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NURSES' PERCEPTIONS OF NURSE-NURSE COLLABORATION IN THE INTENSIVE CARE UNITS OF A PUBLIC SECTOR HOSPITAL IN JOHANNESBURG

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A research report submitted to the
Faculty of Health Sciences, University of the Witwatersrand, Johannesburg
in partial fulfilment of the requirements for the degree
of
Master of Science in Nursing

Johannesburg, 2015

DECLARATION

I, Lonely Ndundu, declare that this research report is my own work. It is being submitted for the degree of Master of Science (in Nursing) in the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination at this or any other university.

Signature …….

……day of …… 2015

Protocol Number **M120718**

DEDICATION

I dedicate this work to my parents, my sisters, brothers and my children for their prayers, encouragement, and support throughout this course.

May Glory and honour be to God the almighty now and forever and ever.

ACKNOWLEDGEMENTS

I thank the almighty God for enabling me to come to the University of the Witwatersrand and for keeping me safe throughout the course.

I would like to thank the Malawi Government for awarding me with a scholarship for the Masters Degree course through the Ministry of Health.

Many, many thanks to my supervisor Shelley Schmollgruber for the wonderful support and encouragement during the course of my study, May God bless her abundantly for the untiring guidance rendered to me.

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I would also like to thank all my lectures in research for their effort in preparing us on how to conduct a study, may God bless them all.

All ICU nurses and colleagues for the wonderful participation in the study, more especially when the going got tough you were my comfort.

May God bless each one of you abundantly.

ABSTRACT

Collaboration is an interpersonal relationship among colleagues sharing the same goal, power, authority and decision making (Dougherty & Larson, 2010). Collaboration is described as a marker of a nurses' ability as well as a professional obligation. However, current clinical practice indicates that, as nurses attempt to collaborate with each other, they also employ aggressive, hostile and intimidating behaviours that may result in tension among senior and junior nurses. This carries the risk of medical errors that will lead to poor patient outcomes and job dissatisfaction.

This study sought to determine the extent and nature of collaboration practices among nurses in the intensive care settings, with an intention of making recommendations for clinical practice and education.

The setting for the study was the Intensive Care Units (ICU's) (n=5); trauma, cardiothoracic, coronary care, general and neurosurgical units of a public sector and tertiary level hospital in Johannesburg.

A non-experimental, descriptive and quantitative study design was utilized in the study. The sample comprised of 112 (n=112) nurses working in the intensive care setting. Non-probability, convenience sampling was employed in this study. Data was collected using a structured questionnaire developed from the Nurse-Nurse Collaboration Scale, which has 35 items on a four-point Likert type scale. The instrument is divided into five subscales of problem solving, communication, coordination, shared process and professionalism. Data was analyzed using factor analysis and descriptive statistics. The data was then analyzed using descriptive and inferential statistics. Statistical assistance was sought from the biomedical statistician at the Medical Research Council (MRC) South Africa.

Generally, in this study the results have shown that nurses have more positive perceptions and attitudes about collaboration in the Intensive Care Units, as evidenced by the frequency scores with nurses responding more positively to the five subscales even though some missing data was identified on some of the responses. However, the subscales of communication, shared process, coordination and professionalism scored higher; most of

the participants either agreed or strongly agreed to all these items compared to conflict management in item 1.1, where the majority disagreed ignoring the issue pretending it will go away. In item 1.2, the majority agreed to withdraw from conflict; similarly for item 1.5 disagreements between nurses were ignored, or avoided. Correct conflict management amongst nurses is very important for effective delivery of care and collegial working relationships; nurses' are urged to learn the skills of resolving conflict amicably by compromising in order to consider the interests of all parties. These results showed that females dominate the nursing profession with males being a minority and no differences in collaboration were observed.

Participants' responses for work experience were examined to determine if there was any impact on how nurses perceive collaboration between senior and junior nurses. However, the study results indicated there was a statistically significantly ($p<0.05$) difference in perceptions of collaboration practices in two of the five subscales; namely communication and shared process between junior and senior nurses in the Intensive Care units. In their responses to an open-ended question, nurses felt that some of their roles overlapped creating confusion as to who was supposed to do what and as a result, it became difficult to maintain effective collaboration amongst team members, compromising the delivery of patient care.

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CHAPTER ONE
OVERVIEW OF THE STUDY

1.0 INTRODUCTION

This chapter provides an outline of the study with various related areas namely, the background, problem statement, purpose, research questions, objectives and significance of the study. An overview of the research methodology used, validity and reliability of the study and the ethical considerations will be presented.

Intensive Care nursing involves caring for critically ill patients, which is both dynamic and complex thereby, at times, making Intensive Care Units (ICU's) highly stressful and complex working environments. This is due to the critical nature of patients, the sophisticated machines being used and the pace at which nurses have to work to provide care (Donchin & Seagull, 2002: Gurses & Carayon, 2007: Klopper, Coetzee, Pretorius et al. 2012). The nature of ICU care necessitates effective collaboration and communication amongst nurses; this promotes and allows for active participation regarding patient care and in the process, nurses respect one another and develop trust and the expertise and different contributions are acknowledged, resulting in improved quality care, patient safety and outcomes.

However, Rose (2011) reported that recent studies suggest collaboration was posing challenges amongst nurses due to poor communication, role conflict, problem solving and lack of teamwork, hence causing discrepancies on nurse-nurse collaboration (NNC). Furthermore, Sexton, (2002) and Coombs & Ersser, (2004) suggests that nurses consistently acknowledge lower rates of collaboration amongst themselves. As nurses form the majority of the health care system, the impact on health care delivery resulting from ineffective nurse-nurse collaboration, has detrimental effects on patients and health care institutions. Therefore, this study looked at the nature of collaboration amongst nurses and the factors leading to ineffective collaboration.

1.1 BACKGROUND OF THE STUDY

Collaboration is an interpersonal relationship between and amongst colleagues sharing the same goal, power, authority and decision-making (Dougherty & Larson, 2010). It encompasses communication, coordination and problem solving strategies, shared process and professionalism. As a profession, nurses routinely communicate, coordinate care, solve problems and share information for continuity of care, for instance during handover or management change (Apker, Propp, Zabava-Ford & Hofmeister, 2006). Guided by their scope of professional practice and the Nursing Act (Act No.33 of 2005), roles and responsibilities are delineated amongst the nurses to prevent role ambiguity or conflict.

Collaboration emerges as a requirement for all nurses hence being accountable for the quality of care. Managers, senior and junior professional nurses, experienced or inexperienced, provide different levels of care within different roles and responsibilities as determined by their area of practice. Obstacles within the practice environment, such as work overload, unclear instructions from seniors and shortage of staff, have effects on the nature of nurse-to-nurse collaboration (Arford & Olson, 1988), which in turn can affect the quality of life of both nurses and patients, resulting in poor collaboration (Arford & Olson, 1988; Gurses & Carayon, 2007).

Integral to nurse's collaboration is communication, whereby their physical presence with patients, more than other health care providers, puts them in a unique position to assess patients and their response to therapy and communicate the changes to others for shared planning and comprehensive care (Apker et al. 2006). Unfortunately, poor communication and poor teamwork are evident in the ICU indicating inconsistent collaboration (Rose, 2011). The main causes of this are constant shift work, large staff turnovers, stress, shortage of staff and dynamic changes in the individual patients.

Other studies (Aiken, Clarke, Sloane, et al. 2002; Currey and Botti, 2003, 2005: Apker et al. 2006;) indicate that effective communication with experienced nurses benefits less experienced nurses, for example, expertise and capabilities of experienced nurses can assist others to make fast and accurate decisions and coordinate patient care activities. Through effective guidance these nurses can empower themselves to take on more responsibility in patient care.

Pretorius & Klopper (2011) and Jooste & Jasper, (2012) have reported that the ratio of experienced to in-experienced nurses is imbalanced and slanted to favour the lesser experienced and junior nurses. One study (DeLucia, Otti and Palmieri, 2009) indicated that inexperienced and junior nurses disrespect and do not listen to senior nurses causing conflict and affecting collaborative relationships amongst nurses. Dougherty and Larson (2010) observed aggressive, intimidating behaviour and tension between senior and junior nurses in their sample of 213 nurses in the United States of America. It was suggested that interpersonal relationships and communication contributed to these issues therefore affecting collaboration amongst nurses.

Conversely, when there is willingness to engage in a relationship, which has reliance upon the other person, for instance a nurse and another nurse, trust results thereby improving communication amongst nurses. Fundamental to an effective relationship between managers and staff is trust; however, a recent review (Mullarkey, Duffy, & Timmins, 2011) reported nurses have mixed feelings on the nature of trust and mistrust existing in relationships, leading to poor communication and potential breakdown in important team relationships.

Coordination of patient care delivery has profound effects on collaboration as nurse leaders assign responsibilities, supervise and organise roles of other nurses. The intensive care work environment can also create obstacles for this role for example, increased patient acuity and shortage of staff can make coordination difficult for senior nurses, which leads to stress, with other nurses having work overload causing some to burnout, consequently creating opportunities for conflict amongst nurses and affecting collaboration (Apker et al. 2006; Beau 2006). As noted earlier, sources of conflict in ICU's are magnified by the complexities and tension. The effect on the nursing profession, as noted by Kelly (2006) and supported more recently in a review by Klopper et al., (2012), has generated negative feelings amongst nurses leading to hostility and reduced morale therefore affecting nurse-nurse collaboration negatively.

1.2 PROBLEM STATEMENT

To maintain professional integrity and increase the quality and efficiency of health care among health care professionals is challenging (Lindeke & Block, 1988). Rose, (2011),

indicates that collaboration amongst nurses is critical for maintaining a safe and therapeutic environment for patients. However, current clinical practice indicates that as nurses attempt to collaborate with each other, they also employ aggressive and intimidating behaviour which may result in tension amongst senior and junior nurses, enhancing staff turnover leading to shortage of experienced Intensive Care registered nurses (Chaboyer & Patterson, 2001: Rowe & Sherlock, 2005). This in turn carries the risk of medication errors, which could lead to poor patient outcome and job dissatisfaction.

Furthermore, Pretorius & Klopper (2011) and Jooste & Jasper, (2012) have reported the majority (76%) of nurses working in intensive care settings in South Africa have less than five years (range two to three years) of experience, which suggests a gap in the years of clinical experience held by nurses working in Intensive Care settings. This coupled with the complex nature of Intensive Care means nurses are exposed to on-going problems of collaboration, but the nature of ICU care necessitates effective collaboration and communication.

To date no studies have been conducted in Intensive Care settings in South Africa to explore nurses' "perceptions" of collaboration. It has been noted that all the studies on nurse-nurse collaboration were conducted overseas. The researcher sought to explore and describe the nature and extent of collaboration amongst nurses working in the Intensive Care setting in South Africa.

This study will attempt to answer the following research questions:

- What was the nature of collaboration practice amongst nurses in the Intensive Care setting?
- Was there a difference in collaboration practice amongst senior and junior nurses in the Intensive Care setting?
- What factors may have led to ineffective collaboration practices amongst nurses?
- What measures would nurses recommend in order to enhance effective collaboration between nurses?

1.3 PURPOSE OF THE STUDY

The purpose of this study was to determine the extent and nature of collaboration amongst nurses in the Intensive Care setting of a public sector tertiary level hospital in Johannesburg, with recommendations made for nursing practice and education of Intensive Care nurses.

1.4 RESEARCH OBJECTIVES

The objectives for the study were:

- To describe the nature of collaboration practices between nurses working in the Intensive Care environment.
- To determine whether there was a difference in collaboration practices between more senior and less experienced nurses.
- To identify factors which may have led to ineffective collaboration practices amongst nurses working in the Intensive Care setting.
- To elicit measures for enhancing collaboration practices between nurses in the Intensive Care Units.

1.5 SIGNIFICANCE OF THE STUDY

Nurse-nurse collaboration may help nurses work together as a team and promote trust and respect for each other thereby facilitating the delivery and achievement of positive cost-effective outcomes. Working hand in hand with doctors can help improve their relationship as the contributions and expertise of all will be acknowledged thereby improving the quality of patient care outcomes, safety, reduced mortality rates and job satisfaction, hence organisational productivity.

1.6 RESEARCHER'S ASSUMPTIONS

A paradigm is described as the general view of the complexities of the real world, or those aspects of a discipline shared by its community (Meleis, 2005: Polit & Beck, 2008). This study is based on the following assumptions:

1.6.1 Meta-theoretical Assumptions

Meta-theoretical assumptions are beliefs that something is true without proving; statements believed to be true without scientifically being tested (Burns & Grove, 2005). The researcher accepts meta-theoretical assumptions, based on the American Association of Critical Care Nurses' (AACN) Synergy model for the care of patients, developed in 1992. This model describes the practice of nursing on the basis of the needs and characteristics of patients and their families, as these drive the competencies nurses need in the critical care setting by dedicating themselves to interdisciplinary collaboration (Alspach, 2006: Morton & Fontaine, 2009).When individuals work together as teams in a collaborative way to achieve the same goal, synergy occurs.

The model is based on the competencies required by critical care nurses to meet a patient's needs in order to maximise the outcomes. Collaboration, according to the Synergy Model, is viewed as one of the nurse's competencies, which promotes individual contribution to achieve better patient outcomes.

Critical care nurses need to work as teams in order to promote quality care and safety of patients thereby creating a caring and conducive environment for the delivery of care. Improved effective communication for instance, when giving "handovers" is regarded as one of the patient safety goals adopted by the Joint Commission on Accreditation of Health Care Organizations (JCAHO, 2006).

The model emphasises interdisciplinary collaboration as a requirement for patient safety.
The main theoretical statement of this study is that ICU nursing involves caring for critically ill patients and is complex, dynamic and at times stressful. The nature of the environment necessitates effective communication and collaboration amongst healthcare workers. As nurses form the majority in the delivery of care and coordinate patient care activities, their role demands a high degree of collaboration in order to meet the patient's needs (Alspach, 2006: Morton & Fontaine, 2009). This study therefore sought to understand how nurses view and understand collaboration between nurses.

There are four main concepts in the discipline of nursing which are defined as follows:

Person –Patients have physical, psychological, social and spiritual needs, which are experienced within the health and illness continuum. A critically ill patient requires holistic nursing care and to achieve optimum patient care healthcare workers need to collaborate effectively and work as teams to meet these needs whilst bearing in mind that each patient is unique.

Environment- The environment constitutes internal and external factors, which can influence the patients' physiologic, psychological, spiritual aspects and socio-cultural development. In this environment, various stressors threaten the lives of individuals and can lead to illness and death, therefore this environment needs to be safe and conducive in order to meet the needs of the critically ill patient and their families.

Nursing- These are the actions taken by nurses on behalf of the patient, or done jointly with the patient, in order to achieve the goals and outcomes of the nursing actions. This involves continuous interaction with the patient, making plans, setting goals, making decisions about care and communicating the care to others in order to achieve those goals. Therefore, collaboration as a competency plays a crucial role in achieving patient outcomes.

Health- This is the ability to be free from sickness, pain, and having a high quality of life. Health is dynamic and involves continuous adjustment in individuals as they are exposed to various stressors internally and externally. Critically ill patients face conditions that are life threatening and a complex environment in the ICU. Minimising stressors such as noise, light and invasive procedures and by promoting a conducive environment for patients may help them restore their health.

1.6.2 Theoretical Assumptions

Theoretical assumptions are constructs or theoretical variables used by the researcher in the study.

Definition of terms consistently used in this study.

Collaboration: The ability of nurses to work together in order to accomplish a common goal, involving coordination, communication, trust and respect (Morton & Fontaine, 2009).

Intensive Care nurse: A person, registered as a professional nurse by the South African Nursing Council, who has undergone an advanced education and training programme in the field of specialisation and has the responsibility of caring for critically ill patients in Intensive Care Units.

Intensive Care Unit: A specifically designated unit, with specialised equipment and highly skilled personnel, for the care of critically ill patients who require immediate and continuous attention. For the purpose of this study, five Intensive Care Units were utilised - trauma, cardio-thoracic, coronary care, general and neurosurgical unit.

Stress: A non-specific response of the body to any demand upon it.

Conflict: The internal discord that results from differences in values, ideas, or feelings between nurses (Kelly, 2006).

Communication: The activity of conveying meaningful information amongst nurses.

Coordination: Is a process in which groups of people work together in an efficient and organised manner (Yoder-Wise, 2003) to achieve a common purpose i.e. the integration of patient care activities.

Decision making: Is a cognitive process of choosing a specific course of action from various alternatives (Marquis & Huston, 1988).

Team: Is a group of people in the provision of health care who have different skills and professional backgrounds working together with a common goal and making patient care decisions (Mandy, 2005).

1.6.3 Methodological Assumptions

Methodological assumptions are the major purposes of the project, which are dependent on a framework of scientific methodology. The researcher believes in a holistic approach to nursing. Providing holistic care requires an understanding of the needs of patients and their families, and the use of therapeutic interventions to promote health, prevent illness and treatment of illness situations. The way to this kind of understanding is through research. Research is diligent, systematic inquiry to validate and refine existing knowledge and generate new knowledge (Burns & Grove, 2009). Through research process, the scientific knowledge can be developed which will enable nurses to provide evidence-based health care. Evidence-based practice promotes positive patient outcomes through quality, safe and effective care.

1.7 OVERVIEW OF METHODOLOGY

A non-experimental, descriptive and cross sectional design was utilised in this study. The study population (n=112) comprised nurses working in five ICUs. The protocol was submitted to the Faculty of Health Sciences Postgraduate Committee for approval, and permission was granted. Ethical clearance to conduct the study was sought from the Human Ethics Research Committee (Medical) of the University of the Witwatersrand. The research was approved and an ethical clearance certificate number M120718 was issued.

Data were collected using a questionnaire developed from the Nurse-Nurse Collaboration Scale, which has 35 items on a four-point Likert type scale, with one additional open-ended question to cover the rest of the study objectives. Data were analysed using descriptive and inferential statistics. Statistical assistance was sought from a statistician from the Medical Research Council (MRC). The setting for the study was five level three Intensive Care Units at a public sector tertiary level hospital in Johannesburg.

1.8 VALIDITY AND RELIABILITY OF THE STUDY

The procedures and study as stipulated in the protocol was adhered to. The researcher followed guidelines as set out by the author this was verified by every tenth sample that was checked by the same ICU nursing expert for consistency thereby ensuring reliability.

A statistician from the Medical Research Council (MRC) assisted and collaborated with the researcher before data collection, during data analysis and with interpretation of the data. The researcher collected all the data without assistance.

1.9 ETHICAL CONSIDERATIONS

The following ethical measures were considered during the study:

- The protocol was submitted to the Department of Nursing Education for review and assessment of feasibility of the proposed research project.
- The protocol was submitted to the Faculty of Health Sciences Postgraduate Committee for approval.
- Ethical clearance was sought and granted from the Human Ethics Research Committee (Medical) of the University of the Witwatersrand to conduct the study.
- An application was submitted for permission from the Hospital Management and Gauteng Department of Health to conduct research at the hospital.
- Permission for use of the Nurse-Nurse Collaboration Scale questionnaire was received from Dougherty and Larson.
- Participants signed a consent form after reading and understanding the information sheet presented to them.
- Code numbers were used during data collection and reporting to maintain confidentiality and anonymity of the participants.
- Participants were allowed to withdraw at any time without penalty.
- An information letter accompanied the data collection tool in order to inform the participants about the purpose of the study.

1.10 SUMMARY

This chapter presented an introduction into and the background of the study. Also introduced were the problem statement, purpose of the study and objectives. Researchers' assumptions, operational definitions and overview of the research methodology were described and ethical consideration was considered.

The following chapters will include a review of the literature on nurse-nurse collaboration, methodology, data analysis, the description and interpretation of research findings. The final chapter will present limitations of the study, as well as a summary of the research findings, conclusions and recommendations for further research.

CHAPTER TWO

LITERATURE REVIEW

2.1 INTRODUCTION

To conduct a study, a review of the literature is needed to build on previous knowledge, thereby developing a link between the old and the new information on a particular topic (Burns & Grove, 2005). In this chapter, a literature review was conducted in relation to nurse-nurse collaboration and presented under the following themes:

- General perceptions of nurses towards nurse-nurse collaboration in Intensive Care settings.
- Factors that may lead to ineffective collaboration between Nurses in Intensive Care Units.
- Measures for enhancing effective collaboration practices between Nurses in Intensive Care Units.

2.2 THE GENERAL PERCEPTIONS OF NURSE-NURSE COLLABORATION

The Chambers Dictionary and the Oxford Advanced Learner's Dictionary have defined perception as the ability to understand the true nature or the reality of something that enables an individual to form a certain idea, an image or a belief. The literature review has come up with various perceptions of nurse-nurse collaboration in relation to patient safety and outcomes in the critical care environment.

2.2.1 Collaboration

Collaboration is an interdisciplinary process of working together toward problem solving, shared responsibility, decision making and the ability to carry out patient care plans whilst working towards a common goal (Marquis & Huston, 1998: McKay & Crippen, 2008). The American Nurses Association's Social Policy Statement defines collaboration as a true partnership in which individuals share common goals with each discipline, they value power and members recognise each other and share responsibilities to safeguard the interests of each party.

Internationally, health care facilities have been urged to provide quality care to communities and the worldwide population. In South Africa (RSA) during the service delivery transformation (South Africa, 1997), the White paper came up with eight transformation priorities in which transforming service delivery was the main goal. Therefore, the South African public service is measured by its effectiveness in the delivery of services which meet the basic needs of all citizens in South Africa (Muller, 2009).

Basically, there are eight Batho Pele principles which include Consultation, service standards, Access, Courtesy, Information, Openness and transparency, Redress and Value for money. These principles mostly aim at promoting and maintaining high standards of professional ethics and that the health care professionals should provide services impartially, fairly, equitably and without bias to all individuals. These principles also emphasize that resources need to be utilized efficiently and effectively to minimize costs, and being accountable and responding effectively to patients needs while encouraging them to participate in developing policies about their care (Muller, 2009).

Furthermore, the leadership of health care services is dedicated to achieving the Millennium Development Goals (MDG's) (National Department of Health, 2010a: Jooste & Jasper, 2012). Furthermore, one of the objectives of the South African Nursing Council (SANC) is to serve and protect the public on issues which involve health care services more especially, nursing services (Nursing Act: 2006). All these are achievable by ensuring the implementation of standards of nursing care hence quality patient care.

Effective collaboration and team work amongst health care professionals emerges as fundamental components as standards of nursing care to promote quality patient care. However, it has been noted that the communities and the entire population cannot benefit quality care with poor standards of nursing care within health care facilities. Various issues encompass effective collaboration and teamwork in critical care units as noted in literature review and in this study results.

Some of the main issues that impede effective collaboration and team work in various critical care settings are: critical shortages of staff with workload. Nurses working in critical care areas are faced with complex decisions, they work for long hours, there is rapid patient turnover and shift work (Hayes, Bonner & Pryor, 2010).This leads to stress, burnout,

medical errors and job dissatisfaction hence poor quality patient care. Retention of highly trained and specialized nurses working in critical care units is essential. Nurse Managers should also ensure a 1: 1 ratio for critically ill patients to enhance quality patient care and job satisfaction.

Furthermore, nurses fail to make shared decisions, make patient goals, lack problem solving strategies and fail to work together cooperatively and there is no trust and leadership support, All of which influence effective collaboration and team work. A positive practice environment is the basis for job satisfaction and quality patient care {Pretorius & Klopper, 2012). However, most critical care units internationally and in South Africa have failed to provide a suitable environment for health care workers.

As noted, nurses are frontline staff in the delivery of safe and effective health care; as a result crisis in human resource is mostly felt at the nursing level (Pretorius & Klopper, 2012). O'Brien- Pallas, Murphy, Shamian, et al., (2010) have reported of an increase in nurse turnover, an ageing population, an increase in nurses retiring with a growing complex health care demand which is not able to meet the supply. South Africa is also reported to suffer from inequality in access to quality education and health care Jooste & Jasper,(2012) hence the need to implement the eight Batho Pele principles to secure value for money by increasing the efficiency and improving on the way resources are utilized for a better service delivery (Adomat & Hewison, 2004). Therefore, nurse managers and leaders should ensure meeting the standards of nursing care to influence a conducive work environment thereby, minimise shortage of nurses and high turnover. Clear roles and responsibilities need to be in place to avoid role ambiguity between more experienced and lesser experienced nurses hence job satisfaction.

Recently, there has been an increase in workload and stress for managers in various health care settings due to the high numbers of patients with HIV/AIDS and its associated conditions, which consumes a lot of time in providing care (Van Rensburg, 2004: Jooste & Jasper, 2012). As a result, the delivery of quality health care services in RSA is impeded because of the inadequate human resource that is required to deliver the care.

Globally, there has been a problem of shortages and high turnover of nurses, which has created problems in the delivery of quality health care. Because of this impact, there is a need

to retain and recruit more nurses while preventing unnecessary absenteeism and staff turnover.

In South Africa, health care services are delivered to communities and the entire population by government and private health care facilities in the presence of resource constraints (Hospital Association of South Africa, 2009: Pillay, 2009). It should be noted, that nurses make up the majority in the provision of health care delivery in these South African facilities, as they represent 50% of the total professional human resource (Van Rensburg, 2004). Furthermore, their responsibility is crucial to determine the efficiency, effectiveness and continuity in the delivery of health care services. It is important therefore to understand how the practice environment, the climate of the organisation and other issues affect them (Pillay, 2009).

