The relationship between burnout and the safety and quality of patient care in private critical care units in Gauteng province

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Dissertation submitted for the degree Magister Curationis (Nursing Science) at the Potchefstroom Campus of the North-West University

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December

2010

DECLARATION

I hereby solemnly declare that this research study, *The relationship between burnout and the safety and quality of patient care in private critical care units in Gauteng province,* presents the work carried out by myself and to the best of my knowledge does not contain any materials written by another person except where due reference is made. I declare that all the sources used or quoted in this study are acknowledged in the bibliography; that the study has been approved by the Ethics Committee of the North-West University; and that I complied with the ethical standards set by this institution.

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Annemarie van Wyk

December 2010

ACKNOWLEDGEMENTS

A few days before starting my Masters degree in Nursing Science, I went through a very painful experience. Two years has passed and it is with a great sense of gratitude that I reflect on the last two years of my life. I offer my reflections on this journey in a poem:

I didn't know how to start

Didn't know how to embark

Because inside of me I cried

Moaned and then I died

Abandoned broken

By God and people forsaken

I didn't know how to swim

How to go about this race, how to win!

Cause for months I have been drowning

For years my heart was frowning

Then you came

Nothing was ever again the same

I had to start thinking in another language

I know nothing of which

I had to distant my brain

From my overwhelming continuous aching pain

You taught me how to survive

That there are higher things for to strive

You showed me how to stop thinking

How to continue to swim, no option for sinking

You taught me how to breathe again

And to forget how it has been

Now we are standing at the end of the way

Only one thing for me to say

You helped me survive

Thanks to you I am still alive!

-Annemarie van Wyk-

2010

God provided me with such a great support system. I wish to thank the following people in particular:

My Savior, **God** Almighty for never leaving me, keeping me so tight in His arms that I struggle to breath.
My **parents** for being on your knees every day, praying for me.
Poppy, my children's best friend, for every day that you worked until 19:00 so that I could complete my studies.
Petro Steenkamp, my friend in Jesus. Without your friendship, support, love and leave you provided me, I would have struggled so much.
Okkie Cilliers, my best friend. Thank you for motivating me, during the times I wanted to give up. You were always behind me, encouraging me, praying for me.
Desda Heyneke, you just always give so much of yourself. Thanks to you I have a very good experience of graphic illustrations. Thank you for being there when I needed coffee, a chat and a prayer.
All my **friends at Medi-Clinic** thank you for believing in me.

Dr Ronel Pretorius, my supervisor, you are a lifetime role model.

Prof Hester Klopper, for being my co-supervisor and for the financial support during my studies.

Prof Christa van der Walt, you motivated me from the first day I met you. Thank you for providing me with a good theoretical knowledge base before embarking on this research study.

Dr Suria Ellis for your assistance with the statistical analysis of the research data.

Wilma Ten Ham for all the assistance with the technical editing of my work.

All **the personnel in the library**. You have so much patience and you are proficient in all you do. Thank you for all the information and hours behind the front desk searching with me for articles.

The **European Union and the Atlantic Philanthropies** for their financial contribution to the study and the opportunity to participate in the RN4CAST programme.

- For Arend, Leo and Son-Mari -

ABSTRACT

(Keywords: burnout, nurse, safety, quality, critical care)

INTRODUCTION AND AIM:

Research recognises the clear links between nurses' experience of professional burnout and the quality of the work environment. To that end it is extremely important for nurse managers to create an organisational climate that promotes the emotional stability of nurses. This could help to improve global patient safety by reducing the frequency of adverse events. Many of the factors commonly associated with burnout, also causes unsafe patient care, and poor quality of care. Effectively managing patient safety must be a priority in units where nurses face high pressure. Staff in critical care units (CCUs) spends a tremendous amount of time with people, including the patient, family members, physicians, and other members of the multi-disciplinary team that might lead to emotional and physical exhaustion and burnout. The aim of this study was to investigate the relationship between nurse burnout and the safety and quality of patient care in private critical care units in Gauteng.

RESEARCH DESIGN AND METHOD:

A quantitative correlational design was selected to address the research question at hand. A previously developed checklist was used to describe the demographic characteristics of the critical care units that participated in the study (n=31). A total of 298 critical care nurses participated in the study (n=298). Burnout among registered nurses working in these units was explored by means of the Maslach Burnout Inventory Scale (MBI). The registered nurses' perceptions of the safety and quality of patient care in their units were explored by means of the RN4CAST questionnaire. Data was analysed using descriptive and inferential statistics.

FINDINGS:

The mean scores for emotional exhaustion measured 2.69, for depersonalisation 1.55 and for personal accomplishment 4.43. From the mean scores of each of the sub-scales of the MBI it was evident that registered nurses working in private critical care units in Gauteng province did not experience burnout. The relationship between burnout and the safety and quality of patient care was investigated by

means of a Spearman rank correlation coefficient. The results indicated that emotional exhaustion demonstrated a negative relationship with the quality of nursing care in the unit (r = -0.275; p=0.00), and patient safety in the unit (r = -0.245; p=0.00). Depersonalisation demostrated a negative relationship with the quality of care in the nursing unit (r = -0.249; p=0.00 and patient safety in the unit (r = -0.205; p=0.00). Personal accomplishment demonstrated a weak positive relationship with the quality of nursing care in the unit (r = 0.197; p=0.003) and a moderate positive relationship with patient safety in the unit (r = 0.204; p=0.00). The results demonstrated a relationship between burnout and the safety and quality of patient care in private critical care units in Gauteng.

OPSOMMING

(Sleutelwoorde: uitbranding, verpleegkundige, veiligheid, kwaliteit, kritieke sorg)

INLEIDING EN DOELSTELLINGS:

Navorsing erken die duidelike skakels tussen verpleegkundiges se ervaring van professionele uitbranding en die kwaliteit van die werksomgewing. Dit uiters belangrik vir verpleegbestuurders om 'n organisatoriese klimaat wat bevorderlik is vir die emosionele stabiliteit van verpleegkundiges te skep. Die klimaat kan help om die globale veiligheid van pasiënte te verbeter deur die vermindering van die frekwensie van negatiewe pasiënt uitkomste. Baie van die faktore algemeen geassosieer met uitbranding, veroorsaak ook onveilige pasiënt sorg, en swak gehalte van sorg. Die doeltreffende bestuur van die veiligheid van pasiënte moet 'n prioriteit wees in eenhede waar verpleegkundiges hoë werksdruk ervaar. Personeel in kritieke sorg eenhede spandeer 'n enorme hoeveelheid tyd met mense, insluitende die pasiënt, familie-lede, dokters, en ander lede van die multidissiplinêre span wat kan lei tot emosionele en fisiese uitputting en uitbranding. Die doel van hierdie studie was om die verhouding tussen geregistreerde verpleegkundiges se uitbranding en die veiligheid en gehalte van pasiënte sorg te ondersoek in privaat kritieke sorg eenhede in Gauteng.

NAVORSINGSONTWERP EN METODE:

'n Kwantitatiewe korrelasie ontwerp is gekies om die navorsingsvraag te beantwoord. 'n Vooraf-ontwikkelde merklys is gebruik om die demografiese data te beskryf met betrekking tot die kritieke sorgeenhede in Gauteng (n=31) wat aan die studie deelgeneem het. 'n Totaal van 298 kritieke sorg verpleegkundiges het deelgeneem aan die studie (n=298). Daar is ondersoek ingestel na die uitbrandingstatus van die verpleegkundiges (n=298) deur gebruik te maak van die Maslach Uitbrandingvraelys (MBI). Die veiligheid en kwaliteit in die afsonderlike kritiese sorgeenhede is bepaal aan die hand van die RN4CAST-vraelys. Data analise het plaasgevind deur middel van beskrywende en inferensiële statistieke.

BEVINDINGE:

Die gemiddelde tellings vir emosionele uitputting het 2.69 gemeet, vir depersonalisasie 1,55 en vir persoonlike vervulling 4,43. Van die gemiddelde tellings van elk van die sub-skale van die MBI was dit duidelik dat die geregistreerde verpleegkundiges wat in private kritieke sorg eenhede in Gauteng provinsie praktiseer nie uitbranding ervaar nie. Die verband tussen uitbranding en die veiligheid en gehalte van pasiënte sorg is ondersoek deur middel van 'n Spearman rang korrelasie koëffisiënt. Die resultate het aangedui dat emosionele uitputting 'n negatiewe verband met die gehalte van gesondheidsorg in die eenheid het (r = -0.275; p = 0.00), en die veiligheid van pasiënte in die eenheid (r = -0.245; p = 0.00). Depersonalisasie dui op 'n negatiewe verband met die gehalte van sorg in die verpleeg eenheid (r = -.0.249; p = 0.00) en die veiligheid van pasiënte in die eenheid (r = -0.205; p = 0.00). Persoonlike vervulling het 'n swak positiewe verhouding met die kwaliteit van verpleging in die eenheid getoon(r = 0.197; p = 0.00) en ’n matige positiewe verhouding met die veiligheid van pasiënte in die eenheid (r = 0.204; p = 0.00). Die resultate toon ’n verband tussen uitbranding en die veiligheid en gehalte van pasiënte sorg in privaat kritieke sorg eenhede in Gauteng.

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LIST OF ABBREVIATIONS

AACN	American Association of Critical Care Nurses
CCU	Critical Care Unit
cc	Correlation coefficient
Dp	Depersonalisation
EE	Emotional Exhaustion
ICN	International Council of Nurses
IHOS	International Hospital Outcome Study
MBI	Maslach burnout inventory
M	Mean
NWU	North West University
N	Population
n	Sample
p	Statistical significance
PA	Personal Accomplishment
PES-NWI	Practice Environment Scale of the Nurse Work Index
RN	Registered Nurse
RNAO	Registered Nurses Association of Ontario
r_s	Spearman's rho
SANC	South African Nursing Council
S.D	Standard Deviation
SEIPS	Systems Engineering Initiative for Patient Safety
SPSS	Statistical Package for Social Sciences

WHO	World Health Organisation

CHAPTER 1
OVERVIEW OF THE STUDY

1.1. INTRODUCTION

Research recognises the clear links between nurses' experience of professional burnout and the quality of the work environment, but more research is needed to shed light on interrelationships among aspects of complex organisational settings (Leiter & Spence Laschinger, 2006:137). Nursing care proves more of a challenge today than ever before, due to factors such as inadequate staffing patterns, violence in the workplace, verbal abuse from medical personnel and frequent overtime. One of the professions most affected by mandatory overtime is nursing, where constant understaffing often leads nurses to work additional hours in less than ideal physical and emotional conditions (White, 2002:197). The lack of nursing staff has become a global patient safety issue and if the working conditions of nurses can be improved, the quality and consequently the safety of healthcare can be improved (Stone, Clarke, Cimiotti & Araujo, 2004:1984). It is extremely important for managers to create an organisational climate that promotes the emotional stability of nurses. This could help to improve global patient safety by reducing the frequency of adverse events (Teng, Chang & Hsu, 2009:2094).

To that end the main aim of this research study was to investigate the relationship between three variables namely, nurse[1] burnout and the safety and quality of patient care in private critical care units in Gauteng, South Africa. This study formed part of an international collaboration, the RN4CAST programme (Sermeus, Aiken, De Geest, Diomidous, Durna, Ekman, Klopper, Liu, Matthews, Morena-Casbas, Rafferty, Scott, Schoonhoven, Schubert, Shaibu, Tishelman, Antypas, Brzostek, Bommels, Busse, Clarke, Delaure, Frigas, Griffits, Gustavsson, Kinnune, Liaskos, Lesaffre, Mantas, Van Achterberg, Van Den Heede, Wörz & Zikos, 2008). The overall purpose of the RN4CAST programme is to expand typical forecasting models taking into account how features of work environments and qualifications of the

[1] Please note that any referral to a nurse in this study implies a registered nurse (RN), unless stated otherwise.

nurse workforce impact on nurse retention, productivity and patient outcomes. To that end the RN4CAST programme also wants to establish links between the management of nurse resources and quality of care and patient safety (Sermeus *et al*., 2008). Data for this study was extracted from the RN4CAST questionnaire in order to investigate the relationship, if any, between the three variables mentioned earlier.

1.2. BACKGROUND AND PROBLEM STATEMENT

Through this research study the researcher explored whether there is a relationship between burnout and safety and quality of patient care. Staff in critical care units (CCUs) spends a tremendous amount of time with people, including the patient, family members, physicians, and other members of the multi-disciplinary team that might lead to emotional and physical exhaustion and burnout (Maslach & Jackson, 1981:99).

According to Chang, Daly, Hancock, Bidewell, Johnson, Lambert and Lambert (2006:30), certain burdens in CCUs cause stress in nurses. These burdens may include aspects like: high job demand, dealing with the dying, negative social climate, lack of resources, excessive workload, uncooperative family members, conflict with physicians, poor quality nursing staff, time demands, staff shortage and violence. The authors suggested ways of how to cope with stress in order to prevent burnout. These coping strategies were divided into external coping methods (problem focused), and internal coping methods, which is emotionally focused (Chang *et al*., 2006:31). According to Maslach and Jackson (1981:99) burnout may be defined as emotional exhaustion due to depleted emotional resources, usually occurring among people that work with people, where they are no longer able to give of themselves at a psychological level. The “Conservation of Resources Model Applied to Work-Family Conflict and Strain” (Grandey & Cropanzano, 1999:350), stated that as the chronic work and family stressors drained resources over time, the participants experienced job and family dissatisfaction and tension, life distress and lack of physical health. Although published in 1997, the article of Roberts (1997:283) claimed that “burnout” is a new name for an old problem. He stated that burnout is not the result of stress but the result of mismanaged stress (VandenBos, 2007:140).

