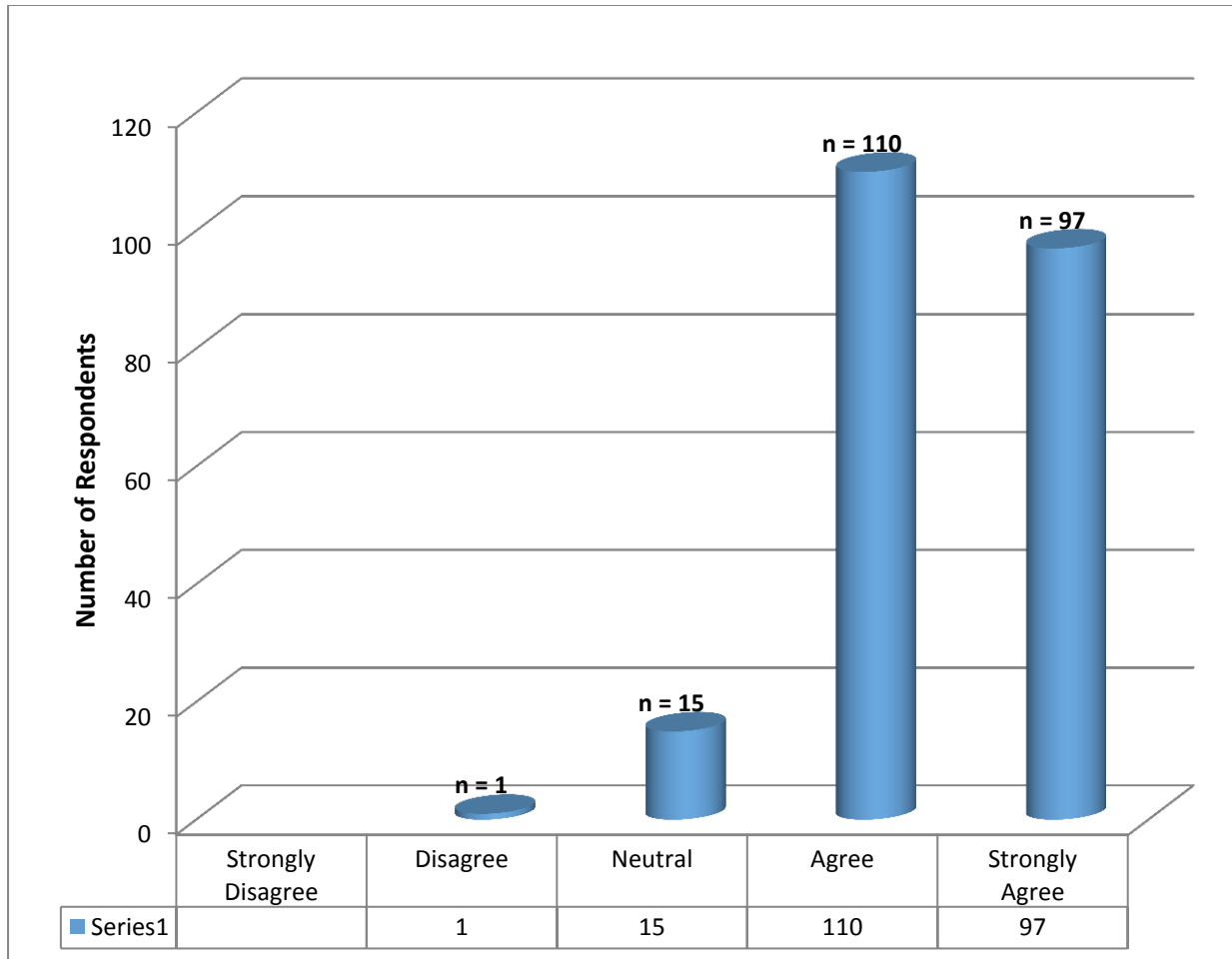


Variable 27 (Question 27): Feedback on quality indicators (LSI’s) in the unit is part of the commitment to improve the quality of nursing care (N = 223)

The researcher’s objective here was to determine whether feedback of quality indicators (LSI’s) in the nursing unit is part of the commitment to improve quality of nursing care. With reference to Variable 9 (Question 9), “ do you receive feedback on your unit’s compliance on nurse sensitive indicators on a monthly basis” the majority of respondents n = 219 (98%) strongly indicated that they receive feedback of the units compliance to nurse sensitive quality indicators, Variable 10 (Question 10), focussed on how information was received of which n = 208 (93.2%) indicated that they receive the units’ compliance towards quality indicators (LSI’s) through feedback on the monthly meeting. With the strong response of the respondents that feedback is important, tested in three variables, the assumption was made that though the feedback is important, feedback brings with it a commitment towards improving quality because it creates a sense of awareness. The positive response does not indicate the current

knowledge and opinions of the registered nurses, thus, confirming the objectives: “to determine the current knowledge and opinions of registered nurses regarding quality management including quality indicators”, “identifying the need for a training program regarding quality indicators”, and to explore the factors influencing the registered nurses’ understanding of quality indicators”.

Figure 4.31: Feedback on quality indicators (LSI’s) in the unit is part of the commitment to improve quality



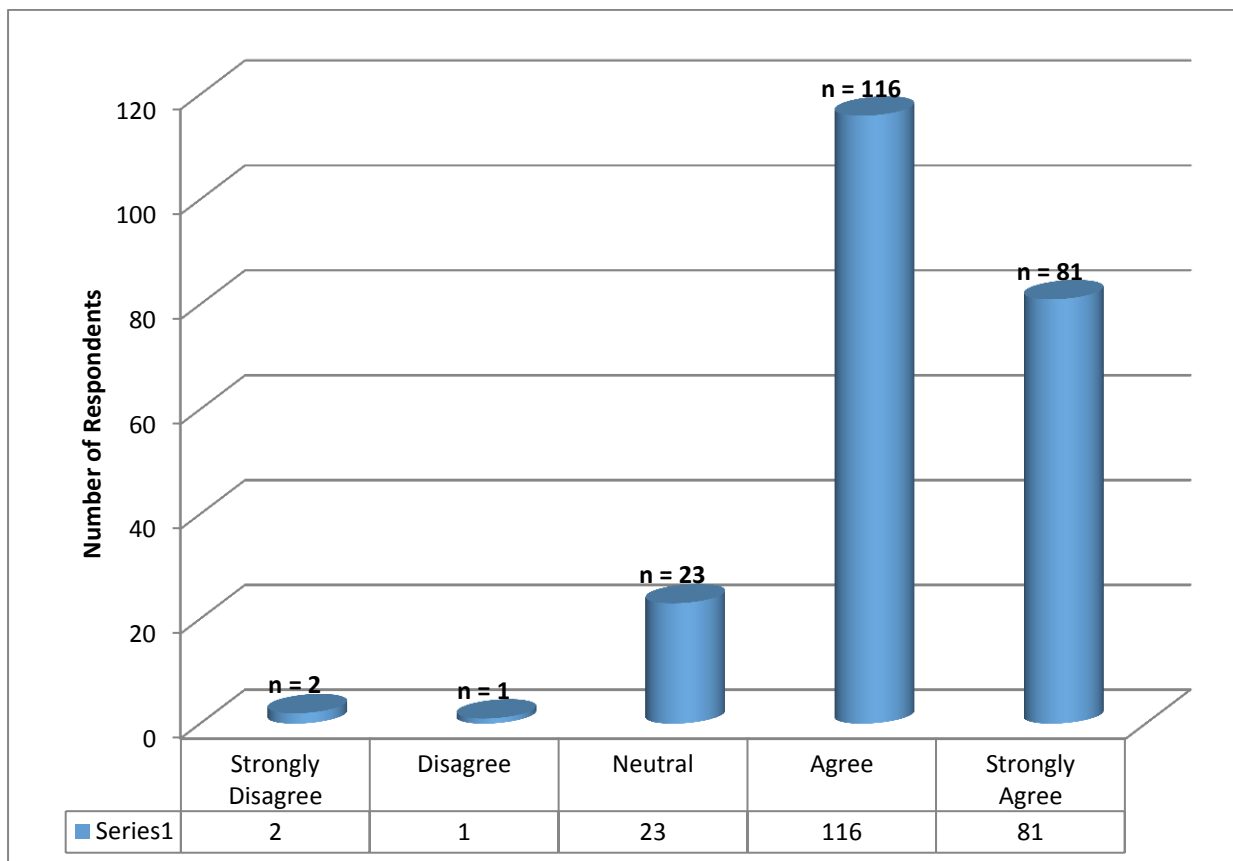
Variable 28 (Question 28): As a colleague, I report any deviance pertaining to the quality indicators (LSI’s) as I know it will improve nursing care (N = 223)

This question has been asked differently in separate statements. The researcher’s purpose was to determine respondents’ knowledge of the freedom of reporting deviances, whether it was seen as a tool to improve a system or whether it was seen as a mode of failure and punishment. The tertiary health care institution in Saudi Arabia’s nursing department

investigates every incident pertaining to the quality indicators hence the applicability of the response to this variable.

Figure 4.32, below indicates that there is a strong belief that deviances from the quality indicators (LSI's) are freely reported as n = 116 (52.01%) agreed with the statement and n = 81 (36.32%), strongly agreed. Again there were a number of respondents who either strongly disagreed, n = 2 (0.89%), n = 1 (1.79%) disagreed with the statement and n = 23 (10.31%) or remained neutral. This indicated that there may be a lack of knowledge regarding the importance of reporting all deviances (e.g., patient fall) on the quality indicators in the tertiary health care institution. The percentage of the respondents n = 26 (3.58%) who either strongly disagreed, disagreed or who remained neutral display a plausible fact that the current knowledge of registered nurses regarding quality indicators are not up to the level where quality nursing care is of the essence of the day.

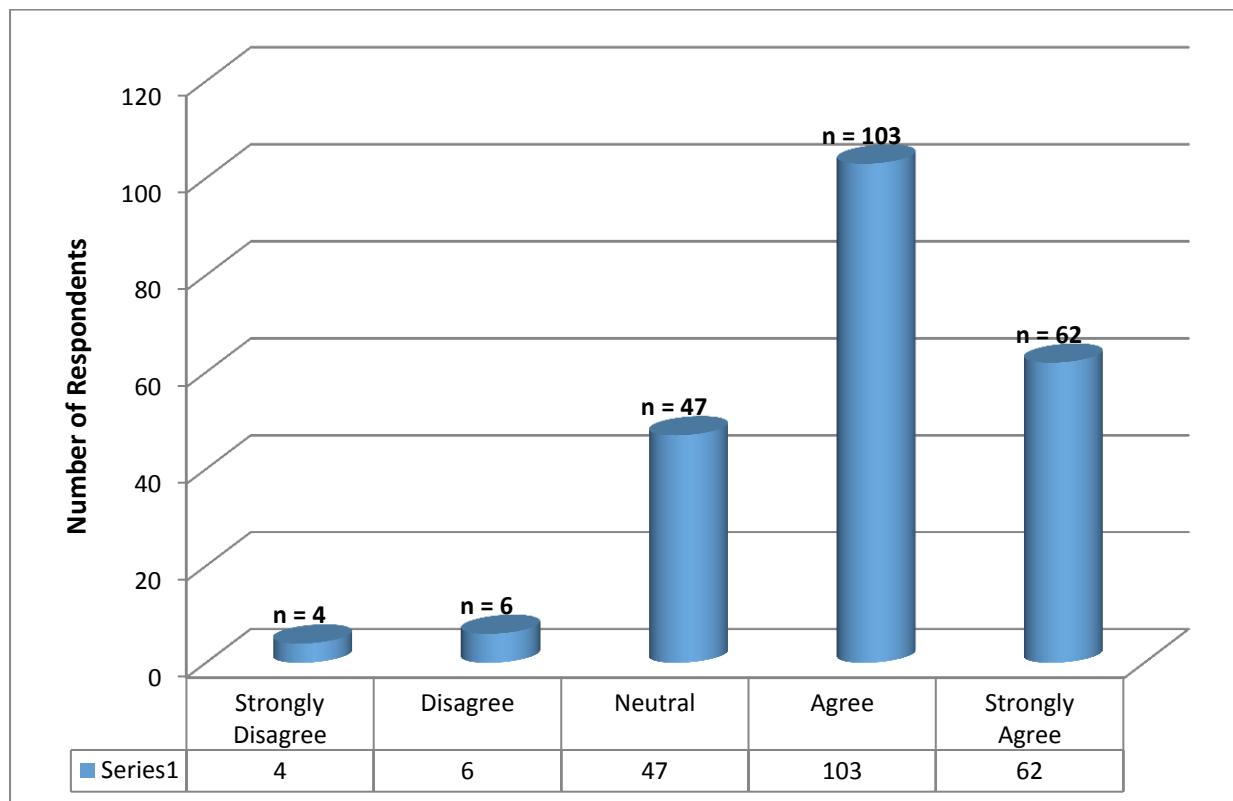
Figure 4.32: As a colleague, I report any deviance pertaining to quality indicators (LSI's) as I know it will improve nursing care



Variable 29 (Question 29): When errors pertaining quality indicators (LSI's) occur, I feel supported by my unit manager (N = 223)

The purpose of this variable was to determine whether the reporting of deviances to quality indicators truly occurs. **Figure 4.33** indicates that n = 4 (1.79%) of the respondents strongly disagree with this statement, n = 6 (2.6%) of the respondents disagree, n = 47 (21.07%) remained neutral, the majority of the respondents, n = 103 (46.18%) agreed and n = 62 (27.80%), strongly agreed. The evidence of the results obtained is considered controversial as the results are rather wide spread than conclusive to any of the Likert scale criteria. It also indicated that between n = 4 (1.79) and n = 47 (21.07%) of the respondents may have had doubts about this statement. This group of respondents confirmed the objectives of the study, *“to explore the factors influencing the registered nurses understanding of quality indicators”*, and *“to identify the need for a training program regarding quality management in nursing”*, including quality indicators.

Figure 4.33: When errors pertaining quality indicators (LSI's) occur, I feel supported by my unit manager



Variable 30 (Question 30): It is a learning experience for all staff when deviances on quality indicators (LSI's) occur and that it will be discussed with nursing staff during the monthly unit meeting (N = 223)

The majority of respondents n = 109 (48.87%) in **Figure 4.34**, agreed to the statement while n = 89 (39.91%) strongly agreed. Remaining respondents n = 1 (0.44) to n = 23 (10.31%) either strongly agreed or chose to remain neutral. This would seem to indicate that respondents may not be convinced that a discussion of nurse sensitive quality indicators during the monthly unit meeting will be a learning experience. The results displayed is convincing that the objectives “to determine the current knowledge and opinions of the registered nurses regarding quality indicators” and “to identify the need for a training program regarding quality assurance in clinical nursing, including nurse indicators” set out for the study was achieved.