Pretorius & Klopper (2011) and Jooste & Jasper, (2012) have revealed an imbalance exists between the supply and the demand for nurses in RSA due to the shortage of nurses, which was experienced because of an increase in demand exceeding the supply. This resulted because of challenges to nurses, such as adverse events for patients and themselves, which led to high staff turnover as they sought other jobs, hence making the profession unattractive for new recruits (Van Niekerk, 2008).

Internationally, research has supported that there is dissatisfaction of experienced nurses around the world (Aiken, et al., 2002). In RSA, studies conducted in both sectors, have shown a number of issues which have contributed to nurses dissatisfaction, for example, remuneration, workload, resource availability, career development opportunities, role uncertainty, poor working conditions and organisational climate (Kekana, Du Rand & VanWyk, 2007: Moola, Ehlers & Hattingh. 2008: Pillay,2009).

The DOH has responded to some of the issues, such as a salary structure in 2007 to try to improve salaries for public servants (South African Government Information, 2007). However, these efforts were in vain because challenges continue to be posed as indicated in studies conducted in both sectors in RSA (Pillay, 2009: Pretorius & Klopper, 2011) and resulted in a National Strike in 2010.

2.2.2 Critical Care Environments

Critical care environments are complex, dynamic and stressful in nature due to complicated equipment, the pace of delivery of care, the critical conditions and often death of patients. It requires a practice environment with effective collaboration and communication, which encourages team functioning in the delivery of quality patient care (Rose, 2011).

Collaboration is an interpersonal relationship between and amongst colleagues sharing the same goal, power, authority and decision-making (Dougherty & Larson, 2010). It encompasses communication, coordination, problem solving strategies, shared process and professionalism; it involves making decisions, setting goals, assuming responsibility, working together cooperatively and communicating openly (Baggs & Schmitt, 1988: Dougherty & Larson, 2010). As a profession, nursing requires communication, coordination of care, problem solving, decision-making and information sharing for continuity of care, for instance during handover or change of management (Apker, et al. 2006).

The expertise and contributions of all health care professionals are acknowledged, leading to improvement in patient outcomes, safety and job satisfaction, hence organisational productivity. Lack of collaboration, hinders nurses performance leading to medical errors, poor quality care and patient outcomes.

Similarly Baggs and Schmitt (1988:1997) acknowledged that collaboration amongst health care professionals is a crucial role in patient outcome and low mortality rates in ICU‘s, determined by the quality of relationships. Lindeke and Block (1998) also stated that effective health care collaboration encompasses diverse but complementary skills, shared responsibility and authority, shared goals or visions. Conversely, ineffective collaboration occurs when there is no true partnership due to undifferentiated skills, unclear responsibility, authority and unclear goals. However, as noted by these authors, effective collaboration does not exist in most critical care units globally and in South Africa, that poses as a contributing factor to shortage of nurses.

The complexity of health care needs of patients, families, communities and populations cannot be managed by a single discipline in isolation of other disciplines (Lindeke & Block,

1998). Patient dissatisfaction and negative quality outcomes are mostly said to be due to lack of collaboration amongst professionals.

In the United Kingdom, the National Health Service has reported spending approximately1000 GBP per second (DOH, 1997) on human resources so that it can be used efficiently to improve service delivery for patients. The delivery of services for critical care in the UK NHS Trusts costs about 7 million GBP every year.

It has also been reported that approximately 13% of new nurses intend to leave their jobs within a year (Kovner, Brewer, Fairchild et al., 2007), therefore job satisfaction is related to turnover of nurses (Hayes, O'Brien- Pallas, Duffield et al., 2006) and the intention to leave (Brewer, Kovner, Green et al., 2009). An understanding of what promotes nurses job satisfaction is important because recent research on acute patient units has focused on interdisciplinary teams (Hayes et al., 2006).

As a result effective use of the nursing resource is important to avoid implications on local and national management as well as on policies (Audit Commission, 1999), hence the recommendation (DOH, 2000b) that the division of high dependency and ICU's should be based on the classification focusing on the level of care required for individual needs.

Furthermore, allocation of staff, their skills and expertise will depend on the workload and the complex nature of the patients' condition (Adomat & Hewison, 2004). It is therefore important to consider the nurse patient ratio when allocating staff to avoid excessive workload, which may lead to burnout and job dissatisfaction. To meet the needs of critically ill patients in the ICU's there must be sufficient nursing numbers with adequate skills. The DOH, (2001), stated that, for an organisation to be effective and deliver quality services it requires the right numbers of nurses with adequate knowledge and skills required for the provision of services. In the UK critical care settings use the 1:1 ratio and staff mix ensuring efficiency and effectiveness thereby promoting quality of care and enhancing a cost-efficient and cost-effective service for critical care. Proper staffing planning, recruitment and retention are therefore crucial to ensure the nursing resource matches the demand.

Many nurses, both globally and in RSA, are retiring, which is a huge loss of those with expertise and the key to success of an organisation depends on competencies with the

composition of skills which are determined through collaboration, consultation and teamwork involving all members (Van Niekerk, 2008) because adequate staff numbers lead to positive patient care outcomes.

It is therefore important that nurse managers should improve the health outcomes for the population thereby improving the lives of South Africans (South African Government Information, 2007). Conversely, the DOH (2010) has placed the emphasis on quality care and the need to meet the needs of the community by ensuring teamwork and that the demand should match the supply, consequently there should be adequate staffing to meet the needs of the population. However, in South Africa and globally there is critical shortage of nurses which impedes on delivery of quality patient care.

In RSA, there are approximately 4168 critical care and high care units with a total of 4584 professional nurses (Gillespie, Kyriacos & Mayers, 2006), amongst which 2537 professional nurses were registered as trained critical care nurses by the South African Nursing Council (SANC) 2005:2007). Provision of quality care in ICU's requires a nurse patient ratio of 1: 1 for patients who are critically ill and literature suggests a ratio of 6.7 nurses are required for every critical care bed, as long as 50% of the nurses have a critical care qualification (Williams & Clarke, 2001). However, Bauman, (2007) has stated that, there is serious shortage of nurses trained in critical care in South African hospitals due to unhealthy working conditions.

Rose, (2011) stated that, collaboration is posing challenges amongst health care professionals and studies that have been done have focused on nurse-physician collaboration, yet there is a need to understand the relationships amongst nurses (Apker et al., 2006). In South Africa, no studies on nurse-nurse collaboration have been conducted hence the reason for this study to examine the nature and extent of collaboration amongst nurses in the ICU.

- Communication and Teamwork

To provide the most effective possible patient care, nurses need collaboration that has clear and effective communication with other health care professionals, including physicians (McCaffrey, Hayes, Stuart et al., 2010). Without good communication, there is no true collaboration amongst healthcare professionals **(**Arford & Olson, 2005**).** Furthermore, the

authors have stated that, where effective communication existed there were solutions to patient and family problems.

In this study, "Communication is a process that involves the exchange of information between individuals". As nurses form the majority of the health care delivery system and are with patients for more than 24 hours, their physical presence, more than other health care providers, puts them in a unique position to assess patients and their response to therapy. Due to this, they can communicate the changes to fellow nurses and the multidisciplinary team resulting in shared planning and comprehensive care for example, during handover and reports (Apker et al., 2006). However, communication in critical care units globally and in South Africa is a major problem among nurses that needs to be addressed.

Team work plays an important role in health care systems as it facilitates the achievement of positive, cost-effective outcomes in most organisations (Xyrichis & Ream, 2007: Pilcher, 2009). Although associated with a high level of job satisfaction, few studies have been done on acute care teams in hospitals (Kalisch, Lee & Rochman, 2010). Furthermore, the authors have revealed that for nursing teams in acute care units, a high level of teamwork and adequate staffing promotes job satisfaction hence nurse managers should improve teamwork and adequate staffing to promote this (Kalisch et al., 2010). Contrally, critical care nurses in South Africa and globally, do not work together as teams hence this poses a challenge for nurses to collaborate effectively.

Shortages of nurses is a crucial, global problem in health care settings causing challenges to delivery of quality patient care because of a rise in the demand while the supply cannot meet the needs of society (Kalisch et al., 2010). A prediction in the USA stated that one million new and replacement nurses would be needed by 2016, Bureau of Labor Statistics (BLS 2009). A further 587000 new nursing positions will be created (23.5% increase) because RN's are continuously leaving their jobs at a high rate and it is expected to be the nation's top profession in projected job growth (BLS 2009).

The nurses' role is crucial because they are required to act as links between team members and as liaisons between the team members, patients and their families (Xyrichis & Ream, 2007). Lack of proper communication enhances job dissatisfaction which can result in patient harm. Unfortunately, poor communication and poor teamwork have been noted in the ICU,

indicating inconsistent collaboration (Rose, 2011).The causes of this are constant shift work, large staff turnovers, stress, shortage of staff and dynamic changes in the individual patients. Studies that have been done, have focused on nurse-physician communication yet the scope of nurses extends beyond the bedside of the patient involving team communications, interacting with care givers, supervision of assistant personnel and coordinating care across the entire health system in their role (Apker et al., 2006).

Therefore, the health care system requires nurses to communicate effectively with the multidisciplinary team members, patients and their families. Since nurses function as links of the healthcare teams and interact with a variety of health care professionals with different needs, it was important for this study to look at the nature of communication amongst nurses to understand their relationships as they play a crucial role.

- Supportive unit culture and job satisfaction

Kalisch et al., (2010) in a review have stated that a supportive unit culture with support and recognition by managers promotes job satisfaction for nurses because nurses have a high status level of power, influence and autonomy. The job design theory (Kalisch et al., 2010) supported this finding by stating that jobs that have high autonomy, importance and a variety of skills results in job satisfaction.

Conversely, findings showed that men are less satisfied with their job because they are in the minority in the field of nursing. It is stated by the (HRSA, 2006) that in the USA men comprised 5.8% of the total RN population; studies have concluded that men identify themselves with physicians because they are not satisfied with the nursing profession (Kalisch et al., 2010).

The characteristics of effective teamwork are trust, team orientation and leadership support (Kalisch et al., 2010). Teamwork is crucial because it contributes to adequate staff and job satisfaction; hence, the results of most studies have concluded that managers' efforts are required to improve teamwork in the settings, which may have a positive effect on staff satisfaction. Nurses who are not satisfied are more likely to leave their jobs and their productivity is low (Hayes et al., 2006: Kovner et al., 2007). Promoting job satisfaction may

lead to cost saving because high job satisfaction is linked to low staff turnover (Hayes et al., 2006) and the possibility of leaving (Brewer et al., 2009).

Turnover of nurses costs hospitals around USD 82-88,000 for each staff member, therefore it should be noted that effective teamwork leads to safe and high quality patient care (Kalisch, et al., 2010). Furthermore, there is a link with patient's safety to team effectiveness and shared mind set in health care, hence a recommendation was made to enhance nursing teamwork in acute patient care units with nurse managers supporting teamwork interventions, coaching and measuring the effects of teamwork training interventions.

Due to the impact that collaboration and teamwork have on the outcomes of patients in critical care and the ICU's, health care providers need to work in a supportive and collaborative manner with peers and colleagues, whilst ensuring interest and commitment to collaboration and teamwork (Cowan, Shapiro, Hays et al., 2006; Tschannen, & Kalisch, 2009). It is of utmost importance for nurse managers to be aware of the complex nature of these concepts as they are crucial in the delivery of patient care.

- Diversity

Teamwork is important, because when inexperienced junior nurses join the profession they will not have attained the required level of professional maturity to integrate the beliefs, values, skills and deficiencies of their discipline and need to acquire safe clinical decision-making skills from their experienced peers (Apker et al., 2006). This enables advanced nurse practitioners to acquire further critical thinking skills necessary for nursing practice. Currey and Botti (2003:2005) also point out that communication with experienced nurses is improved as they make fast and accurate decisions, coordinate patient care activities, coach and supervise the subordinates, more than inexperienced nurses do, because of their expertise and capabilities.

However, there are various factors within the nursing profession, such as age differences, educational attainment, ethnicity, race and the work values of newly qualified graduates, which are not in line with more experienced nurses. Studies conducted between 1980 and 2009, in nursing health care psychology and organisational behaviours, revealed that age diversity leads to negative attitude towards others in the work group with poor collegial

relationships resulting in job dissatisfaction (Wolff, Ratner, Robinson et al., 2010). Furthermore, the authors stated that diversity is experienced globally and for organisations to succeed depends on the well-being of the employees and an understanding of the effects of diversity.

Embracing diversity therefore may benefit an organisation, as it would lead to job satisfaction, commitment, retention and creativity. Conversely, failure to accept these differences may lead to poor staff mix in the work place, therefore understanding the impact of diversity and how nurses view each-other is crucial to members of the work group and how they function (Wolff et al., 2010).

Mobility of nurses trained internationally, who are recruited in various institutions, has also contributed to diversity in most countries (Canadian Institute of Health Information, 2008).

Although healthcare facilities have been trying to promote and accept diversity in the nursing work force, researchers have stressed its effects due to different generations working together and the different values, beliefs and attitudes which each generation brings to the work place, which can result in conflict and tension (Wolff et al., 2010).

Furthermore, the authors stated that diversity influences effective communication, better patient care outcomes and optimal team functioning. Therefore, an understanding of the effects of diversity relating to nurses' attitudes is crucial to improve the work environment, for retention of nurses, to improve nurses' quality of life at work and enhance positive working relationships (Wolff et al., 2010).

Positive working relationships promote success in health care settings that are complex, such as ICU, because the delivery of quality health care requires a professional health team that values the other's contribution and works effectively with each other (Laschinger, 2010).

Lack of collegial support amongst team members leads to stress and staff turnover, therefore compromising the quality of care. Positive work relationships amongst colleagues, both supervisors and co-workers, are important to retain experienced nurses who are satisfied with their job, ensuring quality patient and family care (Laschinger, 2010**).**

Current evidence suggests inexperienced nurses greatly out number experienced and professional nurses. Consequently, the inexperienced and junior nurses disrespect and do not listen to their seniors due to lack of proper professional qualifications, lack of role clarification and because most experienced nurses are occupying senior management positions, others have quit the profession; all these cause conflict among nurses therefore affecting nurse-nurse collaboration (Delucia & Otti ., 2009).

Guided by the Nursing Act number 33 of 2005, nurses' roles and responsibilities are delineated to prevent role ambiguity and conflict in the provision of quality care and collaboration emerges as a necessity for all nurses, with the Department of Health (DOH) requiring health professionals to work as teams and be accountable for organisational productivity.

Similarly, the American Nurses Association Social Policy Statement has advocated for health care professionals to work as partners through recognising and accepting separate and combined roles and responsibilities of each other through collaboration and interaction, which involves joint formulation of plans (Baggs & Schmitt, 1988; McPhee, Wardrop & Campbell, 2010). Furthermore, the authors stated that health care professionals are required to work as colleagues while observing the behaviour of the team regardless of their hierarchies, because inability to share responsibilities results in parallel functioning.

West, Mays, Rafferty et al.(2007) identified that the safety of patients and delivery of quality care have driven research on the clinical and cost effectiveness of health care interventions including the impact of human resources. The authors further stated that although teams deliver health care, historically physicians have been functioning as autonomous expert practitioners. Contemporary health care environments are complex therefore to function effectively there is need for effective cooperation and collaboration amongst healthcare professionals.

Coombs and Ersser (2004) identified the complex nature that surrounds collaboration and teamwork in contemporary health care settings. They argued that the practice environments are functioning with flatter organisational structures with the development of multiple roles, which require clear lines of accountability and an understanding of working professionally.

One ethnographic study on how medical and nursing staff make decisions, found nurses' knowledge was used to support clinical decision-making, with the conclusion that nurses were not acknowledged, were devalued and could not make decisions as this was dominated by physicians (Coombs & Ersser, 2004). As a result, this affects the delivery of quality care and the effectiveness of teams in the ICU's.

Wheelan, Burchill and Tillin (2003) supported this in a study, which examined the relationships between teamwork and outcomes in the ICU's. They found that staff members with higher team functioning and group development had lower mortality rates and their team members were less dependent, had trust in each other and were more structured and organised than the team with higher mortality rates. Wheelan et al., (2003) concluded there was a relationship between teamwork and patient outcomes in critical care units and advocated for strategies to improve the level of teamwork and collaboration amongst members of staff.

Similarly, Leonard, Graham & Bonacum (2004) identified that communication failures lead to patient harm. As health care environments are becoming increasingly complex, health care professionals have to function effectively and need to work in a collaborative and supportive manner (Wheelan et al., 2003; Leonard et al., 2004; West et al., 2007).

Managers, as influential change agents, to be effective leaders need to work in partnership with group members to highlight shared goals and outcomes of their work like quality patient care, whilst acknowledging that individuals within the work group may have unique approaches for achieving the goals (Wolff et al., 2010; Squires, Tourangeau & Laschinger et al., 2010).

Furthermore, the authors stated that through such cooperation, differences between individuals and their co-workers may not exist and tension between nurses may be minimised, as all will focus on the shared common goals. A supportive work environment enables nurses to provide effective and efficient care whilst ensuring an understanding of their professional roles and responsibilities in the team (O'Brien-Pallas, Murphy, Shamian et al., 2010). The strategies involved at management level are equally necessary at organisational level; respect, caring and trust should create a climate that embraces diversity

and provides the basis for managers to create and change the environment (Wolff et al., 2010).

As health care institutions are challenged by staff shortages, creating a healthy practice environment may retain nurses and prevent shortages. O'Brien et al., (2010) has stated that adverse effects are a result of staff turnover because unstable staffing leads to decreased delivery of quality care thereby threatening the quality of patient care. Therefore, an adequate staffing level for safety of patients is essential in the prevention of adverse events.

Managers, professional nurses and staff nurses, experienced or inexperienced, provide care at varying levels with different roles and responsibilities, as the nurse's role is important for the coordination of patient care delivery (Baggs & Schmitt, 1988). Whilst Arford and Olson (1988) found roles amongst nurse managers and ICU specialists can be complementary, revolving around standards of care, Gurses and Carayon (2007) found the ICU work environment can create obstacles for nurses performing these roles leading to conflict and affecting the nature of nurse to nurse collaboration. Furthermore, these authors found characteristics such as overworking, unclear instructions from superiors and shortages of staff can affect both the quality of life for patients and nurses resulting in poor collaboration (Gurses & Carayon, 2007).

- Stress and Job Satisfaction

Various conditions in health care settings have contributed to stress in the nurses workplace and job dissatisfaction. A nurse's role is associated with conflicting demands imposed by nurse supervisors, managers, medical and administrative staff which causes role stress, especially for new nurses, which in turn leads to staff turnover, burnout and loss in the continuity of care, consequently negatively affecting patients and organisations (Schlachota-Fairchild, 20000: Klopper et al., 2012).

Clear roles for nurses, will enhance better patient outcomes, minimise stress and promote job satisfaction and commitment to the organisation (O'Brien et al., 2010). As noted earlier, sources of conflict in ICU's are magnified by the increased complexities and tensions and their effect on the nursing profession (Kelly 2006) generates negative feelings amongst

nurses leading to hostility and reduced morale thus affecting nurse-nurse collaboration negatively.

Role conflict and ambiguity in nurses leads to reduced commitment to the organisation and loss of job satisfaction (O'Brien et al., 2010), Furthermore, the author stated role conflict and ambiguity contribute to burnout, job related stressors which in turn lead to psychological-emotional and physical stress, decreased job satisfaction and turnover. Newly qualified nurses are prone to experiencing role ambiguity and job dissatisfaction due to lack of consistency in provision of information regarding the clarity of their roles and responsibilities (Chang & Hancock, 2003).

Adequate and stable staffing and managers' support are essential in promoting high patient quality care, job satisfaction, minimising job stress and preventing staff turnover in health care settings. Commitment to the organisation and job satisfaction, need strategies that can address role conflict and role ambiguity thereby encouraging nurses to remain in their profession and preserve valuable human resources in the health care system (O'Brien et al., 2010).

Furthermore, the authors have stated that turnover of nurses is a problem influenced by role ambiguity and role conflict in health care settings, therefore role clarity, providing feedback and coaching with regard to job performance is important (O'Brien et al., 2010). This requires sharing of job descriptions, policies and procedures, which may enable members of staff to familiarise themselves and others for specific patient care conditions (Kleinman, 2004).

An environment, which promotes open communication and joint problem solving between staff members and managers, is good as high staff turnover impedes the delivery of quality patient care. Being associated with an increase in medical errors, the use of temporary nurses hinders the provision of quality patient care, satisfaction of the patient and morale of permanent nurses, which results in turnover risks and high costs for the organisation. Investments in hiring permanent staff for long term may promote optimum outcomes (O'Brien et al., 2010), as hiring of new nurses requires enough time to become familiar with the work setting and to develop competencies in the clinical skills needed.

Job satisfaction is the extent where the needs of employee's are accomplished through motivation within the work place (Utrianen & Kyngas, 2009). Nurses' relationships are very important for job satisfaction. To enhance these relationships between nurses and other health care professionals, it is important to collaborate and communicate effectively with physicians (Manojlovich, 2005). Harmony and togetherness between nurses is important (Kovner et al., 2006). Nurse to nurse interaction collaboration and communication promotes job satisfaction and teamwork with co-workers which play an important role in job satisfaction.

According to Campbell, Fowlers and Webster, (2004), practice environments where there is consultation between managers and subordinates about their duties and making decisions together, including the peers, positively promotes job satisfaction. Similarly, Utrianen and Kyngas, (2009) state that units with a social climate, which have an ethical and caring environment and values of the organisation in line with human relations, play a crucial role in job satisfaction.

Utrianen & Kyngas, (2009) have reported that, studies conducted in Norway, have revealed that values related to human relationships are active participation, empowerment, open discussions, being sensitive to the ideas of employees, loyalty and trust; the presence of these values in a practice environment influences positive attitudes for nurses towards the ward and develops high job satisfaction (Utrianen & Kyngas, 2009). Therefore, managers should take an active role in promoting job satisfaction for nurses by strengthening their interpersonal relationships through daily interaction at work and facilitate the ability for nurses to deliver high quality care. However nurses in critical care units in South Africa have reported that they lack job satisfaction because their ICU allowance which they used to get has been stopped hence with this they cannot function effectively.

- Conflict and Coordination

Dougherty and Larson (2010) observed aggressive, intimidating behaviour and tension exists between senior and junior nurses. In a study of (n=213) nurses, 75% reported being verbally abused by other nurses. It was suggested that interpersonal relationships and communication contributed to these issues hence affecting collaboration among nurses.

Conflict amongst healthcare professionals leads to stress, loss of morale, hostility and tension thereby affecting NNC, therefore this study looked at how nurses manage conflict in the unit as it contributes to the delivery of care. Alternatively, when there is willingness to engage in a relationship that has reliance upon the other person, for instance two nurses, trust results and communication amongst nurses improves.

Fundamental to effective relationships between managers and staff is trust. However, a recent literature review on trust between nursing management and staff nurses by Mullarkey et al. (2011) found there are mixed findings on trust amongst staff and nursing management in critical areas. Some report trusting relationships and others mistrust leading to poor communication. The nature of trusting relationships in ICUs portrays the state of nurse–nurse collaboration thereby supporting this study's aim.

Coordination is a process in which groups of people have to work together in an efficient and organised manner (Yoder-Wise, 2003). One of the roles of nursing is coordination, in which nurses are required to coordinate patient care activities with various disciplines of the health care delivery system; this facilitates collaboration and improved patient care outcomes e.g. written treatment protocols and policies (Apker et al., 2006). Coordination of patient care delivery has profound effects on collaboration. Nurse leaders assign responsibilities, supervise and organise roles for other nurses, delegating tasks to effectively coordinate health care delivery teams (Apker et al., 2006).

The ICU work environment can create obstacles in this role, for instance increased patient acuity and shortage of staff may make coordination difficult on managers leading to stress due to work overload causing some nurses to burnout, consequently creating opportunities for conflict amongst nurses and affecting collaboration (Apker et al., 2006). Failure to coordinate patient care activities may lead to poor patient outcomes and safety. As one of the important communication skills and role for nurses, this study investigated how nurses coordinate patient care delivery as it contributes to collaboration.

To function effectively and achieve the goals of the patients, there is a need for shared process amongst nurses which involves sharing responsibilities, such as decision-making, setting goals, autonomy and authority (Lindeke & Block, 1998). However, Rose,(2011) has stated that without shared process one person cannot provide quality care as the contributions

and expertise of health care professionals improve the care delivery. This study therefore examined how nurses share their responsibilities in the ICU, as it is critical to the delivery of care in a complex environment.

- Professionalism

Professionalism is an integral component of collaboration. A profession is a specific occupation that performs work, with special characteristics, which encompass education and professional qualifications amongst nurses (Lindeke & Block, 1998). Professionalism is about what the nurses do and how they carry out their responsibilities; the values and behaviour they portray in their work with patients, colleagues, families and other professionals makes the foundations of a profession (Apker et al., 2006). Nurses are equipped with knowledge, skills, attitudes values and autonomy to function effectively. Communication is an important quality in professionalism and is based on mutual respect, willingness to collaborate, clinical competence, mentorship and leadership thereby promoting quality care and patient safety (Nursing Act Number 33 of, 2005).