Nursing personnel need to learn how to respond adaptively to stress to be effective and to enhance their capacity of confidence. Lastly, Corsini and Auerbach (1996:118) agreed in stating that burnout can be described as a definite dysfunction among helping professionals as the result of excessive demands made upon their energy, strength and resources and being characterized by the inability to be adequately concerned about and involved with service recipients.

Safety can be interpreted as “potential danger” to the patient and according to the Occupational Health and Safety Act (85/1993) danger is anything, which may cause injury or damage to persons or property. Halbesleben, Wakefield, Wakefield and Cooper (2008:560), investigated nurse burnout and patient safety outcomes, specifically from a nurse safety perspective, and concluded that burnout leads to an unsafe environment not just for the patient but also for the nursing staff. According to Charney and Schirmer (2007:472), nurses leave their profession due to physical workload leading to burnout and fear for their own physical safety. International literature confirms that the shortage of nurse shortages may result in burnout and can have a profound effect on patient care (Keenan & Kennedy, 2003:16). Consequently the authors suggested strategies for recruiting the future workforce (subsidising training) and retaining registered nurses (RNs) in the workforce (policies to improve work environment) to improve patient care. Carayon and Alvarado (2007:121) stated that there is a definitive link between workload that nurses experience and patient safety. They proposed interventions on how to reduce workload in order to improve safe nursing care.

After studying the effect of staffing levels on patients in CCUs undergoing esophagectomy surgery, Amaravadi, Dimick, Pronovost and Lipsett (2000:1860) concluded the following: as the number of patients per nurse increase, less time is spent with each patient, resulting in a decreased level of care and ultimately complications. The effect of nurse staffing patterns on medical errors and nurse burnout was explored by Garrett (2008:1991) and indicated that hospital administrators should invest in adequate nurse staffing (one of the major indicators for burnout) to improve patient safety and increase nurse retention.

Research conducted by Aiken, Clarke, Sloane, Sochalski and Silber (2002:1988) explored whether patient outcomes improve when nurses had a smaller patient load and whether more favourable patient-to-nurse ratios are associated with lower burnout levels. The authors concluded that nurses contributed importantly to surveillance, early discovery and timely interventions that save lives. Improving nursing staffing levels may reduce the shocking turnover rates in hospitals thus reducing burnout and unsafe nursing care (Aiken *et al.,* 2002:1992). Recruitment and retention of staff members can prevent burnout and improve the quality of patient care (Storesund & McMurray, 2009:121). Protecting health care workers against physical injuries caused by staff shortages is directly connected to protecting patients, reducing healthcare errors and nosocomial infections, creating a balanced approach to the overall safety system and culture (Charney & Schirmer, 2007:473). Sochalski (2004) studied the difference in inpatient hospital staff nurses' assessments of the quality of nursing care and the effects of nurse staffing, patient safety problems and unfinished care on the variation in those assessments. The researcher came to the conclusion that nursing workload has a negative impact on the quality of patient care provided.

From the argument presented in the literature above, the following research questions arose:

- How are burnout and the safety and quality of patient care conceptualised in the literature?
- What is the status of burnout among registered nurses (RNs) working in the private CCUs[2] in Gauteng according to the 3 scales of the Maslach's Burnout Inventory (MBI)?
- What is the relationship between burnout among RNs and the safety and quality of patient care in private CCUs in Gauteng?

[2] Please note that any referral to a CCU in this study implies the private hospital sector in South Africa, unless stated otherwise.

1.3. AIM AND OBJECTIVES

The aim of this study was to investigate the relationship between nurse burnout and the safety and quality of patient care in private critical care units in Gauteng. In order to achieve the aim of the study the following objectives were identified:

- To conceptualise burnout, safety and quality of patient care by means of a literature review.
- To determine the prevalence of burnout according to the three scales of the MBI, amongst RNs working in the private CCUs in Gauteng.
- To investigate the relationship between burnout amongst RNs and the safety and quality of patient care in private CCUs in Gauteng.

1.4. HYPOTHESIS

A hypothesis, according to Maree, Creswell, Ebersohn, Eloff, Fereirra, Ivankova, Jansen, Nieuwenhuis, Pietersen, Plano, Clark and Van der Westhuizen (2007:203), may be seen as the beliefs or ideas regarding study variables in the population under research. These beliefs and ideas are then tested for credibility through data collection and analysis, and conclusions are drawn to reflect on the researcher's beliefs and ideas, to determine what is true in a population. A hypothesis can also be seen as the basis for investigating a formal statement of the expected relationship/s between 2 or more variables, in an identified population (Taylor, Kermode & Roberts 2006:63). According to Polit and Beck (2008:93) a research hypothesis translates a quantitative research question into a precise prediction of expected outcomes. In lieu of the above definitions the following hypotheses were formulated as statements of the expected relationships between the variables in this study:

(H_{01}): There is no statistically significant relationship between burnout among RNs and the safety and quality of patient care in CCUs in Gauteng.

(H_{a1}): There is a statistically significant relationship between burnout among RNs and the safety and quality of patient care in CCUs in Gauteng.

1.5. RESEARCHER'S ASSUMPTIONS

Maree *et al*. (2007:47) defined a "paradigm" as a set of assumptions regarding the fundamental aspects of reality. The paradigm gives rise to a particular world-view (paradigmatic perspective) on aspects of life. A paradigm can thus serve as a lens by which reality is interpreted. Burns and Grove (2009:712) also described a paradigm as a particular way of viewing a phenomenon in the world. Polit and Beck (2008:13) stated that a paradigm for human inquiry is often characterised in terms of the ways in which they respond to basic philosophical questions.

In this section the researcher explained her paradigmatic perspective by means of meta-theoretical assumptions (view of man, society, health, nursing and nursing science), theoretical assumptions (System Engineering Initiative for Patient Safety (SEIPS) model and clarification of concepts) and methodological assumptions as they applied to the study.

1.5.1. Meta-theoretical assumptions

Because not all scientific findings can be proved on the foundation of empirical research data, the researcher needs to make certain assumptions in defending certain theories and strategies followed (Mouton & Marais, 1996:192). These assumptions are discussed in the paragraphs that follow:

I. View of man (human being / individual / critical care nurse)

The researcher view man, in this study the critical care nurse, as a unique creation of God, with physiological, psychosocial and spiritual dimensions. In Genesis 1:26 God said "and now we will make human beings; they will be like us and resemble us" (Bible, 1983). These dimensions are interdependent on each other and cannot be viewed separately. The researcher thus agree with Fawcett (2005:12) that human beings are bio-psycho-social-spiritual beings, viewed as the sum of discrete biological, psychological, sociological and spiritual parts.

The physiological dimension refers to the physical needs of the critical care nurse that must be met under working conditions, for example: adequate resting periods.

The physiological effects that nurse burnout have on the health of the nurses, forms part of this physiological dimension of the human that needs to be addressed.

The psychosocial dimension includes the interpersonal and intrapersonal aspects of the critical care nurse's functioning. Adequate communication patterns, positive attitude and coping strategies are important psychosocial aspects in the attempt to minimise burnout in critical care nurses.

The spiritual dimension refers to the beliefs/religion of the critical care nurse. If her belief is grounded in God, she might have a different attitude and motivation towards her working conditions and workload, with a more positive attitude and better self-management of burnout.

II. View of society

The private critical care units in Gauteng can be seen as the society of interest in this research study. The critical care nurse provides holistic care on a daily basis in the environment of critically ill patients with a very high job demand. The critical care environment might have either a positive or negative effect on her as nurse. All the members of the multi-disciplinary team forms part of this society and need to work together in the prevention of nurse burnout.

III. View of health

I view health as the absence of physical and mental illness. To be completely healthy, a person must also be socially adaptable and in a relationship with his/her Creator (spiritual health). Since the time of Florence Nightingale it was clear that people needed adequate nutrition, clean water and clean sanitation to be able to recover from injuries and illnesses and to maintain health (Palmer, 2001:29). According to the World Health Organisation's (WHO, 2010) definition of health, there is some intrinsic relationship between the good of the body and the good of the self. The WHO (2010) defines health as the state of complete physical, mental and social well-being which illustrates that health does not only implicate physical well-being, but also encompasses mental and social dimensions. This definition has not changed since 1946.

IV. View of nursing

I agree with the International Council of Nurses' (ICN, 2007) definition of nursing. The ICN (2007) states that nursing can be seen as the total autonomous and collaborative care of individuals of all ages, families, groups and communities, whether they are sick or well, regardless of their settings. Nursing includes the promotion of health, prevention of illness and the care of ill, disabled and dying people. Support, encouragement of a safe environment, research, contribution in shaping health policy and in patient and health systems management, and education are also key nursing roles. Nursing is a profession, a "call" and a passion in life. Nursing can be seen as the provision of holistic care to all categories of patients, in different types of units with the aim of improving and optimising health, and preventing further illness and complications. I agree with Botes (1991:19) that a profession has its origin in the need of the community regarding a specific service. Furthermore nursing is viewed as a systematic process, where the patient is assessed according to the scientific nursing process; actions to improve well-being are planned, implemented, evaluated and scientifically recorded.

V. Nursing science

According to Burns and Grove (2009:7) a science can be seen as a coherent body of knowledge composed of research findings and tested theories for a specific discipline (nursing). The ultimate goal of science is to clarify the empirical world and to have better control over it. In the nursing profession, evidence-based knowledge are integrated to control the delivery of care and to improve patient outcomes by means of evidence-based-practice (Burns & Grove, 2009:7). It was clear from the literature reviewed for this study, that remarkable research has been conducted to generate empirical evidence about burnout in nursing and the related safety and quality of patient care. It was also clear that this evidence guided further actions of nurses in practice.

VI. Epistemiological assumption

Taylor *et al.* (2006:320) explained that whenever researchers ask questions about the nature of the existence of something they are asking ontological questions. From this, epistemological questions are derived where researchers ask questions

about what they know and how they know that it is trustworthy knowledge. In other words, epistemology is the study of knowledge and how it is judged to be “true”. Because the findings of this research will be published in nursing journals, the researcher will aim to reflect optimum truth during the research study so that other health care professionals can utilise the findings.

1.5.2. Theoretical assumptions

According to Brink, van der Walt and van Rensburg (2006:19), a theory summarises and organises the existing understanding of a particular phenomenon, and may be scientifically tested in the empirical world through research. A theory also consists of numerous concepts, and relational statements that are well integrated and interconnected and used to explain a certain phenomenon. Theories help the researcher to pull complex concepts together. Polit and Beck (2008:142) defined a framework as the overall conceptual underpinnings of a study. Every study has a framework. In a study based on a theory, the framework is referred to as the theoretical framework. A theoretical framework helps the researcher to clarify or predict study outcomes and to tie those outcomes to the existing body of knowledge (Langford, 2001:105; Burns & Grove, 2009:725). Within the context of this study the following concepts and theoretical framework were regarded important to the understanding of the phenomena under investigation. A clarification of the concepts follows:

1.5.2.1. Burnout

According to Maslach and Jackson (1981:99) burnout may be defined as emotional exhaustion due to depleted emotional resources, usually occurring among people that work with people, where they are no longer able to give of themselves at a psychological level. To that end Maslach and Jackson (1981:99) invented a scale to assess various aspects of the burnout syndrome in a wide range of human services professionals. This research allowed for a better understanding of the personal, social and institutional variables that either promote or reduce the occurrence of burnout. Three subscales are measured with the MBI and include: emotional exhaustion, depersonalisation and personal accomplishment. The MBI will be discussed in detail in chapter 2 of this research study.

Brooker (2006:36-37) confirmed this definition by describing burnout as a state that results from exposure to stressors. The stressors are often chronic and work-related and health professionals are at particular risk of burnout because of their prolonged contact with ill people. It has been described as emotional exhaustion, isolation, and an inability to deal positively with problems. The adverse effects can be divided into physical, emotional, intellectual, social and spiritual effects, and may include ineffective coping strategies, anxiety, insomnia, poor decision making, appetite and weight changes, extreme tiredness, apathy, lack of motivation, relationship difficulties and misuse of alcohol and drugs.

1.5.2.2. Safety

Watts (1977:349) defined safety in a general sense as the condition of being free from harm and can also be seen as the active attempt taken by individuals or groups to promote preventive measures against possible injury or accidents. For the purpose of this study patient safety can be seen as a discipline in the health care sector that applies safety science methods toward the goal of achieving a trustworthy system of health care delivery.

1.5.2.3. Quality

In this study the researcher ascribes to Maxwell's (1984:1471) six dimensions of quality: Quality can be seen as: "effectiveness", the extent to which objectives are achieved, in other words to measure outcomes; "efficiency", value for money, utilising the resources optimally; "equity", equal access and treatment to all patients; "acceptability", the manner and environment in which care is provided; "accessibility", to include time, location and suitability; and "appropriateness", to all. Quality can be defined and measured on the basis of specifications and expectations. Quality is dynamic, developing from continual improvement and although it is free, it goes hand in hand with cost. Quality can be considered as the primary source of cost reduction, but cost reduction does not necessarily improve quality.