Figure 4.34: It is a learning experience for all staff when deviances on quality indicators (LSI's) occur and that it will be discussed with all nursing staff during the monthly unit meeting

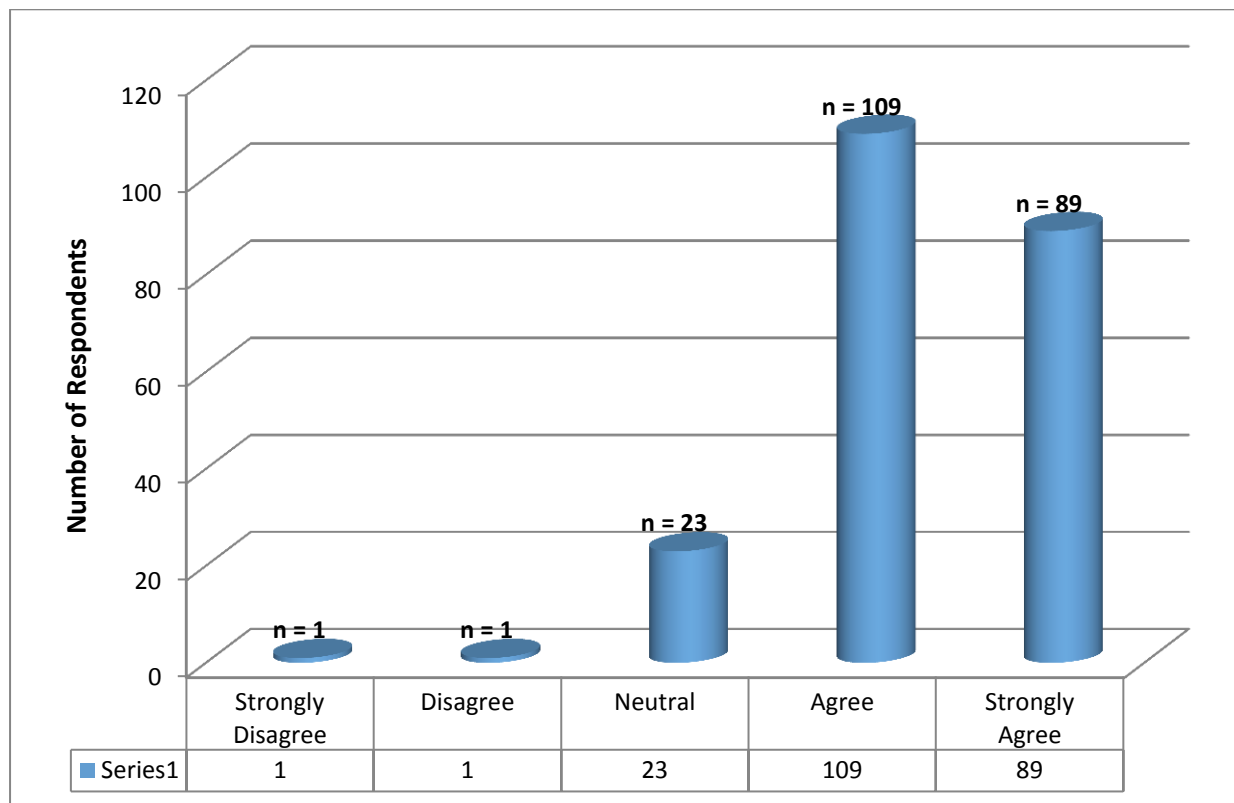
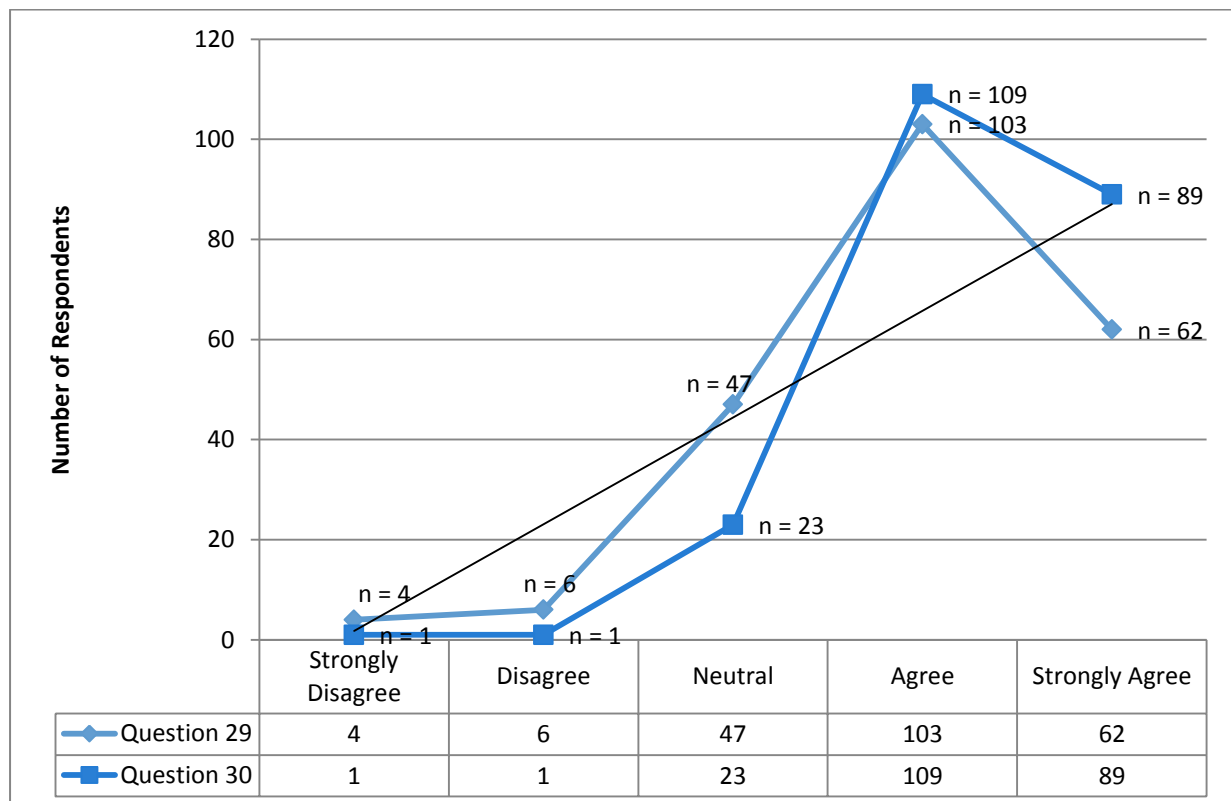


Figure 4.35 compares Variable 29 (Question 29) “when errors to quality indicators (LSI's) occur, I feel supported by my unit manager” with Variable 30 (Question 30) “it is a learning experience for all staff when deviances on quality indicators (LSI's) occur and that it will be discussed with all nursing staff during the monthly unit meeting”.

The results indicate that there is a strong correlation between the two variables. Respondents in Variable 29 (Question 29), n = 103 (46.18%) and n = 109 (48.87%) and Variable 30 (Question 30) agreed that there was support when deviances towards quality indicators occur and that these deviances be discussed during monthly meetings as a learning experience. There was also strong agreement from the respondents in Variable 29 (Question 29), n = 62 (27.80%) and n = 89 (39.91%) of respondents in Variable 30 (Question 30) which displays a linear trend of agreement towards these two variables. There is also a linear trend of respondents on both variables n = 1(0.44) to n = 47 (21.07%) of a strong disagreement, disagreement or neutral perception towards the statement. The objectives set out for the study is well supported as the feedback from the respondents on these two variables displays the evidence thereof.

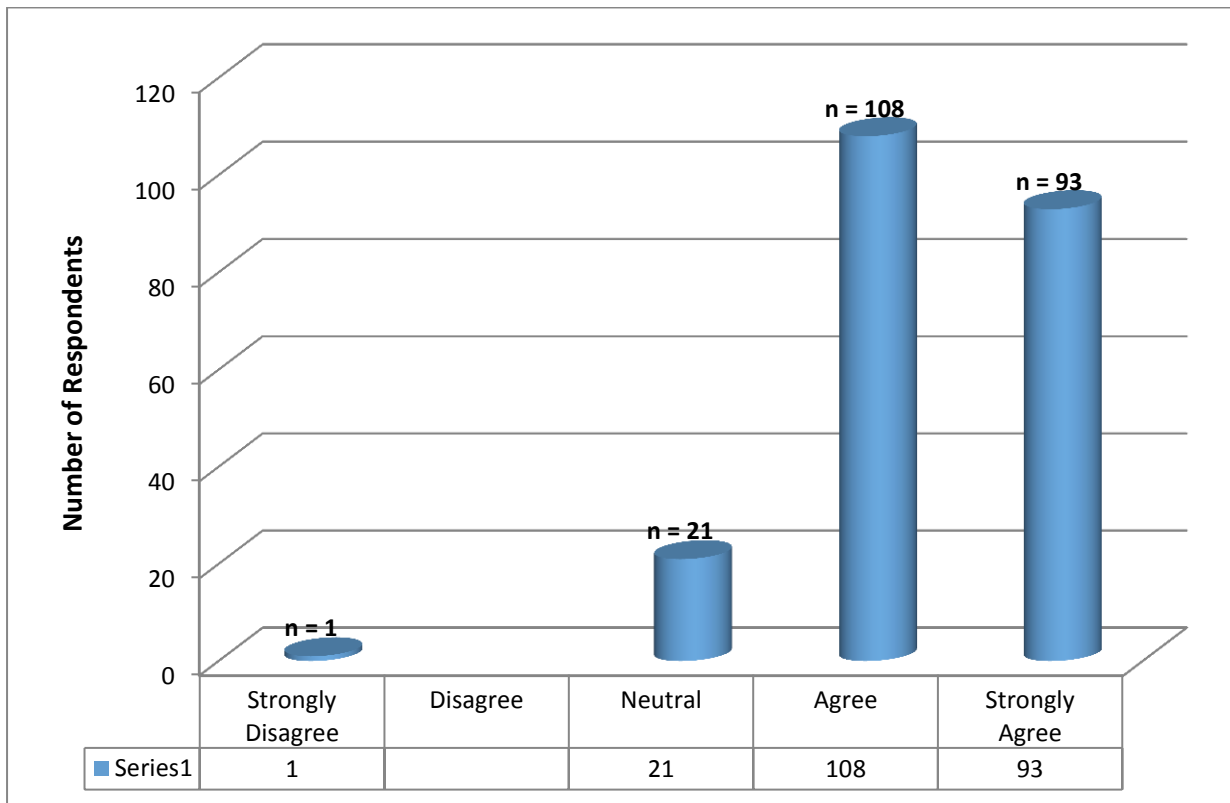
Figure 4.35: Comparison between Variable 29 (Question 29) “when errors to quality indicators (LSI’s) occur, I feel supported by my unit manager” and “it is a learning experience for all staff when deviances on quality indicators (LSI’s) occur and that it will be discussed with all nursing staff during the monthly unit meeting”.



Variable 31 (Question 31): In your opinion, quality indicators (LSI's) contribute to improved patient care (N = 223)

The inputs of the respondents tested this variable. **Figure 4.36** shows the positive opinions of the respondents as n = 108 (48.43%) agreed and n = 93 (41.7%) of the respondents strongly agreed that quality indicators (LSI's) contribute to improved patient care. The remaining total of the respondents belongs to the categories of either strongly disagree n = 1 (0.44%) or n = 21 (9.41%) that remained neutral. The latter indicates that the respondents may be uncertain which might indicate a lack of knowledge regarding quality assurance in clinical nursing which includes quality indicators. It also suggests a need for education towards quality indicators.

Figure 4.36: In your opinion, quality indicators (LSI's) contribute to improved patient care



Variable 32 (Question 32): I understand all there is to know about quality indicators (LSI's) (N = 223)

The response to this variable indicates a need for education as a contributor to quality assurance in clinical nursing, including the subject of quality indicators. While two-thirds of respondents n = 114 (51.12%), either were in agreement or n = 63 (28.25%) strong agreement that they understood everything there is to know about quality indicators, the

response of n = 3 (1.34%) and n = 43 (19.28%) about one of five believed that there was more that they should know. One of the objectives of the study confirmed the need for the educational program as indicated below in **Figure 4.37**.

The Society of Urologic Nurses and Associates (2008, 28:418) indicates that *“healthcare workers need to acquire more than just the professional knowledge related to their discipline to improve care. Knowledge of local culture at the site of care delivery, knowledge of quality improvement tools, measurement knowledge, and an understanding of how to manage change are all essential knowledge bases for a health professional seeking to positively change a system of care”*.

Figure 4.37: I understand all there is to know about quality indicators

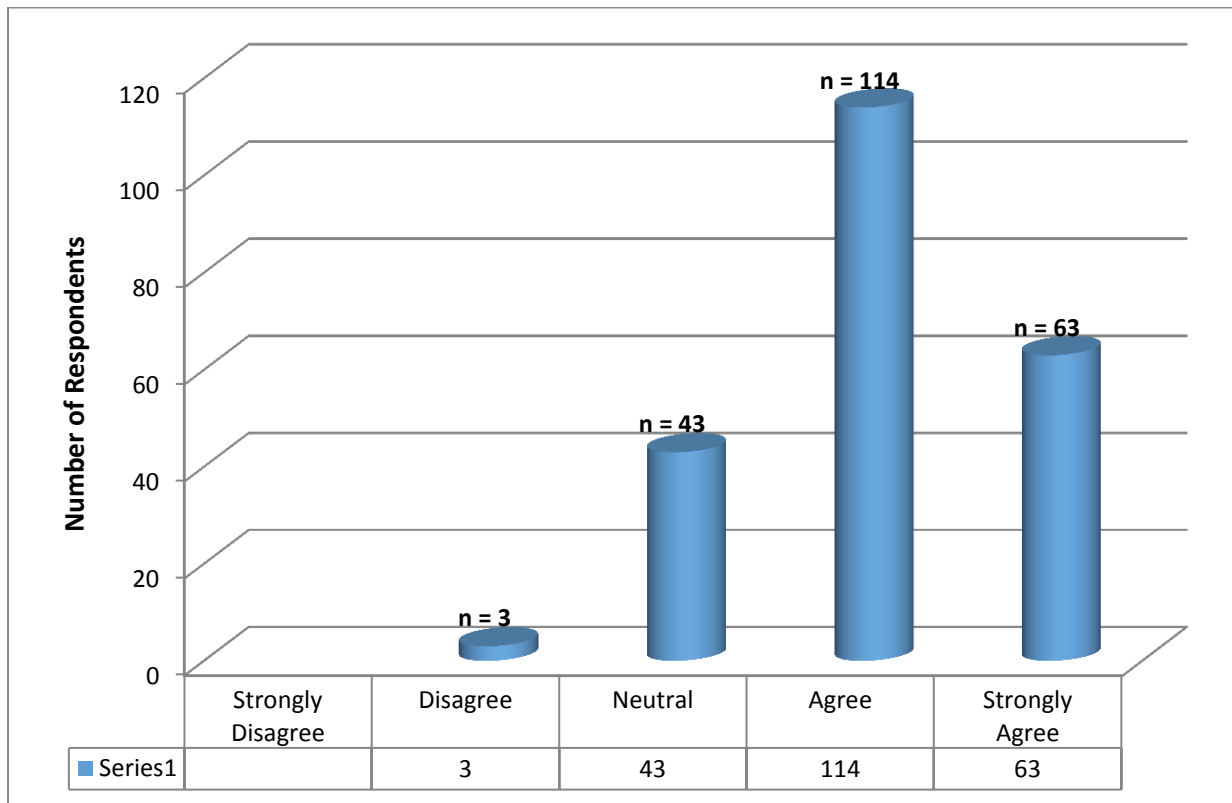
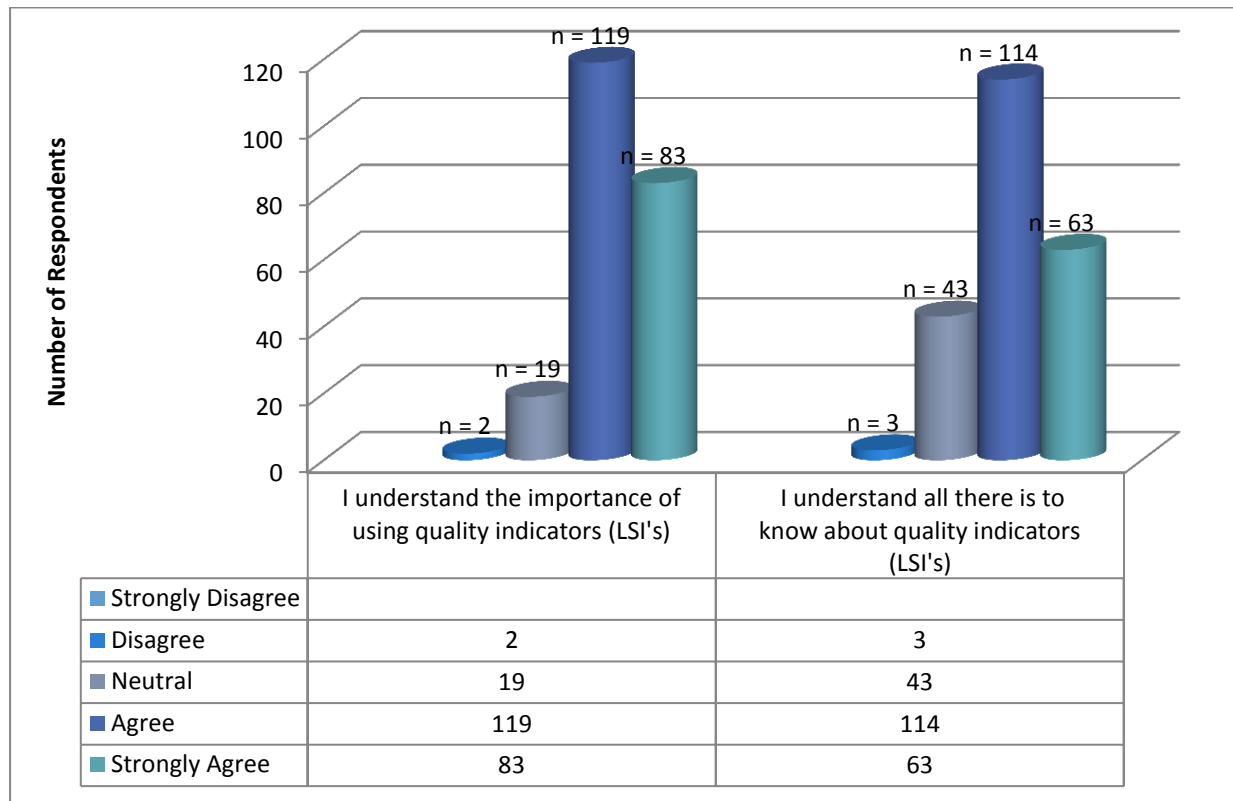


Figure 4.38 below indicates the comparison between Variable 13 (Question 13): *“I understand the importance of using quality indicators”* and Variable 32 (Question 32): *“I understand all there is to know about quality indicators”*.