Kovner et al., (2006) stated the importance of professional status and professional development in promoting job satisfaction. Nurses need to think independently and make decisions with regard to patient care, provide input to the organisation and have opportunities for learning and professional growth. Therefore, mangers and nurse leaders need to empower critical care nurses professionally for them to function effectively and promote collaboration.

The nurse's role requires them to communicate issues of care delivery with the multidisciplinary team and make joint decisions, therefore professional nurses need to communicate effectively, not only at the bedside of the patient, but also when they interact with colleagues and health care teams (Apker et al., 2006). Furthermore, professionalism promotes positive patient outcomes and improves the quality of work life for nurses and organisational productivity. Failure in this may lead to poor quality care therefore it was important for this study to look at the status of professionalism in a critical care unit as it promotes respect and trust amongst nurses, which results in a conducive environment for quality patient care.

Ulrich, Lavandero, and Hart et al., (2007) and Pretorius & Klopper, (2012) have stressed the importance of a healthy work environment because many environments in which nurses work are not conducive. A practice environment is the physical, social and psychological characteristics in a work setting, which can be determined by the physical features, organisational policies and the behaviour of the people in the workplace (Klopper et al., 2012).

Similarly, Shirey (2006) defined a healthy practice environment as a work setting which encompassed policies, job descriptions, procedures, philosophies and other systems designed for employees to be able to meet the objectives of the organisation and achieve job satisfaction. A practice setting which enables nurses to accomplish their expectations, such as a balance in workload, adequate staffing levels, availability of time to do the job, leadership style, autonomy and support by supervisors and justice, promotes job satisfaction (Ulrich et al., 2007).

Nurses need a conducive work environment; collaboration, communication and staffing have been seen as one way of enhancing such an environment. Having recognised that a healthy work environment promotes recruitment and retention of nurses and for optimal provision of care, the American Association of Critical Care Nurses (AACN) took the initiative in 2001 to promote and support healthy work environments (Ulrich et al., 2006).

Internationally several studies, such as the American Association of Critical Care Nursing (AACCN), the International Council of Nurses (ICN) and the Institute of Medicine (IOM), have looked at the practice environment and emphasis was made on the quality of leadership, collegial relationships, collaboration, provision of quality care, autonomy for nurses, active participation in decision-making, adequate staffing and resources as some of the issues influencing a positive practice environment.

Critical care nurses experience high turnover rates, job dissatisfaction and burnout (Davis, Ward, Woodall et al., 2007) and evidence has shown that by improving the practice environment, job satisfaction, retention of nurses and better patient outcomes is promoted (Aiken et al., 2008: Laschinger, 2008).

Conflict, stress, lack of respect and trust lead to ineffective collaboration, making the ICU environment unhealthy for nurses. Conducive environments enhance patient outcomes, improve the nurses' quality of work and promote the recruitment and retention of nurses (Apker et al., 2006). Improving the work environment for nurses can reduce health care costs, promote job satisfaction and prevent shortage of nurses.

Stress amongst nurses is one factor that hinders conducive environments. Intensive care nurses are continuously in an area with high technology, looking after critically ill patients with complex needs and the death of patients, hence they need to cope with the physical and emotional environment (Hays, All, Mannahan et al., 2006). However, persistent stress leads to absenteeism, adverse events, staff turnover, job dissatisfaction and burnout resulting in poor quality care and patient safety.

Identifying the factors which contribute to job satisfaction, stress and burnout can promote the retention and recruitment of specialised nurses with high skills and an increase in job satisfaction whilst improving the quality of patient care and safety (Hayes, Bonner & Pryor, 2010: Hayes et al., 2006). This is in line with the AACN. The results of a study conducted by Beau (2006) on stress amongst nurses in Metropolitan hospitals in South Africa, revealed stress led to nurse turnover creating shortages as nurses working in government hospitals resigned to work abroad or in non-governmental organisations due to burnout; a view supported by the South African Nursing Council and the minister for health.

More fundamental to a healthy environment is burnout, a syndrome due to emotional exhaustion, de-personalisation and reduced personal accomplishment (Schaufeli & Green Glass, 2001: Kacmaz, 2005: Spooner-Lane & Patton, 2007). This is common in ICU's. The critical nature of the environment results as occupational stress among professionals due to demands and emotionally charged relationships between health workers and clients, with feelings of emotional exhaustion, developing negative attitudes towards patients (de-personalisation) and a feeling of not being effective when working with patients compromising quality patient care (Bakker, Blanc & Schaufeli, 2005).

In a review by Wheelan et al., (2003) the authors revealed that hospitals with low staffing levels have high rates of poor patient outcomes. The contributing factors to low staffing levels are due to high numbers of acute patients who require more care and a wide national

gap between the number of available positions and the number of registered nurses (RN's) qualified and willing to fill them. This was evidenced by an average rate of 13%, thus the reason for the AACN's initiative to promote healthy work environments to retain and increase nurses' recruitment, which may optimise the quality of care and improve job satisfaction.

Conflict, defined as the internal discord that results from differences in ideas, values, or feelings between two or more people (Kelly, 2006), is another factor influencing collaboration hence a non-conducive work environment amongst nurses. It is present in all organisations, with nursing as one of them, as it is found in critical care settings (Kelly, 2006). However, conflict in the nursing profession has generated negative feelings, which is why most nurses use avoidance as a coping mechanism (Kelly, 2006). Theories of conflict amongst nurses range from difficulties with organisational constraints, leadership styles, or violence among social equals as well as inadequate interpersonal relationships (Kelly, 2006).

To sum up, the nursing profession is one of the largest occupational groups in the delivery of health care services and at risk of stress and burnout, which leads to absenteeism, job dissatisfaction and turnover (Klopper et al., 2012).

In general, ICU care is dynamic (i.e. keeps on changing), complex and at times highly stressful. Firstly, the on-going exposure to the complexities indirectly results in poor collaboration amongst nurses, secondary to high staff turnover and shortages consequently leading to burnout thereby negatively affecting collaboration (Rose, 2011).

Secondly, due to its complexity, it requires nurses to work as a team to support each other by sharing information about patient care, making decisions as a team and planning care whilst keeping in mind effective collaboration (Dougherty & Larson, 2010). Despite this finding, Rose (2011) discovered that ICU teams are continually altered, i.e. continuous staff rotations, making it difficult to sustain an ideal unified team working together to provide better care and improve patient outcomes. Nurse-nurse collaboration (NNC) in ICU is therefore an area worthy of discussion. On top of its implications on the patient, nurse and system outcomes, there are few published international (Dougherty & Larson, 2010) and local studies.

Those studies identified, focused on developing a Nurse-Nurse Collaboration (NNC) scale (Dougherty & Larson, 2010), others on communication skills which are considered to be effective in health care team interactions (Apker et al., 2006). Conversely, improved NNC has been associated with positive patient and nurse outcomes and may be a factor in the reduction of medical errors (Dougherty & Larson, 2010). One study about adverse events and medication errors in two ICU's, found that nurses prevented 86% of medical errors before they occurred, concluding that improved collaboration amongst nurses can lead to patient safety (Dougherty & Larson, 2010).

In addition, there is reduced mortality and morbidity rate and improved quality of life for patients (Dougherty & Larson, 2010) , whilst nurses reported job satisfaction, reduced staff turnover and reduced stress and cost effective care (Apker et al., 2006). As shown in literature, nurses need a conducive work environment and collaboration is one way of enhancing this (Ulrich et al., 2007). Conversely, ineffective NNC has been associated with poor patient, nurse and system outcomes, poor quality of care, adverse drug events, increased staff turnover, stress and reduced organisational productivity (Dougherty & Larson, 2010; Rose, 2011). It can be concluded that whilst there are many issues surrounding ICU care, understanding NNC may be necessary for better implementation strategies on NNC.

2.3 FACTORS INFLUENCING COLLABORATION PRACTICES BETWEEN NURSES IN INTENSIVE CARE UNITS

There are various factors, identified in literature, which positively negatively influence nurse-nurse collaboration as outlined below. These include:

- teamwork and shared process,
- trust and respect,
- communication and teamwork,
- communication and coordination,
- role clarification and professionalism,
- conflict management skills.

2.3.1 Teamwork and Shared Process

Teamwork is a dynamic process involving two or more health care professionals who have complementary backgrounds and skills sharing common goals, making assessments together and planning patient care through interdependent collaboration, having open communication and shared decision-making (Xyrichis & Ream 2007). Shared process involves, decision making, autonomy, setting goals and authority (Dougherty & Larson, 2010).

Teamwork, is an important facilitator in the delivery of quality health care services internationally however, health care professionals have never worked in a collaborative manner as teams (Xyrichis and Ream, 2007). Furthermore, the authors stated that various studies of teamwork in health care facilities have been criticised for lacking proper understanding of the meaning of the concept and what it represents. Therefore, a suggestion was made that collaboration should undergo further studies in order for teamwork to be facilitated Xyrichis & Ream, 2007; Pilcher, 2009). In addition, the author's emphasised that, as nurse/physician collaboration can improve patient care outcomes and promote job satisfaction, it is important to identify the factors that affect collaboration amongst health care professionals.

Shared process is equally very important in promoting team work if health care professionals are to achieve the needs of patients effectively. By sharing out their responsibilities, this can promote the quality of care for patients hence the job satisfaction. Therefore, health care professionals are required to share their responsibilities in decision-making, setting goals, autonomy and authority (Lindeke & Block 1998). However, in a review of literature, the authors further stated that this has been a challenge for nurses but, nurses need to work as a team because one person alone cannot provide quality care as the knowledge, skills, and attitudes of all health care professionals improve the delivery of patient care (Rose, 2011). This results in improved quality of care, patient safety and outcomes (Zwarenstein & Reeves, 2006) therefore, sharing responsibilities in the ICU is critical to the delivery of care in a complex environment as it optimises collaboration and results in job satisfaction,

Kalisch et al., (2010) stated that teamwork is important in achieving positive cost effective outcomes in various organisational settings and that 70% to 80% of errors are due to poor teamwork amongst healthcare professionals. The American Association of Critical Care

Nursing (2005), supports the report that 60% of errors are due to problems in communication. Similarly, in the Australian context, following their studies, there were similar findings hence a call for improved teamwork in the health care facilities making this an issue of international concern.

Xyrichis and Ream (2007) noted that teamwork plays an important role in various organisations as it enhances positive cost-effective outcomes and has been associated with high levels of job satisfaction; however, few studies have been done on acute care teams in hospitals (Kalisch et al., 2010). Furthermore, the authors stated that a high level of teamwork and adequate staffing, for nursing teams in acute care units, promotes job satisfaction and so nurse managers should ensure these are improved.

As stated earlier, Kalisch, et al., (2010) also observed trust, team orientation and support by leaders as important issues surrounding effective team work. Team work is important in health care facilities as it contributes to adequate staff numbers, job satisfaction and organisational productivity, hence the results of most studies have concluded that managers' efforts are required to improve teamwork which may have a positive effect on nurses' satisfaction. Nurses who lack job satisfaction have a tendency to leave their jobs or have poor productivity (Hayes et al., 2006: Kovner et al., 2007). Promoting job satisfaction may lead to cost savings because high job satisfaction is linked to low staff turnover (Hayes et al., 2006) and the possibility of leaving (Brewer et al., 2009).

2.3.2 Trust and Respect

Generally, it has been noted that trusting relationships are paramount to effective collaboration between nurse managers and staff nurses (Mullarkey, et al., 2011). Therefore, it is important to trust and respect one another in our dynamic work settings to promote quality patient care. Junior nurses need to trust their seniors because they learn their professional culture from them.

2.3.3 Communication and Teamwork

As noted earlier, health care professionals should be encouraged to communicate effectively, because it has been observed that, in-effective communication leads to lack of true

collaboration amongst health care professionals (Arford & Olson, 2005). Team work and communication enhances patient care outcomes and members of the family.

Communication is a process involving the exchange of information between individuals. As noted, nurses spend almost 24 hours a day with patients, compared to other health care professionals and are in the majority in all health care facilities. As a result of this, they are in a better position to evaluate patients' conditions and responses to treatment and communicate the findings to fellow nurses and other healthcare professionals for shared planning and management, for example during handover and reports (Apker et al., 2006).

The nurses' role is therefore crucial in health care settings because they coordinate patient care activities and liaise between the members of the team, patients and their families. Lack of communication between nurses and other health care professionals, may hinder the nurses' performance and lead to patient harm.

Most studies conducted have focused on nurse-physician communication, yet nurses have a wide range of requirements in their scope of practice. Their role extends beyond the patient's bedside and involves communication with members of the team and various health care professionals who have different needs, supervision of assistant personnel and coordination of care across the entire health care system (Apker et al., 2006). It is for this reason the health care system requires nurses to communicate effectively with the multidisciplinary team members, patients and their families because the nature of communication amongst nurses and an understanding of their relationships plays a crucial role.

Teamwork for nurses, as well as other healthcare professionals, is significant as it enables inexperienced junior nurses and newly qualified doctors, who have just joined the profession, to familiarise themselves with their organisations culture from the expert nurses to practice safely (Apker et al., 2006). This enables advanced nurse practitioners to acquire further critical thinking skills necessary for nursing practice. Furthermore, experienced nurses have acquired better critical thinking and decision-making skills enabling the juniors to function effectively (Currey & Botti, 2003: 2005).

2.3.4 Communication and Coordination

As nurses collaborate with other healthcare professionals through clear and appropriate communication, they will be able to deliver effective care for patients and enhance true collaboration amongst healthcare professionals; without proper communication, true collaboration does not exist (McCaffrey et al., 2010). Communication is a two-way process involving exchange and progression of thoughts, feelings and ideas towards a mutually accepted goal or direction (Marquis & Huston, 1998).

Whilst coordination is the definition of the process of making groups of people work together in an efficient and organised manner (Yoder-Wise, 2003). Baggs and Schmitt (1992) emphasised that effective communication and coordination are critical to improving the quality of care and safety of patients in critical care settings. However, Dougherty and Larson (2010) noted that teamwork, coordination, shared process, conflict and professionalism have contributed to problems with communication resulting in impeding of effective collaboration.

Dougherty & Larson, (2010) stated that effective communication amongst healthcare professionals promotes job performance, better patient outcomes and that positive communication is associated with improved job satisfaction, quality care and less medical errors. Dougherty and Larson, (2005), Manojlovich and Antanakos (2008) and Henneman (2007) agreed most errors, in ICU's, were not reported because of communication failure during handovers and ward rounds, thereby compromising the safety of patients. Failure in communication by healthcare professionals, families, wards and hospitals contribute to deterioration in patients conditions due to lack of continuity of care and failure to work together.

Nurses perform one of their roles through coordination of patient care activities with various disciplines of the health care delivery system, thereby facilitating communication and collaboration and improved patient care outcomes.

Written treatment protocols and policies enable nurses to facilitate coordination effectively (Apker et al., 2006). Coordination of patient care is one of the attributes of collaboration, therefore, nurse leaders should ensure smooth running of patient care activities to coordinate effective health care delivery teams (Apker et. al., 2006). Poor coordination leads to stress,

burnout and conflict amongst health care professionals, resulting in poor patient outcome and safety. Therefore, by understanding how nurses coordinate patient care activities is important, as it is one of the communication skills and roles which contribute to collaboration.

2.3.5 Role Clarification and Professionalism

The delineation of roles and responsibilities amongst nurses has been set to prevent role ambiguity and conflict, in order to enhance the provision of quality patient care. Successful role performance depends on effective communication and collaboration and so that role functions of senior and junior nurses can be integrated to achieve organisational goals (Arford & Olson, 1988). Fewster-Thuente and Velsor-Friedrich (2008) noted that one of the factors inhibiting collaboration amongst nurses in the ICU's is overlapping of responsibilities hence poor patient safety and outcomes. Each role complements and enhances the other, so it is important for nurses to work hand in hand for improved quality of care and patient outcomes.

In view of this, the American Nurses Association Social Policy Statement has advocated that health care professionals should work as partners through recognition and acceptance of separate and combined roles and responsibilities of each other by collaborating and interacting through joint formulation of plans (Baggs & Schmitt, 1988:1997). Furthermore, the author stated that health care professionals are required to work as colleagues whilst observing the behaviours of the team regardless of their hierarchies, because inability to share responsibilities results in parallel functioning. Therefore, managers, professional nurses and staff nurses, either experienced or inexperienced, contribute to patient care at different levels by working together as a team.

2.3.6 Conflict Management

Modern Intensive Care Units experience conflict due to the demands in the acuity of patients with limited numbers of nurses and lack of other resources (Kelly, 2006). Furthermore, conflict has been seen to generate negative feelings, drain energy and reduce focus and cause discomfort and hostility in the nursing profession, as nurses use avoidance as a conflict resolution strategy as opposed to open acknowledgement of the contributing factors, therefore affecting collaboration negatively.

Although conflict at times can be destructive and demoralising, it can also be a positive and dynamic force to prevent stagnation and stimulate change, serving as a channel for airing of views even during patient care (Tappen, 1989). Conversely, Leever, Hulst, Berendsen et al., (2010) argued that the conflict management strategy by nurses leads to unsuccessful results whilst at the same time postponing the conflict. Whilst Kelly (2006) states that effective conflict management can lead to successful conflict resolution leading to improved effectiveness trust and openness through various conflict resolution strategies, it is imperative nurses use appropriate conflict resolution strategies which involve negotiation and compromise as this will enhance effective collaboration.

Health care professionals should always aim at promoting a conducive work environment in order to sustain the delivery of quality patient care and job satisfaction more specifically in critical care units.

2.4 MEASURES TO ENHANCE EFFECTIVE COLLABORATION

2.4.1 Communication and Coordination of Care

As noted earlier, positive communication amongst health care professionals results in improved job satisfaction amongst all sectors, improved patient outcomes and fewer medical errors (Dougherty & Larson 2010: Manojlovich & Antanakos 2008). Therefore, effective communication is the pillar for successful collaboration for the delivery of better patient care.

Having recognised the importance of communication for patient care, the Joint Commission set a National Patient Safety Goals for 2007 to improve the effectiveness of communication amongst health care professionals, promoting a conducive environment (Joint Commission, 2006). Similarly, researchers have pointed out that a variety of skills are required for nurses to communicate effectively with the health care team. Coordination emerges as one of these communication skills as nurses are required to coordinate patient care delivery by assigning responsibilities and organising roles of the team members (Apker et al., 2006). Furthermore, the authors came up with the following as communication skills in healthcare team interactions:

Collaboration Nurses play a vital role in transmitting information required for successful patient outcomes e.g. knowledge about the patient and procedures.

Compassion The compassion skill stipulates the behaviour which supports and builds team relationships with caring for team members concerns and advocacy.

Coordination This is the final communication skill in line with nurse professionalism and encompasses behaviour used by nurses to coordinate patient care delivery by acting as the link for their health care.

Ward rounds, reports and seminars are some of the factors identified to enhance effective communication and collaboration (Coombs & Ersser, 2004). While (McCaffrey et. al., 2010) points out that skilled communication depends on important characteristics such as self-awareness, dialogue, conflict management, negotiation, inquiry, advocacy and listening.

2.4.2 Teamwork and Shared Process

One of the strategies for health care professional teams to collaborate effectively and achieve quality patient care and organisational goals in ICU's is that they should know their roles, job descriptions and shared responsibilities to enhance the achievement of the goals (McKay & Crippen, 2008). Teamwork in ICU's is associated with positive patient outcomes and productivity (Wheelan et al., 2003). However, to function effectively, these teams need effective collaboration, open communication and shared decision-making leading to patient, organisational productivity and staff outcomes (Xyrichs & Ream, 2007). Shared responsibility promotes respect and trust as all members work hand in-hand, hence the contribution made by each one is acknowledged.

2.4.3 Orientation and Training

Bailey & Jones, (2008), have stated that for successful health care delivery, education and orientation are crucial as they promote effective communication and collaboration. Educational forums such as conducting ward rounds, workshops, ward reports, in-service

training and seminars, assist health care professionals gain more knowledge. Aari, Tarja and Helena, (2008) pointed out that by teaching collaboration to professional team members in ICU's assists them to acquire both clinical and professional competence while enhancing effective collaboration. Equally, proper staff orientation to the activities of the unit and management tools, like the philosophies, objectives, visions, policies, procedures and job descriptions, enables effective functioning.

2.4.4 Work Environment

To enable nurses to function effectively, enhance positive patient outcomes and job satisfaction, they need a healthy work environment to facilitate the delivery of care. Evidence has shown that meeting healthy work environment standards, such as communication, collaboration and staffing, is associated with increased safety and improved patient outcomes. The Joint Commission (2005) and Ulrich et al. (2006) pointed out that the importance of attracting adequate numbers of qualified registered nurses to meet the needs of patients particularly in ICU's and this can be achieved by creating healthy work environments. A healthy work environment promotes job satisfaction and improves patient care outcomes (Institute of Medicine, 2004).

As a result, the American Association of Critical Care Nurses (2003) developed the Beacon Award for Critical Care Excellence to recognise critical care units which meet high quality standards which promote a healthy work environment. These include communication, collaboration, staffing, decision making, recognition and leadership. The conclusion was that a healthy work environment promotes recruitment and retention of nurses, consequently providing quality patient care. It is important for nurse managers in ICU's to create healthy work environments to enable nurses to meet the needs of the critically ill patients and their families.

2.4.5 Role Clarification and Conflict Management

A role is a pattern, or social behaviour, necessary in relation to the demands and expectations of the situation in which the role is performed in relation to the position (Gilles, 1989). Literature has shown that roles are important because they assist nurses to function and perform according to their expectations and prescribed behaviour, in order to direct their

conduct based on their job descriptions. Lack of role clarification results in role ambiguity, role conflict and role confusion which leads to conflict amongst workers and poor quality patient care; it is important for clarification of individual roles to enhance effective collaboration while preventing conflict.

Conflict amongst health care professionals in the ICU's is common due to increased demand on limited staff and lack of resources which impedes the delivery of quality patient care leading to poor patient outcomes (Kelly, 2006).

Although conflict has been seen to be destructive and demoralising, it is a positive factor in preventing stagnation, strengthening an organisation through reconciliation of different views and unifying, rather than dividing, the workers.(Kelly,2006: Leever, Hulst, Berendsen, et al., 2010). Since conflict in ICU's is inevitable, nurses have developed the use of avoidance compared to a more open way of addressing factors contributing to the cause of conflict (Kelly, 2006: Leever et al., 2010). However, it is argued that using avoidance as a strategy for conflict management produces unsuccessful results and postpones the conflict.

Effective conflict management leads to successful conflict resolutions without frustration which can lead to high effectiveness, trust and openness. Strategies for conflict management are compromising, competing, accommodating, avoidance and collaborating. Nurses are urged to use a collaborative approach for resolving conflict which leads to a win-win approach solution involving negotiation and compromise amongst professionals rather than avoidance and other strategies and so promoting effective collaboration (Kelly, 2006: Leever et al., 2010).

2.4.6 Professionalism

Health care professionals are expected to fulfil all the norms and expectations of a professional practitioner. The professionals are required to display behaviour that matches the code of conduct, rules and principles of behaviour required by the profession (Muller, 2009). Basically, health care professionals differ in their level of professional maturity hence this determines their level of professionalism. Therefore, novice practitioners are socialized professionally to acquaint themselves to be experts in norms and values of the profession. While the professionally mature and competent practitioners display the characteristics of

professionalism (Muller, 2009). For this reason, it is important that health care professionals should always display accountability, abilities and competencies to enhance quality patient care and organizational productivity.

2.5 SUMMARY

This chapter provided an overview of literature related to perceptions on nurse-nurse collaboration. Factors influencing nurse-nurse collaboration and remedial measures have also been discussed.

It should be noted by all health care professionals that, effective conflict resolution strategies, communication, coordination, shared process and professionalism are crucial in enhancing effective collaboration. This leads to improved patient care outcomes and job satisfaction. Furthermore, the literature has stressed the importance of having a conducive work environment for nurses because it has been observed that the environment in which nurses work globally, and in South Africa may not be conducive. Issues, surrounding nurses, such as conflict, stress, lack of shared decision making and autonomy, poor communication and teamwork, lack of coordination and professionalism, diversity, lack of respect and trust all lead to ineffective collaboration, making the environment not conducive for nurses in the ICU. A conducive environment enhances patient outcomes, improves the nurses' quality of work and promotes the recruitment and retention of nurses. Therefore, for health care facilities globally, and in South Africa more specifically in intensive care settings, improving the work environment for nurses can reduce health care costs, promote job satisfaction and prevent shortage of nurses, thereby, promoting quality patient care and the organizational productivity.

The next chapter will discuss the methodology used in this study.

CHAPTER THREE

RESEARCH DESIGN AND METHOD

3.1 INTRODUCTION

Research methodology refers to the steps, strategies and procedures used to gather and analyse data (Burns & Grove, 2005). This chapter will discuss the research design and method and will include the research setting, study population, sample and sampling, data collection and the instrument used, including validity and reliability. Finally, the ethical issues will be considered during the study, as well as the validity and reliability of the whole study.

3.2 OBJECTIVES

For consistency in this research project, the study objectives are repeated.

- To describe the nature of collaboration practices between nurses working in the Intensive Care environment.
- To determine whether there was a difference in collaboration practices between more senior and less experienced nurses.
- To identify factors which may have led to ineffective collaboration practices amongst nurses working in the Intensive Care setting.
- To elicit measures for enhancing collaboration practices between nurses in the Intensive Care Units.