1.5.2.4. Critical care

Urdang (1983:565) describes critical care as constant, complex, detailed health care provided in various acute life-threatening conditions, multiple trauma, severe burns, and myocardial infarction or following certain types of surgery. Special training is often necessary to provide critical care. Care is most frequently given in a CCU equipped with various advanced machines and devices for treating and monitoring the patient. Martin (2004:247) confirms the above definition stating that critical care is specialised and monitored health care provided for the critically ill and immediately postoperative patients by specialist multidisciplinary staff in a specially designed hospital unit. Critical care is also called “intensive care” in South Africa, but in the context of this study referred to as critical care.

1.5.2.5. Critical care units (CCU)

According to McCleery (1998:160) a CCU can be defined as a specially staffed hospital unit that treats patients who require close monitoring and critical care with highly technical, refined equipment. A critical care unit may be seen as a high dependency unit (Brooker, 2006:128) in which highly specialised monitoring, resuscitation and therapeutic techniques are used to support critically ill patients, e.g. those needing ventilation.

1.5.2.6. Critical care nurse

A critical care nurse for the purpose of this study is seen as a nurse registered with the South African Nursing Council (SANC), with either experience in critical care nursing or with relevant education regarding critical care nursing. In South Africa, a RN is a nurse that completed a four-year degree or diploma in nursing. Education/training in critical care may include a certificate or a diploma or a master’s degree in critical care nursing. In light of the fact that South Africa does not have separate regulations supporting the scope of practice of the critical care nurse, the researcher ascribed to the American Association of Critical Care Nurses standards for critical care nurses (AACN, 2008). The nurse caring for the critically ill patient:

- systematically evaluates the quality and effectiveness of nursing practice;
- reflects knowledge of current professional practice standards, laws and regulations;

- maintain current knowledge and competency in the care of the critical care patient;
- interacts with and contributes to the professional development of peers and other health care providers as colleagues;
- determine decisions and actions on behalf of the critical care patient in an ethical manner;
- collaborates with the team, consisting of patient, family and health care providers, in providing patient care in a healing, humane and caring environment;
- uses clinical inquiry in practice; and
- considers factors related to safety, effectiveness, and cost in planning and delivering patient care.

Following the definition of concepts considered relevant to the phenomena under investigation, the SEIPS model was selected to provide the theoretical framework for the study. A discussion of the model in nursing practice in South Africa is provided in Chapter 5 of this study.

1.5.2.7. The SEIPS model

A model can be seen as a schematic illustration of certain relationships among phenomena and assists the researcher to structure the way that a situation or people can be viewed. With a model the researcher can describe and direct specific research tasks or provide an organised framework (Brink *et al.,* 2006:23). The SEIPS model directed the researcher's central concepts of certain factors in the work environment of the nurse that might lead to burnout, having an effect on the safety and quality of patient care.

According to Carayon and Gurses (2005:298), certain elements of the work system can affect nurses and their performance and the safety and quality of care provided. In other words, these elements are factors contributing to the nursing workload as illustrated in Figure 1.1. For the purpose of this study certain factors in the nurses' work environment can contribute to burnout, unsafe practice and poor quality patient care. These causes of burnout, unsafe practice and poor quality care will be discussed in chapter 2.

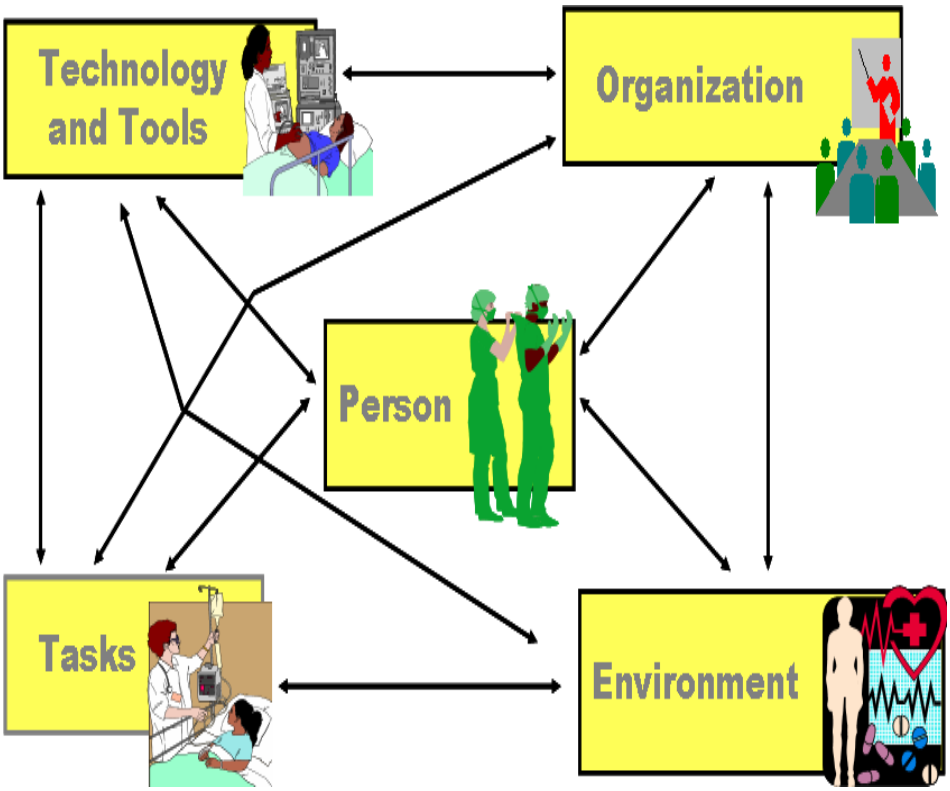

Figure 1.1: SEIPS model of work system and patient safety (Carayon, Schoofs, Karsh, Gurses, Alvarado, Smith & Flatley Brennan, 2006:i51)

1.6. Methodological assumptions

Methodological assumptions encompass the beliefs concerning the nature of scientific research. In other words assumptions of what ought to be good research (Mouton & Marais, 1996:23). In this research study the Model for Nursing Research developed by Botes (1991) guided the research process. The model describes three orders in nursing activities namely, nursing practice, nursing science and the philosophy of nursing. These orders are separately described but are interrelated during the research process. An overview of how these orders realised in this study is presented in Table 1.1.

Table 1.1: The relationship between nursing practice, nursing science and the philosophy of nursing (Botes, 1991:23).

Orders	Interpretation	Application to research study
Third order	The philosophy of nursing (meta-theoretical activities)	Burnout and safe quality patient care
Second order	Nursing science (methodology)	Exploratory, descriptive, contextual correlation design
First order	Reality (nursing practice, pre-scientific interpretations)	Burnout among nurses

The first order describes the empiric reality: nursing practice. Here nursing practice can be studied, problems or research questions can be identified and solutions may be proposed. Nursing actions are based on knowledge of nursing, but in practice actions take place with pre-scientific knowledge of nursing (Botes, 1991:19.) In the context of this study, burnout occurs commonly among nurses and the general well-being of nurses needs to be improved to enhance nursing practice.

The second order represents the activities of nursing science and involves research and theory development. This is a meta-practical activity, implying that the researcher identifies nursing problems as they are, investigates the problem, describes the problem and suggests solutions. For the purpose of this study the concept burnout, safety and quality patient care will be identified, investigated, described and recommendations will be made.

The third order describes the philosophy of nursing and is seen as a meta-theoretical activity, involving the analysis and evaluation of concepts, assumptions and methods that are found in the first and second order (Botes, 1991:20). Botes (1991:20) supports a functional approach in nursing, implying that research is not just done because it needs to be done, but to serve a higher goal. The motive to “serve” is seen as the central criteria of the nursing profession and the functional approach. The functional approach focuses on the application of knowledge as an ultimate

standard for truth and credibility. The functional approach does not stand passive in the world but is actively involved (Botes, 1991:21-22), thus encouraging researcher involvement in the research process. The model also accommodates basic characteristics of nursing practice, like interpersonal-relationships and the dynamic nature of nursing (Botes, 1991:22).

1.6.1. Application to the research project

The empirical reality of this research is the fact that nurses experience burnout because of several realities in their working environment. The concepts of safety and quality patient care are investigated to determine whether there is a relationship between burnout and the safety and quality of patient care. Figure 1.2 provides a visual illustration of the model of Botes (1991):

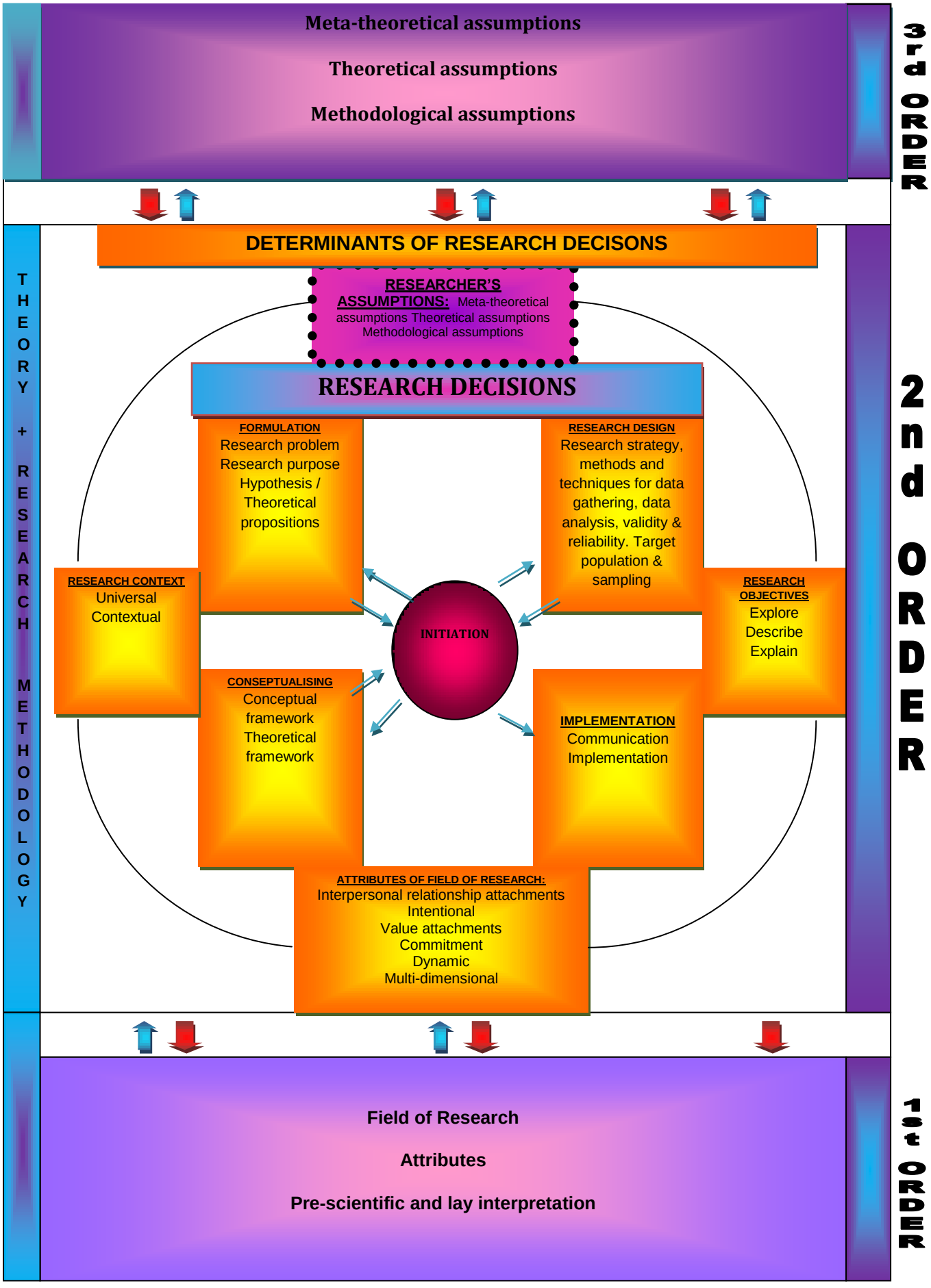

Fig: 1.2: A model for research in nursing (Botes, 1991:24)

1.7. RESEARCH DESIGN

A research design is the overall plan that guides the way the study is conducted and analysed (Langford 2001:110). As stated in section 1.1, this research study formed part of an international collaborative programme, namely RN4CAST that followed a quantitative survey design (Sermeus et *al.,* 2008). In this research study a correlation design that was exploratory, descriptive and contextual in nature was followed to answer the research questions. A correlation design is typically chosen when describing variables and examining the relationships among these variables (Burns & Grove, 2009:249). A comprehensive discussion of the research design for this study will be provided in Chapter 3.

1.8. RESEARCH METHOD

In conceptualising burnout, safety and the quality of patient care as the first objective for this research study, a literature review was conducted to set a theoretical background for these concepts. In determining the prevalence of burnout among RNs the MBI was used (objective 2), and investigating the relationship among these three variables (objective 3), data considered relevant to answer the questions were extrapolated from the RN4CAST questionnaire (refer to Annexure B). A discussion of the instrument used follows.

1.8.1. RN4CAST questionnaire

The RN4CAST questionnaire comprised of four sections as illustrated in figure 1.3. Section A explored the RNs current practice environment and burnout levels. Section B explored RNs perceptions of the quality and safety of care delivered in their units, whilst section C focussed on their most recent shift. Demographic data was explored in section D of the questionnaire. The questionnaire consisted of 7 pages and was a self-administrated questionnaire. Data for the purpose of this study was extrapolated from sections A, B and D. A comprehensive discussion of the instrument will be presented in Chapter 3.