The data strongly suggests that respondents to both the variables n = 119 (53.36%) (Variable 13), and n = 114 (51.12%) (Variable 32) are in agreement and n = 83 (37.2%) (Variable 13), and n = 63 (28.25%) strongly agreed that they do understand the importance and everything

else there is to know about quality indicators whereas on the contrary the percentage, although small, of respondents who either disagreed $n = 2$ (0.89%) (Variable 13), and $n = 3$ (1.34%) (Variable 32) or remained neutral, $n = 19$ (8.52%) (Variable 13), and $n = 43$ (19.2%) (Variable 32) leaves the researcher to the conclusion that there is still an effort needed to secure knowledge and opinions of registered nurses towards quality assurance in clinical nursing which includes the subject of quality indicators or level of service indicators, (LSI's) as it is known in the tertiary health care institution. It also confirmed the objective of “*determining the current knowledge and opinions of registered nurses regarding quality indicators*”.

Figure 4.38: Comparison between Variable 13 (Question 13) “I understand the importance of using quality indicators (LSI's)” and “I understand all there is to know about quality indicators (LSI's)”

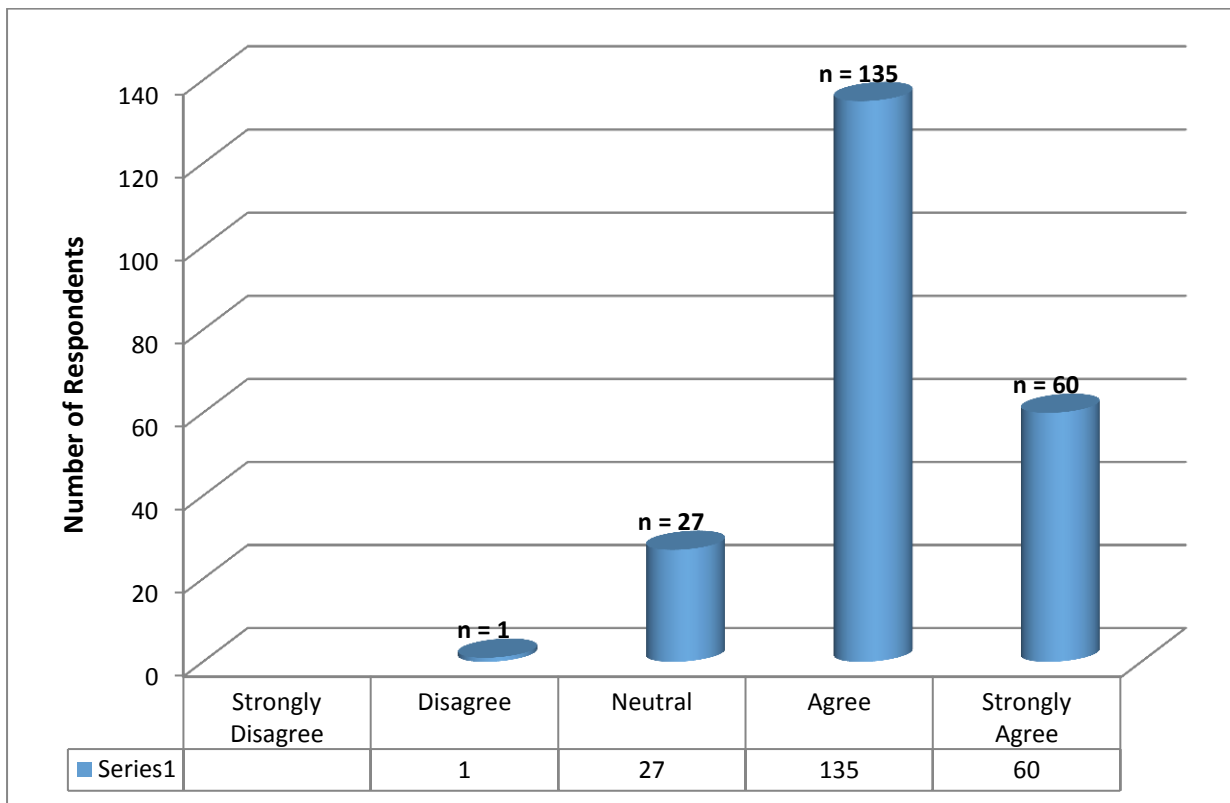


Variable 33 (Question 33): “Nursing sensitive quality indicators (LSI's) are those indicators that capture care or its outcomes most affected by nursing care” (N = 223)

In **Figure 4.39** below, the majority of the respondents $n = 135$ (60.53%) indicated their agreement that nurse sensitive quality indicators capture care or its outcomes most affected by nursing care whereas $n = 60$ (26.9%) strongly agree with this statement. There were however $n = 1$ (0.44%) as well as $n = 27$ (12.10%) of the respondents who disagreed or

preferred to remain neutral. The latter displayed and supported the objectives set out for the study. The results is not convincing and conclusive that registered nurses are knowledgeable about nurse sensitive quality indicators, in fact, the small percentage who either disagreed or remained neutral is an indication that there is room for improvement of knowledge and opinions on quality management in nursing including the subject of nurse sensitive quality indicators.

Figure 4.39: Nurse sensitive quality indicators (LSI's) are those indicators that capture care or its outcomes most affected by nursing care

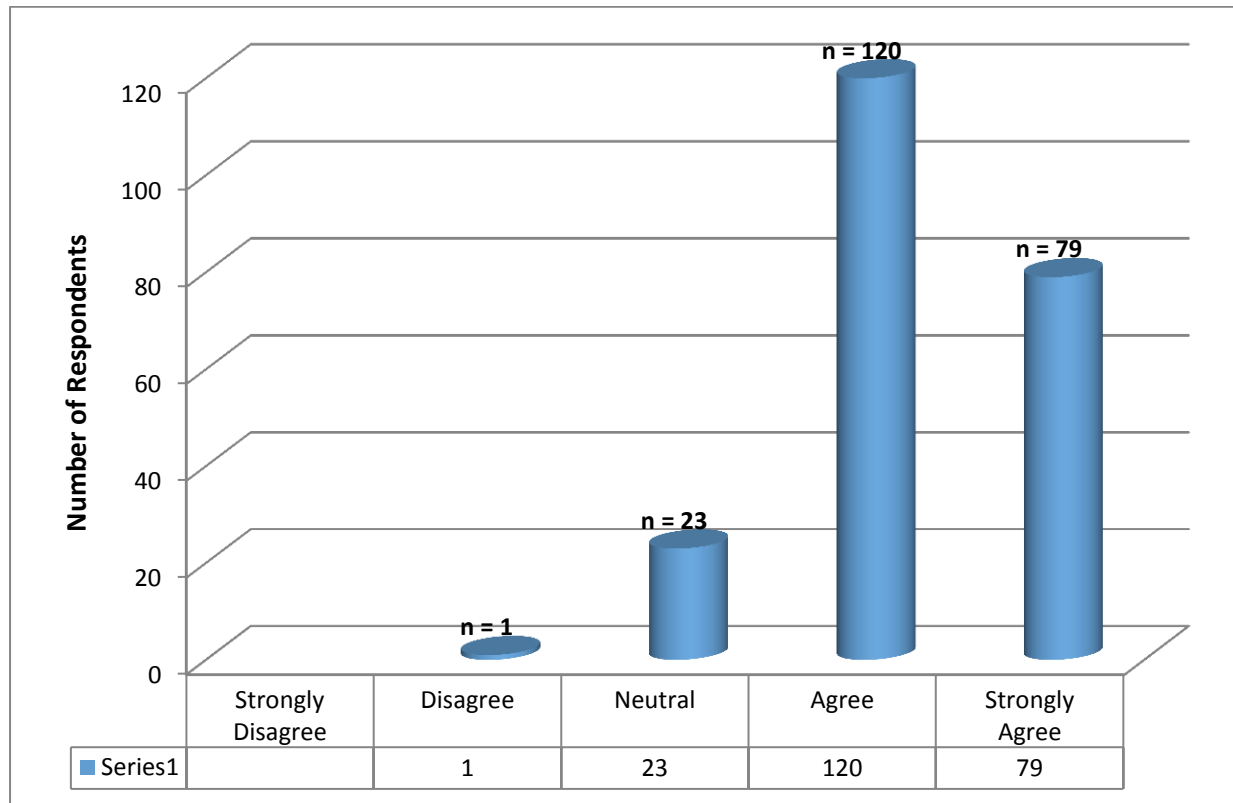


Variable 34 (Question 34): “Process indicators – Evaluate the manner in which care is delivered, e.g., the process of pain assessment” (N = 223)

The researcher attempted to determine if respondents know what a process indicator is. **Figure 4.40** indicated that the majority of the respondents, n = 120 (53.8%) agreed as well as n = 79 (35.42%) of the respondents strongly agree with this statement. This is an overall indication that n = 199 (89.23%) of the respondents were in favour of the statement but although such a majority represent the positive conclusion, there is doubt, although only slightly, that the minority of respondents n = 1 (0.44) to n = 23 (10.3%) are not knowledgeable of what **“process indicators”** are and what they represent or measure. This would confirm

the objective “to determine the current knowledge and opinions of the registered nurses regarding quality indicators in clinical nursing”, and “to identify the need for a training program regarding quality management in nursing, including the subject quality indicators”.

Figure 4.40: Process indicators – Evaluate the manner in which care is delivered, e.g., the process of pain assessment

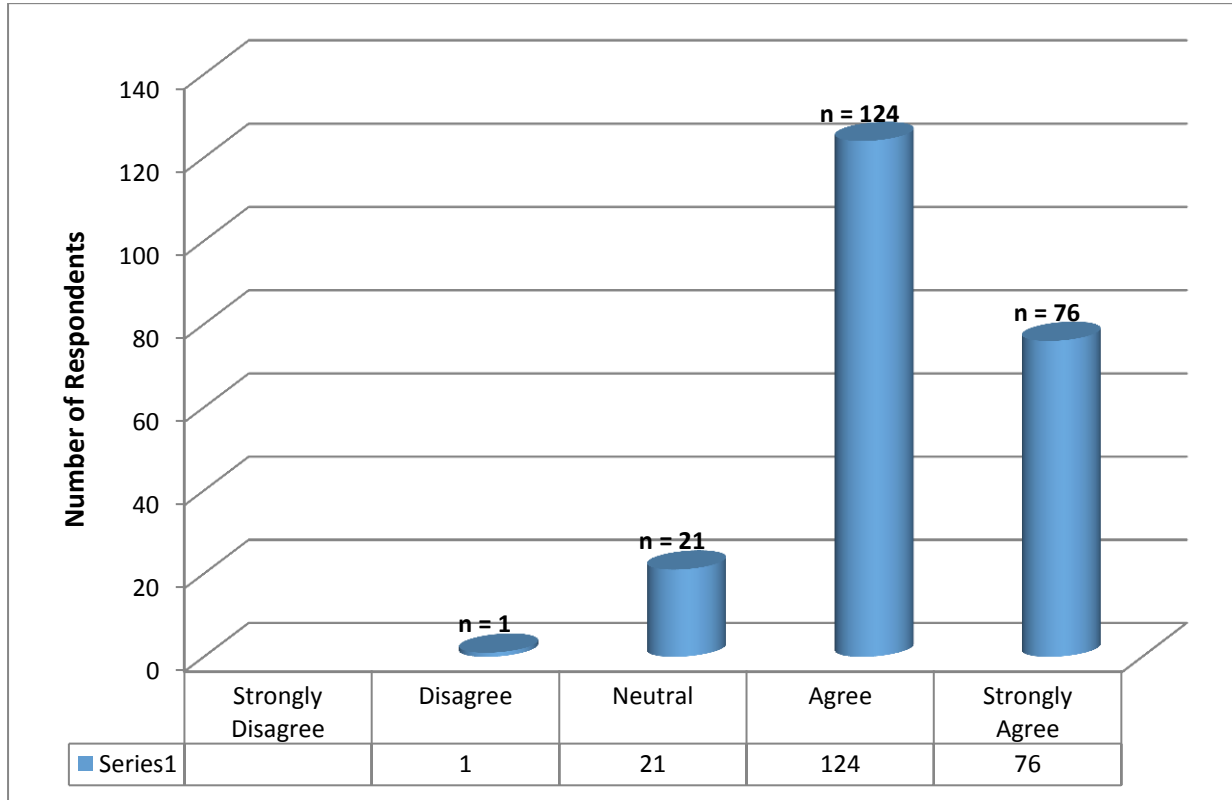


Variable 35 (Question 35): Structure indicators – “Evaluate the structure or systems for delivering care, e.g., to check if documentation of restraint use are completed correctly” (N = 223)

As illustrated below in **Figure 4.41** as in Variable 34 (Question 34) the researcher tried to determine the same level of knowledge regarding “**structure indicators**”. The results reflect the same trend as those from Variable 34 (Question 24). The majority of respondents n = 124 (55.60%) confirmed their knowledge on structure indicators, n = 76 (34.08%) strongly agreed that they are knowledgeable on what structure indicators are, what they represent and measure. Again as indicated in Variable 34 (Question 34) the minority of respondents n = 1(0.44%) of the respondents disagreed with the statement whereas n = 21 (9.41%) of the respondents preferred to remain neutral. The result confirm the objective “to determine the current knowledge and opinion of registered nurses” as there is a percentage of respondents

who were hesitant in the positive response, and “to identify the need for a training program regarding quality assurance in clinical nursing, including quality indicators”.