3.3 RESEARCH DESIGN

A non-experimental, descriptive, retrospective and quantitative design was used to elicit the perceptions of nurses towards nurse-nurse collaboration practices in the Intensive Care units. The study design is appropriate because no variables were manipulated and descriptive because it aimed to describe the findings using descriptive statistics.

The purpose of using descriptive research design was to observe, describe and document the characteristic features of a naturally occurring situation (Polit & Beck, 2008:27). This

study is descriptive as it aimed to describe and categorise information by means of a structured questionnaire, which reflected perceptions of nurses towards nurse-nurse collaboration in the Intensive Care setting.

The use of the "Nurse-Nurse Collaboration Scale" questionnaire was used to collect numeric data for analysis and interpretation.

The study design was retrospective, as the lead statement in the "Nurse-Nurse Collaboration Scale" questionnaire asked nurses to answer questions based on experience and not on how they believed it should be. Research design refers to the overall plan used to obtain information to answer research questions.

The design guides the researcher to plan and implement the study whilst achieving control of variables which could influence the study (Burns and Grove, 2005). The purpose of this study determined the research design which was to describe nurses' perceptions towards collaborative practices between nurses in the ICUs and made recommendations for the study.

Quantitative research approach is a systematic and controlled scientific method of collecting and analysing numerical data (Polit and Beck, 2008). Burns and Grove (2005) defined quantitative research as a systematic approach used to describe and test relationships, examine the cause and effect interaction among variables. In this approach, the researcher collects information by using a questionnaire. In this study, the Nurse-Nurse Collaboration (NNC) Scale Questionnaire was used to collect numeric information for analysis and interpretation.

3.4 RESEARCH SETTING

Research setting is defined as the place the study will be conducted (Burns & Grove, 2005). In this study the setting was the level three Intensive Care Units (ICU's) of a university-affiliated, public sector and tertiary level hospital in Johannesburg, which provides all areas of highly specialised Intensive Care including referrals. The researcher chose level three ICU's because of the various procedures undertaken, such as complex investigations, imaging services and specialists consultations of all disciplines (Oh, 1997:

Alspach, 2006). Further, this institution is an academic hospital, which trains both nursing and medical students for their clinical experiences.

The five ICU's were chosen because they admit trauma, cardiothoracic, coronary and critically ill patients with general medical problems. In the ICU's, medical specialist intensivists and registrars are responsible for provision of integrated care of patients and participate in the management of ICU activities necessary for appropriate and consistent delivery of care. In contrast, nurses are responsible for carrying out complex nursing activities, such as assessment, supporting, monitoring the critically ill patients' hemodynamic and respiratory status.

3.5 THE STUDY POPULATION

Population is defined as a group of individuals whose characteristics are common (Polit & Beck, 2008; 67). The target population in this study was composed of all nurses, who were registered professional nurses who had undergone specialised education and training in Intensive Care nursing, working permanently in the five adult Intensive Care Units of a university-affiliated, public sector hospital and tertiary level institution in Johannesburg. These are the nurses looking after critically ill patients, in the Intensive Care Units at the selected study sites, with life threatening conditions using sophisticated equipment (Alpach et al. 2006).

A preliminary audit undertaken from the staff allocation register in *March 2012*, indicates 125 (N=125) Intensive Care registered professional nurses working in the selected Intensive Care Units.

This was an accessible population of nurses working fulltime in the five ICU's, which the researcher targeted for participation in the study and they represented the population. An accessible population is a portion of the target population to which the researcher has access (Burns & Grove, 2005).

3.6 SAMPLE AND SAMPLING METHOD

A sample is a portion of the population selected to participate in a research study (Polit & Beck, 2008; 67). To prevent measurement errors and have a representative sample, a statistician was consulted on the calculation of the sample. The formula used to calculate the sample was as follows: n=2xP (1-P). N=estimated sample size, Z=confidence interval at 95% (1.96), p=the estimated prevalence 60% (0.6) and d=margin of error at 10% (0.1). The calculated sample size was 112.

In this study, a sample of 112 (n=112) nurses working in cardio-thoracic, general, neurosurgical, coronary and trauma ICUs participated in the study. Convenience sampling was used to select the study participants in the selected intensive care units. According to De Vos, Strydom, Fouche and Delport (2005) convenience sampling is a non-probability form of sampling whereby any subject who happens to cross the researcher's path and has anything to do with the phenomenon is included in the sample until the desired sample is obtained. In this instance, the researcher simply entered the accessible Intensive Care nurses into the study until desired sample size was reached.

Inclusion criteria for prospective participants were:

- Qualified Intensive Care nurse, registered with SANC and working in one of the five adult ICUs,
- In full time employment, with more than 6 months clinical experience and willing to participate, and
- Provided a written consent form was obtained.

The exclusion criterion for this study was any nurse who was currently in a training or education programme. The reason for this being nurses rotate through different ICUs at predetermined intervals and as such, they may not have sufficient time to engage in relationships with other team members.

3.7 DATA COLLECTION

Data collection is defined as the systematic way of collecting information needed to achieve the objectives of the study (Burns and Grove, 2005). In this study, data collection

will be discussed under the headings of instrument, validity and reliability of the instrument and data collection procedures.

3.7.1 Instrument

Following an extensive literature search, one established and valid instrument was identified and previously published studies were utilised to achieve the study objectives. A questionnaire developed from the "Nurse-Nurse Collaboration Scale" (NNC) was found to be suitable for the purpose of this study (Refer **Appendix C**).

Questionnaires tend to be used in a descriptive study to gather a broad spectrum of information from the subjects such as facts about subjects, events or situations known by the subjects or beliefs, attitudes, opinions, level of knowledge or intentions of the subject (Burns & Grove, 2005). In this study, questionnaires were self-administered by consenting participants.

The "Nurse- Nurse Collaboration Scale" has 35 items on a four-point type Likert scale, with each item score ranging from one to four, i.e. strongly disagree =1, disagree =2, agree =3 and strongly agree =4, and comprises closed ended questions, divided into five subscales of conflict, communication, shared process, coordination and professionalism. Originally, the questionnaire was developed from literature (Dougherty & Larson, 2008) and modified through a large survey (Dougherty & Larson, 2010), to measure collaboration amongst nurses in the Intensive Care setting.

Furthermore, demographic data (gender, age, qualification, position and experience) were collected from participants using a checklist developed by the researcher and built into the instrument. One open-ended question to elicit any responses the participants might wish to make was built into the instrument by the researcher (Refer **Appendix C**).

3.7.2 Validity and Reliability of the Instrument

Validity is the ability of the instrument to measure accurately the concept in question, whilst reliability refers to the stability or consistency of the measurement (De Vos, Strydom, Fouche & Delport, 2005).

The previous internal consistency reliability coefficient (Cronbach's Alpha) for the "Nurse to Nurse Collaboration (NNC)" Scale was 0.89, drawn from a large sample of nurses in the United States of America (Dougherty & Larson, 2010). Convergent validity correlations were low to moderate, indicating minimal shared variance among the subscales.

These authors concluded that the instrument does not measure a global concept but rather five separate domains of collaboration. Internal consistency testing of the five subscales (conflict management, communication, shared process, coordination and professionalism) produced acceptable results ranging from 0.66 to 0.91. The findings indicated that the "Nurse-Nurse Collaboration Scale" was a psychometrically sound tool, with satisfactory characteristics including constructive validity and internal consistency reliability and recommended for future research on nurse-nurse collaboration.

Permission had been obtained from the developers (Dougherty & Larson, 2010) to use the "Nurse-Nurse Collaboration" scale questionnaire in this study (refer **Appendix D**). The researcher pilot tested the instrument prior to conducting the main study. According to Brink et al., (2008) an instruments internal validity seeks to ascertain whether it accurately measures that which it is supposed to measure, whereas Polit and Beck (2004:316) state that, reliability is the degree of consistency with which an instrument measures the attribute it is designed to measure.

A reliability of 0.80 is considered the lowest acceptable coefficient for well-developed measurement tools, whilst a reliability of 0.70 is considered acceptable for instruments newly developed (Burns & Groove, 2005). Results of the studies conducted, indicated the tool was measuring the sub domains of collaboration and were statistically good.

Although previously tested outside South Africa, experts were consulted to examine this valid instrument. Internal consistency was established through reliability, by using the split-half method, the subscales were split in half and a correlation coefficient calculated. The data was collected by the researcher who worked with a statistician to confirm the results.

3.7.3 Data Collection Procedures

Data collection commenced after obtaining permission from the Department of Health for the Gauteng Province, the Chief Executive Officer, the Director of Nursing Services and the Unit Manager of the hospital to conduct the study.

Nurses were given an information letter regarding the nature and purpose of the study and the voluntary nature of participation. The study was anonymous, but the respondents were asked to provide information on their age, gender, qualifications in Intensive Care nursing and duration of service. Individual consent was obtained from the participants. A consent form was signed to protect the participants and ensure voluntary participation.

Participants' information, including the instrument and demographic data, were coded to ensure anonymity and confidentiality. The participants were free to with draw from participation in the study at any time without penalty.

The researcher distributed the questionnaire to the participants during the day. Participants were required to complete the questionnaire, developed from the nurse-nurse collaboration scale and allowed one week to return it completed, to ensure enough time provision.

The completed questionnaires were placed in an envelope and then into a sealed box, which had an opening sufficient enough only to allow the envelopes, at a safe place identified with assistance from the unit manager.

3.8 DATA ANALYSIS

Data analysis is the process conducted to reduce, organise and give meaning to collected data (Burns & Grove, 2007). Data was analysed using 'STATA' version 12. Descriptive and inferential statistics were used to analyse the data. According to Polit and Beck (2004:477), descriptive statistics are used to describe and integrate data, whereas inferential statistics provide a means of drawing conclusions about the population data. The following statistical tests were used in this study:

- Percentage, mean and standard deviation were used to analyse and compare the participant data with regard to gender, age, years of experience and intensive care training status.
- Mann-Whitney (Wilcoxen) rank sum test was used to analyse the ordinal data i.e. Likert-scale constructs in five subscales (conflict management, communication, shared process, coordination and professionalism) total mean scores.
- A one way T-test was used to test for significance of mean score difference, comparing the means of one or two groups of a sample (Polit & Beck, 2004:99).
- Cronbach's Alpha was also employed to determine the internal consistency of the total mean scores on five subscales (conflict, communication, shared process, coordination and professionalism).

Statistical assistance was obtained from a biomedical statistician from the Medical Research Council (MRC) in South Africa. Thematic analysis was applied to the qualitative written responses of the questionnaire and verified by the supervisor.

3.9 PILOT TEST

A pilot test was conducted prior to commencement of the main study. The data collection tool was tested on a sample of 10 participants (n=10) in the ICU, at the selected study sites, who were not invited to participate in the main study. A pilot test obtains information that can be used to improve the feasibility and validity of the instrument and is a small-scale trial run of all the aspects planned for use in the main study. Its purpose is to help the researcher fine-tune the instrument for the main study and determine whether the methodology, sampling, instruments and analysis are adequate and appropriate (De Vos et al. 2005).

The results of the pilot study proved that the questionnaire tested what was expected. The questions were clearly understood and the participants completed it to the best of their ability. No changes with regard the content of the questionnaire was made. The results obtained from the pilot test were not included in the main study.

3.10 ETHICAL CONSIDERATIONS

When conducting a study, the researcher is required to consider ethical protection of human rights of information (Burns & Grove, 2005; Polit & Beck, 2008). The rights requiring protection in a study are self-determination, autonomy, privacy, confidentiality, and anonymity. Ethical considerations applicable to this study are discussed below.

3.10.1 Voluntary Participation

Participants must feel free and willing to participate in a research study. It must also be clearly stated in the initial letter of consent that participants have the right to withdraw from the research study at any time and that participation is voluntary (Burns & Grove, 2005). This aspect of voluntary participation was clearly stated in the consent letter and discussed with participants before embarking on the study (Refer **Appendices A & B**).

3.10.2 Informed Consent

Informed consent is the process of providing an individual with sufficient understandable information regarding his or her participation in a research project (Burns & Grove, 2005). In this study informed consent was prepared, discussed and signed by the participants before embarking on the study (Refer **Appendices A & B**).

3.10.3 Permission to Conduct Research

The protocol was submitted to the Faculty of Health sciences Post Graduate Committee for approval (Refer **Appendix G**). Ethical clearance was sought from the Human Ethics Research Committee (Medical) of the University of the Witwatersrand to conduct the study. The study was approved and an ethical clearance certificate, number M 120718, was issued (Refer **Appendix F).** Written permission to conduct the study at the selected institution was obtained from the hospital and unit managers before embarking on the research study (Refer **Appendix D**).

3.10.4 Confidentiality

Confidentiality refers to the researcher's responsibility to protect all data gathered within the scope of the project from being divulged to others. Mechanisms used to protect the data that are collected in a research study include using a locked file, limiting access to the data to those individuals who are intimately involved in the research (Burns & Grove, 2005; Polit & Beck, 2008). As stated, all study participants have a right to privacy. This includes the right to withdraw from the research study at any point they wish to, the right to remain anonymous and to have the confidentiality of their data protected. The confidentiality of the participants was protected by ensuring that reference numbers were used on the questionnaire. The questionnaires were deposited in sealed boxes on completion of data collection, thus protecting participant's identities. Questionnaires will be kept for a period of 5 years after completion of the study. Thereafter they will be destroyed (i.e. shredded).

3.10.5 Anonymity

Anonymity refers to the act of keeping individuals nameless in relation to their participation in a research study. Mechanisms used to ensure respondent anonymity include keeping the master file of respondent names and matching code numbers in separate locations, under lock and key, after providing each participant with a number or code name, destroying the list of actual names and using code numbers when discussing data (Polit & Beck, 2008). In this study anonymity was maintained by allocating a reference number to each questionnaire.

3.11 VALIDITY AND RELIABILITY OF THE STUDY

According to De Vos et al. (2005) and McMillan and Schumacher (2006), validity of a study refers to the degree to which the study findings are able to give truthful conclusions, which can be determined by statistical, internal, construct and external types of validity (Burns & Grove, 2005). Therefore, validity provides the main basis upon which the decision can be made that the study findings should be acceptable and officially added to the evidence-based patient care practice.

Reliability refers to consistency or stability of data (Burns & Grove, 2005). In this study, reliability was maintained by ensuring consistency and accurate recording of data, achieved through compliance by the researcher with the data collection checklist. Making use of convenience sampling prevented researcher bias. Being a retrospective study, there was no manipulation of variables and this prevented threats to internal validity. A large sample helped to counteract the effect of participants being lost during the research due to exclusion criteria, thus ensuring internal validity.

In this study, the design ensured that all conditions were similar, as much as possible, so that the conditions of data collection did not affect the truthfulness of the results. Statistical conclusions were ensured by using the appropriate statistical tests in analysing the data with the assistance of a statistician. Additionally, the study did not deviate from the proposed design and guidelines of the instrument in order to maintain and control possible errors in data collection. Study results will be generalised only to nurses who have the same or similar characteristics.

External validity was ensured by selecting a large sample for the study, generated from the intensive care nurses working in all adult ICU's. This ensured the characteristic sample was representative of the population from which it was drawn, thus enhancing generalisation of the results (Polit & Beck, 2008). Face and content validity were ensured by asking a panel of experts to judge the relevance of the instruments content to the study setting. Data was collected by the researcher and kept safe in a locked cupboard. A pilot test was done to ensure feasibility; internal consistency reliability using the split-half was done, as well as a Cronbach's alpha test to obtain the correlation coefficient.

3.12 SUMMARY

This chapter discussed the methodology of the study, which included the research design, the study population, the research setting and the data collection procedure. Validity and reliability of the tool were also discussed, including the ethical considerations.

The next chapter will describe the results after data analysis.

CHAPTER FOUR

DATA ANALYSIS AND DISCUSSION OF RESULTS

4.1 INTRODUCTION

Data files were set within computer statistical package 'STATA' version 10, data entered once and then verified during the second direct data entry. Descriptive and comparative statistics were used to achieve the study objectives. The descriptive tests (frequency, mean and standard deviation) were used to synthesize nurse participants' demographic data and questionnaire schedule. Whereas inferential statistics were employed to synthesize and describe total questionnaire scores to compare demographic data of nurse participant's with obtained levels of measurements to test for level of significance. Statistical tests included the Cronbach's reliability coefficient, two-sample t-test, Welch's test of adjustments and Wilcoxon (Mann-Whitney) rank sum test. Testing was done at the 0.5 level of significance ($p<0.05$) and insured a power of at least 95% accuracy in findings. Findings will be discussed on scale, construct and item levels.

This chapter describes the analysis of data using descriptive and comparative statistical tests and interpretation of findings.

4.2 APPROACH TO DATA ANALYSIS

The first part of the data containing the nurses' perceptions was analysed using quantitative approach. The instrument used was the Nurse-Nurse Collaboration Scale which has thirty six (36) items with respect to five constructs, namely conflict management (items 1.1 to 1.7), communication (items 2.1 to 2.8), shared process (items 3.1 to 3.8), coordination of activities (items 4.1 to 4.5) and professionalism (items 5.1 to 5.7). The items in this scale were answered on a 4-point Likert-type scale from strongly disagree to strongly agree. The higher the score on this scale the more positive the attitude toward nurse-nurse collaboration. Data were entered on Microsoft excel spread sheet and analysed using STATA version 12.

Reliability of the measuring tool with respect to five constructs was examined by calculating the Cronbach's alpha. The internal consistency of the five constructs was expressed as alpha 0.630, 0.836, 0.893, 0.849 and 0.889 respectively. The internal consistency of the four constructs, namely: communication, shared process, coordination and professionalism, was expressed as alpha of > 0.80, which suggested that the instrument was reliable and that it had measured the attributes under investigation. A reliability of 0.80 is considered the lowest acceptable coefficient for a well-developed measurement instrument **(**Burns & Grove, 2001).

Descriptive statistics were applied where frequencies, percentages and means of the findings were reflected. Figures, tables and graphs were used to enhance interpretation. Total scores on the Nurse-Nurse Collaboration Scale were computed for the nurses' general perceptions in relation to the explanatory variables: namely years of work experience in ICU. In addition, the scores on the Nurse-Nurse Collaboration Scale were computed using a **two-sample t-test** for the five main constructs which are grouped as: conflict management, communication, shared process, coordination of activities and professionalism.

When testing for differences in total scores the **Welch's test** was computed at a 95% confidence interval. Welch's test is a statistical test in the analysis of a two-sample test with unequal variances. The results were correlated using the inferential statistical method known as **Wilcoxon test**. Wilcoxon test is a rank sum statistical test in the analysis of an exact probability value for the relationship between two dichotomous variables where sample sizes are small (Glantz, 2012). In this study Wilcoxon test was used to test the significance of the relationship between demographic data and perception e.g. years of experience and perception. All tests were done at p-value of 0.05 as level of significance.

The data content in the second part was an open-ended question, which was to acquire the nurses' perceived constraints and identify measures that could lead to effective collaboration between nurses. Participants responded to the open-ended question added to the instrument in order to answer all objectives of the study.

4.3 RESULTS AND FINDINGS

4.3.1 Questionnaire Section One: Demographic Data

This section describes the relationship of participants' demographic data, which comprised four items namely, gender, age, years of work experience in Intensive Care Units (ICU's) and years of work experience as a registered Intensive Care nurse, which were obtained by the researcher. Results of this process are summarised in a graph below for the total sample (n=112).

4.3.1.1 Gender

Of the total sample of participants (n=112), males accounted for 6.25% (n=7) whilst 93.75% (n=105) were females, which indicates that females dominate the nursing profession with males being a minority, meaning most men do not join the nursing profession in South Africa. **Figure 4.1** is a graphic summary of these results.

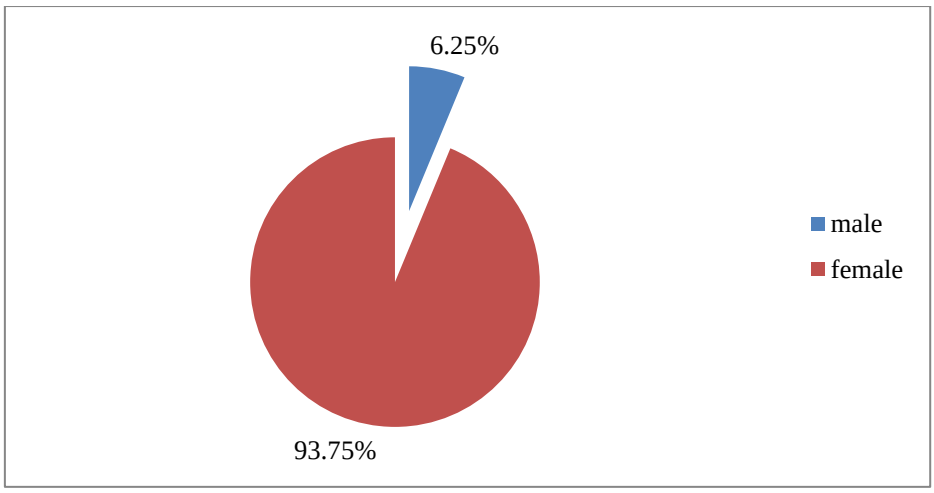

Figure 4.1 Gender distribution of nurse participants (n=112)

4.3.1.2 Age

The age groups of nurse participants ranged between 20 and 58, with the mean age being 39.88 (SD 11.41). Regarding age distribution of the participants (n=112), 32.14% (n=36) were between 41 to 50 years, 30.37% (n=34) were between 31 to 40 years, 17.86% (n=20)

were between 51 to 58 years, 16.07% (n=18) were in the 21 to 30 years age groups and finally 3.57% (n=4) were 20 years of age and below.

These findings showed that 32.14% of the sample had the largest number of nurses between 41 to 50 years (n=36), followed by 30.37 % (n=34) within the age group of 31 to 40 years. **Figure 4.2** illustrates the age distribution.

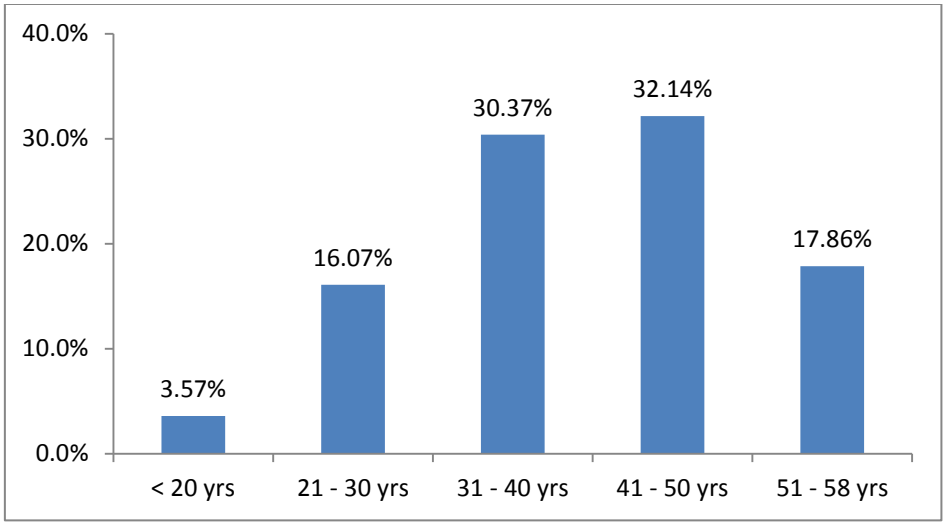

Figure 4.2 Age distribution of nurse participants (n=112)

4.3.1.3 Years of work experience in ICU

The majority (66.07%; n=74) of participants had worked in the Intensive Care Unit for six years and above, whilst 33.93% (n=38) for five years and less (**Figure 4.3**). This reflects the existence of a good number of nurses, with adequate experience, working in the Intensive Care Units compared to other studies which indicated a critical shortage and that most of the experienced nurses were leaving, due to poor working conditions, to join the private sector, to teach in Nursing Schools or acquire other positions in non-governmental organisations.

A possible reason for this study's result could be the governmental increase in nurses' salaries, which has led to the retention of most nurses and those who had gone to the private sector are returning. This is important because experienced Intensive Care nurses play a huge role as they can make fast and accurate decisions regarding critically ill

patients (Currey & Botti, 2003, 2005; McMillen, 2008). Another reason could be that this study was conducted at only one level three tertiary hospital, therefore it is difficult to determine a clear representation of experienced Intensive Care nurses. But due to an outcry on quality patient care worldwide, experienced nurses are required to manage critically ill patients and equip their subordinates because of their ample critical thinking and decision making skills, which is more crucial for critically ill patients (McMillen, 2008).