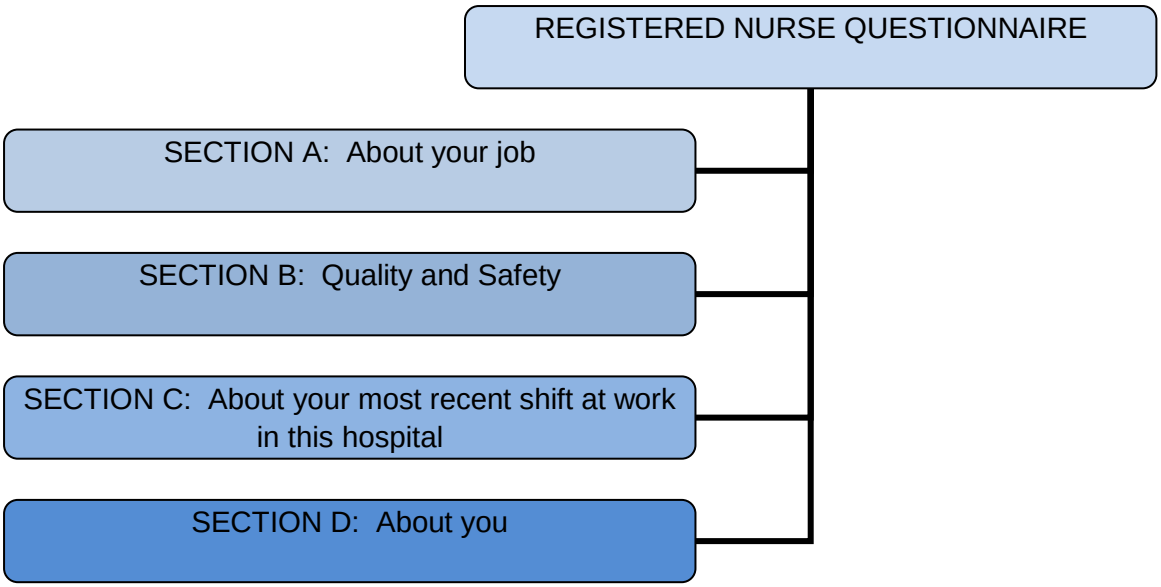

Fig 1.3: RN4CAST Questionnaire for RNs (Sermeus et al., 2008)

1.8.2. Setting

CCUs in the private hospital sector of Gauteng provided the setting for the research study (n=31). The private hospital sector in South Africa comprises of three major groups and the study was conducted in two of the three groups (Pretorius, 2009:19). Data relevant to the demographics of the units that participated in the study was described by means of a checklist (refer to Annexure C) that was previously used in a doctoral study within the RN4CAST programme. A discussion of the demographic characteristics is provided in Chapter 4.

1.8.3. Population

The population for the research study included:

- Any discipline adult CCU within private hospitals in Gauteng with more than 100 beds.
- RNs with either critical care experience or training (degree, diploma or certificate) in critical care nursing.

1.8.4. Sampling

The aim of sampling is to select a subset of the population that is similar to the population in as many ways as possible to be able for the researcher to generalise from the sample to the target population (Brink *et al.,* 2006:125). In order to conduct a factor analysis of the MBI a sample size of at least 300 RNs was required. In light of the poor response rates associated with questionnaire completion, an all-inclusive sampling method was used. A total of 298 (n=298) RNs completed and returned their questionnaires.

In an attempt to ensure a certain degree of homogeneity of the sample the following inclusion criteria was stipulated (Pretorius, 2009:81-82):

- The critical care units had to be based in the Gauteng province, South Africa.
- Hospitals with a bed capacity of more than 100 beds were used.
- Adult critical care units were selected.
- All disciplines of care were included, namely trauma, surgical, etc.

1.9. DATA COLLECTION

As stated earlier, data was collected by means of the RN4CAST questionnaire and a demographic checklist (Sermeus *et al.,* 2008; Pretorius, 2009). Data was collected on site over a period of three months during 2009 and a detailed discussion will be presented in Chapter 4 of this study.

1.10. DATA ANALYSIS

Data analysis included descriptive and inferential statistics. A computer software programme EpiData 3.1 (Lauritsen, 2008) was utilised for the capturing of the data and SPSS 16.0 (SPSS, 2007) was used for the analysis of the data. A comprehensive discussion of the analysis and results will be presented in Chapter 4. A brief summary of the research study in terms of the research questions, objectives and design is provided in Table 1.2.

Table 1.2: Overview of the research study

AIM OF THE STUDY	OBJECTIVES	DATA COLLECTION	POPULATION AND SAMPLING	DATA ANALYSIS	DISCUSSION OF RESULTS
To investigate the relationship between nurse burnout and the safety and quality of patient care in private critical care units in Gauteng	1. To conceptualise burnout, safety and quality of patient care by means of a literature review.	Extensive literature review	All relevant literature N = 110 n = 88		Chapter 2
	2. To determine the prevalence of burnout according to the three scales of the MBI, amongst RNs working in the private CCUs in Gauteng.	RN4CAST Questionnaire: MBI: Section A, question 9 (1-22)	**Setting:** Private critical care units Gauteng, South Africa **Population:** Private hospitals with bed capacity of more than 100 beds. **Sampling:** All inclusive sampling N = 298	Descriptive and inferential statistics	Chapter 4
	3. To investigate the relationship between burnout amongst RNs and the safety and quality of patient care in private CCUs in Gauteng.	RN4CAST Questionnaire: Section B, question 1 - 6			Chapter 4

1.11. RIGOUR

Taylor *et al.* (2006:400) described rigour as the rigorousness in judgment and ways that must be used to ensure that the consecutive steps in a project have been set out clearly and undertaken with thorough attention to detail; so that the findings can be trusted. Rigour makes the research transparent so that others can evaluate methodological accuracy. Thus indicating whether the research reflects the truth of what is being researched. In quantitative research, rigour is described in terms of validity and reliability.

1.11.1. Validity

Validity can be divided into 2 types: internal and external validity. External validity indicates whether the findings of a study can be generalised to other parts of a population. For external validity to be achieved the participants should be selected randomly from the population to be as representative as possible (Taylor *et al.,* 2006:177). Internal validity refers to research that measures what it is supposed to measure and the effects measured are therefore attributable to the manipulation of the independent variable (Taylor *et al.,* 2006:178). Different types of instrument validity are found and include content validity, face validity, criterion-related validity and construct validity. A discussion of validity as it is related to the RN4CAST questionnaire is presented in Chapter 4.

1.11.2. Reliability

Reliability is concerned with the consistency, stability and repeatability of the informants' accounts as well as the researcher's ability to collect and record information accurately (Brink *et al*., 2006:118). Reliability for this study was confirmed through the utilisation of an already reliable and valid instrument. The internal consistency for the Maslach Burnout Inventory in this study will be discussed in Chapter 4.

1.12. ETHICAL CONSIDERATIONS

Since the researcher made use of data that was already collected, a thorough review of the ethical principles adhered to during the collection and analysis of the data was conducted. From the review it was evident that the following fundamental ethical

principles were followed during the research process (Brink *et al.*, 2006:45; Pretorius, 2009: 22):

- **The principle of respect for a person** - the participants had the right to withdraw from the study at any time. Participants could decide for themselves whether to participate or not.
- **The principle of beneficence** - no harm or discomfort was caused to participants.
- **The principle of justice** - data was processed anonymously and data was kept in a safe place and data was not made available to persons who were not involved in the research study.

A comprehensive discussion of the realisation of these principles and the ethical considerations of this study is presented in Chapter 3.

1.13. SUMMARY

In chapter 1 the researcher presented a brief overview of the research study. Following a discussion of the background and problem statement, the aim and objectives of the study was provided. A discussion of the design and the relevant data collection and analysis methods followed, and the chapter concluded with an overview of issues related to rigour and ethics. A comprehensive review of the literature related to the concepts introduced in Chapter 1 follows in Chapter 2.

CHAPTER 2
LITERATURE REVIEW

2.1. INTRODUCTION

A literature review indicates to the researcher who else is interested in similar ideas, and discloses the history of research about the topic. Through a literature review, the researcher can refine the research question or hypothesis (Polit & Beck, 2004:88; Spatz & Kardas 2008:343). Brink *et al.* (2006:67-68) confirmed the above in stating that the literature review is a critical methodical appraisal of recent scholarly work on the topic provided. In Chapter 1, the reader was presented with an overview of the research study. Chapter 2 continues with a discussion of literature regarded relevant to the phenomenon under investigation. Prior to conducting the review, core concepts embedded in the research questions were identified and used to enhance the search process. A discussion of the literature related to these concepts is presented below.

2.2. SEARCH STRATEGY

A comprehensive search of databases considered relevant to the phenomena under investigation was conducted. The following key words were used to appear in the title or abstract:

- “Burnout”,
- “nurs*”,
- “quality”,
- “safe”,
- “critical”,
- “intensive*”

Articles, both nationally and internationally, that were relevant to the research questions were saved and a copy was printed. A total of 110 articles were found on different sites and 88 sources (articles and text books) were utilised for this literature review. The research article titles were first evaluated, and then the abstract given was examined for relevance. If the researcher was not clear on whether the article

would be relevant to the current research study, the full text was read through. The researcher reviewed articles from the year 2000 to date but also included articles published before the year 2000 if they were considered to contain seminal work. Articles were excluded from the review based on the following criteria:

- Articles in languages other than English and Afrikaans;
- Secondary sources;
- Articles not applicable to the current research topic;
- Outdated articles (i.e. articles published prior to the year 2000).

On the home page of the North-West University (NWU) Library, quick links were utilised to access the complete list of databases. First, the A-Z journal list was consulted to determine the electronic availability of journals identified. If a journal with a relevant article was only available from another institution, an "inter-library loan" was requested. Secondly, on the complete list of databases "Ebsco-HOST", "Google Advanced Scholar Search" and "Science Direct" were used as search engines for articles. Hard copies of articles not available in an electronic format were obtained from the library catalogue. To exclude secondary sources, the researcher examined the reference lists of articles that were used as primary sources.

2.3. LITERATURE REVIEW

The researcher conducted a comprehensive review of the literature related to the variables defined in Chapter 1. To that end an overview of the definition of burnout is presented, followed by a discussion of safety and quality in terms of patient care.

2.3.1. Burnout

Burnout can be compared to a metaphor of smothering a fire or extinguishing a candle. This implies that once a fire is burning, the fire cannot continue burning unless sufficient resources are replenished. This can be applied to the nursing profession, because over time the employees experiencing burnout lose the capacity to provide the contributions that make an impact. If they continue to work, the result is glowing and then burning (Schaufeli, Leiter & Maslach, 2009:205). Due to challenging environments there are constant changes and a multitude of demands,

which adds up over time. Nurses can adapt to these changes and demands effectively or if that does not happen, it will spiral to burnout. As stated in chapter 1, burnout is not the result of stress but of mismanaged stress (Roberts, 1997:283). Higher levels of burnout have been recorded in the nursing profession, than in any other profession (Alexander, 2010:3). This can be attributed to the type of work that nurses perform which is often physically and emotionally intense (Mahmood, Chaudhury & Valente, 2009:1).

2.3.2. Definition of burnout

Maslach (1982:3) describes burnout as follows: "a syndrome of emotional exhaustion, depersonalization and reduced personal accomplishment that can occur among individuals who do people work of some kind... the stress arises from the social interaction between helper and recipient". In this definition emotional exhaustion is described as "not being able to give any more of oneself" and to feel psychological and emotional strain through working with others. Emotional exhaustion can also be seen as a feeling of "your heart sinking" when a new patient is admitted (Weinberg & Cooper, 2007:18). When burned out, people feel drained, used up and unable to recover again (Maslach & Leiter, 1997:17).

The depersonalisation dimension refers to a "hardened", cold distant attitude towards others. Feelings of empathy and caring disappear, with minimum involvement at work (Weinberg & Cooper, 2007:18) and changes into lost enthusiasm and negative cynicism (Leiter & Maslach, 2005:2; Maslach, Schaufeli & Leither., 2001:397; Maslach & Leiter, 1997:18). In the third dimension, personal accomplishment, dissatisfaction occurs and the difference made by one's work is not evident to the employee, because of a loss of confidence and a growing sense of inadequacy (Weinberg & Cooper, 2007:18; Leiter & Maslach, 2005:3; Maslach & Leiter, 1997:17; Maslach *et al.* 2001:397).

2.3.3. Development of burnout

The development of burnout can be described as follows: Emotional exhaustion firstly emerges where the individual feels tired of work and has no mental strength to devote to work. Emotional exhaustion is followed by an attempt to defend oneself by

isolation of affect (depersonalization). Here the individual might develop impersonal interaction with patients in an effort to avoid stress. This is usually ineffective and may lead to the final phase of burnout, which is the decrease in work functioning levels and decreased personal achievement (Iacovides, Fountoulakis, Kaprinis & Kaprinis, 2003:212.)

2.3.4. Causes of burnout

Traditionally, emotionally demanding interpersonal relationships of different professions, with their recipients have been seen as the major cause of burnout. These relationships can be seen as asymmetric, where the nursing staff will give of themselves in the form of care, support, attention, comfort and assistance and the patient will receive. The strains of this asymmetric relationship might lead to the depletion of the nursing staff's emotional resources (Schaufeli, Maslach & Marek, 1993:17). McVicar (2003:642) investigated causes of stress in nursing, and concluded that high levels of stress are arising from the care process itself. Some of the major contributors to the development of burnout can be summarised as work environment factors, or job characteristics and personal risk factors.