Figure 4. 41: Structure indicators – Evaluate the structure or systems for delivering care, e.g., to check if documentation of restraint use are completed correctly



Variable 36 (Question 36): Outcome indicators - “Evaluate the end result of care delivered, e.g., adherence to medication therapy (N = 223)

The objective of this variable was to assess whether the respondents understand what outcome indicators represent and measure. **Figure 4.42** indicates that the majority of respondents n = 121 (54.26%) stated that they agree with the statement on what outcome indicators are, n = 85 (38.1%) strongly confirm their knowledge on what outcome indicators are whereas the minority n = 16 (7.17%) remained neutral which indicates an uncertainty towards the question. This can be interpreted that there is a need of an educational program toward quality management in nursing as well as it determined the current knowledge and opinion of the registered nurses towards quality indicators.

Figure 4.42: Outcome indicators - Evaluate the end result of care delivered, e.g., adherence to medication therapy

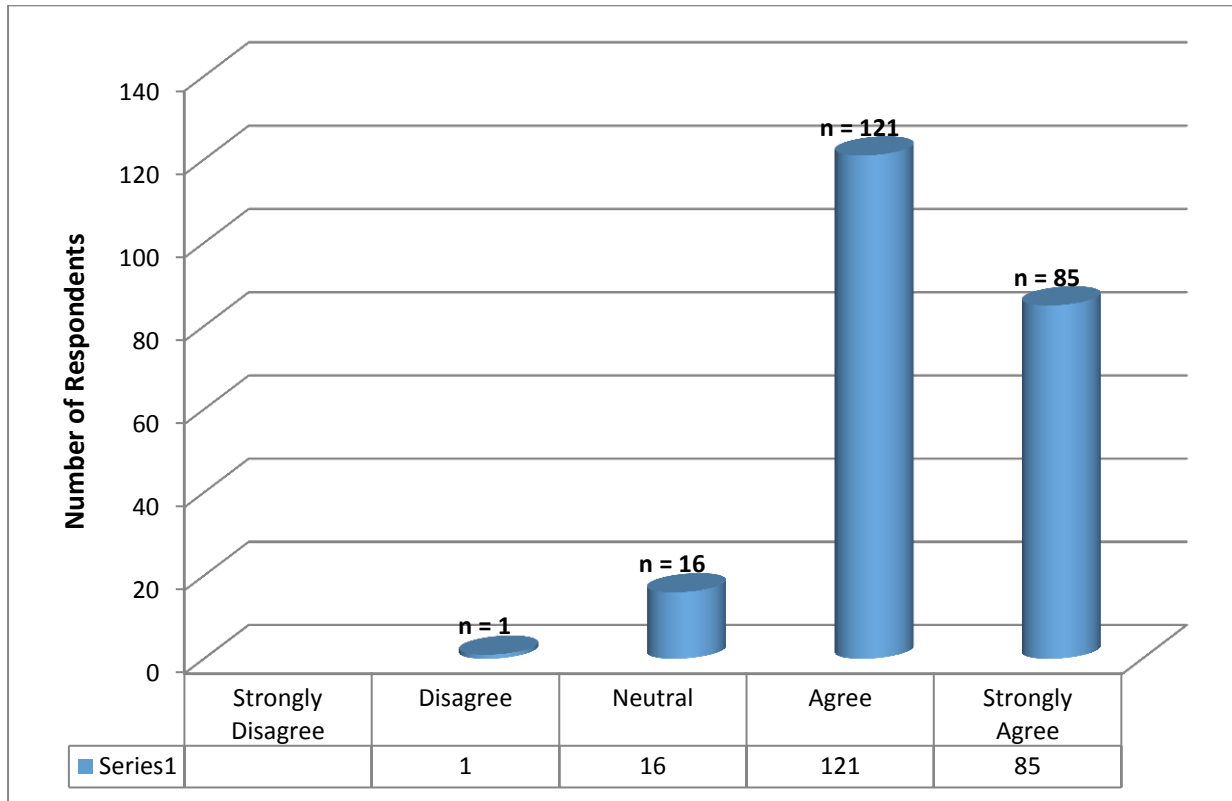
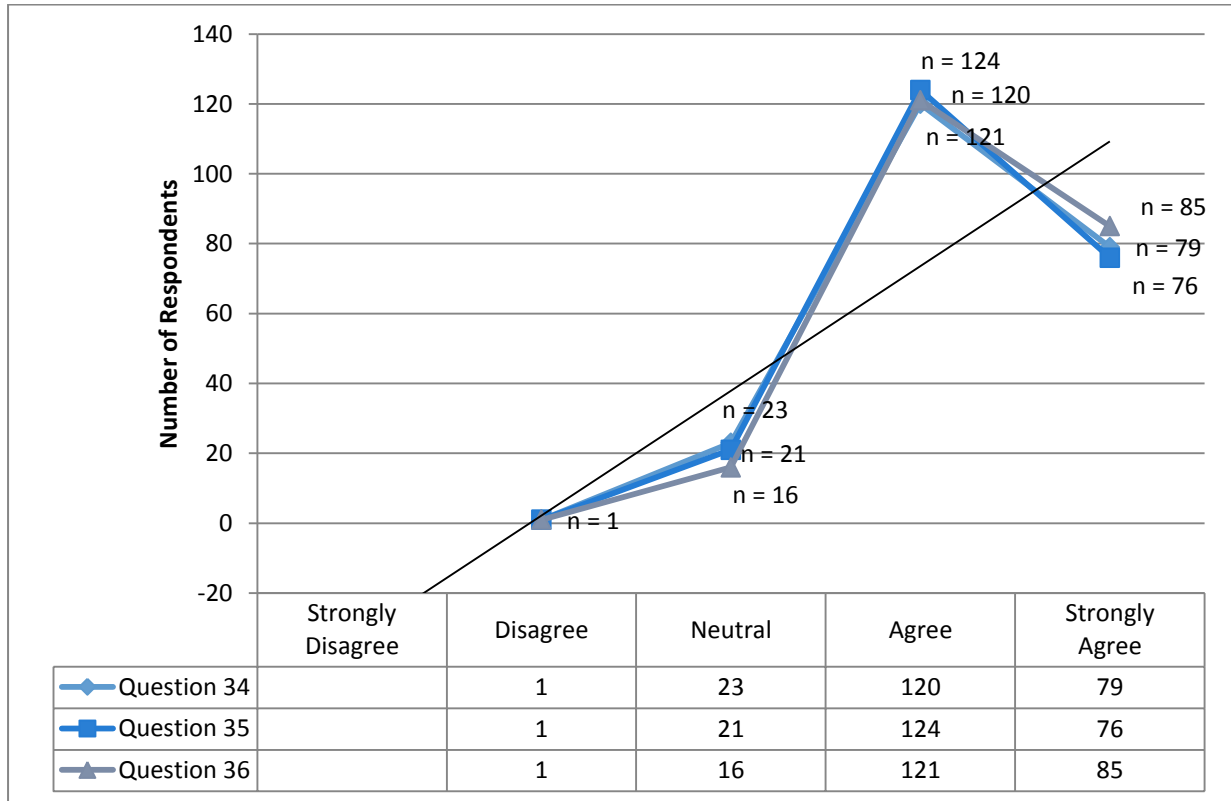


Figure 4.43 compares Variable 34 (Question 34), “*process indicators – evaluate the manner in which care is delivered*”, Variable 35 (Question 35), “*structure indicators – evaluate the structure or systems for delivering care*”, Variable 36 (Question 36), “*outcome indicators – evaluate the end result of care delivered*”. There is a strong agreement with their knowledge pertaining to each of these variable statements. Respondents who remained neutral in all three variables fall below the upward trend line. Respondents who strongly agreed with all three variables’ statement also falls below the upward trend line indicating a negative trend and confirmed the objectives of the study which is “*to determine the current knowledge and opinions of the registered nurses regarding quality indicators*”and “*to assess the need for an educational program in quality assurance in clinical nursing, including the subject of quality indicators*”.

Figure 4.43: Comparison between Variable 34 (Question 34) “Process indicators – Evaluate the manner in which care is delivered”, Variable 35 (Question 35) “Structure indicators – Evaluate the structure or systems for delivering care” and Variable 36 (Question 36) “Outcome indicators - “Evaluate the end result of care delivered”



4.2.3 Section C: Nurses general knowledge of quality indicators

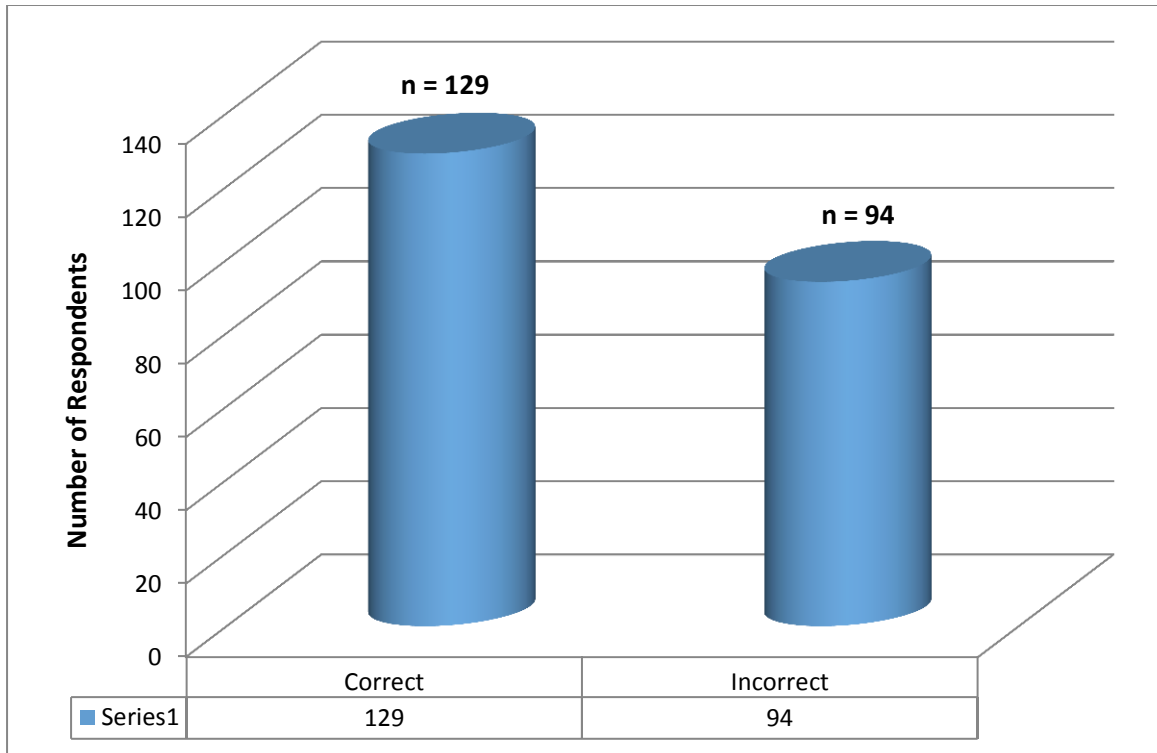
This section was focussing mainly on closed-ended questions to test the nurse’s general knowledge on quality indicators (Level of Service Indicators) or (LSI’s).

Variable 37 (Question 37): List the quality indicators (LSI’s) that are monitored in the hospital on a monthly basis and indicate the target for each indicators (N = 223)

The objective of this question was to determine if the respondents know which indicators (LSI’s) are monitored and what the target rate of each indicator is. **Figure 4.44** shows that the majority of the respondents, n = 129 (57.84%) knew what quality indicators are monitored and what the target of each indicator was. A shocking minority of the respondents, n = 94 (42.15%) did not know what quality indicators (LSI’s) were monitored in the healthcare institution nor did they know what the target of each of the indicators was. This result is

significant in that it shows that almost half of respondents didn't know the quality indicators that were monitored. The results further confirm the gap in knowledge of quality indicators (Level of service indicators) or (LSI's) in the tertiary hospital in Saudi Arabia as well as confirm the objective of "to determine the need for a training program in quality assurance in clinical nursing".

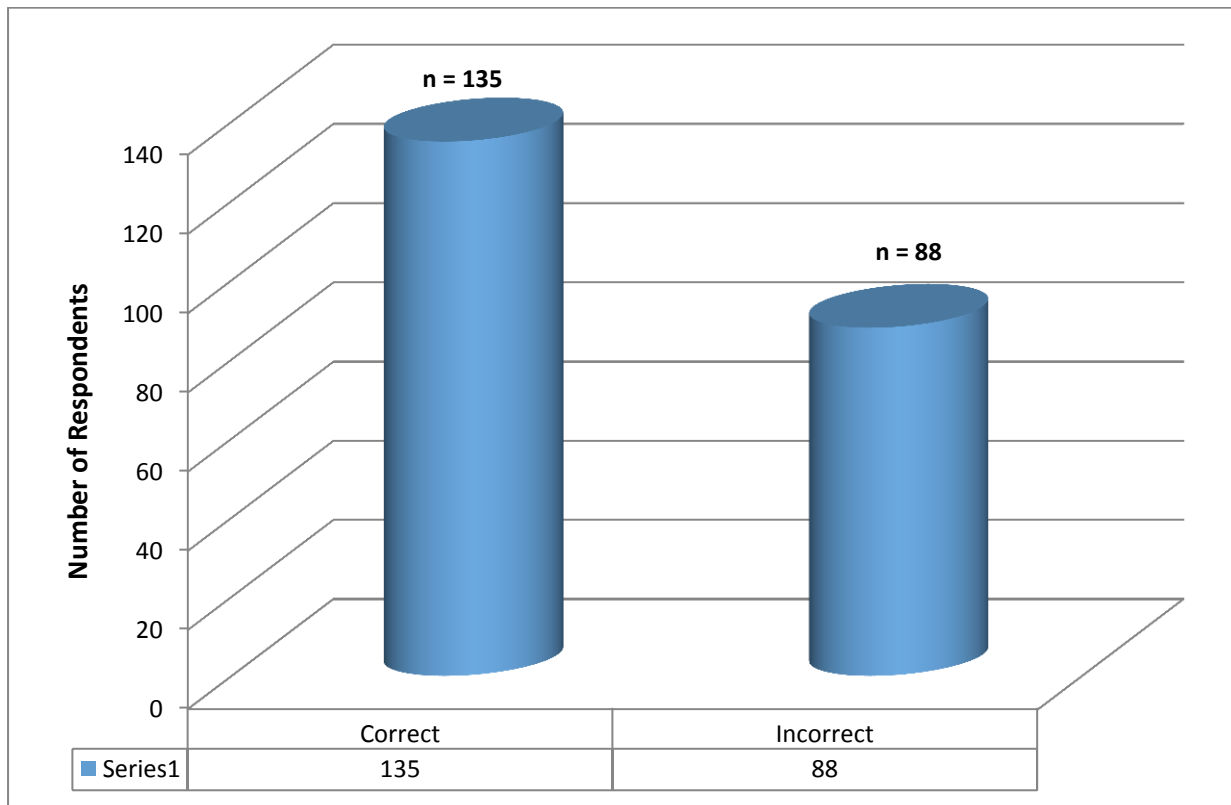
Figure 4.44: List the quality indicators (LSI's) that are monitored in the hospital on a monthly basis and indicate the target for each indicator



Variable 38 (Question 38): Describe in your own words what a quality indicator (LSI) is (N = 223)

In **Figure 4.45**, the majority of the respondents n = 135 (60.53%) could explain in what the meaning of a quality indicator is. As with the previous question, n = 88 (39.46%) a large minority of respondents could not describe a quality indicator which confirms the objectives of "to determine the current knowledge and opinions of the registered nurses regarding quality indicators", to identify the need for a training program regarding quality assurance in clinical nursing, including the subject of quality indicators".