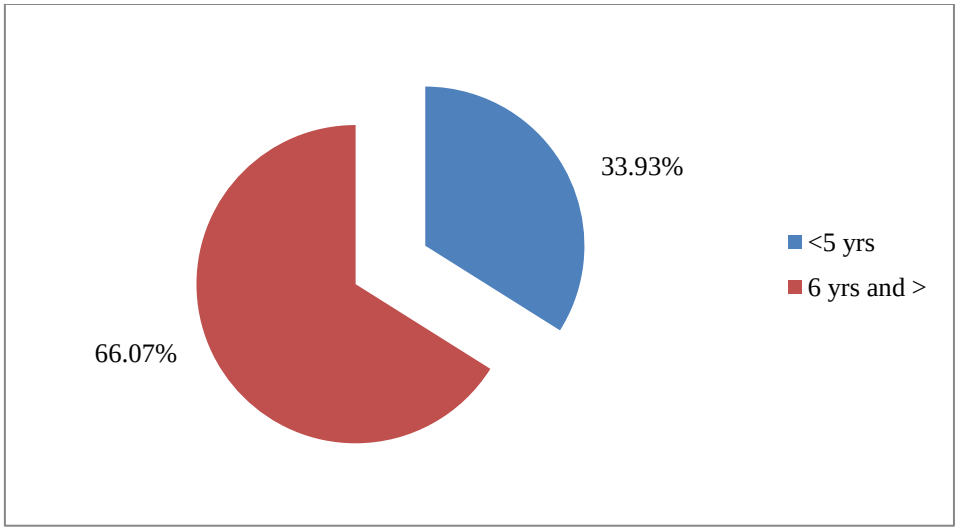

Figure 4.3 Years of work experience in ICUs

4.3.1.4 Intensive care nurse trained registration status

The results show that 38.37% (n=43) were registered Intensive Care trained nurses with five and less years' experience, followed by 29.47% (n=33) with six to 10 years. Conversely, 17.86 % (n=20) nurses had 11 to 15 years of experience, 10.73 % (n=12) had between 16 and 20 years and 3.57% (n=4) were between 21 and 33 years.

This shows that the majority (67.86%: n=76) are junior Intensive Care Trained nurses, with 10 and less years working experience, who dominate in the Intensive Care Units compared to the minority (32.14%: n=36) of senior Intensive Care trained nurses, with vast experience of 11 years and more.

This indicates that most Intensive Care Trained senior nurses, with vast experience, are leaving the hospitals in search of other jobs as stated above and with others retiring from

the profession it leaves large numbers of less experienced nurses within the Intensive Care Units. This is in line with the findings of Scribante, Schmollgruber and Nel (2004), whose study revealed the acute shortage of trained and experienced nurses, estimated at 26%, working in the critical care units of South Africa. The findings may be true, (**Figure 4.4)** because the study was conducted at level 3 tertiary hospitals, with more than one Intensive Care Unit and a teaching hospital.

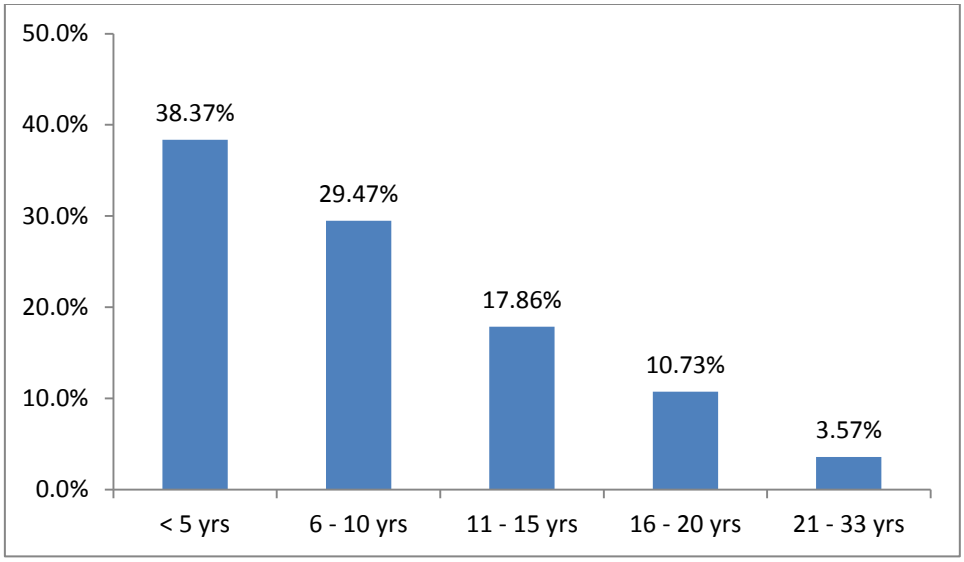

Figure 4.4 Years of work experience as ICU qualified nurse (n=112)

4.3.2 Frequency responses to Questionnaire for Total Sample (n=112)

This section comprised of thirty five (35) items to which responses were obtained by the researcher through a self-administered questionnaire. Descriptive and inferential statistics were used to analyse the data on scale, construct and item levels.

The total sample comprised 112 (n=112) participants who were Intensive Care nurses working in selected Intensive Care Units. The instrument used in this study was the Nurse-Nurse Collaboration Scale. The questionnaire measures conflict management (items 1.1 to 1.7), communication (items 2.1 to 2.8), shared process (items 3.1 to 3.9), coordination of activities (items 4.1 to 4.5) and professionalism (items 5.1 to 5.7), as the major construct variables on a four point Likert scale, with the rating option of 1, **2**, **3** or 4 reflected as strongly disagree, **disagree, agree** or strongly agree, respectively.

Data were analysed to determine nurse participants' perceptions of nurse-nurse collaboration using frequency responses after collapsing two of the categories of the Likert scale, where **1 and 2 were used as disagree**, and **3 and 4, was used to form agree** category. Collapsing of the Likert scale was done to ease discussion of the data, however, it was noted that a larger presentation of participants answered disagree or agree on the itemised analysis. The decision to collapse the categories was informed by the statistician and in consultation with the researcher's supervisor.

4.3.2.1 Frequencies obtained for nurses perceptions in relation to five sub-scales

This section presents the nurse participants responses with regard to the five subscales on the instrument, namely: conflict management (items 1.1 to 1.7), communication (items 2.1 to 2.8), shared process (items 3.1 to 3.8), coordination (items 4.1 to 4.5) and professionalism (items 5.1 to 5.7). Findings are shown in **tables 4.1 to 4.5.**

4.3.2.1.1 Conflict Management

Table 4.1 Summary of the results of nurses' perceptions regarding conflict

Item	Statement	Participants' responses				Mean	SD
		Disagree		Agree			
		n	f	n	f		
Q1.1	When nurses disagree, they will ignore the issue, pretending it will 'go away'	63	56.25%	49	43.75%	2.42	0.96
Q1.2	Nurse will withdraw from conflict	48	42.85%	61	54.20%	2.53	0.88
Q1.3	All points of view will be carefully considered in arriving at the best possible solution to the problem	33	29.66%	78	69.64%	2.89	0.91
Q1.4	All the nurses will work hard to arrive at the best possible solution	34	30.36%	78	69.64%	2.93	0.93
Q1.5	Disagreement between nurses will be ignored or avoided	53	47.42%	58	51.79%	2.48	0.96
Q1.6	The nurses will not settle dispute until all are satisfied with decision	40	35.71%	72	64.38%	2.77	0.77
Q1.7	Everyone contributes from their experiences to produce a high quality solution	22	20.54%	89	79.46%	3.13	0.77

As indicated in the results on conflict management in item 1.1 the majority of participants responses showed that 56.25% (n=63), with a mean of 2.42 (SD 0.96), disagreed they would ignore the issue, indicating most nurses would prefer to have conflict resolved than just let it go. Contrary to participants responses for item 1.2, indicated that majority (54.20%: n=61), mean 2.53 (SD 0.88), of the participants agreed. These responses show that most nurses do not want to confront someone and resolve the conflict. While in Item 1.3 the responses indicated that majority of participants (69.64%: n=78), mean 2.89 (SD 0.91), agreed to arriving at the best possible solution to the problem. Results in item 1.4 indicated that most of the nurses 69.64% (n=78), mean 2.93 (SD 0.93), agreed. Responses for item 1.5, showed the majority (51.79%: n=58), mean 2.48 (SD 0.96), agreed they would ignore or avoid the disagreements. Item 1.6 Results showed, 35.71% (n=40) of participants disagreed that nurses will not settle a dispute until all are satisfied, whilst 64.38% % (n=72), mean 2.77(SD 0.85), agreed. Finally in item 1.7 most participants (79.46%: n=72), mean 3.13 (SD 0.77), also agreed with the statement. It can be extrapolated from these findings that nurses have a moderate level of agreement in relation to conflict management. Findings are displayed in **table 4.1**.

4.3.2.1.2 Communication

Table 4.2 Summary of the results of nurses' perceptions in relation to communication

Item	Statement	Participants' responses				Mean	SD
		Disagree		Agree			
		n	f	n	f		
Q2.1	It is easy for me to talk openly with the nurses in the ICU	13	11.61%	97	86.60%	3.14	0.80
Q2.2	Communication between nurses is very open	21	18.75%	91	81.25%	2.71	1.06
Q2.3	I can think of the number of times that I received incorrect information from nurses on this unit	49	43.75%	61	54.67%	3.40	0.59
Q2.4	I find it enjoyable to talk with nurses in this ICU	6	5.36%	106	94.65%	3.24	0.84
Q2.5	It is often necessary for me to go back and check the accuracy of information	21	18.75%	91	80.85%	3.40	0.70
Q2.6	It is easier to get advice from nurses in this unit	8	7.14%	103	91.96%	3.06	0.94
Q2.7	The accuracy of information passed among nurses on this unit leaves much to be desired	26	23.21%	84	75.0%	3.04	0.90
Q2.8	I feel that certain nurses don't completely understand the information they receive	29	25.89%	83	74.10%	3.26	0.86

Table 4.2 summarises the results of nurses' perceptions in relation to communication. Nurses' responses for item 2.1 has shown that 86.60% (n=97) mean 3.14(SD 0.80), of the participants agree. Results for item 2.2, have shown that most of the participants, 81.25% (n=91) mean 2.71(SD 1.06), agreed communication is very open. In contrast, responses for item 2.3, showed that 43.75% of participants (n=61), mean 3.40(SD 0.59), disagreed with this statement. In item 2.4; results have shown that 94.65% (n=106), mean 3.24(SD 0.84), of participants do enjoy talking with nurses in the ICU. Item 2.5; results have shown that 80.95% (n=91), mean 3.40 (SD 0.70), of participants strongly agree with this statement.

Results for item 2.6, had the majority (91.96%: n=103), mean 3.06 (SD 0.94), of participants agreeing. Item 2.7; not only did 75.00% (n=84) of the participants agree, mean 3.04 (SD 0.90). In contrast, item 2.8, had the 25.89% (n=29) disagreeing, whilst 74.10%

(n=83), mean 3.26 (SD 0.86), of respondents agreed with the statement. It can be extrapolated from these findings that nurses have a high level of agreement in relation to communication.

4.3.2.1.3 Shared process

Table 4.3 Summary of results of nurses' perceptions in relation to shared process

Item	Statement	Participants' responses				Mean	SD
		Disagree		Agree			
		n	f	n	f		
Q3.1	I am able to make a lot of decisions on my own	24	24.11%	88	78.57%	3.13	0.92
Q3.2	I am allowed to make decisions that affect me at work	29	25.89%	82	73.21%	3.31	0.74
Q3.3	I am involved in making decisions about what happens in my work	18	16.07%	94	83.93%	3.41	0.65
Q3.4	I have a lot to say about what happens for patient care	8	7.14%	104	92.86%	3.32	0.80
Q3.5	Nurses agree on goals for patients pain management on my unit	9	8.03%	101	90.18%	3.40	0.80
Q3.6	Nurses agree with safety goals for unit	4	3.57%	105	99.75%	3.35	0.77
Q3.7	Nurses have authority to stop procedures which violate patient safety standards for identification	12	10.71%	100	89.28%	3.44	0.71
Q3.8	Nurses have the authority to stop a procedure which violates infection control standards for central line infections	10	10.72%	102	99.10%	3.52	0.57

In a similar manner, item 3.1, had 78.57% (n=88), mean 3.13 (SD 0.92), of the respondents strongly agreeing that they were able to make some decisions on their own. Item 3.2, had 73.21% (n=82), mean 3.31(SD 0.74), of respondents agreeing. Similarly, item 3.3 had 83.93% (n=94), mean 3.41(SD 0.65), who agreed they were involved. Item 3.4, scored 92.86% (n=104), mean 3.32 (SD 0.80), of participants who agreed. Item 3.5, had 90.18% (n=101), mean 3.40 (SD 0.80), of respondents agreeing. Equally in item 3.6, had majority

(99.75%: n=105), mean 3.35 (SD 0.77), of participants in strong agreement. Likewise item 3.7, had 89.28% (n=100), mean 3.44 (SD 0.71), of respondents agreeing. Finally item 3.8, scored 99.10% (n=102), mean 3.52 (SD 0.57), with majority of the respondents in agreement with the statement. It can be extrapolated from these findings that nurses have a high level of agreement in relation to shared process. Findings are shown in **table 4.3.**

4.3.2.1.4 Coordination of activities

Table 4.4 Summary of results of nurses' perceptions relating to coordination of activities

Item	Statement	Participants' responses				Mean	SD
		Disagree		Agree			
		n	f	n	f		
Q4.1	Nurses speak directly to each other regarding patient care issues	4	3.57%	108	96.43%	3.06	1.02
Q4.2	Nurses have ad hoc patient care meetings to discuss patient care issues	25	22.32%	84	75.0%	3.53	0.61
Q4.3	There are written evidence based treatment protocols	1	0.89%	110	98.21%	3.35	0.96
Q4.4	There are daily staff rounds	14	12.50%	96	85.72%	3.58	0.58
Q4.5	There are written policies and procedures regarding the coordination of care	2	1.79%	109	97.32%	3.10	0.88

On the subscale of coordination, item 4.1, scored 96.43% (n=108), mean 3.06 (SD 1.02), with majority of the participants agreeing that nurses do speak directly to each other with regard to patient care issues. Similarly item 4.2, scored 75.00%% (n=84), mean 3.53 (SD 0.61), with most of the respondents agreeing with this statement. Likewise in item 4.3, scored 98.21% (n=110), mean 3.35 (SD 0.96), indicating the majority of participants agreed. In item 4.4, scored 85.72% (n=96), mean 3.58 (SD 0.58), with the majority of respondents in strong agreement. Finally, item 4.5 scored 97.32% (n=109), mean 3.10 (SD 0.88), with the majority of participants again in strong agreement. It can be extrapolated from these findings that nurses have a high level of agreement related to coordination of activities. Findings are shown in **table 4.4**.

4.3.2.1.5 Professionalism

Table 4.5 Summary of results of nurses' perceptions relating to professionalism

Item	Statement	Participants' responses				Mean	SD
		Disagree		Agree			
		n	f	n	f		
Q5.1	There is a respectful and cordial relationship among nurses	22	19.65%	88	84.57%	3.17	0.77
Q5.2	There is a willingness of nurses to collaborate with each other	13	11.61%	97	86.61%	3.29	0.76
Q5.3	Nurses have adequate knowledge of the drugs ordered for the patient on this unit	7	6.25%	103	91.96%	3.38	0.77
Q5.4	Nurses have adequate knowledge of the disease process for patients on this unit	8	7.14%	102	91.07%	3.53	0.63
Q5.5	Nurses have technical skill necessary to provide safe care to patients on this unit	2	1.79%	109	97.32%	3.63	0.60
Q5.6	On this unit, nurses with more experience help to mentor and teach less experienced nurses	1	0.89%	110	98.21%	3.41	0.85
Q5.7	On this unit nursing leadership supports collaboration	7	6.25%	102	91.07%	3.63	0.60

Regarding the results on professionalism, item 5.1, scored 84.57% (n=88), mean 3.17 (SD 0.77), with most of the respondents agreeing with the respectful and cordial relationship. Similarly item 5.2, scored 86.61% (n=97), mean 3.29 (SD 0.76), with the majority of respondents agreeing. Equally item 5.3, scored 91.96% (n=103), mean 3.38 (SD 0.77), with most of the participants in agreement. Item 5.4, scored 91.07% (n=102) mean 3.53(SD 0.63) with the majority strongly agreeing. Item 5.5, scored 97.32% (n=109), mean 3.63 (SD 0.60), with the majority of participants who agreed. In a similar manner item 5.6, scored 98.21% (n=110), mean 3.41 (SD 0.85), as the majority of respondents were in strong agreement. Finally, item 5.7, scored 91.25% (n=102), mean 3.63 (SD 0.60), as the participants agreed. It can be extrapolated from these findings that nurses have a high level of agreement in relation to professionalism. Findings are shown in **table 4.5**.

4.3.3 Nurses' perceptions related to years of experience

Construct scores and total item scores were of interest for further analysis to compare results with the categorical variables. Cronbach's alpha summative rating scale was used and the sum of the construct score and individual item scores were used. Results of the process are summarised in **table 4.6**.

Table 4.6 Summary Cronbach's reliability coefficient for construct scores and individual items

Construct	Items included	Reliability Coefficient
Conflict management	Q1.1; Q1.2; Q1.3; Q1.4; Q1.5; Q1.6; Q1.7	0.630
Communication	Q2.1; Q2.2; Q2.3; Q2.4; Q2.5; Q2.6; Q2.8	0.836
Coordination of activities	Q3.1; Q3.2; Q3.3; Q3.4; Q3.5; Q3.6; Q3.7; Q3.8	0.893
Shared process	Q4.1; Q4.2; Q4.3; Q4.4; Q4.5	0.849
Professionalism	Q5.1; Q5.2; Q5.3; Q5.4; Q5.5; Q5.6; Q5.7; Q5.8	0.889

Findings were based solely on the reliability coefficient, no items were omitted to maximise reliability of the coefficient alphas. Findings yielded Cronbach's alphas of 0.63 to 0.89 for construct and total item scores. Four of these findings meet the standard 0.80 to 0.85 for reliability (Polit & Beck, 2008). They suggest a positive relationship exists between the variables of the total item scores. Results of this process are summarised in **table 4.6**.

Measurement of central tendency and variation (mean and standard deviation were used to summarise the data. Findings for selected participant demographic categorical variables namely, years of experience in ICU are discussed in the next section. Summary of mean scores for comparison are provided in table **4.7.**

Table 4.7 Summary of nurses' perception in relation to five constructs of collaboration by years of experience for the total sample (n=112)

Construct	Variable	n	Mean	SD
Conflict	Experience			
	6 yrs >	73	1.790	0.518
	< 5yrs	38	1.687	0.424
Communication	Experience			
	6 yrs >	73	2.278	0.587
	< 5yrs	38	2.020	0.392
Shared process	Experience			
	6 yrs >	73	2.438	0.579
	< 5yrs	38	2.174	0.447
Coordination	Experience			
	6 yrs >	73	**2.489**	0.553
	< 5yrs	38	2.355	0.515
Professionalism	Experience			
	6 yrs >	73	**2.464**	0.534
	< 5yrs	38	2.311	0.348

Table 4.7 provides a summary of nurses' perceptions in relation to five subscales and specific categorical variables for the total sample (n=112). The study findings showed that coordination of activities as a construct had significant higher mean scores as follows: under experience, nurses with more than 6 years of work experience mean score was 24.89 (SD 0.55), whereas nurses with less than 5 years of work experience mean score was 23.55 (SD 0.52); under professionalism nurses with more than 6 years of work experience mean score was 2.46 (SD 0.55), nurses with work experience less than 5 years had a mean score of 23.11 (SD 0.35); and under shared process, ICU registered nurses with more than 6 years of experience had a mean score of 2.44 (SD 0.58), whereas nurses with less than 5 years of experience had a mean score of 2.17 (SD 0.45); under communication, nurses with more than 6 years of experience mean score was 2.28 (SD 0.59), nurses with work experience less than 5 years had a mean score of 2.02 (SD 0.39); under conflict management nurses with more than 6 years of experience mean score was 1.79 (SD 0.51), whereas nurses with less than 5 years of experience mean score was 1.69 (SD 0.42).

Based on the differences in the mean scores in the subgroups for years of experience in ICU, the total construct and item scores were tested to determine whether they are significant or not. Collapsing of the categories of the Likert scale was done to facilitate

presentation of the data, where 1=disagree and 2=agree. The paired t-test with unequal variances was employed to proportionate the data by categorical variables. The Welch test was used to make an adjustment in the variances. An overview of the process is provided in **table 4.8.**

Table 4.8 Summary of results for significant findings from the t-test by years of experience for total sample (n=112)

Construct	Variable	n	Mean	SD	CI	p-value: paired t-test
Conflict	Experience					
	6 yrs >	73	1.790	0.518	1.66 – 1.91	0.268
	< 5yrs	38	1.687	0.424	1.54 – 1.82	
Communication	Experience					
	6 yrs >	73	2.278	0.587	2.14 – 2.41	0.006*
	< 5yrs	38	2.020	0.392	1.89 – 2.14	
Shared process	Experience					
	6 yrs >	73	2.438	0.579	2.30 – 2.02	0.009*
	< 5yrs	38	2.174	0.447	2.02 – 2.32	
Coordination	Experience					
	6 yrs >	73	**2.489**	0.553	2.35 – 2.61	0.209
	< 5yrs	38	2.355	0.515	2.18 – 2.52	
Professionalism	Experience					
	6 yrs >	73	**2.464**	0.534	2.33 – 2.58	0.071
	< 5 yrs	38	2.311	0.348	2.19 – 2.42	

Key: *= statistically significant

Based on the differences that the paired t-test found the Wilcoxon test (Mann Whitney) was employed to rank sum the data by categorical variables. An overview of the process is provided in **tables 4.8**, and followed by a summary of significant findings of Wilcoxen test (Mann-Whitney) for categorical variables in **table 4.9**.

Table 4.9 Summary of results for significant findings of Wilcoxon test by years of experience for the total sample (n=112)

Construct	Variable	n	Rank sum	Expected	p-value: Wilcoxon test
Conflict management	Experience				
	>6yrs	73	4299	4088	0.187
	<5yrs	38	1917	2128	
Communication	Experience				
	>6yrs	73	4446	4088	0.025*
	<5yrs	38	1770	2128	
Shared process	Experience				
	>6yrs	73	4505	4088	0.008*
	<5yrs	38	1710	2128	
Coordination	Experience				
	>6yrs	73	4331	4088	0.119
	<5yrs	38	1884	2128	
Professionalism	Experience				
	>6yrs	73	4318	4088	0.145
	<5yrs	38	1898	2128	

Key: *=statistically significant ($p<0.05$)

Findings indicated based on differences in construct scores of the five subscales of nurse-nurse collaboration only *two subscales* (communication and shared process) were *found* to be *statistically significantly* ($p<0.05$) different. No significant difference was observed in the remaining three subscales, namely conflict management ($p=0.187$); coordination ($p=0.119$); professionalism ($0=0.145$). Results of the process are summarized in **table 4.9**.

4.3.4 Factors That May Be Leading to Ineffective Nurse-Nurse Collaboration

In one open ended question 52% (n=58) of the respondents gave written responses regarding the barriers that affect nurse-nurse collaboration in Intensive Care Units and these were analysed using qualitative content analysis (Elo, Kaariainen, Kanste, Polkki et al., 2014). The categorised responses reflected some of the themes, amongst which one was *"superior-subordinate"* working relationships. This theme also encompasses two sub themes, *senior nurses' superior attitude* and *junior nurses' inferiority complex*. Lack of role clarification, poor teamwork and lack of leadership skills were contributing sub-

themes. The summary of factors in the form of categories and sub-categories that may contribute to ineffective collaboration are presented in table 4.10.

Table 4.10: Summary of factors that may contribute to ineffective collaboration

CATEGORIES	**SUB-CATEGORIES**
Nurses superior attitude	• Senior nurses superior attitudes • Junior nurses inferiority complex
Generational diversity	• Culture • Educational qualification
Work load	• **S**hortage of staff • High morbidity rate
Lack of professionalism	• Rude nurses • Nurses lack respect
Overlapping responsibilities	• Junior and senior nurses perform same roles resulting to role confusion
Leadership skills	• Lack of leadership skills resulting into poor collaboration
Poor conflict resolution	• Lack of proper conflict resolution skill

4.3.4.1 Nurses' superior attitude

Twenty-seven percent (n=30) of nurses reported that most senior ICU trained nurses have a superior attitude towards junior nurses in their working relationships in Intensive Care Units; this is mainly due to difference in education, age, experience, culture and hierarchy. It was reported, that the failure for team members to work as colleagues was because of the superior-subordinate communication working relationship. Campbell, Fowlers and Weber, (2004) stated that practice environments, in which there is consultation between managers and subordinates about their duties and the decisions made together with positive

explanation of their duties, promotes job satisfaction. Similarly, Verplanken, (2004) noted that work settings, which have a climate of ethical and a caring environment with values of the organisation in line with relation with the relationships of staff members, promote job satisfaction.

Thirty six percent (n=40) of participants felt ICU senior trained nurses perceived themselves as being more knowledgeable than their junior counterparts,

'Most of the senior ICU trained nurses are bossy and have an attitude of feeling that they know more because of their training and experience as a result they look at other nurses as inferior. This is what provokes conflict among ourselves', said one participant.

Conflict amongst nurses occurs because of the existence of professional, educational and power differences, thereby disrupting collaboration practices and team building amongst nurses (Martin-Rodriguez et al., 2005).

Dougherty and Larson (2010) observed that aggressive, intimidating behaviour and tension between senior and junior nurses exists, leading to ineffective nurse-nurse collaboration. Conflict amongst health care professionals leads to stress, loss of morale, hostility and tension, hence poor nurse-nurse collaboration.

Twenty percent (n=23) of the participants stated that male and female nurses work happily together without any problems. According to Martin-Rodriguez et al. (2005), equality is hindered between professionals due to power differences based on gender, stereotypes and different social levels amongst professionals in a team, contributing to barriers in collaboration amongst professionals.