2.3.4.1. Work environment factors (Job Characteristics)

According to Maslach (1982:37) work environment factors or job characteristics can either promote or reduce emotional stress, and may be seen as an important factor in the causes of burnout syndrome. To that end table 2.1 provides an overview of guidelines regarding healthy work environments from different global organisations.

Several factors must be considered in terms of the nurse's working environment that might contribute to burnout. These factors include the physical working environment, physical workload, high job demand, time demand, staff shortage, shift rotation, overtime, financial constraints, lack of resources, excessive administrative duties, poor relationships, conflict with physicians, violence, moral distress, lack of organisational support and dealing with the dying. A discussion of these factors follows.

Table 2.1: Global organizational guidelines regarding best practice environments

WHO (World Health Organisation)	**RNAO (Registered Nurses Association of Ontario)**	**ICN (International Council of Nurses)**	**AACN (American Association of Critical Care Nursing)**
Creating a healthy, supportive and safe work environment.	Collaborative practice among nursing teams.	Innovative policy frameworks focused on recruitment and retention.	**Skilled Communication** Nurses must be as proficient in communication skills as they are in clinical skills.
Health promotion and health protection to be an integral part of management practices.	Developing and sustaining effective staffing and workload practices.	Strategies for continuing education and upgrading.	**True Collaboration** Nurses must be relentless in pursuing and fostering true collaboration.
Work styles and lifestyles conducive to health.	Developing and sustaining nursing leadership.	Adequate employee compensation.	**Effective Decision Making** Nurses must be valued and committed partners in making policy, directing and evaluating clinical care and leading organisational operations.
Total organisational participation.	Embracing cultural diversity in health care: Developing cultural competence.	Recognition programs.	**Appropriate Staffing** Staffing must ensure the effective match between patient needs and nurse competencies.
Extension of positive impacts to the local and surrounding community and environment.	Professionalism in nursing.	Sufficient equipment and supplies.	**Meaningful Recognition** Nurses must be recognised and must recognise others for the value each brings to the work of the organisation.
	Workplace health, safety and well-being of the nurse.	A safe working environment.	**Authentic Leadership** Nurse leaders must fully embrace the imperative of a healthy work environment, authentically live it and engage others in its achievement.
(WHO, 1999:10)	(Registered Nurses' Association of Ontario, 2008:13)	(ICN, 2007:1)	(AACN standards for establishing and sustaining healthy working environments, 2005:13)

The **physical work environment** of critical care nurses may lead to performance obstacles during shifts. These obstacles include: noisy working environments, crowded working environments and disorganised patient areas (Gurses & Carayon, 2009:511; Mahmood et *al.,* 2009:2) and might cause nurses to be overwhelmed and exhausted. Changing the work environment is not even negotiable in the preservation of existing nursing staff, improving job satisfaction and enhancing patient outcomes (McCauley & Irwin, 2006:542; Heinz, 2004:50). The importance of the physical working environment in private CCUs in South Africa was also confirmed in a study conducted by Pretorius and Klopper (2010).

From the findings of the study it was evident that critical care nurses place a high value on organised working environments as it contributed to their sense of a positive practice environment and job satisfaction. A healthy working environment is so important that failure to address the issue would result in harmful effects for every aspect of acute and critical care practice (McCauley & Irwin, 2006:541). Aiken, Clarke, Sloane, Lake and Cheney (2008:223) investigated the impact of the hospital care environment on patient mortality and nurse outcomes. In their investigation on whether improved hospital nursing care environments are related with lower patient mortality and better nursing outcomes, the researchers concluded that the improvement of nurse staffing, education and caring environments will improve patient outcomes.

Van der Colff and Rothmann (2009:7) stated that nurses leave the profession due to **physical workload** and fear for their safety (Charney & Schirmer, 2007:472). Carayon and Gürses (2005:284) identified 4 levels of nursing workload, namely: unit level workload (that includes nurse/patient ratios, nursing hours, daily bed occupancy), job level workload (the overall perceived workload associated with a job), patient level workload (the patient's condition, nursing activities) and situation level workload (what happens in a clinical micro-system). The researchers came to the conclusion that the work organisation needs to be changed to reduce nursing workload. Strong evidence suggests a relationship between high nursing workload and negative patient outcomes. Carayon and Alvarado (2007:121-129) identified different dimensions of workload using the Work Systems Model. They identified the

following dimensions: physical dimension (amount of physical work, including patient handling), cognitive dimension (information overload), time pressure dimension (working under temporal constraints and tight deadlines), emotional dimension (emotional issues like patient death, family demands), quantitative dimension (amount of work), qualitative dimension (difficulty of work) and workload variability dimension (changes in workload such as an increase and decrease in work load). They also concluded that workload has an impact on the nurse's health (Chang *et al*. 2006:31) and patient safety.

Another factor contributing to burnout among nurses can be attributed to **job demands. Job demands** can be defined as conditions that potentially evoke stress-reactions when they overwhelm nurses' personal limits and abilities (Demerouti, Bakker, Nachreiner and Schaufeli, 2000:456). Fatigue contributes to burnout and job dissatisfaction (Aiken *et al.,* 2002:1987). Jourdain and Chênevert (2010:709,720) investigated the role of burnout in the relationship between stress factors related to nurses' work and social environment, and came to the conclusion that considerable demands lead to emotional exhaustion (Bakker, Blanc & Schaufeli, 2005:285; Maslach *et al.,* 2001:407) and indirectly to depersonalisation. Coping with job stress is very difficult because there are not many things to do in order to modify the job environment. Demerouti *et al.* (2000:454) tested a theoretical model that discriminated between job demands and job resources and came to the conclusion that job demands like demanding contacts with patients and time pressure are most predictive of exhaustion (Demerouti, Bakker, Nachreiner & Schaufeli, 2001:499). Nurse's tasks and roles need to be reorganised to decrease work overload and to increase the meaning of their work (Jourdain & Chênevert, 2010:710).

Related to job demands, Chang *et al*. (2006:31) concluded that **time demands** such as overloaded work schedules, with too little time and too few resources to accomplish the job leads to burnout (Spence Laschinger & Leither, 2006:260). There is always a pressure of time in trying to fit the care of many patients into the work shift (Felton, 1998:24; Leiter & Maslach, 2005:51). As is often the case in nursing, **excessive administrative duties** may also be seen as one of the stressors that may lead to burnout (Van der Colff & Rothmann, 2009:7).

In addition Van der Colff and Rothmann (2009:7) stated that physical injuries to nursing staff, **nursing shortages**, and the reduction of nursing hours at the bedside, leads to nurses leaving the profession. All of this might lead to burnout in nurses remaining in the profession (Charney & Schirmer, 2007:473). An insufficient supply of essential personnel is a critical stressor for hospitals. Nurse shortage also makes teamwork all the more difficult to achieve and maintain (Buerhaus, Donelan, Ulrich, Norman, Desroches & Dittus, 2007:854). Hassmiller and Cozine (2006:269) stated that a smaller number of people are working in nursing, which has led to a shortage. Because of the shortage, nurses who remain in hospital work must care for more patients under increasingly difficult working conditions. Because of these strained working conditions, more nurses leave the hospital workforce, thereby worsening the shortage and making recruitment of new nurses more difficult. Further evidence from a study conducted in Turkey revealed that 82% of the participants indicated that they were adversely affected by nurse shortages and this lead to emotional exhaustion (Demir, Ulusoy & Ulusoy, 2003:811). Nurses working in hospitals with the highest patient-to-nurse ratios are much more likely to experience job-related burnout than nurses in hospitals with the lowest ratios. Aiken *et al.* (2002:1987; 1992) investigated whether nurse staffing ratios affects patient mortality, nurse burnout and job dissatisfaction and concluded that nurses in hospitals with the highest patient-to-nurse ratios will experience more job related burnout and job dissatisfaction compared to nurses in hospitals with the lowest ratios.

Shift rotation can also influence burnout levels in nursing. According to Chang *et al*. (2006:31*)* emotional exhaustion levels are significantly higher in nurses working night duty than in nurses working day duty and occasional night duty (Demir *et al*., 2003:811; Aiken *et al*., 2002:1992). Another factor for consideration is **overtime** that can be defined as the time on the job beyond the hours scheduled for the individual shift and/or work week, and are implemented in all healthcare settings to meet staff shortages or due to patient influxes. Overtime can be seen as a management tool for ensuring coverage of patient needs. Fatigue-related cognitive impairment can be associated with adverse events and errors not only in patients but also in healthcare workers (Olds & Clarke, 2010:1, 6). Healthcare workers have to work mandatory

overtime due to severe staff shortages in less than ideal physical and emotional conditions and this may lead to adverse events (White, 2002:197).

Financial constraints for both the employee and employer also need consideration when speaking about burnout. Economic hardships, low quality of housing and difficulties in transportation also increases the levels of burnout (Demir *et al.,* 2003:825). According to Spence Laschinger and Leither (2006:261), when the reduction of cost becomes more important than meeting the client and employee's needs, it leads to burnout. Inadequate salaries are seen as one of the most severe stressors in causing burnout (Van der Colff & Rothmann, 2009:7).

The **lack of job resources** like financial reward, performance feedback and task variety can be seen as conditions that potentially induce stress-reactions among nurses when they are not there or insufficient (Demerouti *et al.,* 2000:456; Chang *et al.,* 2006:31). Lack of resources mainly influences depersonalisation (Jourdain & Chênevert, 2010:720.), whilst the lack of equipment may also be related to higher levels of emotional exhaustion (Demir *et al.,* 2003:811). Job resources like poor reward and lack of participation in decision-making are predictive of disengagement from work (Demerouti *et al*., 2000:454; Demerouti *et al*., 2001:499). According to Maslach *et al*. (2001:407), social support and lack of support from supervisors are major indicators of burnout. The researchers also commented on another set of job resources in the form of feedback to nurses. A lack of feedback is constantly related to all three dimensions of burnout.

Poor **relationships** between supervisors, co-workers and physicians may lead to stress and burnout (Chang *et al*., 2006:31). It is the responsibility of the employer to make sure that the conditions exist that will allow the nursing profession to fulfill its potential (Kingma, 2009:880). According to Chang *et al.* (2006:31) the scarcity of attendants or physicians lead to emotional exhaustion in nurses. Another factor to consider, involves constant **conflict with physicians** with the traditional domination of physicians in the health care system, and the nurse constantly striving to move from "helper" to independent provider (Felton, 1998:241) which to be gaining increasing attention. **Violence** towards nurses may be physical but can also be

psychological, arising from verbal threats, persistent verbal abuse, and mocking behavior (Stranks, 2008:174; White, 2002:197; Felton, 1998:241).

Moral distress is psychological disequilibrium that occurs when the ethically right course of action is known but cannot be acted upon (Elperne, Covert & Kleinpell, 2005:523). The item with the highest moral distress frequency and intensity is the nurses' perception of unsafe staffing (Corley, Minick, Elswick & Jacobs, 2005:387). Ineffective policy structures for the protection of staff members, and organisations without strategies to manage conflict that arises between patients, family members or among patient care staff over treatment decisions, may lead to moral stress and emotional exhaustion (Corley *et al.*, 2005:383). Spence Laschinger, Finegan and Wilk (2009:3810) examined the combined effect of supportive professional practice environments, civil working relationships and empowerment on new graduates' experiences of burnout at work, and stated that managerial strategies that empower nurses for professional practice are needed to ensure nurses' health and well-being. A **lack of organisational support** can be seen as one of the relatively severe stressors causing burnout (Van der Colff & Rothmann, 2009:7).

The last factor to consider in terms of the working environment involves dealing with death. Chang *et al*. (2006:31) stated that **dealing with the dying** patient and family might lead to emotional exhaustion. Coetzee and Klopper (2010:240) indicated that when compassion discomfort and compassion stress are not managed correctly, compassion fatigue may be the end result and might lead to burnout of healthcare workers.

2.3.4.2. Personal risk factors

Certain **personality characteristics** (Ganjeh, Arjenaki, Nori & Oreyzi, 2009:193) might lead to emotional exhaustion, depersonalisation and reduced personal accomplishment as set out by Maslach (1982:3). There might be a relationship between personality characteristics like neuroticism, extraversion, openness to experience, agreeableness and conscientiousness, and the three aspects of burnout. (Ganjeh *et al.* 2009:193). Both depression and burnout, though different as syndromes, are strongly related with neuroticism and extraversion (Iacovides *et al.,*

2003:218). Factors like inadequate control over work, frustrated hopes and expectations, and feelings of losing the meaning of life are highly determined by the individual's personality and original attitude towards work, and the position work has in the individual's life (Iacovides *et al.,* 2003:210). Kwak, Chung and Eun-Jung (2010:1) examined the association between **job satisfaction** and burnout in South Korea utilizing the Emotional Exhaustion (EE) subscale in the MBI. From the study, the authors concluded that job satisfaction was directly correlated with burnout (Demerouti *et al.,* 2000:456) and organisational support. Decreased levels of job satisfaction occur with poor organisational environments due to exhaustion, cynicism and inefficacy (Van Bogaert, Meulemans, Clarke, Vermeyen & Van de Heyning, 2009:2183; McCarthy, Tyrrel & Lehane, 2007:250).