Figure 4.45: Describe in your own words what a quality indicator (LSI) is

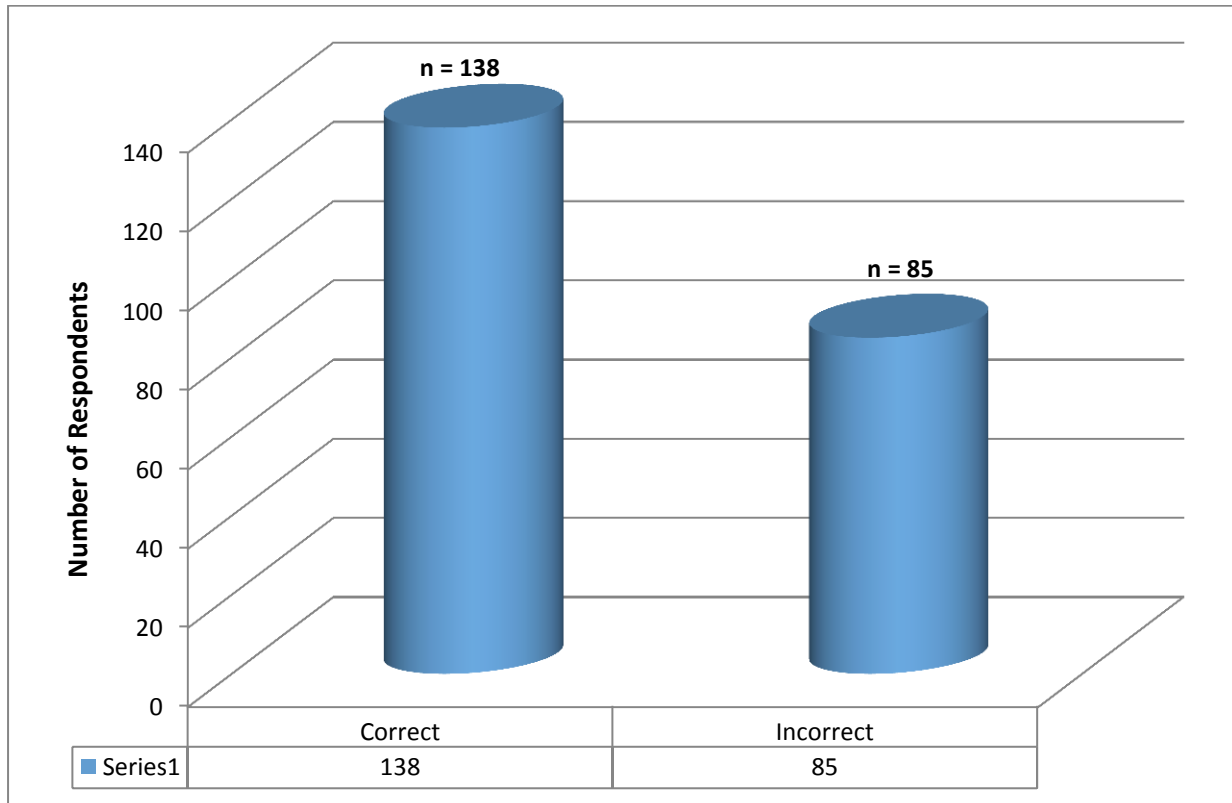


Variable 39 (Question 39): Describe the meaning of quality nursing care (N = 223)

It was important to the researcher to determine the respondents' knowledge on the meaning of quality nursing care. Below indicated in **Figure 4.46**, the majority of respondents $n = 138$ (61.88%) could describe the meaning of quality nursing care but also a concern that $n = 85$ (38.11%) of respondents could **not** describe the meaning of quality nursing care. The results indicated a major concern as it is considered an important matter for registered nurses to be 100% knowledgeable towards quality nursing care as it is the essence of nursing practice. The objectives set out for this study was met as the current knowledge on this specific variable was determined and it is proven that there is a need for an educational program regarding quality assurance in clinical nursing.

Burhans & Alligood, (2010:1689) defines the *“lived meaning of quality nursing care for practising nurses was meeting human needs through caring, empathetic, respectful interactions within which responsibility, intentionality and advocacy form an essential, integral foundation”*.

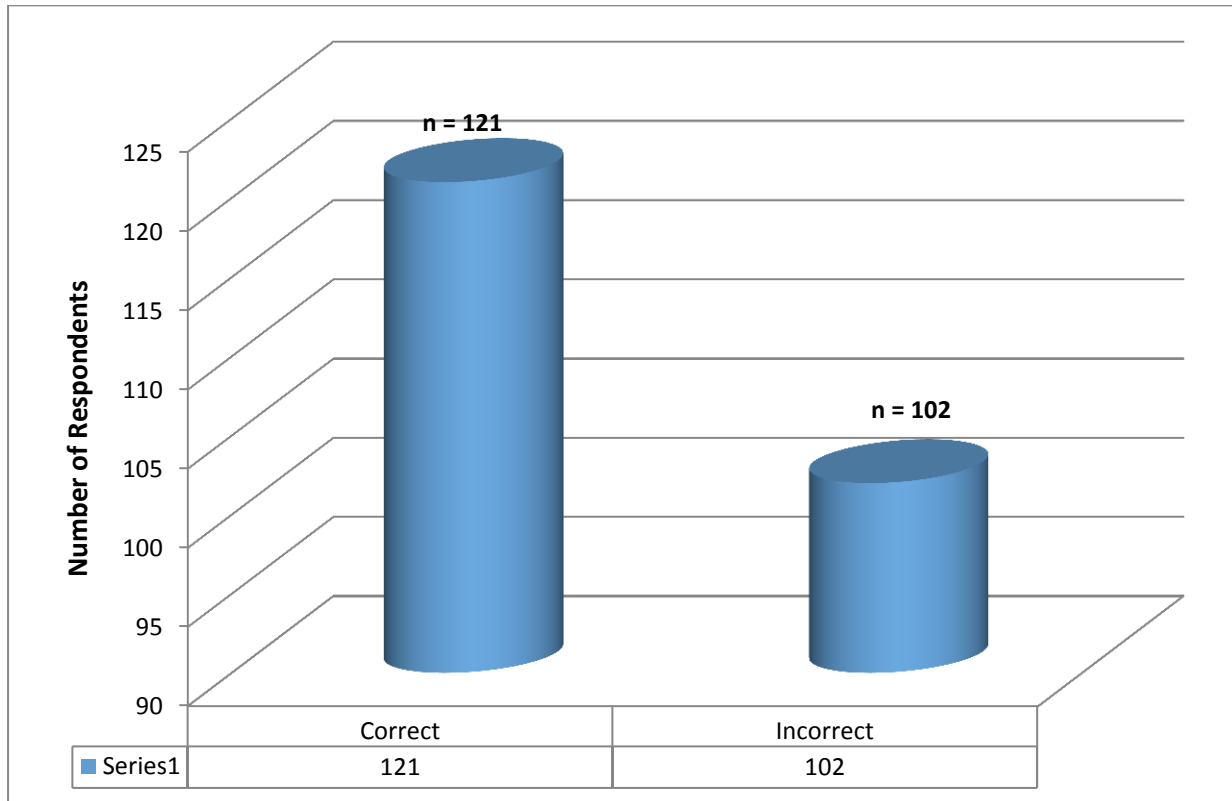
Figure 4.46: Describe the meaning of quality nursing care



Variable 40 (Question 40): Name the quality projects that are practiced in the healthcare setting in Saudi Arabia (N = 223)

Several quality projects are practiced and monitored in the tertiary health care institution in Saudi Arabia. The researcher attempted to determine if respondents were aware of the kind of quality projects that are practiced and monitored in the healthcare institution. It was surprising to discover that the majority of respondents n = 121 (54.26%) could identify all of the quality projects practiced and monitored in the tertiary healthcare setting; again, a significant minority n = 102 (45.73%) of respondents failed to indicate what quality projects are practiced and monitored. This determines the current knowledge of respondents and identifies the need for a quality assurance program in clinical nursing as indicated in the objectives of the research study.

Figure 4.47: Name the quality projects that are practiced in the healthcare setting in Saudi Arabia



Variable 41 (Question 41): Name at least two (2) advantages of quality indicators (LSI's) in clinical nursing (N = 223)

The results as displayed in **Figure 4.48**, is a major concern as the majority of respondents n = 161 (72.19%) indicated their failure to correctly identify the advantages of quality indicators in clinical nursing. The minority of respondents, n = 62 (27.8%) could name two advantages of clinical indicators in clinical nursing. The major failure of knowledge towards quality indicators is definite confirmation of an educational program regarding quality assurance in clinical nursing.

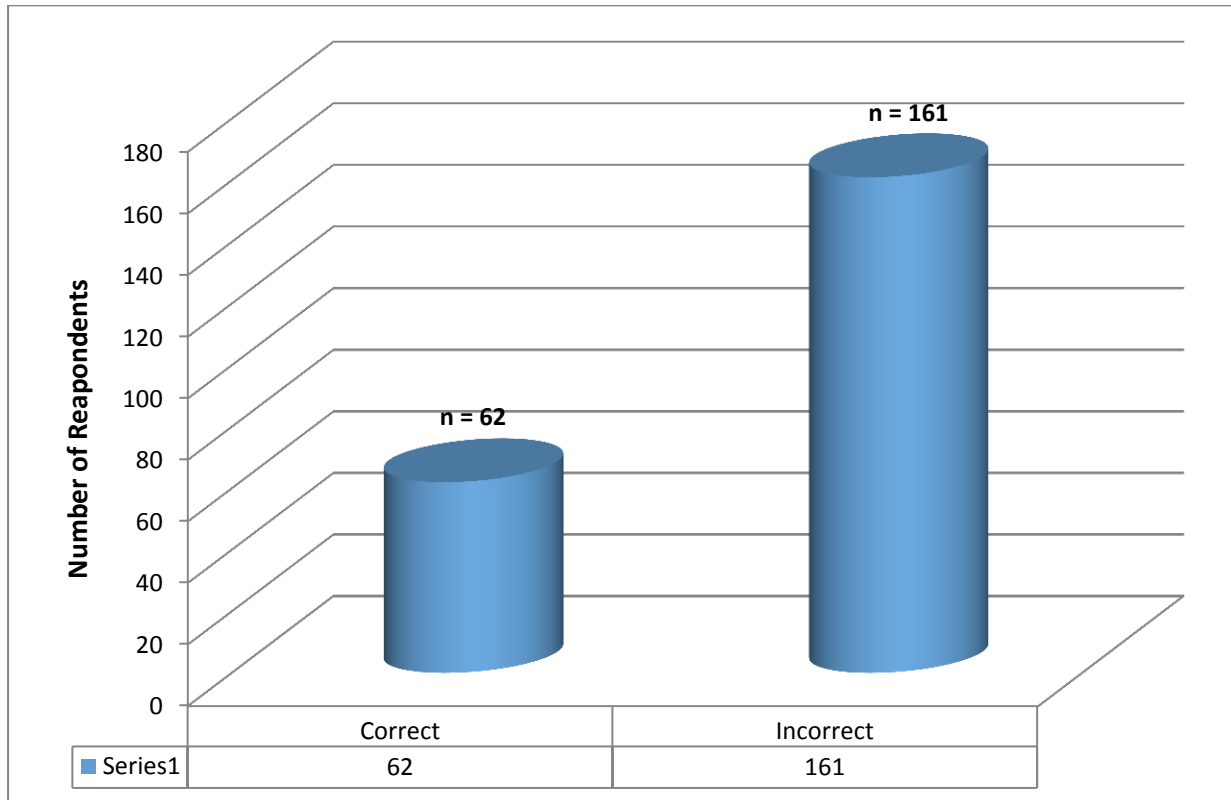
It also determines the current knowledge of respondents towards quality indicators in clinical nursing.

Advances in Patient safety (n.d) describes the three primary ways that indicators can be used in nursing care:

- *It can be used for quality improvement purposes in applied settings to monitor performance and progress and to support evidence based decision making*

- *It can be used to support informed policy analysis related to regulatory or accreditation requirements, workforce development and reimbursement*
- *It can be used to research the role of nursing care in determining patient safety outcomes by examining structure-outcome, process-outcome, and structure-process-outcome relationships*

Figure 4.48: Name at least two (2) advantages of quality indicators (LSI's) in clinical nursing

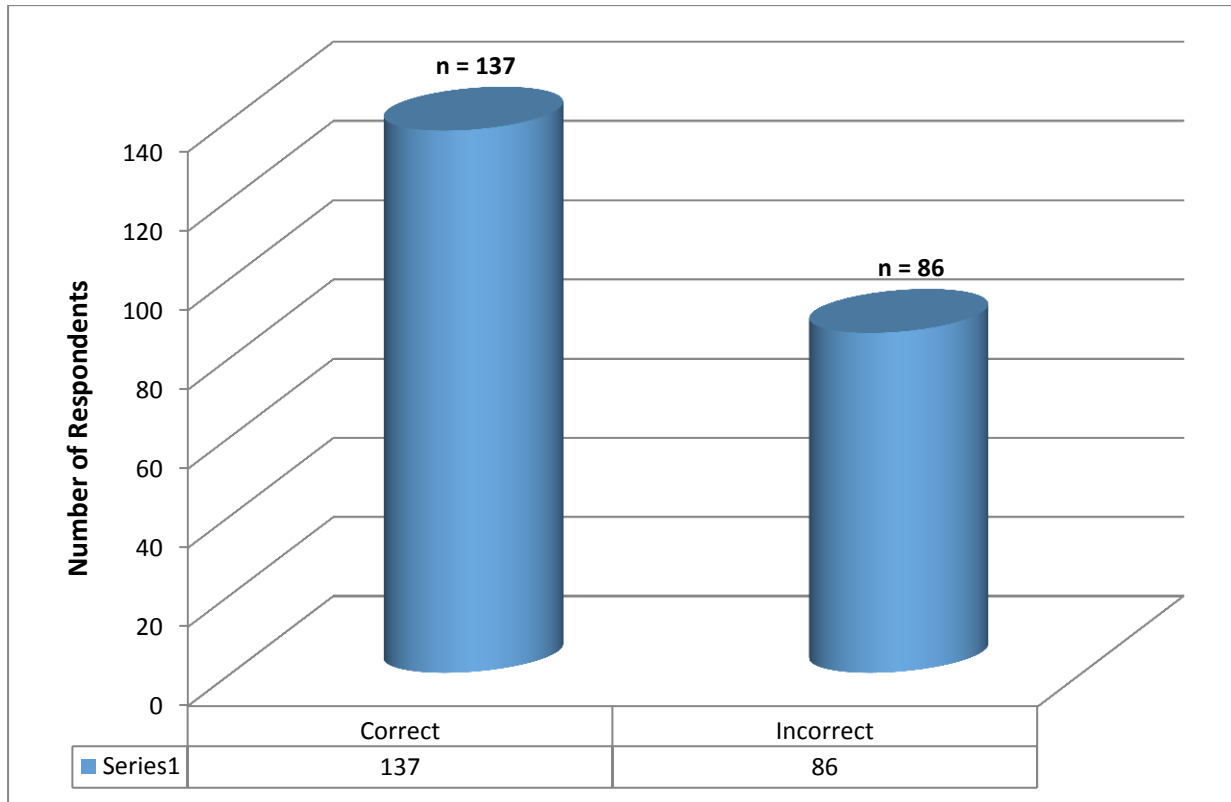


Variable 42 (Question 42): Describe the process to be followed if any deviance to one of the quality indicators (LSI's) occurs (N = 223)

The researcher aimed to determine if the respondents were 100% knowledgeable of the process to be followed once an unusual occurrence pertaining to the quality indicators e.g., patient fall occurs. The results as indicated in **Figure 4.49** below indicates that the majority of respondents n = 137 (61.43%) was knowledgeable of the process to be followed but the minority of respondents n = 86 (38.56%), displayed a disappointing outcome of the criteria because they are not familiar with the process to be followed. The negative outcome of this variable is a major concern as quality nursing care could be directly and adversely affected by a lack of knowledge. The objectives of the study was reached, such as “to determine the

current knowledge and opinions of the registered nurses regarding quality indicators, (LSI's)" and "to identify the need for a training program regarding quality assurance in clinical nursing".