Some nurses felt that culture, differences in education levels and social status have contributed to the superior attitudes between nurses, which do not allow individuals to recognise others as colleagues, but as subordinates. These findings correlate with those reported by Martin-Rodriguez et al. (2005), who stated that issues outside organisations, such as social and cultural systems, are a source of power differences that may occur between professionals in a team and these factors have negative consequences on collaborative practices.

'Junior nurses reported that they are not asked to contribute to decisions made for the patients and the plan of care for their patients. Nurses felt no one was interested to listen to their opinions' commented one of the nurses.

The superiority complex of senior nurses means they look down on the abilities of junior nurses resulting in a lack of respect and trust, hence conflict.

As nurses, the goals are the same, they are supposed to share responsibilities, plan care and make decisions as a team, promoting respect and trust amongst themselves. Rose (2011) noted that interpersonal collaboration promotes and optimises active participation of all health care professionals in decision-making and respect for the contributions made by these professionals is acknowledged. Consequently, hierarchies are not essential in team functioning.

Rothschild, Landrigan, Cronin et al. (2005) and Despins (2009) stated that poor collaboration lead to an estimated 148,000 life threatening errors in the United States of America in critical care settings of teaching hospitals yearly, which has an impact on the outcomes of the ICU patients.

Results have also shown that 43% (n=48) of the respondents stated that superior-subordinate work- relationships between nurses contributes to poor communication skills. As a result, this has led to poor interpersonal relationships amongst the multidisciplinary team members, more specifically nurses in ICU's. Poor communication skills between nurses at times can result in hostility, tension, aggressiveness and frustration in the unit, as narrated by some participants. Rothschild et al. (2005): Stein-Parbury and Liaschenko (2007), observed increased anger, withdrawal and frustration amongst ICU multidisciplinary teams, especially between nurses and physicians when they fail to work as a team.

However, Schmalenberg and Kramer (2009) reported that specialised units, particularly critical care units demonstrated better unit nurse/physician relationships than non-specialised units, evidenced by an improved quality of interdisciplinary relationships.

Some of the participants stated that a lack of proper conflict resolution by nurses also lead to poor interpersonal relationships. Most nurses lack the skill of how to resolve conflict constructively; they need to listen, discuss, negotiate and come to a compromise. Failure to resolve conflicts amicably means good interpersonal relationships amongst colleagues will not be maintained.

Beatie (1995) also reported that conflict hinders teamwork, whilst Hendel, Fish & Berger (2007) noted that conflict management styles used by physicians were not constructive. Whenever there was conflict, physicians chose the lose-lose resolving approach in which there is no compromise or negotiation, instead of the win-win approach where there is both.

The superior attitude displayed by some senior nurses is a barrier to effective collaboration, because as junior nurses feel inferior collaborative practices will not be effective. Most of the nurse participants feel this can jeopardise the quality of care for patients because many nurses become frustrated and lack job satisfaction.

4.3.4.2 Nurses inferiority complex as subordinates

Eighteen percent (n=20) of participants stated that senior nurses feel more important than others and consider they are more knowledgeable than junior nurses: most of the junior nurses feel inferior and hopeless. As a result, most of the nurses become despondent and so do not ask questions pertaining to patient care. One participant explained.

'*When collaboration is poor between senior and junior nurses most of the junior nurses feel inferior as a result they do not gather courage to consult or question the seniors if need arises.'*

As a result, most of the nurses stated they do not participate in discussions about patient care and do not join nursing rounds consequently there is no contribution of ideas, suggestions or opinions pertaining to patient care, as another participant pointed out. This is not a good situation, because it compromises quality patient care.

Junior nurses complained that some senior nurses demoralise others in the nursing profession because they do not encourage active participation by all nurses, mostly during ward rounds, or care about the contributions of other nurses. These findings concur with Chaboyer and Patterson (2001) who stated collaborative relationships can only develop if team members value and respect each other's contributions and competencies.

Eleven percent (n=12) of the participants stated they sometimes withdraw and avoid being engaged in decision-making and feel demoralised, as their contributions are not acknowledged whenever they do something good. As a result, nurses feel it is better to keep quiet and not get involved to avoid victimisation.

Even when ICU trained, other seniors look down upon you and so you do not feel respected for having additional qualifications. "*It is better not to share your knowledge because it will not benefit those with more experience as they know it all,*" complained another participant.

These results concur with Coombs and Ersser (2004) who found that physicians dominated decision-making whilst the nursing profession was undervalued and not appreciated; this relationship between team decision making and effective inter-professional working in the ICU's has never worked.

However, one of the professional qualities of nurses requires them to participate in decision-making as advocates for patients. Similarly, the synergy model indicates that one of the nurses' qualities required to meet the needs of patients' is to be an advocate. This role involves nurses working on behalf of the patients and represent their concerns and help to resolve ethical issues within and outside the clinical setting (Alspach,2006).

Twelve and a half percent (n=14) of the participants felt that junior nurses experience an inferiority complex because they lack interest in learning things and being assertive, hence their seniors look down on them as if they do not possess adequate knowledge and skills, which leads to frustration. A further 4.46% (n=5) of participants narrated that lack of adequate knowledge and skills, assertiveness and interest contributed to poor standards of care. As a result, senior nurses took advantage of devaluing the junior nurses because they

proved to be neither responsible nor accountable and lacked autonomy, as one participant pointed out.

Kramer and Schmalenberg, (2003: Schmalenberg and Kramer, 2009) noted that autonomous practice for nurses is necessary to practice safely and enhance quality care whilst promoting their job satisfaction. As professionals, nurses should have freedom to act to their full potential, to make independent decisions within the nursing context of practice and interdependent decisions in areas that overlap with other disciplines for the benefit of the patients.

The competency framework in the Nursing Act 33 of 2005, stipulates that 'nurses are expected to demonstrate sound judgment, critical thinking and caring attitude as they provide health services to patients and clients.

As 1.7% (n=2) of the respondents felt that if senior and junior nurses worked cooperatively together, this would enhance team functioning, therefore promoting job satisfaction, nurses are urged to work as a team since their values are the same.

4.3.4.3 Diversity

Some participants (17.86% n=20) reported that diversity contributed hugely to poor collaboration. Participants stated that age differences, educational status, race, ethnicity and the values of newly qualified graduates do not match those of more experienced nurses. Studies conducted between 1990 and 2009, revealed that age diversity leads to negative attitudes towards others in the work place and as a result, there are poor collegial relationships hence job dissatisfaction (Wolff et al., 2010).

However, Wolff et al. (2010) stated that diversity is a global concern and for organisations to succeed depends on the well-being and understanding of employees of the effects of diversity. Diversity influences effective communication, better patient care outcomes and optimal team functioning. It is imperative for nurse managers to reinforce a better understanding of the effects of diversity, as it is crucial for improving the work environment, retaining nurses and enriching the quality of work life whilst enhancing positive work relationships (Wolff et al., 2010).

4.3.4.4 Lack of professionalism

Approximately 16.07% (n=18) of participants stated that most nurses do not conduct themselves professionally. A few participants reported that some nurses do not respect their seniors, whilst others do not respect patients or their families and even shout at patients.

Mullarkey et al., (2011) also noted there were mixed feelings on trust amongst staff and nursing management in critical care areas. Some reported trusting relationships, others mistrust with the latter leading to poor communication. The nature of respect and trust in ICU'S portrays the state of nurse-nurse collaboration.

Professionalism is a significant attribute of collaboration. Lindeke and Block (1998) stated that a profession is a specific occupation having special characteristics, as a result nurses are supposed to perform in a special manner in line with their professional conduct. Professionalism promotes job satisfaction and better patient outcomes, therefore nurses need to have positive professional conduct towards their colleagues as well as patients.

4.3.4.5 Overlapping of responsibilities

Forty percent (n=45) of the participants believed effective collaboration was affected because of roles and responsibilities overlapping between senior and junior nurses. One participant commented that this led to role confusion, as there was no clear demarcation of responsibilities with regard to scope of practice.

Newly qualified nurses are more likely to experience role ambiguity and job dissatisfaction because of the failure in providing information regarding clarity of their roles and responsibilities (Chang & Hancock, 2003). Most studies have shown that staff turnover is a problem influenced by role ambiguity and role conflict in health care settings, therefore role clarity and feedback on job performance are important (O'Brien, et al. 2010). Sharing the scope of practice, job descriptions, protocols and procedures, enable staff members to familiarise themselves with specific conditions in their jobs (Kleinman, 2004).

Being committed to an organisation and having job satisfaction requires strategies that can address role conflict and role ambiguity, thereby encouraging nurses to remain in their profession and preserve valuable human resources in the health care system (O'Brien et al., 2010). Adequate staffing and manager's support are essential in promoting high patient quality care, job satisfaction, minimising job stress and preventing staff turnover in health care settings.

Fewster-Thuente and Velsor-Friedrich (2008) noted that lack of role clarification was one of the barriers to effective collaboration in the ICU's. Health care providers encounter problems when it comes to role distinction as to who is responsible for patient care, thus jeopardising delivery of care and resulting in poor patient outcomes.

4.3.4.6 Workload

Twenty nine percent (n=33) of participants felt that heavy workload was another contributing factor in the failure of effective nurse-nurse collaboration in the ICU's. Overworking in ICU's was a result of the shortage of nurses: most nurses are left tired and stressed, frustrated, demotivated and experience burnout, leading to poor standards of care and patient outcomes. As a result, nurses are seen to be ineffective and are unappreciated.
One participant commented that Intensive Care nurses undergo many stressful situations in the work setting because of overworking and so it is difficult sometimes to collaborate effectively with one another.

Berland, Natvig and Gunderson (2008) in their study, found demanding work environments, with lack of social support from colleagues, resulting in increased stress, which can compromise patient safety. Similarly, Li and Lambert (2008) also noted that work overload was one of the most common work place stressors.

Although participants in this study perceived various barriers to effective nurse-nurse collaboration, the majority maintained that effective nurse-nurse collaboration in the ICU's can be successfully established and maintained if team members are given practical recommendations to follow.

4.3.4.7 Leadership skills

In written responses, 27% (n=30) of participants stated that lack of proper leadership skills hinders their ability to collaborate effectively in the unit, because the working conditions do not promote job satisfaction. One challenge faced by the nursing profession is to ensure that the main principles of caring, compassion and person-centred care are the main focus surrounding the issues of nursing practice (McSherry, Pearce, Grimwood et al., 2012). Recently there has been concern by the public, nurse leaders and managers in Canada, Australia and the U.K, just to mention a few countries that nurses are failing to provide quality compassionate care (The Patients' Association, 2009).

According to the American Association of Critical Care Nursing (2001**:** Spears, Thornton & Long 2008: Mc Sherry and War, 2010), excellence in nursing care needs to be the number one priority for all nurses, nurse managers, leaders, educators and health care professionals. Providing excellent nursing care, by establishing sustainable working environments and cultures that enhance a safe compassionate quality nursing care, has to be maintained (Spears, et al., 2008; McSherry & Douglas, 2011). The authors further stated that, excellence in nursing care requires managers to encourage and facilitate members of the team to function efficiently and effectively with all parties to provide coordinated services. Excellence in nursing involves meeting the challenges faced by professionals, society, politicians and demands of economy in a proactive manner as suggested by the Department of Health in 2011 (McSherry and War, 2008: McSherry et al., 2012).

Nurse leaders, managers and educators should not lose focus or the vision to create sustainable quality of work and educational environments, which provide evidenced safe, compassionate, quality nursing care. Effective delivery of patient care and the critical shortage of nurses cannot be reversed without provision of healthy work environments, which encourages excellence in nursing practice (McSherry & Douglas, 2011).

Evidence has shown that, unhealthy work environments contribute to medical errors, ineffective delivery of care, conflict and stress amongst health care professionals. As a result, factors that have a negative impact and demoralise members in the unit, including unsafe working conditions, cannot continue. The creation of a healthy work environment is essential to ensure patient safety, to enhance recruitment and retention of staff members

whilst maintaining the viability of the organisation (McSherry & Douglas, 2011: McSherry et al., 2012).

4.3.4.8 Poor conflict resolution

A lack of proper conflict management by nurse managers in the units was reported by 26.78% (n=30) of the participants. This was concluded by the responses in item 1.2, in which nurses will withdraw from conflict and item 1.5, in which disagreements between nurses will be ignored or avoided. Conflict amongst health care professionals is unhealthy because it leads to stress, loss of morale, hostility and tension thus affecting nurse-nurse collaboration. Nurse Manager's should employ better strategies for resolving conflict so that all individuals in the work setting are satisfied.

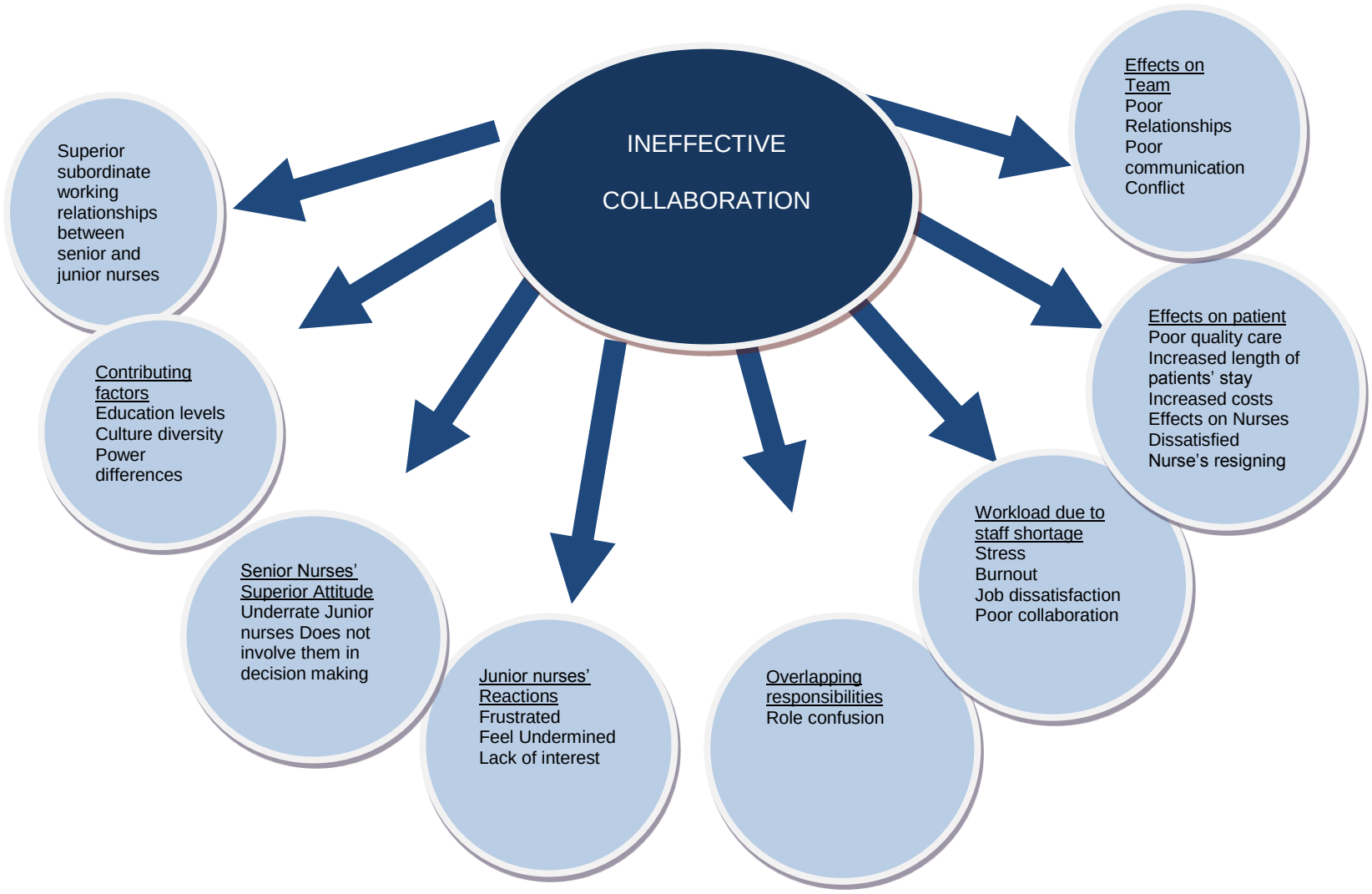

Figure 4.5 A summary of factors that may be leading to ineffective nurse-nurse collaboration

4.3.5 Nurses' Recommendations

4.3.5.1 Leadership skills

Fifteen percent of nurses, in their written responses, felt they lacked effective leadership skills in the unit, hence the reason for poor relationships among nurses. Nurse leaders and managers play a significant role in enabling junior nurses to be innovative and deliver high quality, compassionate and patient-centred nursing care (McSherry, et al., 2012).

Excellence in nursing is achievable by supporting and facilitating individuals to participate fully and build relationships by working closely with each other and adopting a shared working relationship for better patient outcomes **(**Spears, et al., 2008). As a result, nurse managers are urged to create a healthy work environment to ensure safety of patients, enhance recruitment of staff members and retention, as well as maintain the viability of the organisation.

Forty one percent of the participants (n=47) suggested enhancing teamwork as the main recommendation as this would enable better working relationships between nurses then they would regard each other as colleagues rather than the perceived superior –subordinate situation; only then can effective nurse-nurse collaboration be enhanced in the ICU's. Participants further suggested that working together as a team is achievable through the following measures - good leadership skills, use of open communication skills, staff motivation, through good interpersonal relationships, stipulating clear role clarification and focusing on patient-centred care, thus enhancing effective nurse-nurse collaboration.

4.3.5.2 Communication skills

Forty five percent (n=50) of the participants who gave written responses, recommended open and clear communication amongst nurses. Clarity both verbally and in written communication was suggested by most of the participants for effective delivery of care.

Nurses stated that when talking to one another about patient care we need to speak loudly and clearly and not mumble to colleagues within the team more especially during ward rounds,' as one nurse participant pointed out.

Nurses also requested there should be a proper hand over to facilitate continuity of care for example, where a doctor has reviewed a patient and the nurse responsible was not there to accompany him, the shift leader should be able to handover to the responsible nurse so that care can be given effectively.

Faith and Chadwick (2009) made a similar recommendation and suggested that healthcare professional team members need to be encouraged to maintain timely, open and consistent communication with emphasis placed on building trust and maintaining equality and respect for the contribution of all members.

As stated by Manojlovich et al., (2009), when nurses acquire more information, support, resources and opportunities they become more effective in their roles; a situation that helps improve outcomes.

Twenty six percent (n=29) of nurses recommended that nurses should write clearly to avoid medical errors. One nurse stated, '*At times it becomes difficult to read one's handwriting hence you can easily make mistakes.*'

McKeon, Oswaks and Cunningham, (2006) made a similar recommendation and suggested that team members need to possess both clinical expertise and important non-technical team skills, such as communication as well as coordination.

4.3.5.3 Interpersonal relationship

Most participants suggested correct interaction skills and interpersonal relationships amongst team members as one of the recommendations to facilitate nurse-nurse collaboration in the ICU's.

Sixteen percent (n=18) of the participants stated that good interpersonal relationships encompasses mutual respect amongst team members irrespective of gender, social status, race or cultural diversity. One participant reiterated '*Both senior and junior nurses should forget their social, gender, and cultural differences when working as a team in the ICU while, respecting each other.'*

The participants (10.7%: n=12) felt that interpersonal relationships can also be achieved by engaging in constructive conflict resolution skills and problem solving skills in the units. The participants recommended that once conflict arises, it should be dealt with through professional negotiation and compromising so there is no enmity.

'Similarly, any problems concerning patient care delivery should be solved through meetings, involving both senior nurses and junior nurses in order to come up with solutions together,' one participant commented.

Schmalenberg and Kramer (2009) noted that improved relationships amongst health care professionals would also improve the quality of patient care by participating in interdisciplinary collaborative patient rounds, resolving conflicts constructively, performing competently and demonstrating self-confidence.

4.3.5.4 Role clarification

Thirty six percent (n=40) of the participants, who had given written responses, felt that for successful teamwork, role distinction was one of the most important aspects that enhances effective relationships. Unlike physicians, who do not have a proper understanding of the nurses' roles and scope of practice, nurses should be in a better position to know and understand their scope of practice in order to value their role.

'*Role confusion enhances poor delivery of patient care hence medical errors,*' as one participant commented.

The nurses' role should be clearly understood so that each one is in a position to deliver effectively according to the stipulated roles and responsibilities, only then will other team members be able to appreciate the nurses' role. In this manner, physicians will also be able to consult nurses where necessary, involve them and respect their views, opinions and suggestions during patient care discussions or ward rounds.

McKay and Crippen (2008) recommended that health care professionals should be in a position to know their specific roles, their expected shared responsibilities and the common goals for their team to function and collaborate effectively, thereby promoting quality

patient care outcomes in the ICU's. Similarly, Bailey, Jones and Way, (2008) recommended that training strategies related to role expectations are essential to enhance the development of care delivery by team members, characterised by interdependent practice.

4.3.5.5 Coordination of patient care

Thirty nine percent (n=44) of participants written responses, revealed that effective coordination of patient care activities would enhance nurse-nurse collaboration. Proper coordination of activities promotes maintenance in standards of care; there is team building and cooperation amongst members of the team and well-coordinated patient focused care activities, such as ward rounds and staff meetings. As a result, nurses are urged to be assertive and compassionate in order to achieve patient-centred care. Throughout a patients' stay, this is done by following up on the treatment regime, planning of interventions until the preparation for discharge.

Yildrim et al. (2005) stressed that patients are the heart of health care systems and so all health care professionals should be able to serve them through improved collaboration to achieve effective patient care. Similarly, McCauley and Irwin (2006) recommended specific attention on the importance of patient-centred care through a patient-focused care project after discovering that medical care was too fragmented and too focused on issues that hindered communication of patient's needs.

Involving all team members during patient care planning may assist to achieve patient–centred care in the units. As a result, 49% (n=55) of the nurses recommended all nurses should be involved when setting patient care goals and their input welcomed. This could promote maintenance of standards of care, as members of the team would follow the standard protocols together.

4.3.5.6 Staff Motivation

Fifty percent (n=56) of the nurses recommended motivation as a strategy to successful nurse-nurse collaboration in the ICU's. Nurses suggested that through good interpersonal

working relationships, professional development, recognition and providing measures to reduce stress, organised by management could enhance motivation of staff members.

- Professional development

Nurses recommended that through professional development, they are empowered with knowledge, skills and attitudes on how to effectively deliver patient care and achieve proper working relationships. Nursing leadership needs to encourage and support staff members for further studies, workshops, conferences and in-service training on current ICU issues.

Correct staff orientation to protocols/policies, philosophy and unit meetings with nurses/ physicians, educational meetings periodically held within the nursing team and having ward rounds together as a team, are some of the strategies to gain more knowledge and skills to maintain standards of care.

The nurses stated that knowledge empowerment acquired through professional development enabled them to be more responsible, assertive and accountable towards the care they provide to critically ill patients. Adequate knowledge enables them to become confident, assertive and autonomous.

Bashir (2005) made a similar recommendation that in order to meet the self-esteem needs of staff members, there has to be an increase in the level of training, development and skills. Providing a favourable work environment can motivate the staff members.

- Strategies to Reduce Stress

Forty eight percent (n=54) of participants recommended that since ICU's are busy areas, managers should ensure adequate allocation of staff and other resources, recognition, incentives and stress management workshops as ways to reduce stress.

"*Managing stress and burnout among health care professionals can enable management to reduce the rate of staff resignations hence decrease the workload,*" stated one of the participants.

Nurses are motivated easily, by recognition, providing feedback on performance, going out together for dinner, praising a job well done, giving them overtime allowances, attending workshops related to their work and providing special attention and concerns to any nurses who may be showing signs of work related stress.

Webster, Snowdon and Shaw (2008) found taking staff on special trips also promoted staff motivation, teamwork and quality of care provided to patients and their families. This was because nurses were empowered to and had the opportunity to plan, implement and evaluate changes in the clinical practice.

4.3.5.7 Proper conflict resolution skills

Slightly more than 40% (n=45) of the participants recommended that all nurses should be taught how to resolve conflict effectively. In-service education and workshops should be conducted periodically to enlighten nurses on the strategies of resolving conflict, only then will nurses be able to resolve conflict amicably and avoid enmity with each other. An atmosphere in which there is harmony and **togetherness** between nurses is important.

4.3.5.8 Embracing diversity.

Sixteen percent (n=18) of the participants recommended embracing diversity among health care professionals. All nurses should accommodate age, cultural, educational attainment and other diversities in order to promote better working relationships.

Embracing diversity can benefit the organisation because this leads to job satisfaction, commitment, retention and creativity. Failure to accept these differences may lead to poor staff mix in the work place; understanding diversity and its impact is crucial for nurses to function effectively (Wolff et al., 2010).

Studies have shown that specific values relate to human relationships, such as active participation, empowerment and open discussions, being sensitive to the ideas of employees, loyalty and trust. These values in a practice environment can influence positive attitudes for nurses towards their work and for development of job satisfaction. Therefore, nurse managers should promote job satisfaction for nurses by strengthening their

interpersonal relationships through daily interactions at work and facilitate their ability to deliver quality care.