2.3.5. Signs and symptoms of burnout

Burnout can be seen as a chronic illness (Felton, 1998:238). The **physiological symptoms** of burnout can include insomnia (Awa, Plaumann & Walter, 2010:188) and related tiredness or exhaustion (Weinberg & Cooper, 2007:19). Susceptibility to infections, and precipitation of physical and mental health problems may also occur (Roberts, 1997:284).

The **cognitive signs and symptoms** of burnout include thoughts and ways of thinking that reflect negative beliefs about one self, other people and situations (Roberts, 1997:284). When our "self-talk" is negative, a lack of self-confidence will be experienced (Leiter & Maslach, 2005:3). A difficulty in making decisions or a general worry about future performance occurs, whilst difficulty in concentrating and a tendency to forget can be a sign of overload (Weinberg & Cooper, 2007:19).

Changes in individual behaviour for better or worse can indicate that the employee is experiencing strain in some way. Absenteeism can be seen as a major symptom of burnout and is usually due to stress-related problems or musculoskeletal difficulties. Roberts (1997:284) stated that burned out healthcare workers might frequently arrive late at work and leave late. A common sign of behavioral strain is an increased rate of errors in work, which is consistent with poorer levels of concentration (Weinberg & Cooper, 2007:23; Roberts, 1997:284). A depressed

mood (Awa *et al.,* 2010:188; Maslach & Leiter, 1997:23; Roberts, 1997:284) that can be linked to a loss of interest or feelings of guilt, may be present. A usually energetic employee may be gloomy, dejected or tense in outlook (Weinberg & Cooper, 2007:24). Anger and verbal expressions such as “my job has lost its meaning for me”, or “I am stretched too thin” may occur (Awa *et al*., 2010:188; Maslach & Leiter, 1997:23) with anxiety, and negative and cynical attitudes towards patients and other clients (Maslach, Jackson & Leiter, 1996:4). Figure 2.1 provides a summary of the relevant signs and symptoms of burnout.

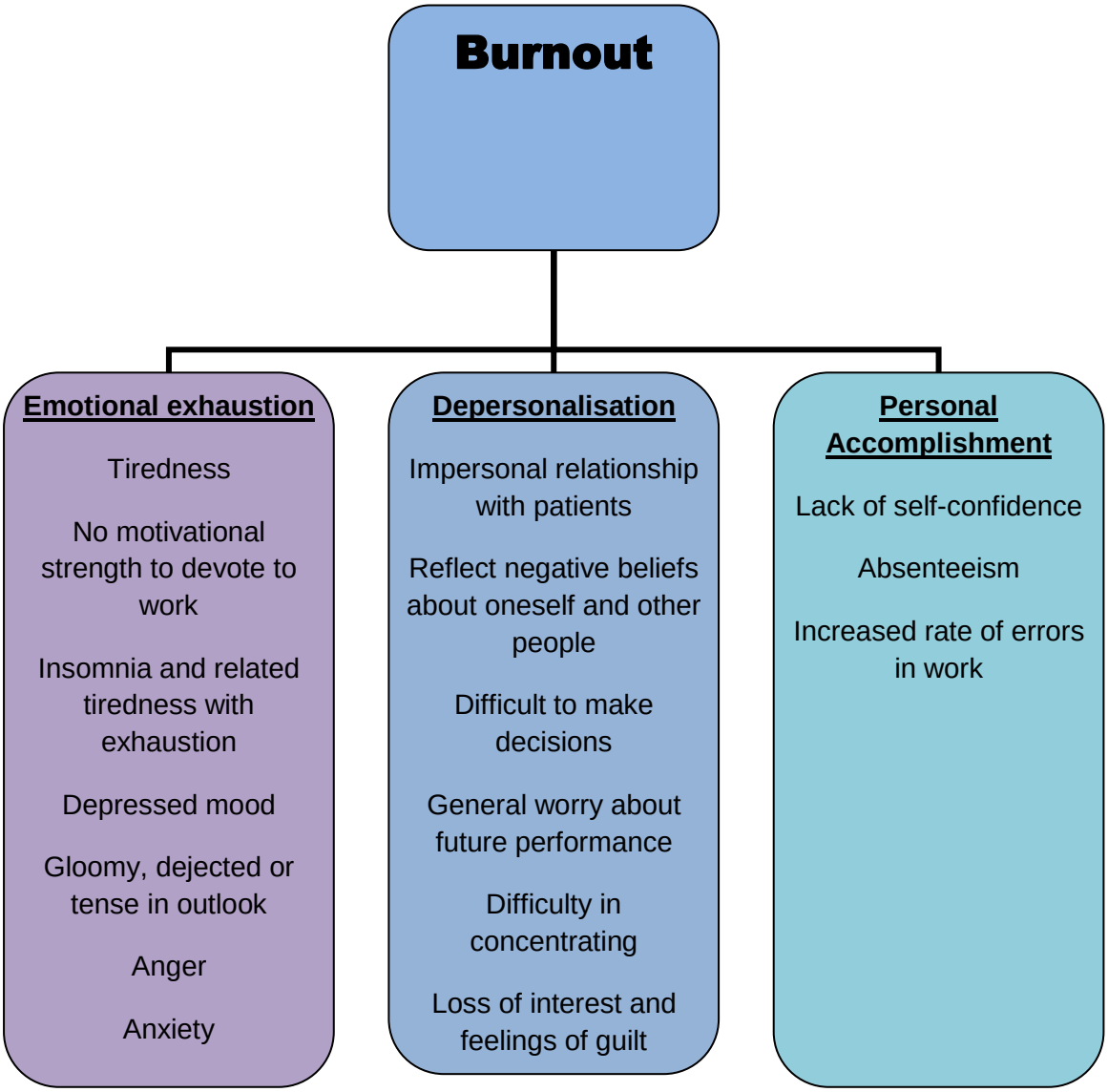

Figure 2.1: Signs and symptoms of burnout (adapted from Awa *et al*., 2010:188; Weinberg & Cooper, 2007:19; Leiter & Maslach, 2005:3)

2.3.6. Consequences of burnout

Consequences of job burnout affect the organisation and the employee and negatively affect the quality of one's work life. The consequences of burnout as it relates to the profession and patient will be discussed in the paragraphs that follow.

Professional consequences among nurses have serious implications for the health and well-being of nurses and also for the health and safety of patients (Alexander,

2010:17). The nurse's **job satisfaction** is the key to creating a healthy, positive and supportive working environment (Kangas, Kee & McKee-Waddle, 1999:41). Burnout leads to high **job turnover**, absenteeism and low morale in nursing staff (Maslach *et al.,* 1996:4). Maslach and Jackson (1981:100) confirmed that burnout has an effect on **marriage and family** life and leads to employees abusing **alcohol and drugs.** In terms of **patient outcomes**, medication errors occur due to high patient-to-nurse ratios and difficult working conditions (Camiré, Moyen & Stelfox, 2009:937), whilst **medical errors** occur due to burnout, and not because of staff incompetence (Alameddine, Dainty, Deber & Sibbald, 2009:245). Burnout therefore leads to deterioration in the **quality of care** or service provided by medical personnel (Maslach *et al.,* 1996:4).

From the evidence presented it is clear that burnout is a major cause of concern when addressing patient safety and the quality of care. In the following paragraphs a discussion related to safety and quality of care will be presented.

2.3.7. Safety

A patient safety culture includes shared attitudes, values and norms related to patient safety. Qualities such as open communication about safety problems, effective teamwork and support by local and managerial leaders who make safety a priority characterise a positive patient safety culture (Jha, 2008:7). In countries where nurses face high pressure (Teng *et al*., 2009:2088), patient safety becomes the first step in providing high-quality health care (Camirè *et al*., 2009:941; Feng, Bobay & Weiss, 2008:317), and designing safe environmental systems for critical care units can translate directly into improved patient safety (Pronovost, Wu, Dorman & Morlock, 2002:78). To that end Pronovost *et al.* (2002:78) developed a conceptual model for improving patient safety by preventing errors, making them visible and if errors do occur, to mitigate the harm. When healthcare workers are protected against any harm, the patients will also be protected against adverse events.

2.3.7.1. Definition of safety

As mentioned in Chapter 1, patient safety can be seen as a discipline in the health care sector that applies safety science methods toward the goal of achieving a

trustworthy system of health care delivery. Watts (1977:349) defined safety in a general sense as the condition of being free from harm and risk. Thus safety can also be seen as the active attempt taken by individuals or groups to promote preventative measures against possible injury or accidents. Nothing can be completely safe because nothing can be completely free from risk. According to Katz and Green (1997:8), safety can also be seen as "the degree to which the risk of and intervention and the risk in the care environment are reduced for the patient and others, including the health care provider". In practice, an activity or system may be seen as safe if the related risk is considered acceptable (Taylor, Easter & Hegney, 2004:5), thus preventing people from being harmed at work or becoming ill. The right precautions need to be taken in providing a safe environment to employees through legislation (Parker, 2006:1).

2.3.7.2. Causes of unsafe practice

Several factors can be considered as causes for unsafe practice. A short discussion on each of these factors is presented in the paragraphs that follow.

The physical work environment may contribute to adverse events with patients. Elements such as the lack of space, noise levels (Walters & Nichols, 2009:141; Stranks, 2008:95) and the physical layout of the CCU needs to be considered. In a study conducted by Pretorius and Klopper (2010), the authors concluded that CCUs that allow for the constant surveillance of patients contribute to the minimisation of adverse events in patients. By improving the working environment of the nurse, the safety of patients may also be improved. (Stone, Hughes & Dailey, 2008:1; Schmalenberg & Kramer, 2008:65; Spence Laschinger & Leiter, 2006:259).

Excessive **workload** increase incidents reported (Leiter & Spence Laschinger, 2006:137; Pronovost, Thompson, Holzmueller, Lubomski, Dorman, Dickan, Fahey, Steinwachs, Engineer, Sexton, Wu and Morlock, 2006:311), whilst fatigue associated with extended working schedules is related to adverse events and errors in the care of patients (Olds & Clarke, 2010:2). The **lack of time** during a working shift may be a risk to error (Henneman & Gawlinski, 2004:196). Schubert, Glass, Clarke, Aiken, Schaffert-Witvliet, Sloane and De Geest (2008:228) stated that implicit

restricting of nursing care occurs when nurses lack adequate time to provide all the care they perceive is needed by their patients.

Determining an adequate number and mix of nursing staff to ensure safe patient care, remains one of the most essential and imperative decisions made by nurse managers (Twigg & Duffield, 2009:132). The utilisation of mandatory or voluntary overtime to cover **staff shortages** may adversely affect patient safety due to staff-member fatigue (Garrett, 2008:1191). Pronovost *et al*. (2006:311) investigated factors involved in patient safety issues and indicated that insufficient staffing attributed to incident reporting. They concluded that the risk of making an error increased significantly when nurses work longer than 12 hours at one time (White, 2002:197). Bhagwanjee and Scribante (2007:1314) stated that the lack of trained medical and nursing staff requires immediate attention. They concluded that there needs to be combination and regionalisation in services across the different provinces of South Africa.

According to Pronovost *et al.* (2002:81) knowledge, skills, competence, team structure and leadership may have a positive or negative effect on patient safety. **Hands-on-training**, through the use of simulators and longer, more formalised periods of **supervising** inexperienced staff will improve patient safety. Efforts to improve training should focus on knowledge, skills and competence, and the use of established protocols (Pronovost *et al.,* 2006:310,311). Highly educated nurses have a positive effect on the mortality rate of surgical patients (Aiken *et al.,* 2008:223-229). Working in environments that allow new graduates to practice according to professional standards and in alignment with their learning in their educational programs, and that are free of unfriendly behaviors among colleagues, may protect them from burning out (Spence Lachinger *et al.,* 2009:382).

Inadequate **financial resources** in organisations give rise to adverse events in patients (Pronovost *et al.,* 2002:81). A **lack of resources** have negative implications for the health of patients and staff (Leiter & Spence Laschinger, 2006:137) and the inability of organisations to provide and maintain **equipment** needed in units may also contribute to adverse events in patient care (Pronovost *et*

al., 2002:81). Research done by Teng *et al.* (2009:2094) to determine whether nurse's emotional stability has an influence on patient safety indicated that it is important for managers to create an **organisational climate** that promotes this stability. This will help to improve patient safety by reducing the frequency of adverse events. Diminished visibility of first line management has implications for the health of patients (Leiter & Spence Laschinger, 2006:137). Pronovost *et al.* (2006:311) investigated factors involved in patient safety issues and indicated that team efforts should focus on **communication** within the team to prevent negative incidents from happening.

2.3.7.3. Consequences of unsafe practice

As with burnout, unsafe practice will have consequences affecting the patient. Negative **patient outcomes** include aspects like **mortality.** Tourangeau, Doran, Hall, Pallas, Pringle, Tu and Cranley (2006:42) concluded that the impact of hospital nursing care on acute medical patients, indicated that mortality rates decrease where a sufficient amount of staff is present in the units. They also suggested that the proportion of RNs should be maximised. Aiken *et al.* (2008:223-229) analysed the effects of nurse practice environments on nurse and patient outcomes and concluded that the mortality rate in surgical patients were 60 % higher in poorly staffed hospitals.