Figure 4.49: Describe the process to be followed if any deviance to one of the quality indicators (LSI's) occurs



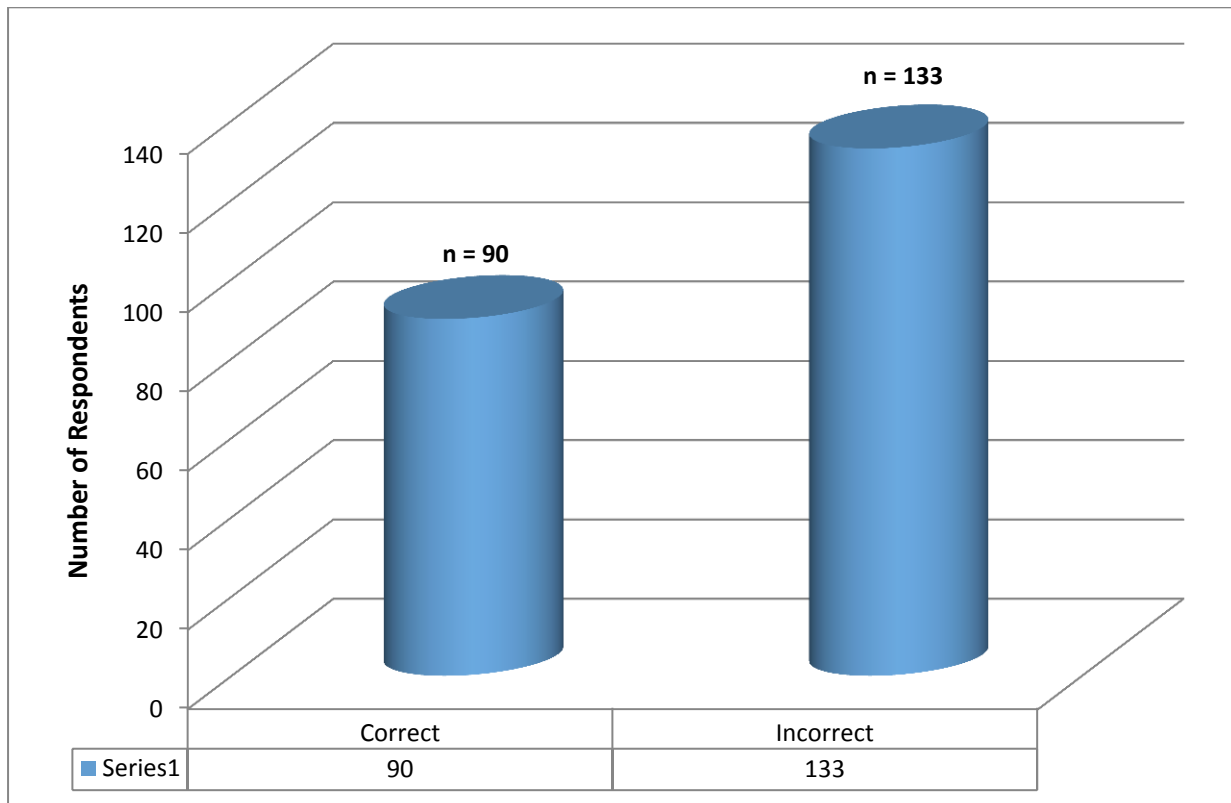
Variable 43 (Question 43): Identify at least 5 (five) factors that can have an influence on quality indicators in clinical nursing (N = 223)

The aim of this question was to determine if the registered nurses have the knowledge to identify any factors that can influence quality indicators. **Figure 4.50** below indicates the results obtained from this variable. The majority of respondents, n = 133 (59.6%) could not identify the factors that can have an influence on quality indicators and that only n = 90 (40.35%) of the respondents were able to identify the factors that can have an influence on quality indicators. The results point to the need for an educational program regarding quality management in nursing, including nurse sensitive quality indicators. The result further indicates the current knowledge and opinions of the registered nurses regarding quality indicators in clinical nursing.

George et al., (n.d) states that *“the field of quality assurance in nursing is as old as modern nursing. Florence Nightingale introduced the concept of quality in nursing care in 1855 while attending the soldiers in the hospital during the Crimean war. The article further reveals that the following to have influence on quality assurance in nursing care:*

- *Lack of resources, e.g. equipment, consumables, etc.*
- *Personnel problems, e.g. lack of trained, skilled and motivated employees*
- *Improper maintenance, e.g. buildings and equipment require proper maintenance for efficient use, if not maintained properly, the equipment cannot be used for proper nursing care*
- *Unreasonable patients and attendants, e.g. illness, anxiety, absence of immediate response to treatment, unreasonable and uncooperative attitude that in turn affects the quality of care in nursing*
- *Absence of well-informed population, e.g. to improve quality of nursing care, it is necessary that the people become knowledgeable and assert their rights to quality care. It can be achieved through continuous educational programs*
- *Absence of accreditation laws, e.g. Inspect hospitals and ensures that basic requirements are met*
- *Lack of incident review procedures, e.g. delayed attendance by nurses, surgeon, physician, incorrect medication, etc.*
- *Lack of a good and hospital information system, e.g. a good management information system is essential for the appraisal of quality of care (workload, admissions, procedures, and length of stay)*
- *Absence of patient satisfaction surveys*
- *Lack of nursing care records*
- *Miscellaneous factors e.g. lack of good supervision, lack of policy and administrative manuals, lack of job description and job specification, etc.*

Figure 4.50: Identify at least 5 (five) factors that can have an influence on quality indicators in clinical nursing



Variable 44 (Question 44): Select the indicator (process, outcome or structured) that best fit the statement (N = 223)

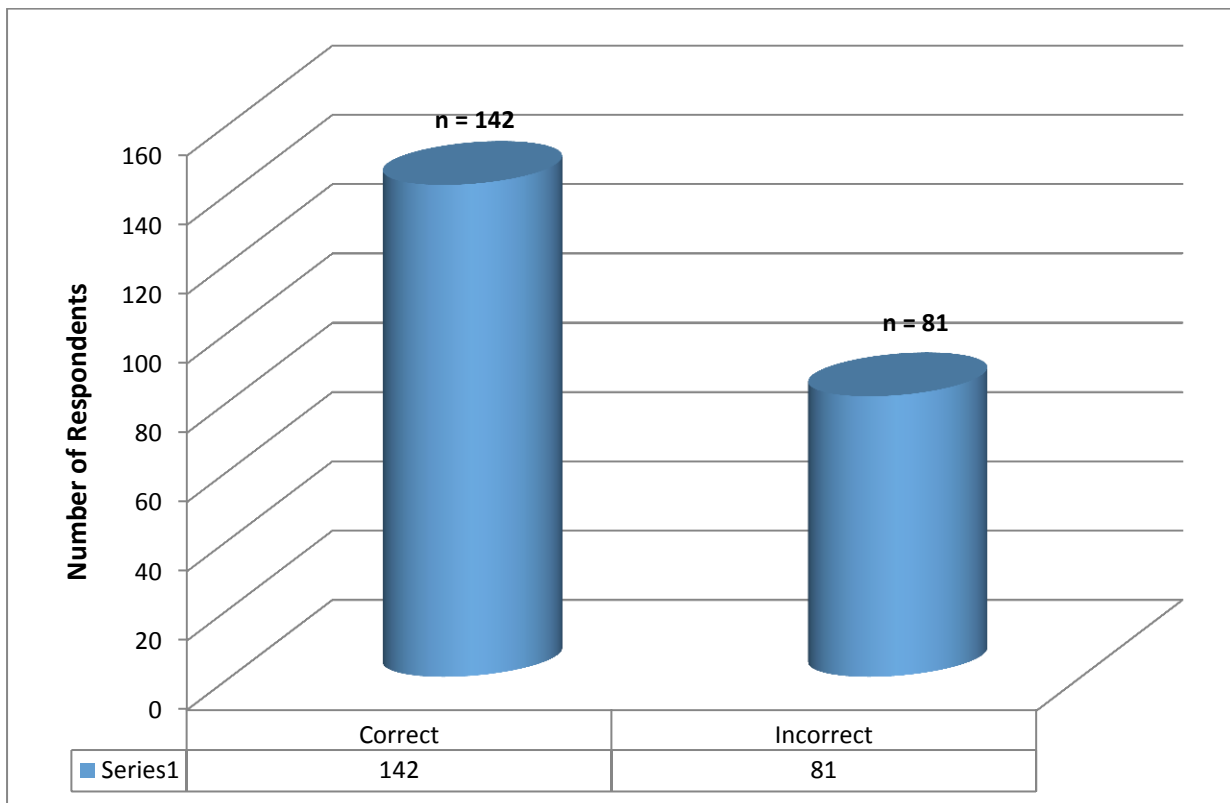
Figure 4.51 below indicates that the majority of respondents n = 142 (63.67%) was knowledgeable towards selecting the indicator against an explanation statement. It is a great concern that n = 81 (36.32%) of the respondents were not knowledgeable regarding identifying process, outcome or structured standards. These standards set the core of quality in any healthcare setting. The huge percentage of not being knowledgeable is confirming the objectives of the study which is *“to determine the current knowledge and opinions of registered nurses regarding quality indicators”* and *“to identify the need for a training program regarding quality management in nursing”* which includes the subject of quality indicators (LSI’s).

Nurses are accountable for enhancing and upholding standards of care and practice. In order to do that they need to be able to track the outcome of their care rendered to patients and to

be able to achieve that they need to understand the concepts of process, outcome and structure standards.

Kunkel et al., (2007:104) states that *“Donabedian’s model to analyse quality includes three factors: structure, process, and outcome. Structure refers to prerequisites, such as hospital buildings, staff and equipment. Process describes how structure is put into practice, such as specific therapies. Outcome refers to results of processes, for instance, results of therapy”*.

Figure 4.51: Select the indicator (process, outcome or structured) that best fit the statement



4.3 Discussion of the Standard Deviation (Sd) and Mean

The standard deviation and mean values for this research study was calculated by the statistician from Stellenbosch University. The standard deviation (Sd) value was identified as 0.27 and the mean knowledge score was calculated as 0.59.

Standard deviation is *“a widely used measurement of variability or diversity used in statistics and probability theory. It shows how much variation or “dispersion” there is from the average (mean, or expected value). A low standard deviation indicates that the data points tend to be very close to the mean, whereas high standard deviation indicates that the data are spread*

out over a large range of values", wikipedia.org: (n.d). The findings appear to be true as the standard deviation is clustered closely around the mean, thus indicating that the data are not far from the mean.

The mean of a set, or average as it is also called, is calculated by adding up all the numbers in the set, and dividing that sum by the number of entries. In the research study, all the knowledge scores have been added and divided by the amount of variables which concludes a mean score of 0.59. It is then evident that the mean score of knowledge of registered nurses working in the tertiary healthcare institution is below the expected standard to provide quality in clinical nursing.

4.4 Conclusion

In this chapter the results of the questionnaire of the research study: Knowledge and Opinions of Registered Nurses with Reference to Quality Indicators in Clinical Nursing in Saudi Arabia were discussed. According to the outcome of the data analysis it is evident that there is a significant gap to cross to create and implement a culture of commitment to quality in nursing and specifically towards an educational program towards quality management in nursing.

In Chapter 5 the report on the research process and findings will be concluded and recommendations towards the objectives pertaining to this study will be made.

CHAPTER 5

CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS

5.1. Introduction

Chapter 4 analysed data collected from questionnaires sent to more than two hundred registered nurses working in a single tertiary healthcare system in Saudi Arabia. The questions posed required both opinions and objective responses. Chapter 5 presents conclusions and recommendations based upon an analysis of the answers.

It was an expectation that the nurses working in the tertiary health care facility should have a hundred percent knowledge on quality indicators in clinical nursing to maintain excellence of nursing care within the system.

It was identified that only approximately 60 % (n=133.8) of the participants have knowledge of quality indicators and a shocking 40% (n=89.2) had no or poor knowledge thereof.

5.2 Study Conclusions

Study findings must be measured against the research problem in order to determine if study goals have been met. After data has been collected, then studied and analysed, conclusions may then be drawn consistent with the study goals and objectives.

The limitations of this study will be considered for future research or could be considered as an opportunity for further projects.

The following conclusions were drawn from the three sections within the questionnaire concerning the knowledge and opinions of the registered nurses towards quality indicators.

The discussions are done in conclusion with the objectives set for the study namely to:

- Determine the current knowledge and opinions of the professional nurses regarding quality indicators in a tertiary hospital in Saudi Arabia
- identify the factors that influence identification of quality indicators in clinical nursing.

During the analyses and the conclusion of the data, the researcher was guided by the research aim: *"to assess the knowledge and opinions of the registered nurse working in a tertiary hospital in Saudi Arabia with reference to quality indicators"* in order to make relevant

recommendations. It is hoped that these recommendations will assist the registered nurses working in the health care institution to acquire the necessary and needed knowledge regarding quality indicators in clinical nursing to enable them to make informed decisions while executing their daily tasks.

5.2.1 Section A - Conclusions: Biographical and Background Information

A majority of registered nurses are employed between one to five years with the same amount of years of experience in clinical nursing. The workforce analysed was largely between the ages of 26-35 years. One would not expect that this cross-section of nurses with this level of experience to exhibit strong professional maturity and broad knowledge of all aspects of nursing.

A majority of registered nurses analysed at the single tertiary health care institution are Filipino staff members. A majority of these have a Bachelor degree in Nursing (the prerequisite requirement for Saudi Arabian employment), obtained from the Philippines. Few staff members have a master's degree; none have a PhD. It is indicated that people with a PhD might be more knowledgeable regarding quality assurance in clinical nursing.

Most registered nurses said that they were exposed to quality projects to some extent. Few had an in-depth involvement in many quality projects in the health care institution. This would point to a lack of in-depth, "hands-on" working knowledge of quality indicators. Almost all had opinions and a few had in-depth knowledge.

One positive aspect of the background information collected was that nurses seem to have received feedback of their units' quality indicator compliance/non-compliance during their unit's monthly meeting. Receiving continuing feedback may have influenced nurses' opinions towards quality indicators. Exploring this connection may be the subject of a further study.

5.2.2. Section B - Conclusions: Monitoring of Quality Indicators (LSI's), (Determine Knowledge and Opinions)

Study criteria used to determine the opinions of the respondents toward quality indicators (level of service indicators- LSI's) are shown in **Table 6** Respondents' opinions varied significantly between "strongly disagree" and "strongly agree". The percentage who strongly disagreed is small. The opinions demonstrated by the "strongly agree" sample might relate to the feedback on the quality indicator (LSI) feedback received during monthly meetings.