4.3.5.9 Professional conduct

Some participants (19.64%: n=22) recommended that nurses display good professional conduct towards other health care professionals and patients. Nurses need to communicate effectively with each other because this is one of the defining qualities of professionalism. Nurses need to think independently and make decisions with regard to patient care, provide input to the organisation and have opportunities for learning and professional growth.

4.4 DISCUSSION OF RESULTS

The purpose of this study was to determine the extent and nature of collaboration amongst nurses in the Intensive Care setting at a public sector tertiary level hospital in Johannesburg, with an intention of making recommendations for nursing practice and education of Intensive Care nurses.

Previous studies have shown that nurses are more interested in collaboration with other health care professionals, more specifically physicians. Generally, the results concur with the above findings which is a true reflection of how nurse's value collaboration. This study's results, on nurse-nurse collaboration, indicated nurses perceive collaboration to be higher amongst themselves than previous studies which showed low collaboration between nurses and physicians. This may mean that gender may influence the differences in attitudes towards collaboration found previously.

- Gender

The perceptions of male and female nurses towards nurse-nurse collaboration in this study have been significantly more positive, results that are not consistent with previous studies between physician-nurse collaboration. This may mean that gender influences the perceptions of collaboration amongst health care professionals, as indicated in previous studies on physician-nurse collaboration.

As stated earlier, results in this study indicate that most men do not join the nursing profession in South Africa for various reasons. One reason is that men view the nursing profession as a career for females, therefore have no ambition to join the profession (Kelley, Shoemaker & Steel, 1996); secondly, there is no proper career guidance in schools and so most males do not enter the nursing profession. Studies have also found that men are less satisfied with their nursing profession because they are in the minority and most times identify themselves with physicians (Kalisch, Lee & Rochman, 2010). Furthermore, it has also been reported that, men comprise 5.8% of the total RN population in the USA (HRSA 2006).

It was difficult to assume that gender influences nurse-nurse collaboration in this study because the sample size for male participants was minimal, therefore based on these results the findings cannot be generalised, however, the nurses were mostly satisfied with collaboration in their units. Results of this process are summarised in **Figure 4.1**.

- Age

Regarding the age distribution of the participants (n=112), various age groups were categorised as shown earlier, 32.14% (n=36) were between the ages of 41 and 50 years, 30.37% (n=34) were between 31 and 40 years and 17.86% (n=20) were in the oldest range of 51 to 58 years (Figure 4.2). These age groups were within a minimum range of 20 years and below to 58 years of age as the highest, with a mean age of 39.88 years. These findings revealed that 32.14% (n=36) of the sample of participants were within the age group of 41 to 50 years, followed by 30.37% (n=34) between 31 and 40 years.

This is a positive result for Intensive Care units indicating the majority of nurses working in the units are strong, productive, have adequate experience and capable of pursuing further studies to enhance their professional development and meet the needs of the critically ill patients. Conversely, 17.86% (n=20) of the participants were the oldest, in the age group of 51 to 58 years, which may indicate that most elderly nurses cannot cope with the pressure of work in the Intensive Care units hence they are either retiring or prefer to work in lighter wards. Finally, the participants 30 years and below were in the minority probably because of the nature of the work in Intensive Care units which requires

somebody mature and sufficiently competent, with critical thinking skills, to effectively provide care for critically ill patients.

- Years of work experience

With regard to years of work experience, the majority (66.07%; n=74) of participants had worked in the Intensive Care units for six years and more, whilst 33.93% (n=38) had only worked for 5 years and below. These are favourable results for the Intensive Care units, reflecting sufficient number of nurses with adequate experience working in them as opposed to previous studies, which have shown critical shortages of experienced nurses in the ICUs. This was due to many leaving because of poor working conditions, some joining the private sector, some teaching in Nursing Schools, others acquiring positions in Non-governmental Organizations and others having left to work abroad, as shown in a study conducted by Beau (2006).

One other reason could be that this study was conducted at only one tertiary level hospital it is therefore difficult to determine a clear representation of the experienced nursing working in Intensive Care units in South Africa. Due to a global outcry on quality patient care, experienced nurses are required to manage critically ill patients and equip their subordinates as they have adequate critical thinking and decision-making skills, which is crucial for critically ill patients (McMillen, 2008**). Figure 4.3** illustrates the findings.

- Years of experience as an Intensive Care nurse

The results of this study indicate that 67.84% (n=76) of the participants were junior Intensive Care trained nurses, with 10 years and less experience who dominate in the ICUs, compared to the minority (32.09%; n=36) of senior trained ICU nurses with vast experience of 11 years and above (refer **Figure 4.4**). This may indicate the most experienced Intensive Care trained nurses are still leaving to look for better jobs with others retiring from the profession, leaving the less experienced and junior nurses in large numbers within the ICU's. This is in line with the study of Scribante, Schmollgruber & Nel (2004), who found an acute shortage, estimated at 26%, of trained and experienced nurses working in the Intensive Care units in South Africa. This finding may be true because the

study was conducted at a tertiary hospital with more than one Intensive Care Unit and a teaching hospital.

- Perceptions of nurses towards nurse-nurse collaboration

The perceptions of nurses towards nurse-nurse collaboration in the Intensive Care units were examined using a four point Likert-type scale on items from (1=strongly disagree to 4=strongly agree) the Nurse-Nurse Collaboration Scale. These perceptions were identified and examined, in general and then in relation to the nurse's work experience in the Intensive Care units based on the scale. The examination of the nurses' perceptions, were in relation to the five subscales of collaboration.

A summary of the responses for the five subscales has shown in general, nurses perception for collaboration with each other in Intensive Care units is between moderate to high. The subscales of conflict management scored moderately, as participants struggled to meet their own concerns hence the moderate scores, whilst communication, shared process, coordination and professionalism scored very highly, with the majority of nurses either agreeing or strongly agreeing to most of the items on the four subscales.

This indicates that nurses have a positive attitude towards nurse-nurse collaboration, as shown in the results. Most of the items the nurses agreed to be the main attributes of collaboration, which reflect the true nature of effective nurse-nurse collaboration; factors that display the required characteristics of a professional Intensive Care nurse for effective nurse-nurse collaboration. The positive perceptions on nurse-nurse collaboration in this study are similar to previous studies in which findings indicated that nurses have a positive attitude towards nurse-physician collaboration (Rosenstein, 2002; Yildrim et al., 2005; Sterch, 2007). However, these findings are different from Thomas, Sexton and Helmreich (2003) who rated nurses' attitudes towards nurse-physician collaboration to be lower.

The perceptions of the nurses were examined in relation to the five subscales of collaboration, namely, conflict management, communication, shared process, coordination and professionalism, using a questionnaire – the Nurse-Nurse Collaboration scale; the higher the score the more positive the attitude towards nurse-nurse collaboration.

- Conflict management

A summary of the responses for the five subscales have shown that for conflict management, item 1.1, 56.25% (n=49), mean 2.42 (SD 0.96), of participants strongly disagreed that nurses will ignore the issue pretending it will go away; but contrary to this statement, item 1.2, 54.20 % (n=61), mean 2.53 (SD 0.88), agreed nurses will withdraw from conflict. Similarly item 1.5, which states that disagreements between nurses will be ignored or avoided, also showed that majority of the participants (51.79: n=58), mean 2.48 (0.96), agree that disagreements will either be ignored or avoided. The majority of the participants agreed on items 1.3, 1.4, 1.6 and 1.7, so generally these results may indicate although some nurses would prefer to have the conflict resolved others would not confront the individual and have the conflict resolved due to various reasons. Generally, this subscale did not score very well; either participants did not understand the items very well or could be due to culture related issues (refer to **Table 4.1**).

The item test correlation for this subscale was generally low, ranging from 0.24 at its lowest for item 1.7 to a high of 0.64 for item 1.6 and frequencies were high 108-111, with an overall Cronbach's Alpha of 0.63. This indicates the subscale did not score very well, even though earlier the stipulation was the scores were moderate, meaning there was moderate collaboration (refer **Table 4.6**).

Previous studies have indicated that collaboration is complex and dynamic and poor collaboration can be due to or can result in conflict. Marquis and Huston (2006) defined conflict as the internal or external discord resulting from differences in ideas, values or feelings between two or more people. As a result, if conflict amongst individuals is avoided it shows that individuals neither care for their interests nor for those of others, but a better option is to compromise and address the issues of both parties (Leever, et al. 2010). Improving communication and collaboration between nurses as well as with physicians may also improve their morale, patients' satisfaction and quality of care (Vaziran, et al., 2005). In contrast, poor communication and inadequate conflict resolution may have negative consequences for patient care (Leever, et al., 2010).

Martin-Rodriquez (2005) noted that it is not only communication which plays an important role in identified successful determinants of collaboration, finding interaction, organisational and systemic determinants were contributing factors to effective collaboration. Similarly, other studies identified overlapping roles, nurses and physician's

expectations are equally important for positive collaboration between professionals **(** Cassanover, et al., 2007: Leever, et al. 2010). Effective professional communication and mutual respect are the cornerstones for successful collaboration (Cassanover et al., 2007**).** Pullon (2008) identified that sharing an understanding of the others role and contribution eventually lead to respect and inter-professional trust.

The results of previous studies are inconsistent with the results of this study, as indicated in the results earlier, which showed that although nurses at times experience less collaboration on certain issues regarding conflict management, generally there is moderate collaboration in Intensive Care Units with regard to this. Even though responses in items 1.1 and item 1.5 indicated that nurses try to avoid conflict, the majority agreed, in most items, they would work hard to find a possible solution to the problem. This is beneficial, because it shows nurses care for the others' interests by compromising on issues of interest to provide better patient care - since the expectations of a nurse for effective collaboration are communication, mutual respect, professionalism, climate of collaboration and quality of care. These characteristics will enable health care professionals to provide quality patient care.

Some professionals will ignore the conflict, whilst others will confront the individual. Confrontation is the best option for both parties, because when conflict is addressed a compromise can be reached. This is in line with the findings in this study in which 38.39% of the participants disagreed on item 1.1 to ignore the conflict, 43.49% agreed to withdraw from conflict on item 1.2 and another 38.39 % stated in item 1.5 that disagreements between nurses will be ignored or avoided. However, in one study, respondents felt that the expertise and experience of their team members played a greater role in making decisions as to whether to ignore or engage in conflict. The participants also stated that different motives influence individuals on whether to address or ignore the conflict for example, goals or desired results related to clarification, optimising care, improving collaboration, avoiding escalation, changing structure/ practices and creating learning opportunities for others.

It should be noted that, collaboration amongst health care professionals encompasses various dimensions and is judged against five areas of expectations as stated earlier, hence conflict arises when collaboration does not meet expectations and respondents either avoid

or engage in conflict depending on their motives. Marquis and Huston, (2006) stated that when conflict arises it means there is dissatisfaction due to differences in ideas, values, or feelings between two or more people. Conflicts arise when practice does not match the expectations**.** Casanova et al., (2007) identified communication, respect and equality as successful ways to collaborate effectively and participants may choose to ignore, but not to avoid conflict, because this is no longer an option.

- Communication

For the subscale of communication, most nurses had similar views regarding communication. As indicated in items 2.1, 2.2 and 2.4, the majority of participants either agreed, 86.60% (n=97) mean 3.14 (SD 0.80), or strongly agreed in items 2.5 and 2.6, with the highest score of 91.96% (n=103), mean 3.06 (SD 0.94), indicating communication is very good amongst nurses, as they can talk openly and obtain advice from one another. This subscale generally had very good scores compared to conflict management (refer **Table 4.2**). Similarly the item-test correlation for communication scores were between 0.64 for item 2.1 to 0.75 for item 2.2, with high frequencies of 109-111 and an overall Cronbach's Alpha of 0.84, indicating higher scores compared to conflict, meaning communication was very good in the units (refer **Table 4.6**).

Delivery of quality health care services is important for critically ill patients; to provide the most effective care for patients requires nurses and other health care professionals to collaborate with each other (McCaffrey, Hayes, Stuart, Cassel et al., (2010). Health care professionals need clear and appropriate communication because true collaboration depends on communication for delivery of effective patient care (Arford & Olson, 2005).

Previous studies have shown nurse-physician communication poses challenges (Manonojlovich & Antanakos, 2008). In one study, it was found that effective communication between health care professionals led to improvements in resolving patient and family problems (McCaffrey et al., 2010) A similar study showed that positive communication between nurses and physicians was associated with improved job satisfaction amongst nurses, improved patient outcomes and less medical errors (Dougherty and Larson, 2005: Manojlovich & Antanakos, 2008). Conversely, no effective

communication between health care professionals promotes stress, job dissatisfaction, medical errors and poor patient outcomes.

However, the results in previous studies on nurse-physician collaboration are contrary to the findings of this study. Nurses rated communication amongst themselves very high, as indicated with scores ranging between 86.60%, mean 2.71 (SD 1.06), for item 2.2 to 91.96% (n=103), mean 3.06 (SD 0.94), for item 2.6 and the majority either agreeing or strongly agreeing, as shown by an overall Cronbach Alpha of 0.84, indicating a high positive correlation between communication and collaboration.

Nurses' perceptions, regarding communication in this study, have shown they are able to talk openly and get advice from each other, which is very good for ICU nurses. Clear and effective communication with other health care professionals is the cornerstone for successful collaboration for patient care; without good communication true collaboration does not occur.

- Shared Process

On the subscale of shared process, the majority of nurses had scores ranging between 73.21% (n=82), mean 3.31 (SD 0.74), for item 3.2 to 99.10% (n=102), mean 3.52 (SD 0.57), for item 3.8, indicating they all agreed there was good shared process in their units. They were able to make decisions independently, agree on goals and have authority regarding patient care issues, all of which is beneficial for ICU nurses. This was one of the subscales with very high score (refer **Table 4.3**). The item-test correlation scores were between 0.69 for item 3.1 to 0.83 for item 3.3 and the frequencies were also high, 108-111, which means there was very good relationship with all the items on shared process and collaboration with an overall Cronbach's Alpha of 0.89, which is a high positive association (refer **Table 4.6**).

Health care professionals deliver care to the critically ill, therefore an approach is necessary where they can work hand in hand with each other to manage the complex nature of the critically ill patients and their workload, thus providing effective patient care (Nathanson, Henneman, Blonaisz, Double, et al., 2011). Rose (2011) also stated, as the nature of the critical care environment is at times complex, dynamic and stressful, there is

need for a team approach that encourages effective inter-professional communication and collaboration, as this enhances active participation in decision-making and problem solving, hence the contributions of all members are acknowledged by everyone. Baggs & Schmit (1988) and Dougherty and Larson, (2010) also pointed out that collaboration requires members to make decisions, set goals, assume responsibility, work together cooperatively and communicate openly. Through shared process, nurses can function effectively, achieve their goals if they share responsibilities, make decisions and set goals together (Lindeke, 1998).

Nathanson, et al. (2011**)** stated that collaboration requires sharing partnerships, interdependence and power amongst health care professionals. However, barriers to successful collaboration have been recorded amongst health care professionals, which include power, communication patterns, poor understanding of roles and responsibilities resulting in boundaries and conflict, resulting in different strategies to patient care (Rose, 2011). However, Lindeke & Block (1998) stated that effective health care collaboration encompasses diverse but complimentary skills, shared responsibility, authority and shared goals or visions amongst health care professionals. Although some studies have shown collaborative nurse/physician relationships, generally, true collaboration does not effectively exist in critical care settings, as power distance and ineffective communication still pose challenges to achieve collaboration.

In most of the previous studies, nurses have reported being dissatisfied in the level of collaboration and teamwork that occurs in Intensive Care teams, while doctors have been satisfied. These study findings indicate that nurses and doctors view collaborative teamwork differently in ICU's. However, previous study results do not concur with the findings of this study, where nurses perceive collaborative teamwork to be very high. The results of this subscale, have revealed very high levels of decision-making responsibilities, autonomy and accountability as indicated by high scores which ranged between 72.21%, mean 3.31 (SD 0.74), for item 3.2 to 99.10%, mean 3.52 (SD 0.57), for item 3.8, frequencies were high 82-102, with an overall Cronbach's Alpha of 0.89, with all the nurses strongly agreeing. This means there is a high positive association between shared process and collaboration.

Apker, et al. (2006) also found high levels of professionalism to be associated with autonomy. In this study, nurses stated they are able to make decisions regarding patient care - items 3.1 3.2 and 3.3 respectively. They also stated they share goals for patient care, item 3.6 and have the authority to stop procedures which violate patients' rights as evidenced in Table 4.7. Studies have shown that a supportive unit culture with recognition by unit managers promotes job satisfaction, because nurses have a high status level of power, influence and autonomy **(**Kalisch, et al. 2010**).**

Nurses in this study demonstrated they value teamwork. Teamwork is important for health care professionals because it facilitates the achievement of positive cost-effective outcomes in most organisations and a high level of job satisfaction (Xyrichis and Ream, 2007).

- Coordination of activities

As in the subscale of shared process, coordination of activities scored between 75.0%, (n=84) mean 3.53 (SD 0.61), for item 4.2 to 97.33% (n=109), mean 3.10 (SD 0.88), for item 4.5: this was one of the highest scoring subscales (refer **table 4.4**.). All participants strongly agreed that coordination of unit activities was excellent as they could talk directly to each other regarding patient care issues and had protocols, policies and procedures to guide them in the management of critically ill patients. An item–test correlation for coordination of activities had scores ranging between 0.70 for item 4.1 to 0.87 for item 4.3, frequencies of 84-109, with an overall Cronbach's Alpha of 0.85, which also indicated a high positive association between the items of coordination and collaboration (refer **table 4.6**).

Coordination, as one of the nurses' role, requires nurses to coordinate effectively patient care activities with various disciplines of the health care delivery system; as a result, this facilitates collaboration and improved patient care outcomes, for example, through written policies, protocols and procedures (**Apker, 2006). Nurses** are expected to demonstrate leadership skills by directing the roles of members in the team through instruction, for example during an emergency, or admission of a patient; all team members should be alerted and instructed on what to do.

The findings in this study have revealed that nurses generally perceive coordination of activities to be very high with scores ranging between 97.32%, mean 3,53 (SD 0.61), for item 4.2 to 75.0%, mean 3.10 (SD 0.88), for item 4.5, with all the nurses strongly agreeing to all the items on the subscale, with an overall Cronbach's Alpha of 0.85. These results have demonstrated high positive correlation between coordination and collaboration and that all the nurses are satisfied in the way activities are coordinated. Nurses in this study demonstrated their professionalism, by speaking directly to each other, item 4.1, hold meetings to discuss patient care issues, item 4.2, carry out patient care rounds, item 4.4 and have protocols, policies and procedures regarding coordination of patient care, items 4.3 and 4.5.

This was a good result, because effective coordination of patient care enables nurses and other health care professionals to provide quality care. However, the ICU work environment can create challenges in this role, for example increased patient acuity and staff shortages can make coordination difficult for managers, which lead to stress, work overload causing nurses to burnout and create opportunities for conflict, whilst affecting nurse-nurse collaboration. Failure to coordinate patient care activities effectively may lead to poor patient outcomes and safety. The findings of this study concur with the results of a previous study (Dougherty & Larson, 2010), which also revealed high levels of coordination in relation to collaboration.

- Professionalism

On the subscale of professionalism, most participants agreed with items 5.1, 5.2, and 5.3. The scores ranged between 84.57 (n=80), mean 3.17 (SD 0.77), for item 5.1 to 98.21 (n=110), mean 3.41 (SD 0.85), for item 5.6 with the majority strongly agreeing that nurses respect one another and are willing to collaborate and have adequate knowledge and skills to teach and mentor those with less experience. This subscale had high scores meaning very good professional conduct existed amongst nurses (refer to **table 4.5**). The item- test correlation for professionalism ranged between a low of 0.64 for item 5.7, to a high of 0.85 for item 5.2, had frequencies of 88 to 110 with an overall Cronbach's Alpha of 0.89, meaning a high positive association between the items on professionalism and collaboration (refer **table 4.6**).

In the past decade, more attention has been specifically, given to professionalism in health care facilities and studies have shown that education plays a crucial role in promoting the perceptions and attitudes of professionalism amongst nurses (Apker et al., 2006). Education enables people to acquire knowledge, skills, attitudes and autonomy, which are the key indicators of professional nursing practice, with communication as a quality for nurse professionalism.

Due to an increase in emphasis on health care teams, professional nurses have become more important, as they are required to act as links to and liaise between members of the team, patients and their families, as well as administrators. Evidence has shown that, professionalism promotes positive patient care outcomes and improves the quality of care for nurses and organisational productivity; failure may lead to poor quality patient care.

The scope of practice for nurses' requires them to function beyond the bedside of the patient, while communicating issues of patient care delivery with all members of the team and making joint decisions. Normally, professional nurses collaborate with physicians, interact with other health care providers, supervise assistant personnel and coordinate services across the organisation in their role responsibilities. Therefore, in the health care systems, nurses are required to communicate effectively with the health care team members, patients and their families (Apker et al., 2006). Due to these roles, effective communication is a necessary skill for professional practice and needs to be taught; at the same time, learning good communication skills is important for the accreditation of nursing standards.

Communication as an important attribute of professionalism is based on mutual respect, trust, willingness to collaborate, clinical competence, mentorship and leadership, thereby promoting quality patient care. Nurses are equipped with knowledge, skills, attitudes, values and autonomy in their training for effective communication as an important quality in professionalism. For this reason, the results of this subscale in this study have revealed very good professional conduct in the Intensive Care Units amongst nurses, indicated by the high item scores ranging between 84.57%, mean 3.17 (SD 0.77), for item 5.1, with most nurses agreeing with item 5.3. Item 5.6 had the highest score, 98.21% and mean 3.41 (SD 0.85), with the majority of nurses strongly agreeing with items 5.4 to 5.7 with an overall Cronbach's Alpha of 0.89.

This reflects a high positive association between professionalism and collaboration amongst ICU nurses. Nurses in this study stated there was a respectful and cordial relationship amongst nurses, items 5.1 and 5.2 and showed nurses were willing to collaborate and had adequate knowledge and skills necessary to provide care; nurses with more experience help to mentor and teach less experienced nurses, item 5.6; nursing leadership supported collaboration, item 5.7.

From the items of this subscale, it can be seen that nurses assume their roles by effectively discharging their professional conduct in the unit. As a professional nurse, one needs to have adequate knowledge, skills and attitude in order to discharge their duties effectively, because the profession has special characteristics. Good relationships and leadership skills amongst nurses enhances effective collaboration and so quality care for patients. Professionalism is about what the nurses do, how they carry out their responsibilities, their values regarding patient care and the behaviour displayed when working with patients, colleagues, families and other health care professionals (Apker, 2006).

Finally, years of working experience in ICU was examined in order to find out if more than six (>6yrs) years or less than five (<5yrs) years of experience has any significant impact on how Intensive Care nurses perceive nurse-nurse collaboration. The study results showed that there is a difference in the nurse's perceptions to collaboration. *Two subscales* (communication and shared process) were *found* to be *statistically significant* ($p<0.05$). No significant difference was observed in the remaining three subscales, namely conflict management ($p=0.187$); coordination ($p=0.119$); professionalism ($0=0.145$) (refer **Table 4.9**).

4.5 SUMMARY

This chapter presented the quantitative results obtained in the study, and discussed the descriptive and inferential statistics used to described and analyse the data. The results have been presented in the form of descriptive tables and graphs so as to enhance interpretation of results. The narrative responses were grouped into meaningful categories.

The following chapter will present a summary of the study, the main findings, limitations, recommendations and conclusion.

CHAPTER FIVE

SUMMARY, DISCUSSION OF RESULTS, LIMITATIONS, RECOMMENDATIONS AND CONCLUSION

5.1 INTRODUCTION

This final chapter presents a summary of the study, discussion of results and the limitations. Recommendations and a conclusion will be given for nursing practice, nursing education, nursing management and areas for further research will be presented.

5.2 SUMMARY OF THE STUDY

The purpose of this study was to determine the nature and extent of collaboration practices amongst nurses in the Intensive Care setting at a public sector tertiary level hospital in Johannesburg, with the intention of making recommendations for nursing practice and education of Intensive Care nurses.

Collaboration practices amongst health care professionals are important in reducing medical errors, patients' length of stay, hospital costs and promoting job satisfaction with better patient outcomes hence organisational productivity. However, effective collaboration does not occur normally amongst health care professionals. Intensive Care Units are complex and stressful working environments and so health care professionals require a safe environment with effective collaboration and collegial working relationships to enhance proper delivery of care whilst promoting staff retention and recruitment.

The objectives of the study were:

- To describe the nature of collaboration practices between nurses working in the Intensive Care settings
- To determine whether there is a difference in collaboration practices between more senior and lesser experienced nurses

- To identify factors that may lead to ineffective collaboration practices amongst nurses working in the Intensive Care settings.

5.3 MAIN FINDINGS AND DISCUSSION

The first part of the quantitative data was analysed using STATA Version 10 and the results presented in tables and figures. The higher the score on agree or disagree meant a positive attitude towards nurse-nurse collaboration. The nurses' perceptions were also examined in relation to gender, age, ICU working experience and as ICU Intensive Care trained nurses, to identify if there was any relationship or differences to collaborative practices. Meaningful responses for the open-ended question were grouped into categories.