According to Amaravadi *et al.* (2000:1861) the risk for **hospital acquired infections** increase when a nurse cares for more than two critical care patients during night duty. Halbesleben *et al.* (2008:564) hypothesised that burnout leads to unsafe practices like **medical errors,** which will lead nurses to perceive a less safe working environment. The researchers utilised the MBI and the Agency for Healthcare Research and Quality Patient Safety Culture Survey to assess these variables and suggested that higher burnout was associated with a lower patient safety grade. According to Flynn & McKeown (2009:762) unsafe practice may lead to physical harm in patients, including pressure ulcers and falls. This consequently might lead to an increased length of hospital stay (Amaravadi *et al.,* 2000:1861), as the number of patients each nurse cares for increases, time with each patient decreases, leading

to pulmonary and infectious post-operative complications in patients with esophagestomy surgery (Amaravadi *et al.,* 2000:1861).

2.3.8. Quality care

Maintaining teamwork in a complex and stressful environment requires rapid, effective and respectful communication, specialist knowledge gained through experience and formal learning, which are all instrumental to quality care (Storesund & McMurray, 2009:123-124). The nature and quality of the service provided to patients within the healthcare organisation may largely depend on nurse performance. Employers interest is to decrease healthcare costs and improve healthcare quality, therefore the focus on the nurse's performance and its impact on quality outcomes are very important (Simpson, 2009:1013). The Journal of Critical Care's editorial board value quality to such an extent, that they created a new monthly section called the "Quality Corner", where organisations can publish efforts to improve the quality of care they provide (Pronovost, 2003:2).

2.3.8.1. Definition of quality

As stated in Chapter 1, the researcher ascribed to Maxwell's (1984:1471) six dimensions of quality. According to the author, quality can be viewed as: "effectiveness", the extent to which objectives are achieved, in other words to measure outcomes; "efficiency", value for money, utilising the resources optimally; "equity", equal access and treatment to all patients; "acceptability", the manner and environment in which care is provided; "accessibility", to include times, location and suitability; and "appropriateness" to all. Quality can be defined and measured on the basis of specifications and expectations. Quality is dynamic, developing from continual improvement and although it is free, it goes hand in hand with cost. Quality can be considered as the primary source of cost reduction, but cost reduction does not necessarily improve quality.

Lancaster (1999:459-460) also stated that it is difficult to define quality because of differences in individual perception and values about quality. Quality is shaped among healthcare providers through discipline-based education and professional organisations that expect conformance to standards. Exposure to professional

standards of quality have evolved largely from individual professional education, professional associations, and through work-related experiences associated with quality assurance. Quality is predicated on positive outcomes, customer satisfaction, best practices and cost-efficiency (Marrelli, 2004:141). Quality includes a service that is free from deficiencies and meets customer needs (Lancaster, 1999:462).

2.3.8.2. Causes of poor quality care

The **work environment** plays an essential role in patient outcomes (Ulrich, Lavandero, Hart, Leggett & Taylor, 2006:46; Schmalenberger & Kramer, 2008:65; McCauley & Irwin, 2006:542) and quality of patient care (Kingma, 2009:879). Economic conditions and financial exigencies could also intensify disparities in hospitals in terms of working conditions, nurse qualifications and patient outcomes (Rafferty & Clarke, 2009:877). Poor organisational environments at different levels have potentially negative impacts on quality of care (Van Bogaert *et al*., 2009:2183).

Sochalski (2004:11-67) investigated the relationship between nurse staffing and the quality of nursing care in hospitals, and concluded that **workload** has a significant effect on the quality of nursing care. Buerhaus and Needleman (2000:13) indicated that a **nurse shortage** might lead to poor quality patient care and that more nurses provide better patient outcomes (Keenan & Kennedy, 2003:6). Recruiting graduates into a dysfunctional system will never solve the shortage problem (Kingma, 2009:880). Rafferty, Clarke, Coles, Ball, James, McKee & Aiken (2007:180) conducted research in 30 English hospitals to determine whether nurse staffing levels has an effect on patient mortality, job dissatisfaction, burnout and nurse related quality of care. The authors concluded that decreased staffing levels had a dependable effect on mortality outcomes in surgical patients, as well as on nurse job outcomes and nurse ratings of quality of care. Especially in critical care units, higher levels of nurse staffing are required to monitor the severally ill patients and to provide quality and safe nursing interventions without delay. In Korean critical care units, nurse staffing was linked with nurse-rated quality of nursing care and nurse job outcomes (Cho, June, Kim, Cho, Yoo, Yun & Sung, 2009:1730, 1736). Shuldham, Parkin, Firouzi & Lau-Walker (2009:991) explored the relationship between nurse staffing characteristics and patient outcomes and stated that there was some

evidence of relationship between nurse staffing levels and the development of pressure ulcers related to less time available to be alert to problems with a shortage of staff. Because nursing staff represents the largest group in a hospital, severe costs are involved to provide patient care. To constrain costs, nursing personnel frequently need to be reduced and this produces strain on goals to maintain quality, threatening patient satisfaction (Kangas *et al*., 1999:32).

Quality of care depends to a large extent on the **skills of the staff** (Kingma, 2009:879.) Beal, Riley and Lancaster (2008:488,492) described essential elements for an optimal clinical practice environment and stated that by developing clinical nurses as bedside scholars across their career, the very best care can be provided to patients and families. In a systematic review and meta-analysis done by Kane, Shamliyan, Mueller, Duval and Wilt (2007:1195) on the association of registered nurse staffing levels and patient outcomes, a greater registered nurse staffing was consistently associated with a reduction in the adjusted odds ratios of hospital related mortality. This indicated that increased nursing staffing in hospitals is associated with improvements in patient care outcomes.

When supported adequately by the **organisation,** nurses deliver quality services, take advantage of development opportunities and enjoy high levels of job satisfaction (Kingma, 2009:880). From the discussion presented on the three variables and concepts related to the research questions in this study it was clear that that the different causes of burnout, overlaps with causes of unsafe and poor quality patient care. To that end figure 2.2 provides a visual overview of the concepts and supposed relationships (from the literature presented) between them. A discussion of the relationships in the context of this study will be presented in Chapter 4.

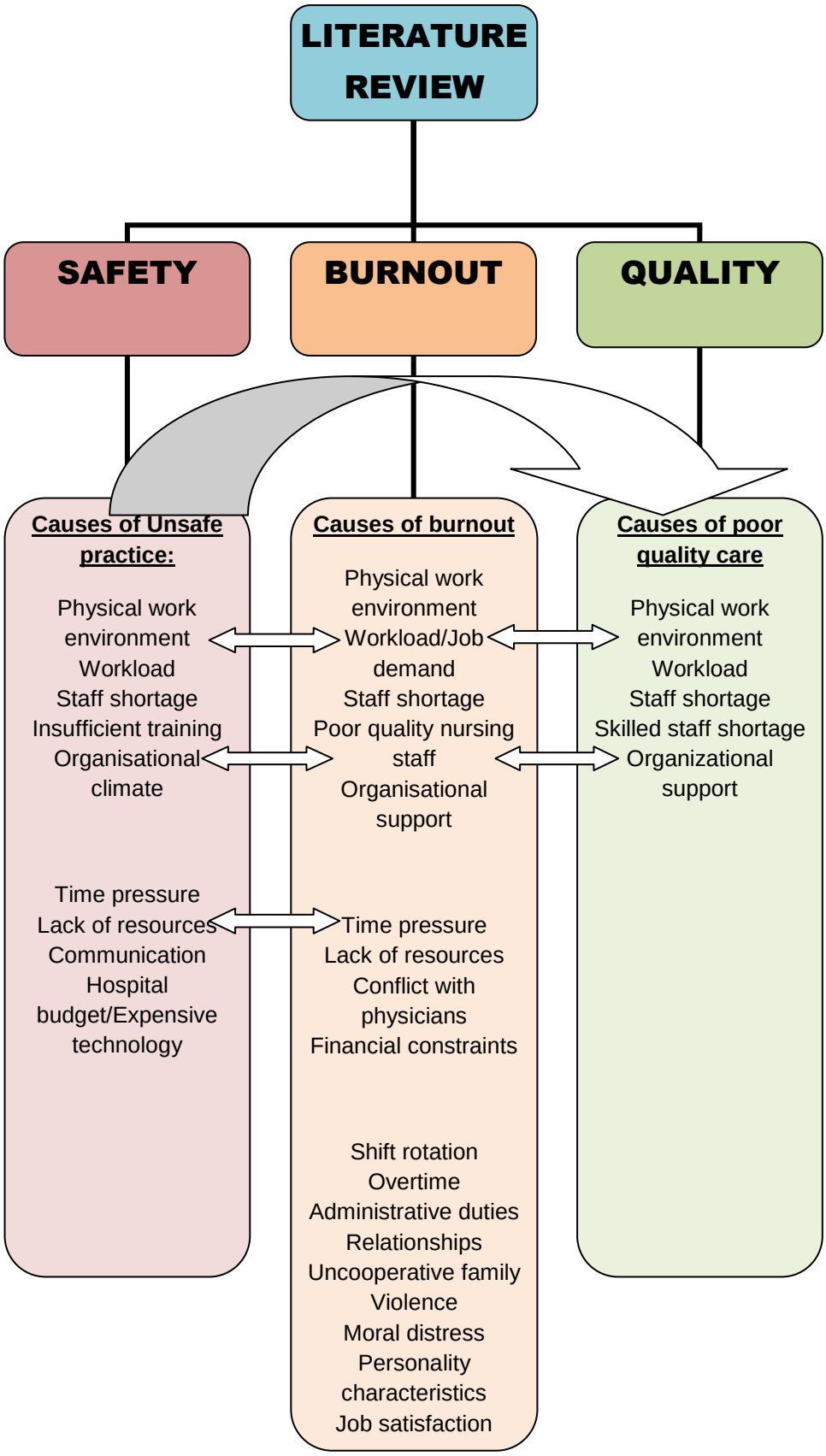

Figure 2.2: Inter-relationship between burnout, safety and quality care.

2.4. SUMMARY

Chapter 2 provided a comprehensive review of the literature in support of this study. Definitions and descriptions were given of the three variables and the causes and consequences of each variable were explored. A summary was given of what the best practice environments should look like according to the guidelines provided by global organisations. The chapter concluded with a visual illustration of the presumed interrelationship, derived from the literature, between the three variables. In chapter 3 a comprehensive discussion of the research design and method used in the study will be discussed.

CHAPTER 3
RESEARCH DESIGN AND RESEARCH METHOD

3.1. INTRODUCTION

Research methodology can be seen as the overall research approach chosen by the researcher, and include both the research design and the research method. This may include experimental research, surveys, ethnography, phenomenology, grounded theory or action research (Crookes & Davies, 1998:73). According to Klopper (2008:69) the research design always influences the choice of the research methods applied. A discussion of the design and method relating to the variables under investigation and relevant terminology follows.

3.2. RESEARCH DESIGN

A design is the blueprint for conducting a study and maximises control over factors that could hinder the validity of the findings (Burns & Grove, 2009:236; Oman, Krugman & Fink 2003:108; Crookes & Davies, 1998:73). Researchers plan and design studies to guide them in generating and analysing data so that they can be more confident in the results. Through the research design, the researcher gains information about what is being studied, who the study participants are, when the researcher will observe the variables and where the study will be conducted (Oman *et al.,* 2003:103). Klopper (2008:68) states that any research starts with a problem and this problem directs the choice of the design that will be followed. To that end the design of choice for this study was a correlation design. The nature of the design used in this study is discussed in the paragraphs that follow.

3.2.1. Quantitative inquiry

A quantitative inquiry can be seen as a systematic, objective process involving studies that make use of statistical analyses to obtain their findings. Key features include formal and systematic measurements and the use of statistics (Marczyk, Dematteo & Festinger, 2005:17; Langford, 2001:93, 96). Researchers can then answer questions about measurable concepts (Langford, 2001:93, 96). According to Gerrish and Lacey (2006:163) quantitative research can be statistically manipulated in order to confirm (or fail to confirm) the original hypotheses or research question.

To that end the RN4CAST programme collected quantitative data that was analysed and described in terms of descriptive and inferential statistics. Data considered relevant in answering the questions related to this study was extrapolated in order to determine if a correlation exists between burnout and safety and quality of patient care.

3.2.2. Correlation design

As stated in chapter 1 the RN4CAST programme followed a survey design. Surveys are widely used methods of gathering scientific information (McBurney & White, 2007:237) and is typically used when asking large numbers of people questions about their behaviors, attitudes and opinions (Polit & Beck, 2004:234). In this research study, the RN4CAST questionnaire was used to determine the prevalence of burnout among RNs working in CCUs (objective 2) and the perceptions of RNs on the safety and quality of patient care. A survey is a cost-effective way of gathering information and can be described as either descriptive or analytical (Crookes & Davies, 1998:76). Surveys are usually done as non-experimental studies (Polit & Beck, 2004:234; Burns & Grove, 2009:245) and can be used for exploratory, descriptive or explanatory purposes (Smith, Francis & Schafheutle, 2008:53). From the data obtained, a correlation design was used to investigate the relationship between burnout among RNs and the safety and quality of patient care in private CCUs in Gauteng (objective 3). A correlation design is used when exploring the relationships among variables of interest in a study. Researchers typically make no attempt to control or manipulate the variables but clearly identify and describe the variables under investigation (Burns & Grove, 2007:249).