Table 6: Registered nurses' opinions of quality indicators – a comparison between criteria “Strongly Disagree” and “Strongly Agree”

Criteria	Description	Strongly Disagree	Strongly Agree
11	It is important to monitor quality indicators (LSI's) in any nursing unit	0%	66.36%
14	I am willing to implement quality indicators (LSI's) in daily practice	0%	43%
15	Feedback on quality indicators (LSI's) stimulates me to adjust my nursing practice	0%	44.3%
16	Monitor of quality indicators (LSI's) stimulates quality improvement	0%	50.2%
17	Monitor of quality indicators (LSI's) does not take too much time	0.89%	17.4%
18	Monitoring of quality indicators (LSI's) fits into the daily routine of the hospital setting	0.44%	30.94%
25	Nursing staff should often discuss the results of the quality indicators (LSI's) and or improvements to promote quality nursing care	0%	45.29%
26	All deviances on the quality indicators (LSI's) are reported promptly	0.44%	34.5%
27	Feedback on quality indicators (LSI's) in the unit is part of the commitment to improve the quality of nursing care	0%	43.49%
28	As a colleague, I report any deviance pertaining to quality indicators (LSI's) as I know it will improve nursing care	0.89%	36.32%
29	When errors to quality indicators (LSI's) occur, I feel supported by my unit manager	1.79%	27.8%
30	It is a learning experience for all staff members when deviances on quality indicators (LSI's) occur and that it be discussed with all nursing staff during the unit's monthly meeting	0.44%	39.91%
31	In your opinion, quality indicators (LSI's) contributes to improved patient care	0.44%	41.7%
32	I understand all there is to know about quality indicators (LSI's)	0%	28.25%
Average percentage of strongly disagree versus strongly agree		0.76%	39.24%

It can be concluded that the knowledge of registered nurses pertaining to **Section B: Monitoring of quality indicators** is inconsistent with their opinions. Registered nurses have strong opinions on quality indicators but not necessarily the background knowledge to justify or support those opinions

The nursing department in the tertiary health care setting in Saudi Arabia must change its approach to quality management in clinical nursing and both areas (knowledge as well as

opinions) require attention. A lack of knowledge as evident in **Section B and C** is a barrier to quality patient care but this may be an area that requires further review and research.

Quality management in clinical nursing and the environment in which it operates are interrelated. If the environment is supportive but the quality management in clinical nursing are not used appropriately, there may be less improvement than expected or on the contrary no evidence that improvements have been made. Similarly, if quality management in clinical nursing is used but the environment is not supportive, the result may be a failure to improve care. The environment may consist of a structure (such as an educational program and library services) and promoting quality indicators in clinical nursing in order to prevent ethical dilemmas. A culture, in which nurses will “buy-in” to the benefits of a quality system, is required. The researcher believes that creativity, openness and the encouragement to report errors and failures without fear or blame can drive quality of patient care in a direction where it will have positive long term effects.

Table 7: Registered nurses’ knowledge of quality indicators – a comparison between “Strongly Disagree” versus “Strongly Agree” criteria

Criteria	Description	Strongly Disagree	Strongly Agree
12	I am familiar with the use of quality indicators (LSI's) as a tool to improve quality of care	0%	85%
13	I understand the importance of using quality indicators (LSI's)	0%	37%
19	To monitor quality indicators (LSI's) indicates the quality of care patients receive	0%	43.04%
20	To create quality awareness through in service is a useful way of improving patient care	0%	44.39%
21	For quality indicators (LSI's) to be managed and improved it must be understood, defined and the existing quality of care must be established and measured	0%	42.15%
22	Measurement is a vital part of improvement of quality indicators	0%	38.11%
23	Assessing and measuring the quality of care in a way that it enables it to be quantified is an essential ingredient for quality indicators	0.44%	30.49%
24	Reporting deviances pertaining to quality indicators (LSI's) increases the quality of nursing care	0.44%	34.5%
33	Nursing sensitive quality indicators (LSI's) are “those indicators that captures care or it's outcomes most affected by nursing care”	0%	26.9%
34	Process Indicators – “evaluates the manner in which care is	0%	35.42%

	delivered, e.g., the process of pain management”		
35	Structure Indicators – “evaluates the structure or systems for delivering care, e.g., to check if forms documenting restraint use are completed correctly”	0%	34.08%
36	Outcome Indicators – “evaluates the end result of care delivered, e.g., adherence to medication therapy”	0%	38.1%
Average percentage of strongly disagree versus strongly agree		0.44%	40.76%

5.2.3. Section C - Conclusions: Assessing Knowledge of Quality Indicators

This section evaluates registered nurses’ knowledge of quality and quality indicators. In Variable 39 (Question 39) respondents could not successfully describe the meaning of quality nursing care. **Section B: Monitoring of quality indicators** (nurses’ knowledge); it supports the results obtained from **Section C** as displayed in **Table 8**. One may conclude that the registered nurses’ knowledge of quality management in nursing including quality indicators requires improvement in order to provide quality patient care. Improved knowledge of quality indicators may then drive more consistently supportive opinions.

Table 8: Registered nurses knowledge of quality indicators (LSI’s) as indicated in Section C

Criteria	Description	Correct	Incorrect
37	List the quality indicators (LSI’s) that are monitored in the hospital monthly and indicate the target for each indicator	57.84%	42.15%
38	What is a quality indicator (level of service indicator)	60.53%	39.46%
39	Describe the meaning of quality nursing care	61.88%	38.11%
40	Name the quality projects that are practiced in the health care setting	54.26%	45.73%
41	Name at least two disadvantages of quality indicators LSI’s) in clinical nursing	27.8%	72.19%
42	Describe the process to be followed if any deviance to one of the quality indicators (LSI’s) occur	61.43%	38.56%
43	Identify at least five factors that can have an influence on quality indicators in clinical nursing	40.35%	59.6%
44	Select the indicator (process, outcome or structured) that best fit the statement	63.67%	36.32%
Average percentage of correct versus incorrect		53.47%	46.51%

5.3 Study Recommendations

Quality indicators provide an objective means monitoring trends in patient care and may assist in quantifying improvements needed and achieved. They also help identify specific areas where institutional and process improvements need to be made. The recommendations presented in this study were consistent with the evidence obtained from the data analysis as discussed in Chapter 4.

5.3.1 Section A - Recommendations: Biographical and Background Information

Data suggests that it may be helpful to hire a higher percentage of nurses with more than entry-level qualifications. Individuals with higher education and qualifications will almost certainly be more capable of functioning effectively in a nursing quality system. More importantly, they will be more proficient in teaching what they know and what they practice to others. This is important to long-term quality system effectiveness when viewed from the perspective that very few nurses stay in the job longer than their initial contract period.

The work force measured is also very young. It may be useful to adjust recruitment policies to attract a wider age range of nurses, consistent with efforts to recruit a more experienced cross-section. Currently, the human resources policy only recommends that applicants have two years post basic training experience to apply for a suitable position.

5.3.2 Section B - Recommendations: Monitoring of Quality Indicators (Determine Knowledge and Opinions)

It is reasonable to expect that nurses who become involved in quality management in clinical nursing and have a grounded understanding of quality indicators will be effective. This would be evident in identifying trends and improvement areas and also in developing and implementing improvements at their health care institution. Also, their positive and supportive opinions will likely be contagious.

A culture of quality awareness in clinical nursing is needed, and an educational program must provide it. This will be discussed in the following pages under 5.3.4.

5.3.3. Section C - Recommendations: Assessing the Nurses knowledge of Quality Indicators

Earlier results and conclusions indicate a diversity of quality indicator opinions. Data identifies nurses' knowledge of quality indicators as inadequate. A baseline of nurses' knowledge of quality indicators has been established in this study, the place where knowledge and

understanding must start. This study has shown the need for an education program for registered nurses which focuses on both quality knowledge and awareness, including the understanding and use of quality indicators and trend data.

The nursing department in this health care setting in Saudi Arabia must change its approach to quality management in clinical nursing. Quality System knowledge must be strengthened and more positive support must be obtained from a broader cross-section of nurses. A lack of knowledge as shown in **Section B and C** is a fundamental limiting factor in assuring quality patient care. More study in this area may be needed

Quality management in clinical nursing is related to the operating environment. If the environment is supportive but quality management in clinical nursing is not used appropriately, far less improvement may be expected or on the contrary no evidence that improvements have been made. Similarly, if quality management in clinical nursing are used well but the environment is not supportive, the result may also be a failure to improve care. The environment may consist of a structure (such as an educational program and library services) and a culture. A culture is required through creativity and openness with the encouragement to report errors and failures without fear or blame.

This will have an effect upon quality improvement in clinical nursing not just improving nurses' knowledge of quality indicators. The educational program will be the combined efforts of an efficient team of people using tools and techniques that sustain the process of improvement. The process of improvement will enable the nurses to seek higher goals and seek continuous quality enhancement. There is a saying: "the true spirit of quality orientation is whatever the good has been achieved, the best is always yet to come" (author unknown).

5.3.4 Educational Program Recommendations

One of the objectives of the research was "*to identify the need for a training program regarding nurse sensitive quality indicators (LSI's)*". The objective was met and the need for an educational program regarding quality assurance in clinical nursing, including quality indicators has been established for this study. Such a program was developed by the academic affairs of the health care institution when the results of this study became known.

The attendance of conferences, workshops, symposiums, grand rounds and study days as strategies to introduce quality indicators through teaching and learning within different health

care institutions are vitally important to registered nurses as it broadens their knowledge on quality care delivery.

Nurses should adopt a culture of evidence based practice with the support of the support of the academic affairs. The evidence based information is widely available through numerous internet sites such as the “*Joanna Briggs institute for evidence based nursing*”. This website can be found on the following link: <http://www.joannabriggs.edu.au>. Nurses can be encouraged to search for evidence based articles related to the topic they are interested about.

In conclusion it is clear that there is a great need to support registered nurses to enhance and advance their knowledge of quality indicators in clinical nursing.

Nursing administration recognized the shortcomings in its system and the deficiencies in newly hired nurses. The training system will equip the registered nurses with the knowledge of quality assurance in clinical nursing. The curriculum for the quality management course is attached, see Annexure F.

5.4 Significance of the Study

Registered nurses are in a key position to promote the quality of care patients receive. Quality indicators in clinical nursing are core measures that measure the care patients receive and point the way to improvements.

Although this process has been in place for several years it is evident that the study documented more or less the expected opinions of quality indicators in clinical nursing. It also documented significant shortfalls in knowledge of quality indicators in clinical nursing. Said another way, registered nurses have significant opinions but not the knowledge to support those opinions.

It is important to create a culture of awareness towards quality management in clinical nursing that will support and enhance the quality of care that is rendered by registered nurses to patients. To be able to understand the culture of quality management and specifically quality indicators in clinical nursing one must have the knowledge to change. Culture is formed by the beliefs, behaviours, norms, values, rules and the climate of the health care institution in the tertiary health care institution in Saudi Arabia.

A diverse group of nurses are working in tertiary healthcare institutions and their perceptions of what quality of care encapsulates might differ. Through teaching and learning and through quality care awareness campaigns nurses might have the opportunity to share their knowledge and experiences in order to address factors influencing the identification of quality indicators.

5.5 Limitations of the Study

The following study limitations are identified:

- a) This study samples the knowledge and opinions of registered nurses in a single hospital. Whether or not these results are representative of a wider health care population or a broader group of facilities or institutions remains to be seen. This could be explored in further research
- b) The study focused on quality indicators as one component of quality management of a health care setting. Other aspects of a quality system could be included in a future study (e.g., a comparative study of knowledge, opinions, and attitudes towards quality management a health care setting).
- c) There is no evidence of a similar study done in the Middle East that can support the validity of the study

Summarising, this study was done in only one health care institution. Further research could include other health care institutions in Saudi Arabia, apply to specific nationalities, analyse differences in recruiting and retention policies, and evaluate the impacts of initial and recurring quality system training.

5.6 Research Opportunities

The research project opened opportunities for further studies as indicated below:

- To determine the knowledge of registered nurses from different cultural backgrounds regarding quality assurance in clinical nursing
- To determine the impact of cultural differences on quality nursing
- To determine the involvement of unit managers towards enhancing registered nurses knowledge regarding quality indicators in clinical nursing
- To determine the outcome of an educational program on quality assurance in clinical nursing

5.7 Summary

An initial question of this study was that registered nurses working in the tertiary health care setting do not understand the importance of knowledge of quality indicators.

The research question as stated in Chapter 1, “what is the knowledge and opinions of registered nurses working in a tertiary health care institution in Saudi Arabia regarding quality indicators in clinical nursing” is addressed in the conclusion of the study; both knowledge and opinions have been measured. The conclusions show that there is a need to improve the knowledge and thereby positively influence the opinions regarding quality indicators in clinical nursing. This improvement will result in positive improvements in the quality of care provided by registered nurses.

The research objectives for the study which are indicated below were met and have been addressed in the data analysis in Chapter 4:

- To determine the current knowledge and opinions of the professional nurses regarding quality indicators in the tertiary health care setting in Saudi Arabia
- To identify the factors that influence identification of quality indicators in clinical nursing
- To identify the need for an training program regarding nurse sensitive quality indicators (LSI's)

5.8 Conclusion

The interesting and positive side to this study was determining and accepting the shortfall in nursing management in providing registered nurses with the knowledge and understanding on quality management in nursing. The transformation of registered nurses into more quality focussed individuals will be challenging. Nurses have a key role in improving outcomes and experiences for patients. This can be influenced by measuring the impact that nursing interventions have on patient care through quality indicators. These quality indicators determine whether the level of care is of an acceptable standard. The data obtained from the study is informative and useful in creating the emphasis and enthusiasm to do more to enhance patient care.

This study describes the basic knowledge and opinions of registered nurses in clinical nursing in one tertiary health care institution in Saudi Arabia. The scope of quality management in clinical nursing is broad and the efforts that nurses put into quality programs do not necessarily indicate their true understanding and knowledge of the subject at hand. One cannot assume that employees continually being added from diverse cultures will arrive

equipped with knowledge, skills and uniform competencies in all aspects of clinical nursing. The reputation of quality care rendered to patients is a result of what the health care system predicts and prescribes. The institution must evaluate all registered nurses (including staff from other departments), measure them against a baseline requirement and provide added education and training in deficient areas. These can be achieved through offering courses, in service lectures, study days, grand rounds, etc.

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Appendixes

- Annexure A Questionnaire
- Annexure B Informed Consent
- Annexure C Stellenbosch University Ethical Board Approval
- Annexure D Ethical and Research Board Approval – King Fahad Armed Forces Hospital
- Annexure E Declaration – Language & Technical Editing
- Annexure F Course Outline –Training Program on Quality Assurance in Clinical Nursing

ANNEXURE A: QUESTIONNAIRE – NURSING STAFF

Research study: Knowledge and Opinions of Registered Nurses With Reference to Quality Indicators in Clinical Nursing in Saudi Arabia

Dear Colleague

You are invited to participate in the nurse sensitive quality indicator research study, aiming at exploring your knowledge and opinions on quality indicators in clinical nursing in Saudi Arabia. In this study, approximately 240 participants will be asked to complete the survey. The informed consent form must be completed and signed and then be returned in the separate envelope provided to the mailbox of Anya Pelsler, situated in the nursing office before participating in the research study.

Your participation in this study is completely voluntary. There are no foreseeable risks associated with this project. However, if you feel uncomfortable answering any questions, you can withdraw from the study at any time. It is very important for the researcher to learn about your knowledge and opinions regarding this topic.

The questionnaire will take \pm 20 minutes to complete. **Please answer all the questions by making an X in the appropriate block and/or filling in your response where requested.** On completion, please place questionnaire in the envelope provided, seal and return to Anya Pelsler, Assistant Director of Nursing, through the internal mailbox.

Your survey responses will be strictly confidential. Your information will be coded and will remain confidential. If you have questions at any time about the study or the procedures, you may contact Anya Pelsler at 6653000, extension 2949 or by email, anypelsler@kfahf.med.sa or through bleep #313.

DO NOT WRITE YOUR NAME AND SURNAME ON THE QUESTIONNAIRE

SECTION A: BIOGRAPHICAL INFORMATION

Background information

Please complete this section as this information will help in the analysis of the survey results.

Please note that none of this information will be used to identify you and will only be viewed by the researcher and her university supervisor.