5.3.1 Demographic Data

Results for the demographic data have shown that the majority, 93.75% (n=105), of the participants were female with only 6.25% (n=7) being male. The average age group was 39.88 years; 33.93% (n=38) of the participants had worked in the Intensive Care units for less than five years, while 66.07% (n=74) had worked in the units for six (6) years and above. The majority, 67.84% (n=67), of the participants had 10 and less years' experience as ICU trained nurses, whilst the minority, 32.16% (n=35), were senior ICU trained nurses with vast experience of 11 years or more experience.

5.3.2 Nurses' Perceptions

Generally, the results in this study have shown that nurses have more positive perceptions and attitudes towards nurse-nurse collaboration in the Intensive Care Units, as evidenced by the 111 frequency scores, with nurses responding more effectively to the five subscales. However, the subscales of communication, shared process, coordination and professionalism scored higher; most of the participants either agreed or strongly agreed to all these items compared to conflict management in item 1.1, where the majority disagreed ignoring the issue pretending it will go away. In item 1.2, the majority agreed to withdraw from conflict; similarly for item 1.5 disagreements between nurses will be ignored, or avoided. Correct conflict management amongst nurses is very important for effective delivery of care and collegial working relationships; nurses' are urged to learn the skills of resolving conflict

amicably by compromising in order to consider the interests of all parties. These study results showed that females dominate the nursing profession with males being a minority and no differences in collaboration were observed.

Participants' responses for years of work experience were examined to determine if there was any impact on how nurses perceive collaboration between senior and junior nurses. However, the study results indicated there was a statistically significantly ($p<0.05$) difference in perceptions of collaboration practices in two of the five subscales; namely communication and shared process between junior and senior nurses in the Intensive Care units. In their responses to an open-ended question, participants stated that some of the, issues like generational diversity, lack of professionalism and conflict resolution strategies, and lack of leadership skills and support just to mention a few, hinder collaboration and they also felt that some of their roles overlapped creating confusion as to who was supposed to do what and as a result, it became difficult to maintain effective collaboration amongst members of the team, compromising the delivery of patient care.

Furthermore, results have also shown that there are more junior ICU trained nurses with less experience as compared to senior trained nurses with vast experience working in ICUs and that there are no differences in perceptions to collaboration as regards to gender, age ICU work experience and ICU trained nurses in relation to the five constructs of collaboration. However it seems there is a problem with conflict management in general.

5.3.3 Factors that May Lead to Ineffective Collaboration

- **Senior nurses' superior attitude and the reactions of junior nurses**

In their written responses, some of the nurses reported that senior nurses display an attitude of being superior to the junior nurses in their working relationships. However, this behaviour is not displayed by all senior nurses only a few individuals. Participants further stated there are no collegial working relationships as a team, thereby compromising collaboration. Senior nurses undermine the junior nurses' capabilities and do not encourage their active participation and contributions. As professional nurses, there is need to plan care and make decisions regarding patient care together as a team. If team members do not value and respect

the contributions made by each other, then it is difficult to develop collaborative practices (Chaboyer & Patterson, 2001).

Nurses have noted that superior subordinate working relationships lead to poor communication, conflict and poor collegial working relationships amongst members of the team, more specifically nurses in the Intensive Care Units.

A superior attitude can lead to others not participating actively in the team, during ward rounds and patient care discussions, as their values, opinions and suggestions are not appreciated, hence they withdraw and do not get involved in patient care decision-making. However, the inferiority complex amongst nurses is mostly due to their lack of initiative to be assertive and being confident enough to handle important issues within the unit. The participants felt that lack of confidence, inadequate knowledge and assertiveness lead to their poor performance resulting in poor standards of nursing care allowing the senior nurses to take advantage. Junior nurses need to be assertive and sufficiently confident so that their senior counterparts learn to acknowledge their contributions.

- **Workload**

Intensive Care settings have heavy workloads and nurses felt this was one of the contributing factors to unsuccessful collaboration in the units. Due to staff shortages, most nurses feel they are overworked as often one nurse looks after two patients, so they become stressed, frustrated, burnt-out and lack job satisfaction, leading to poor standards of care and patient outcomes. Consequently, nurses need to understand the situations they are working in to promote effective delivery of care.

- **Role confusion**

Role confusion was perceived to be one of the barriers of ineffective collaboration amongst nurses. Intensive Care nurses stated that they are facing challenges with distinction of roles; it is not clearly stipulated who has the responsibility for the patient. As a result, this leads to poor delivery of care for patients.

5.3.4 Nurses Recommendations

Most of the participant's recommended promoting teamwork as a strategy to enhance better working relationships, so that nurses see one another as colleagues and not as a superior/ subordinate type of working relationship, only then will true collaboration be enhanced in the ICU's. The majority of the participants suggested that teamwork can be promoted by establishing collegial working relationships, practicing professional communication skills and having clear role clarification. Staff motivation and a focus on patient-centred care, were some of the recommendations made.

- **Interpersonal relationships and skilled communication**

Most participants recommended interpersonal relationships amongst members of the team, to enhance collaboration amongst nurses in the Intensive Care Units. Good interpersonal working relationships involve mutual respect and trust among members of the team regardless of social status, gender, race or culture.

- **Role Clarification**

The majority of the nurses felt one of the most significant areas in team working relationships was role clarification. Nurses need to know their scope of practice to be able to deliver effectively. Participants believed the scope of practice enables nurses to practice within their area of specification without actually waiting for someone to give instructions.

- **Coordination of patient-centred care**

Most participants recommended patient-centred care as one way of enhancing effective nurses-nurse collaboration in the units. Proper coordination of patient care activities and collegiality amongst members of the team promote better patient outcomes. McCauley and Irwin (2006) suggested a patient-focused care project after findings that medical care was too fragmented and too focused on issues that hindered communication of patients.

- **Staff Motivation**

Motivation of staff members was one attribute that promoted a safe working environment, because it enhances job satisfaction, effective collaboration and better patient outcomes. In this study, the majority of the participants stated that lack of motivation impedes effective collaboration amongst nurses and other health care professionals, leading to poor patient outcomes as nurses become demoralised with their status. Nurses identified various strategies that motivated them, namely: professional development and measures to reduce stress. Further, most nurses stated they can acquire more knowledge by obtaining scholarships for professional advancement.

By attending in-service training pertaining to recent updates on ICU issues, proper orientation of staff members to policies, protocols and conducting staff meetings, in which nurses would share some of their experiences, would they acquire more knowledge and skills. Nurses felt that once empowered with knowledge, they are in a better position to be responsible enough and provide effective quality patient care for the critically ill patients. Knowledge will further empower the nurses to be autonomous, assertive and sufficiently confident in managing their critically ill patients and in their interactions with other health care professionals. Generally, nurses also felt they need proper orientation on how to collaborate effectively with each other. On measures of reducing stress, nurses recommended collegial working relationships, recognition, various incentives and outings.

5.4 LIMITATIONS OF THE STUDY

Some of the limitations identified in this study were:

- Generalizability of the findings to this study was difficult because only the Intensive Care trained nurses participated; other nurses with different cadres working in various wards and departments may have had their own perceptions on nurse-nurse collaboration.
- The study was conducted at a single institution hence we cannot rely on these results; but the perceptions of other Intensive Care trained nurses at different institutions may have given a true reflection on the study results.

- The use of non-probability convenience sampling and the relatively small sample size may also limit the generalizability of the study unless if there was alarger sample.
- There was a small representation of male nurses in the sample; therefore, it is difficult to assume that there are no differences in perceptions to collaboration in relation to gender.

Due to these limitations, it is difficult to generalise the findings of this study unless done on a larger scale with a larger sample, which would include other level three tertiary institutions.

5.5 CONCLUSION

The aim of this study was to describe and determine Intensive Care nurses' perceptions and identify barriers and make recommendations regarding nurse-nurse collaboration in the Intensive care setting at a public sector tertiary level hospital in Johannesburg. Results in this study have revealed that nurses have high positive attitudes towards nurse-nurse collaboration. As Intensive Care nurses are striving for positive collaborative relationships and an autonomous profession, which will empower its members, collaboration is the key to build effective working relationships to deliver high quality patient care. Lack of teamwork and ineffective communication amongst health care professionals affects patients adversely, leading to misunderstandings, stress, medical errors, conflict, job dissatisfaction, and poor quality patient care, increased length of stay, high costs and poor organisational productivity.

Generally, a nurse's responsibility is to promote the safety of patients by effectively communicating with other health care professionals involved in caring for the critically ill patients. Efforts should be made to collaborate effectively with clear and open communication, whilst enhancing positive relationships among health care professionals and promote quality patient care in the work environment. Participating actively in patient care plans and decision-making enhances quality patient care and better patient outcomes.

Therefore, nurse managers and administrators should identify strategies to remove the barriers in order to promote development of a team-centred culture that will support collaborative relationships amongst health care professionals; only then, will the true benefits of collaboration be achieved. Studies have also shown that collaborative working

relationships amongst health care professionals, leads to quality patient care and minimal fragmentation of care, consequently, nurse leaders and administrators need to recruit and retain nurses who are committed to share positive collaboration with other health care professionals. Finally, to achieve better collaboration practices amongst health care professionals, management should set up different training programmes at medical schools, as well as in teaching hospitals, to enable health care professionals to work better as a critical care team. Active participation with regard to patient care planning and decision making enhances quality patient care. Nurses should have nursing rounds or join doctor's rounds as a team; this enables members to have a better understanding of the medical plan of care for the patients through discussions. By identifying all contributing factors leading to ineffective collaboration, health care professionals will ensure progress.

This study has revealed that although senior and junior nurses may have similar views on how they collaborate with each other, most nurses are not satisfied with collaboration relationships in the units.

5.6 RECOMMENDATIONS OF THE STUDY

The complexity of Intensive Care Units and the critical nature of ICU patients require health care professionals, more specifically nurses, to collaborate effectively. Nurse leaders and managers need to provide a safe environment in which nurses can deliver effectively for better patient outcomes. In order to meet the complex needs of the critically ill patients, the following recommendations have been made to benefit the following four disciplines:

5.6.1 Nursing Practice

Recommendations for clinical nursing practice are as follows:

Most patients in critical care units they totally or partially depend on nurses to provide their medical and nursing care including their basic activities of daily living hence, they are at risk in the nurse-patient relationships and are affected by relationships among members of staff. These patients need to have trust in the nurses that are caring for them through effective communication, shared process, teamwork which enhance trusting relationships and promote effective collaboration which are crucial in dynamic environments like critical care units.

- In order to collaborate effectively, nurses and other health care professionals in the Intensive Care Units need collegial working relationships as a team. Members can promote teamwork through recognition, respect and trust, role distinction, effective communication, inter personal skills and by recognising the roles and scope of practice for each other to enhance collegiality.

- On a daily basis, nurses spend 24 hours with critically ill patients and act as liaisons in coordinating patient care activities. Therefore, they need to have professional communication skills, resolve conflict amicably, have positive attitudes towards collaboration with all health care professionals and should be recognized to enhance professional development to acquire more knowledge and skills to effectively manage the critically ill patients, there by promote job satisfaction and organisational productivity.

- Nurses working in Intensive care units need positive and respectful working relationships to ensure quality patient care through collaborative interactions with each other. Therefore, they need in-service education, workshops and seminars to emphasize on the significance of collaboration and proper attitude towards one another.

5.6.2 Nursing Management

The roles of managers in critical care are multidimensional in which trusting relationships between nurse leaders and subordinates are fundamental components of the job. Team trust is essential in critical care units between managers and staff to promote quality patient care, and a supportive clinical environment, thereby enhance effective collaboration.

Nurse Managers have a big role in supporting and facilitating collaborative practices, to ensure health care professionals in Intensive Care settings achieve excellence in patient care outcomes. Nurse managers can display their knowledge and skills through effective role modelling in practice hence this helps nurses to develop their professional and personal competence and their confidence is also improved. Furthermore, the approachability, availability and flexibility of nurse managers promote staff motivation, morale and

confidence. It should also be remembered that evidence based practice and services can only be achieved by staff members who have been informed through knowledge and skills which are in line with decisions and actions in practice with evidence. This can be successfully accomplished through effective teamwork, multi-professional collaboration, communication and by having values of openness, honesty and transparency (McSherry et al. 2012). Therefore, trust and team work are basically fundamental for supportive relationships between nurses and managers, there by enhance effective collaboration while promoting quality patient care.

It is important that nurse managers in critical care units should ensure staff motivation, proper role clarification based on the scope of practice and minimise staff shortages, provide policies and guidelines on effective communication all these can promote a better working environment in critical care.

Nurses noted in this study that they have some areas of responsibility, which overlaps with other nurses and health care professionals in Intensive Care Units. As a result, nurse managers are urged to orientate all the nurses with their scope of practice, roles and responsibilities to enable them function independently, dependently and with interdependent activities, only then will nurses be aware of what is expected of them and that they are not treated as subordinates by other team members.

5.6.3 Nursing Education

Due to the dynamic environment of critical care with critically ill patients, Nurse Educators are required to emphasise to nursing students, during their training, the significance of effective collaborative practices, trusting and collegial working relationships amongst members of the team to enhance better patient outcomes.

Nursing faculty should apply effective communication principles, proper conflict resolution strategies and team work to nursing programmes and organisational in-service education, through implementation of curriculum innovations based on communication principles and shared process. This may enhance the status of collaboration in critical care units.

Nursing faculty should act as role models in communication skills through interactions with students on a daily basis and by interacting with other health care professionals; they will demonstrate effective communication skills for members of the team required by today's professional nurses. Through routine engagement of professional nurse-team communication, faculty enables students to practice and master the four communication skills (Four C's).

Nurse educators should encourage socialisation, professional development and in-service education, as this enables employers match nurses who are not good communicators with orientation programmes to teach them to interact effectively in a team. These programmes would enable nurses to gain expertise in communicating with team members and learn more about the culture of their organisations.

5.6.4 Nursing Research

Having looked at the stressful and complex nature of the critical care, effective collaboration with trust among nurses and other health care workers are fundamental components in promoting cost effective quality patient care. Therefore, a survey on a larger scale with more Intensive Care Units from various institutions is needed to ensure generalizability, although the results in this study have shown that nurses have a positive attitude towards nurse-nurse collaboration but this may be different if the study is done at various institutions.

5.7 CONCLUSION

In conclusion, this research report has highlighted how junior and senior nurses perceive collaboration in the Intensive Care units and the inability of intensive care nurses to deal with conflict situations. Correct conflict management amongst nurses is very important for effective delivery of care and collegial working relationships; nurses' are urged to learn the skills of resolving conflict amicably by compromising in order to consider the interests of all parties. These findings will be of use to public sector hospital management in the delivery and evaluation of optimal nurse-nurse collaboration, in determining the necessary curricular components to intensive care nursing education in-line with the realities of clinical practice and development of nursing personnel in these units.

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APPENDIX A

NURSES' PERCEPTIONS OF NURSE-NURSE COLLABORATION IN THE INTENSIVE CARE UNITS OF A PUBLIC SECTOR HOSPITAL IN JOHANNESBURG

INFORMATION LETTER

Dear Colleague,

My name is Lonely Ndundu, I am currently registered as a student at the University of the Witwatersrand, in the Department of Nursing Education for the degree of Master of Science in Nursing (Intensive Care Nursing). I am hoping to conduct a research project to determine the extent and nature of collaboration of among nurses in the intensive care setting at a public sector tertiary level hospital in Johannesburg,

I hereby invite you as an expert in the field to be part of a sample of nurses that I hope to include in the study population.

Participation in the study is entirely voluntary. Due to the need to contact you, I would kindly request that you provide personal details on the check list that will be presented to you. As you are

The aim of the study is to provide a better understanding of collaboration between nurses and other health workers as it influences nursing care and to identify the strategies for improvement in order to provide quality care for patients.

I appreciate that you will not derive any benefit from participation in the study. However, I hope that the results of the study will help to clarify the extent and nature of collaboration among nurses in the intensive care setting and make recommendations for nursing practice and education of intensive care nurses.

The appropriate people and research committees of the University of the Witwatersrand, Gauteng Department of Health and Charlotte Maxeke Johannesburg Academic Hospital have approved the study and its procedures.

Thank you for taking the time to read this information letter. Should you require any further information regarding the study or your rights as a study participant please feel free to contact me in the department of nursing education or on the following telephone number 078 6814988.

Yours faithfully

Lonely Ndundu
Date:

APPENDIX B

NURSES' PERCEPTIONS OF NURSE-NURSE COLLABORATION IN THE INTENSIVE CARE UNITS OF A PUBLIC SECTOR HOSPITAL IN JOHANNESBURG

CONSENT FORM

I _____ (name) give permission to be included in the study.

I have read with understanding the content of the information sheet and I have been given the opportunity to ask questions I might have regarding the procedure and my consent to my being included in the study.

_____ _____

Date Signature

_____ (Witness)

APPENDIX C

NURSES PERCEPTIONS OF NURSE-NURSE COLLABORATION IN THE INTENSIVE

CARE UNITS OF A PUBLIC SECTOR HOSPITAL IN JOHANNESBURG

DATA COLLECTION TOOL

1.0 DEMOGRAPHIC DATA

1.1 GENDER

Male	Female

1.2 Age (in years)

1.3 Years worked in ICU

5 years or less	6 years of more

1.4 Years of experience as an intensive care registered nurse

2.0 NURSE -NURSE COLLABORATION

INSTRUCTIONS:

Please answer the questions based on your experience NOT how you believe the work should be. For each statement, place an X in the column, which represents the answer.

The columns are labelled: Strongly agree, Agree, Disagree and Strong Disagree.

Item	Statement	Stongly disagree	Disagree	Agree	Strongly agree
1.1	When nurses disagree, they will ignore the issue, pretending it will 'go away'				
1.2	Nurse will withdraw from conflict				
1.3	All points of view will be carefully considered in arriving at the best possible solution of the problem				
1.4	All the nurses will work hard to arrive at the best possible solution				

1.5	Disagreement between nurses will be ignored or avoided				
1.6	The nurses will not settle dispute until all are satisfied with the decision				
1.7	Everyone contributes from their experience to produce a high quality solution				
2.1	It is easy for me to talk openly with the nurses in this ICU				
2.2	Communication between nurses is very open				
2.3	I can think of the number of times that I received incorrect information from nurses on this unit				
2.4	I find it enjoyable to talk with nurses in this ICU				
2.5	It is often necessary for me to go back and check the accuracy of information that I received from nurses in the ICU				
2.6	It is easy to ask advice from nurses in this unit				
2.7	The accuracy of information passed among nurses on this unit leaves much to be desired				
2.8	I feel that certain nurses don't completely understand the information they receive				
3.1	I am able to make a lot of decisions on my own				
3.2	I am allowed to make decisions that affect me at work				
3.3	I am involved in making decisions about what happens in my work				
3.4	I have a lot to say about what happens for patient care				
3.5	Nurses agree on goals for patient pain management on my unit				
3.7	Nurses agree with safety goals for unit				
3.8	Nurses have the authority to stop procedures which violate patient safety standards for identification				
3.9	Nurses have the authority to stop a procedure which violates infection control standards for central line infections				
4.1	Nurses speak directly to each other regarding patient care issues				

4.2	Nurses have ad hoc patient care meetings to discuss patient care issues				
4.3	There are written evidence based treatment protocols				
4.4	There are daily staff rounds				
4.5	There are written policies and procedures regarding the coordination of care				
5.1	There is a respectful and cordial relationship among nurses				
5.2	There is willingness of nurses to collaborate with each other				
5.3	Nurses have adequate knowledge of the drugs ordered for the patient on this unit				
5.4	Nurses have adequate knowledge of the disease process for patients on this unit				
5.5	Nurses have technical skills necessary to provide safe care to patients on this unit				
5.6	On this unit, nurses with more experience help to mentor and teach less experienced nurses				
5.7	On this unit, nursing leadership supports collaboration				

3.0 OPEN ENDED QUESTION

Is there anything else you wish to add ?

Thank you for participating in the study.

Lonely Ndundu
MSc Nursing Student

APPENDIX D

From: Dougherty, Mary B. [mailto:Mary.Dougherty@va.gov]
Sent: Thursday, October 04, 2012 4:43 PM
To: Shelley Schmollgruber
Subject: RE: permission to use instrument

Shelly,

Please share results of your students research with me and feel free to contact me should additional information be needed.

Mary B. Dougherty DNSc, MBA, MA, RN
National Director
Veterans Affairs Nursing Academy
VHA Office of Academic Affiliations
810 Vermont Ave NW,
(actually located at 1800 G St. NW, Rm 873)
Washington DC
Phone: 202 461 9498
Fax: 202 461 9855
BB: 202 527 2357
E-mail mary.dougherty@va.gov
From: Shelley Schmollgruber [mailto:Shelley.Schmollgruber@wits.ac.za]
Sent: Thursday, October 04, 2012 10:20 AM
To: Dougherty, Mary B.
Subject: permission to use instrument
Importance: High

Dear Dr Dougherty,
My name is Shelley Schmollgruber. I am a lecturer and MSc Coordinator with the University of the Witwatersrand in Johannesburg, South Africa. My speciality focus is intensive and critical care. I have a student who is planning to conduct a study looking at nurse-nurse-collaboration in the intensive care setting of a major tertiary academic hospital. We have been reading your work. We are particularly interested in your instrument. Would you be so kind and allow us to us this instrument in our study. The student is doing a MSc and her speciallity area is intensive care .

Should your require any further information please do not hesitate to contact me.

Kind Regards
Shelley Schmollgruber
MSC Coordinator
University of the Witwatersrand
Johannesburg
South Africa.

APPENDIX E



GAUTENG PROVINCE
HEALTH
REPUBLIC OF SOUTH AFRICA

CHARLOTTE MAXEKE JOHANNESBURG ACADEMIC HOSPITAL

Office of the CEO
Enquiries:
Ms. L. Mngomezulu
(011): 488-3793
(011) 488-3753
25th January 2013

Lonely Debra Ndundu
MSc Nursing Student
University of the Witwatersrand

Dear Ms. Ndundu

RE: "Collaboration practices between nurses in the intensive care unit at Charlotte Maxeke Johannesburg Academic Hospital"

Permission is granted for you to conduct the above research as described in your request provided:

1. Charlotte Maxeke Johannesburg Academic hospital will not in anyway incur or inherit costs as a result of the said study.
2. Your study shall not disrupt services at the study sites.
3. Strict confidentiality shall be observed at all times.
4. Informed consent shall be solicited from patients participating in your study.

Please liaise with the Head of Department and Unit Manager or Sister in Charge to agree on the dates and time that would suit all parties.

Kindly forward this office with the results of your study on completion of the research.

Yours sincerely

Dr. T.E. Selebano
Chief Executive Officer

APPENDIX F

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG
Division of the Deputy Registrar (Research)

HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL)
R14/49 Ms Lonely D Ndundu

CLEARANCE CERTIFICATE **M120718**

PROJECT Collaboration Practices between Nurses in the Intensive Care Unit at CM Johannesburg Academic Hospital

INVESTIGATORS Ms Lonely D Ndundu.

DEPARTMENT Department of Nursing Education

DATE CONSIDERED 27/07/2012

DECISION OF THE COMMITTEE* Approved unconditionally

Unless otherwise specified this ethical clearance is valid for 5 years and may be renewed upon application.

DATE 02/11/2012 **CHAIRPERSON** .....
(Professor PE Cleaton-Jones)

*Guidelines for written 'informed consent' attached where applicable
cc: Supervisor : Shelley Schmollgruber

DECLARATION OF INVESTIGATOR(S)
To be completed in duplicate and **ONE COPY** returned to the Secretary at Room 10004, 10th Floor, Senate House, University.
I/We fully understand the conditions under which I am/we are authorized to carry out the abovementioned research and I/we guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I/we undertake to resubmit the protocol to the Committee. **I agree to a completion of a yearly progress report.**

PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES...

APPENDIX G

Faculty of Health Sciences
Medical School, 7 York Road, Parktown, 2193
Fax: (011) 717-2119
Tel: (011) 717-2076

Reference: Ms Salamina Segole
E-mail: salamina.segole@wits.ac.za
30 October 2012
Person No: 549099
PAG

Ms LD Ndundu
P O Box 149
Lilongwe
Malawi
0000
Malawi

Dear Ms Ndundu

Master of Science in Nursing: Approval of Title

We have pleasure in advising that your proposal entitled "*Collaboration practices between nurses in the intensive care units in an academic hospital in Johannesburg*" has been approved. Please note that any amendments to this title have to be endorsed by the Faculty's higher degrees committee and formally approved.

Yours sincerely

Mrs Sandra Benn
Faculty Registrar
Faculty of Health Sciences

APPENDIX H

Gill Smithies

Proofreading & Language Editing Services

59, Lewis Drive, Amanzimtoti, 4126, Kwazulu Natal

Cell: 071 352 5410 E-mail: weavers@vodamail.co.za

To	Ndundu/Schmollgruber
Address	Wits Dept of Nursing Education
Date	04/09/2013
Subject	Nurse –nurse collaboration in Intensive Care Units – Lonely Ndundu
Ref	SS/gs/002

I, Gill Smithies, certify that I have proofed and language edited:

Chapters 1 to 5 and Cover Page: NURSES' PERCEPTIONS OF NURSE-NURSE COLLABORATION IN THE INTENSIVE CARE UNITS OF A JOHANNESBURG PUBLIC SECTOR HOSPITAL

to the standard as required by Wits Dept. of Nursing Education.

Gill Smithies

04/09/2013