1. How long have you been employed at your current tertiary healthcare institution in Saudi Arabia?

- a. Less than one year
- b. One to five years
- c. Six to ten years
- d. More than ten years

2. How many years of nursing experience do you have after registration?

- a. Less than one year
- b. One to five years
- c. Six to ten years
- d. More than ten years

3. Please indicate your current level of nursing qualification.

- a. Nursing diploma
- b. Nursing degree
- c. Post basic specialization
- d. Masters
- e. Other _____

4. Your nationality is:

- a. Saudi
- b. South African
- c. Indian
- d. Malaysian
- e. Filipino
- f. Other _____

5. Indicate your age group:

- a. <25
- b. 26 - 35
- c. 36 - 45
- d. 46 – 55
- e. 55 and above

6. Select the description that best reflects the patient care unit in which you work:

- a. Medical/Surgical unit
- b. Pediatrics
- c. CICU/ICU/NICU/PICU
- d. Endoscopy/Day Surgery Unit
- e. Emergency Department
- f. VIP
- g. OR/Recovery Room
- h. OBGYN
- i. Other _____

7. How often do you participate in quality projects (e.g. unit quality audits, chart reviews, reviewing of incident reports, reviewing of infection control statistics, reviewing of nurse sensitive quality indicators – also known as level of service indicators) in your unit?

- a. Monthly
- b. Quarterly
- c. Yearly
- d. Never
- e. Other _____

8. List the quality projects (as named in question 7) in which you have participated during the last six months:

9. Do you receive feedback on your unit's compliance on nurse sensitive quality indicators on a monthly basis?

- a. Yes
- b. No

10. How do you receive the above mentioned information?

- a. Through feedback during the monthly unit meeting
- b. Through group discussions with colleagues
- c. Through in service

SECTION B: MONITORING OF QUALITY INDICATORS.

Please indicate your agreement or disagreement with the following statements about nurse sensitive quality indicators (Level of service indicators) that are monitored in your unit:

Choose the appropriate answer by marking with an **X** next to one of the following below:

1. Strongly Disagree [1]
2. Disagree [2]
3. Neutral [3]
4. Agree [4]
5. Strongly Agree [5]

		[1]	[2]	[3]	[4]	[5]
11.	It is important to monitor quality indicators (level of service indicators) in any nursing unit.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12.	I am familiar with the use of quality indicators (LSI's) as a tool to improve quality of care	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13.	I understand the importance of using quality indicators (LSI's)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14.	I am willing to implement quality indicators (LSI's) in daily practice	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.	Feedback on quality indicators (LSI's) stimulates me to adjust my nursing practice	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16.	Monitoring of quality indicators (LSI'S) stimulates quality improvement	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17.	Monitoring of quality indicators (LSI's) does not take too much time	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18.	Monitoring of quality indicators (LSI's) fits into the daily routines in the hospital setting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19.	To monitor quality indicators indicates the quality of care patients receive	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20.	To create quality awareness through in service is a useful way of improving patient care?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21.	For quality indicators (LSI's) to be managed and improved it must be understood, defined and the existing quality of care must be established and measured.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22.	Measurement is a vital part of improvement of quality indicators (LSI's)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23.	Assessing and measuring the quality of care in a way that it enables it to be quantified is an essential ingredient for Quality Indicators.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24.	Reporting deviances pertaining to quality indicators increases the quality of nursing care.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25.	Nursing staff should often discuss the results of the quality indicators and or improvements in the unit to promote quality nursing care.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26.	All deviances on the quality indicators are reported promptly.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27.	Feedback on quality indicators in the unit is part of the	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	commitment to improve the quality of nursing care.					
28.	As a colleague, I report any deviance pertaining to quality indicators as I know it will improve nursing care.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
29.	When errors to quality indicators occur, I feel supported by my unit manager.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
30.	It is a learning experience for all staff members when deviances on quality indicators occur and that it be discussed with all nursing staff during the monthly unit meeting.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
31.	In your opinion, quality indicators contribute to improved patient care?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
32.	I understand all there is to know about quality indicators.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
33.	Nursing sensitive Quality Indicators (LSI's) are "those indicators that capture care or its outcomes most affected by nursing care",	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
34.	Process Indicators – "evaluate the manner in which care is delivered, e.g., the process of pain assessment"	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
35.	Structure Indicators – "evaluate the structure or systems for delivering care, e.g., to check if documenting of restraint use is completed correctly",	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
36.	Outcome Indicators – "evaluate the end result of care delivered, e.g., adherence to medication therapy",	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SECTION C: NURSES GENERAL KNOWLEDGE OF QUALITY INDICATORS

37. List the quality indicators (LSI's – level of service indicators) that are monitored in the hospital monthly and state the targets for each indicator.

INDICATOR	TARGET
37.1	
37.2	
37.3	
37.4	
37.5	
37.6	

38. Describe in your own words what a quality indicator (LSI – level of service indicator?) is.

39. Describe the meaning of quality nursing care?

40. Name the quality projects that are practiced in the healthcare setting.

41. Name at least two (2) advantages of quality indicators (Level of service indicators - LSI's).

42. Describe the process to be followed if any deviance on one of the quality indicators (LSI's) occurs.

43. Identify at least five (5) factors that can have an influence on quality indicators in clinical nursing

44. Select one of the below Indicators that best fit the statement in column A

- a. Process Indicators
- b. Outcomes Indicators
- c. Structure Indicators

	Column A	Answer
45.1	When nursing care is indicated by the supply of nursing staff, the skill level of the nursing staff, and the education/certification of nursing staff, it is referred to as:	
45.2	Measuring aspects of nursing care such as assessment, intervention, and RN job satisfaction, is referred to as:	
45.3	Patient care that are determined to be nursing sensitive are those that improve if there is a greater quantity or quality of nursing care (e.g., pressure ulcers, falls, IV infiltrations). It is referred to as:	

Thank you for completing this Questionnaire. Your time and effort is greatly appreciated
 Contact Anya Pelser at 6653000, extension 2949 or by email, anypelser@kfahf.med.sa or through bleep #313 should you need any assistance or information.

Researcher: Ms Anya Pelser

Student no: 15500314

MCUR Student – Stellenbosch University

Supervisor: Mrs. A. Damons (SUND)damonsa@sun.ac.za

ANNEXURE B:

PARTICIPANT INFORMATION LEAFLET AND CONSENT FORM

TITLE OF THE RESEARCH PROJECT: KNOWLEDGE AND OPINIONS OF REGISTERED NURSES WITH REFERENCE TO QUALITY INDICATORS IN CLINICAL NURSING IN SAUDI ARABIA

REFERENCE NUMBER: N10/06/214

PRINCIPAL INVESTIGATOR: Anya Pelser

CONTACT NUMBER: +966507383775

You are invited to partake in a research project. Please take some time to read the information presented here, which will explain the details of this project. Please ask the researcher any questions about any part of this project that you do not fully understand. Your participation is **entirely voluntary** and you are free to decline to participate.

This study has been approved by the **Committee for Human Research at Stellenbosch University** and will be conducted according to the ethical guidelines and principles of the international Declaration of Helsinki, South African Guidelines for Good Clinical Practice and the Medical Research Council (MRC) Ethical Guidelines for Research.

What is this research study all about?

The study will be conducted in KFAFH. Registered nurses from all areas are included in the study. The numbers of participants involved are 240.

The researcher is intrigued by the statistics of quality indicators (also known as Level of Service Indicators) as it is a measurement of quality care rendered to KFAFH patient population. But what is the understanding of registered nurses concerning the quality indicators (LSI's)? What are the knowledge and opinion of registered nurses regarding this intrigued subject? The researcher wishes to determine the knowledge and opinions of registered nurses pertaining to quality indicators (LSI's)? The end result of this study will be an indicator to what strategies can be implemented to enhance and advance patient care through knowledge.

Written consent will be obtained from each participant ensuring the confidentiality, anonymity and privacy concerning all information. Each nurse will then be provided with a questionnaire

(and a matching envelope) to be completed by them. The researcher will issue and collect all the questionnaires. Please hand your completed questionnaire to no one but the researcher.

Why have you been invited to participate?

The researcher values the honest response of all registered nurses involved in the study. Without the response of the registered nurses, this project is worthless.

What will your responsibilities be?

Each participant needs to complete the supplied questionnaire by answering **all** the questions, Place the completed questionnaire in the envelope provided and seal the envelope. Return the sealed envelope to the researcher.

Will you benefit from taking part in this research?

The results of the research will be published and made available to the nursing department.

Are there in risks involved in your taking part in this research?

No risks have been identified. All information will be treated with the necessary confidentiality, anonymity and privacy.

If you do not agree to take part, what alternatives do you have?

Participation is voluntary, but the researcher will appreciate the input of all nurses.

Will you be paid to take part in this study and are there any costs involved?

No, you will not be paid to take part in the study. Participation is on a voluntary basis.

Is there any thing else that you should know or do?

Please complete the whole questionnaire. Do not leave any questions unanswered.

You can contact Anya Pelsler through mobile +966507383775, or office number, ext 2949 or at home 026624000 x 2367.

You can contact the Committee for Human Research at +2721-938 9207 if you have any concerns or complaints concerning the study.

Declaration by participant

By signing below, I agree to take part in the research study entitled “Knowledge and Opinions of Registered Nurses Working in a Tertiary Hospital in Saudi Arabia”.


I declare that:

- I have read this information and consent form 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 pressurized to take part.

Signed at (*place*) On (*date*) 2010.

.....
Signature of participant Signature of witness

Annexure C



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17 September 2010 **MAILED**

Mrs A.C Pelser
Department of Nursing
2nd Floor
Teaching Block

Dear Mrs Pelser

Knowledge and Opinions of Registered Nurses with Reference to Quality Indicators in Clinical Nursing in Saudi Arabia.

ETHICS REFERENCE NO: N10/06/214

RE : APPROVAL

A panel of the Health Research Ethics Committee reviewed this project on 16 July 2010; the above project was approved on condition that further information is submitted.

This information was supplied and the project was finally approved on 17 September 2010 for a period of one year from this date. This project is therefore now registered and you can proceed with the work.

Please quote the above-mentioned project number in ALL future correspondence.


Please note that a progress report (obtainable on the website of our Division: www.sun.ac.za/rds) should be submitted to the Committee before the year has expired. The Committee will then consider the continuation of the project for a further year (if necessary). Annually a number of projects may be selected randomly and subjected to an external audit. Translations of the consent document in the languages applicable to the study participants should be submitted.


Federal Wide Assurance Number: 00001372
Institutional Review Board (IRB) Number: IRB0005239
The Health Research Ethics Committee complies with the SA National Health Act No.61 2003 as it pertains to health research and the United States Code of Federal Regulations Title 45 Part 46. This committee abides by the ethical norms and principles for research, established by the Declaration of Helsinki, the South African Medical Research Council Guidelines as well as the Guidelines for Ethical Research: Principles Structures and Processes 2004 (Department of Health).

Please note that for research at a primary or secondary healthcare facility permission must still be obtained from the relevant authorities (Western Cape Department of Health and/or City Health) to conduct the research as stated in the protocol. Contact persons are Ms Claudette Abrahams at Western Cape Department of Health (healthres@pgwc.gov.za Tel: +27 21 483 9907) and Dr Hélène Visser at City Health (Helene.Visser@capetown.gov.za Tel: +27 21 400 3981). Research that will be conducted at any tertiary academic institution requires approval from the relevant hospital manager. Ethics approval is required BEFORE approval can be obtained from these health authorities.

Approval Date: 17 September 2010 Expiry Date: 17 September 2011

17 September 2010 14:39 Page 1 of 2



Fakulteit Gesondheidswetenskappe • Faculty of Health Sciences 

Verbind tot Optimale Gesondheid • Committed to Optimal Health
Afdeling Navorsingsontwikkeling en -steun • Division of Research Development and Support
Posbus/PO Box 19063 • Tygerberg 7505 • Suid-Afrika/South Africa
Tel.: +27 21 938 9075 • Faks/Fax: +27 21 931 3352

Annexure D

KING FAHD ARMED FORCES HOSPITAL
P.O. BOX : 9862 JEDDAH 21159
KINGDOM OF SAUDI ARABIA



مستشفى الملك فهد للقوات المسلحة
ص.ب: ٩٨٦٢ جدة ٢١١٥٩
المملكة العربية السعودية

30 September 2010

Ms. Anya Pelser
King Fahd Armed Forces Hospital
P.O. Box 9862, Jeddah 21159
Kingdom of Saudi Arabia

Dear Ms. Pelser,

PERMISSION TO CONDUCT A RESEARCH STUDY AT KING FAHD ARMED FORCES HOSPITAL

The research proposal entitled "Assessing the knowledge and opinions of registered nurses with reference to quality indicators in clinical nursing within a tertiary health institution in Saudi Arabia" has been approved for you to conduct the research study.

Yours sincerely,

Lt. Col. Khaled Al-Nijidi
Chief Research and Ethics Committee



Annexure E


Statement

The purpose of this statement is to confirm that, over the last several months, I have assisted Anya Pelsler in editing a thesis/dissertation she has prepared on as a part of her pursuit of an advanced degree.

My editing was limited to grammar, English language, word usage, clarity, consistency and organization, and did not involve research, content, conclusions or recommendations, in any manner.

I am available at sladet45@aol.com if any added information is needed.

This statement is provided at her request, for whatever use she has in mind.


Thomas B. Slade

Annexure F

Quality Assurance in Clinical Nursing

King Fahad Armed Forces Hospital – Jeddah

Course Description

Good nurses have always been expected to be able to focus on improving quality of care and patient safety through taking evidenced-based practices. Quality is at the heart of everything we do in the modern health service, and frontline nurses play a vital role in achieving the quality of care that people expect. We can only deliver consistently safe and effective patient-centered care with the full involvement of all those nurses and other health professionals who provide that care. This course provides the basis for understanding what quality assurance in clinical nursing is and what nurses need to do to be successful in improving quality nursing care.

Course Duration

- The course will be presented over two consecutive days with a total of 16 CME hours

Learning Objectives

- Define what quality is and how it is applied at unit levels.
- Understand the basic formation of goals in quality management
- Learn how to monitor quality indicators and how to apply methods of quality measurement.
- Develop quality data recording methods suitable for your unit.
- Learn how to analyze data, report data and draw –up suitable graphs to reflect the data and outcomes.
- Determine which nursing sensitive indicators to measure in your unit.
- Learn how to determine benchmarks for your quality indicators.

Who should attend?

Nurse Managers, Head Nurses, Charge Nurses, Registered Nurses and anyone else who is or will be responsible for patient care in Nursing.

Prerequisites

Complete the homework package supplied on registration for the course. The pre-reading material will give the attendee an understanding of the basic concepts of quality assurance in clinical nursing.

Course Outline

Introduction and overview to quality assurance in clinical nursing

Course Objectives

Day 1

Unit 1:

- What is a goal in quality
- How to determine your goal
- Goal setting and formulation
- Elements of a goal

Unit 2:

- Types of Quality Indicators
- Quality Indicator Monitoring
- Level of Service Indicators (LSI'S)
- Unit specific indicators
- Nursing sensitive Indicators

Unit 3:

- Methods of monitoring Quality
- Data recording methods
- Excel sheets

- Data analysis & Interpretation
- Graphs

Unit 4:

- Specific Unit Indicators
- Determining your unit's indicators

Day 2

Unit 5:

- Introduction to Benchmarking
- Benchmark setting

Unit 6:

- Need of Quality Improvement

Unit 7:

- Interactive Workshop

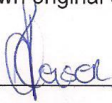
Course Evaluation

Conclusion

DECLARATION:

I hereby certify that;

This report contains my own original work and that I have acknowledged all sources that I have consulted by way of proper text references. The information contained in this document has not been submitted as part of an academic MCUR assignment at this department or for any other academic purposes. I am aware that I may be subjected to disciplinary actions if I submit an assignment under my name that is not the result of my own original efforts.

Anya Pelsler: 

Date: 27/8/11

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Annexure G - Letter of Corrections

Me A. Damons
Stellenbosch University

November 19, 2011

Please be informed that the corrections as proposed by the internal and external examiners were implemented accordingly.

I hereby submit the final thesis.

Regards



A.C. Pelsier
Student number: 15500314