3.2.3. Exploratory design

An exploratory design investigates a particular concept about which little is known. To explore is more than describing concepts and implies that the relationships or differences between the concepts and other factors are explained (Langford, 2001:99). In conducting this research project, the researcher explored the concepts burnout, safety and quality of patient care in the CCUs of private hospitals in the Gauteng province by means of the RN4CAST questionnaire. A comprehensive

review of the literature was also used in exploring the phenomena under investigation (objective 1).

3.2.4. Descriptive design

A descriptive design describes the concepts under study, like the prevalence, magnitude or characteristics of the concepts. A descriptive design may also classify various factors in the study (Langford, 2001:99). This type of design identifies or describes a concept, event or experience that is important to nursing practice (Oman *et al.,* 2003:103). Descriptive designs provide a way to accumulate knowledge about a topic and to conduct an early exploration on a research question (Taylor *et al*., 2006:173). Walliman (2005:115) stated that a descriptive design attempts to examine situations with the aim to establish what the norm is. In other words to describe what can be predicted to happen again under the same circumstances? In Chapter 2 of this research study a description of the three variables under investigation was provided and the relationship, if any, between these variables will be described using the data from the RN4CAST questionnaire and the subsequent statistical analysis thereof.

3.2.5. Contextual design

When a contextual design is followed a description of the context or setting in which the research will be conducted must be provided (Klopper, 2008:68). A contextual design includes a social and environmental setting with specific individuals. For this research study, the context included the RNs working in the CCUs of the private hospital sector in the Gauteng province in South Africa. A comprehensive description of the context using relevant literature and the data from the checklist (refer to Annexure C) is offered later in the chapter.

3.3. HYPOTHESIS

A hypothesis can be defined as a formal statement of a predicted relationship between two or more variables (Burns & Grove, 2009:118). Hypotheses are generally based on a scientific theory and allow for both prediction and testability. To that end the hypothetical statements related to objective 3 of the research are:

(H_{01}): There is no statistically significant relationship between burnout among RNs and the safety and quality of patient care in CCUs in Gauteng.

(H_{a1}): There is a statistically significant relationship between burnout among RNs and the safety and quality of patient care in CCUs in Gauteng.

3.4. RESEARCH METHOD

According to Klopper (2008:69) the research method contains different steps, like choosing a suitable population, sampling, data collection data analysis and ensuring rigour. A discussion of the instruments used to collect the data, the setting, population and sampling for this research study is presented in the paragraphs that follow.

3.4.1. Discussion of the instruments

The MBI, perceptions on quality and safety of patient care and demographic data of RNs (refer to Annexure B) of the RN4CAST questionnaire, as well as a separate checklist for the CCU demographics (refer to Annexure C) was used in collecting the data for this study.

3.4.1.1. RN4CAST questionnaire

Current human resources planning models in nursing care are unreliable and ineffective because of the consideration of volumes and not effects on quality in patient care. To that end the RN4CAST programme was developed which aims to expand typical forecasting models taking into account the way in which features of the working environments and the qualifications of the nursing workforce impact on nurse retention, productivity and patient outcomes (Sermeus *et al.,* 2008).

Within South Africa the aim of the RN4CAST programme is to conduct a national nurse survey; patient discharge data survey; patient satisfaction survey and organisational survey in the private and public healthcare sectors in South Africa in order to develop base line data on staff outcomes, patient outcomes and organisational outcomes (Klopper, Coetzee & Pretorius, 2008). The data will then be used to develop truthful and trustworthy models for establishing attractive and trustworthy settings for practice with regards to patient and staff outcomes in South

Africa. As stated in chapter 1, the RN4CAST questionnaire was a self-administered questionnaire divided into four sections that comprised of the following (refer to figure 3.6):

SECTION A: ABOUT YOUR JOB

This section focused on the practice environment of the nurses and included the Practice Environment Scale of the Nurse Work Index (PES-NWI), questions related to job satisfaction and the Maslach Burnout Inventory (MBI).

SECTION B: QUALITY AND SAFETY

In this section nurses were asked to respond to issues related to the safety and quality of care delivered to patients in their unit. Nurses also reported on the occurrence of incidents involving patients in their units.

SECTION C: ABOUT YOUR MOST RECENT SHIFT AT WORK IN THIS HOSPITAL

Section C focused on questions related to working schedules and nurse: patient ratios in the units. None of the questions from this section was used in this research study.

SECTION D: ABOUT YOU

The demographic characteristics of nurses were explored in this section of the questionnaire and included questions related to age, gender and level of education, amongst others (Sermeus *et al*., 2008).

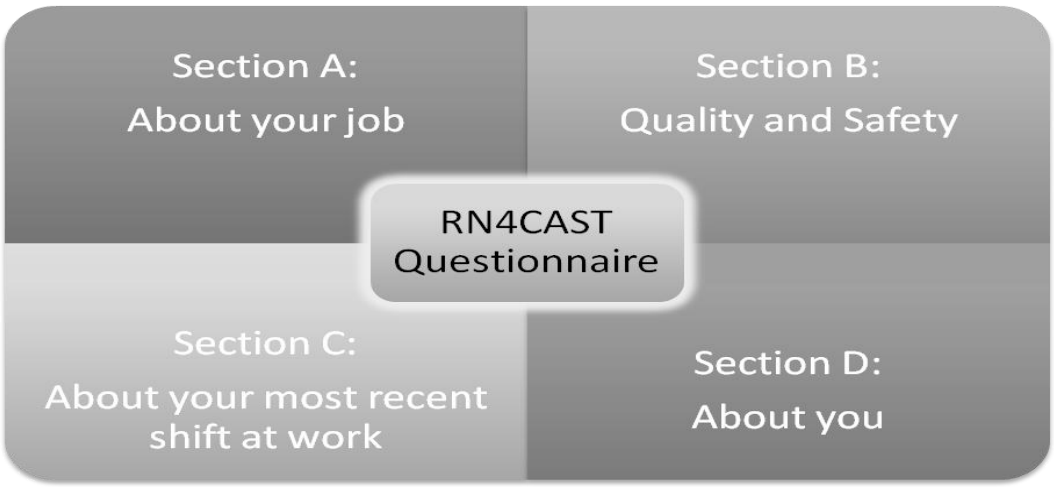

Figure 3.1: RN4CAST questionnaire (Sermeus *et al.* 2008)

The questionnaire consisted of seven pages and participants were asked to indicate the extent to which they agreed that each of the items was present in their current job. Using a Likert type inventory, participants were asked to indicate their level of agreement or disagreement with each of several statements by selecting one of four to six options that typically included “strongly agree” and “strongly disagree” at the ends of the scale (Huck, 2004:492). For the purpose of this study, only section A, question 9 numbers 1 to 22 (MBI), section B (Quality and Safety) and section D (demographic data) were used. A discussion of these sections is provided below.

3.4.1.2. Maslach burnout inventory (MBI)

Maslach (as quoted by Schaufelli *et al*., 2009:205) stated that burnout emerged in the 1970s, and since then it provided common experiences among people. Maslach (1981) had an intense interest in the way workers coped with their emotional arousal and experiences of crises in professional competence as a result of emotional exhaustion. Through a process of interviews, observations and psychometric development, Maslach developed a method of assessing burnout (Maslach & Jackson, 1981:100).

Because professional staff in the human services spend a considerable amount of time with clients, and have to meet their psychological, social and physical needs, they may experience feelings of anger, embarrassment, fear and despair. This type of chronic stress can be emotionally draining and might lead to burnout. The key aspect of burnout syndrome includes severe feelings of emotional exhaustion (EE) because of the depletion of emotional resources. Workers might feel that they are not able to give anything of themselves at a psychological level.

The development of negative, cynical attitudes and feelings about one’s clients follows and is seen as depersonalization (Dp). These negative feelings can be linked to emotional exhaustion. Lastly the tendency develops to evaluate oneself negatively, particularly with regard to one’s work with clients. Unhappiness with themselves and dissatisfaction with their personal accomplishments (PA) on the job occurs (Maslach & Jackson, 1981:99). These 3 major symptoms of burnout gave rise to the 3 subscales of the MBI and the 22 items for the MBI were designed to

measure hypothesised aspects of the burnout syndrome. The three subscales of the MBI include the following (refer to figure 3.3):

Emotional Exhaustion (EE):

The 9 items of EE assess feelings of being emotionally overextended and exhausted by one's work (Maslach *et al*., 1996:4; Maslach & Jackson, 1981:101).

Depersonalization (Dp):

The 5 items of Dp measure an unemotional and impersonal response toward recipients of one's service, care, treatment or instruction (Maslach *et al*., 1996:4; Maslach & Jackson, 1981:101).

Personal Accomplishment (PA):

The 8 items of PA assess feelings of competence and successful achievement in one's work with people (Maslach *et al*., 1996:4; Maslach & Jackson, 1981:101).

Involvement (optional):

The factor of involvement consistently appeared in the factor analysis but is not included as a subscale of the MBI. It is seen as an interesting variable in other types of research and may be utilised as an optional element (Maslach & Jackson, 1981:104). The factor of involvement was not included in the RN4CAST questionnaire and will subsequently not be reported on.

In the original instrument each statement is rated in two dimensions, namely frequency and intensity. The frequency scale is labeled at each point and ranges from 1 ("a few times a year or less") to 6 ("every day"). A value of zero is given to participants indicating that he or she never experiences the feeling or attitude described by checking a separate box.

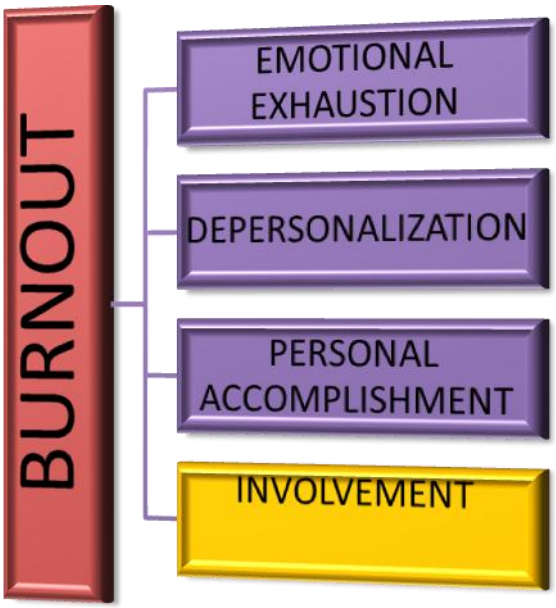

Figure 3.2: Subscales of MBI

The intensity scale ranges from 1 (very mild, barely noticeable) to 7 (major, very strong) and also has a zero value if the participant checks “never” on the frequency scale (Maslach & Jackson, 1981:100). A high degree of burnout is reflected in high scores on the EE and Dp subscales and in low scores on the PA subscale. An average degree of burnout is reflected in average scores on the three subscales. A low degree of burnout is reflected in low scores on the EE and Dp subscales and in high scores on the PA subscale (Maslach *et al*., 1996:5).

In the RN4CAST questionnaire the MBI (refer to Annexure B) consisted of a 22-item Likert scale with seven possible responses that ranged from never (scored as 0) to every day (scored as 6). High scores represented greater degrees of emotional exhaustion and was measured over 9 items with a maximum score of 54. Depersonalization consisted of 5 items with a maximum score of 30. Personal accomplishment consisted of 8 items with a maximum score of 48 (Bruyneel, Van den Heede, Diya, Aiken & Sermeus, 2009:3).

3.4.1.3. Section B: Quality and safety of patient care

This section consisted of 6 questions related to the quality and safety of patient care in the unit. A Likert scale was also utilised in this section to determine the participant's (RNs) attitude and opinion regarding the safety and quality in their units.

3.4.1.4. Section D: About yourself

In section D, demographic data of the participants was collected. Only certain questions applicable to this research project were extrapolated for analysis. A total of 10 questions were used in this section and will be discussed in Chapter 4.

3.4.1.5. The demographic checklist for critical care units in Gauteng

As stated in chapter 1, the researcher reported on data collected by means of a demographic checklist (refer to Annexure C) that was developed for a doctoral study under the RN4CAST programme to describe the context of the study. The checklist collected data on the following variables:

I. Type of unit (medical, surgical, trauma, multi-disciplinary or other);
II. The number of beds in the unit;
III. The bed turnover rate of the unit;
IV. The average patient acuity of the unit;
V. The skill-mix in the unit (trained critical care nurses vs. nurses with experience in critical care);
VI. Staff turnover rate; and
VII. Staff absenteeism profile.

The checklist was completed by 31 (n=31) CCUs in Gauteng and a discussion of the demographics of these units will be presented in chapter 4.

3.4.2. Setting

Research can be undertaken in different settings, in other words, the specific place where data will be gathered, sometimes on one or more sites. Depending on the research questions, the researcher will decide in which setting the study will be conducted (Polit & Beck, 2008:57). The setting must be selected in such a way that

the validity and reliability of data obtained can be maximised (Polit & Beck, 2004:164). The setting for this research included CCUs in the private hospital sector in Gauteng (n=31) (Pretorius, 2009:21). Gauteng province is the smallest province in South Africa but consists of the largest population in relation to the other provinces (refer to figure 3.4). Statistics South Africa (Statistics South Africa, 2005) estimates that approximately 11.2 million people reside in Gauteng (refer to table 3.2). The Northern Cape is the largest province with the smallest population in South Africa. The Gauteng province has the largest amount of private critical care beds in the country. According to Matsebula and Willie (2007:161) a total of 746 critical care beds, of which 224 are specialised critical care beds and 456 high care beds can be found in this province.

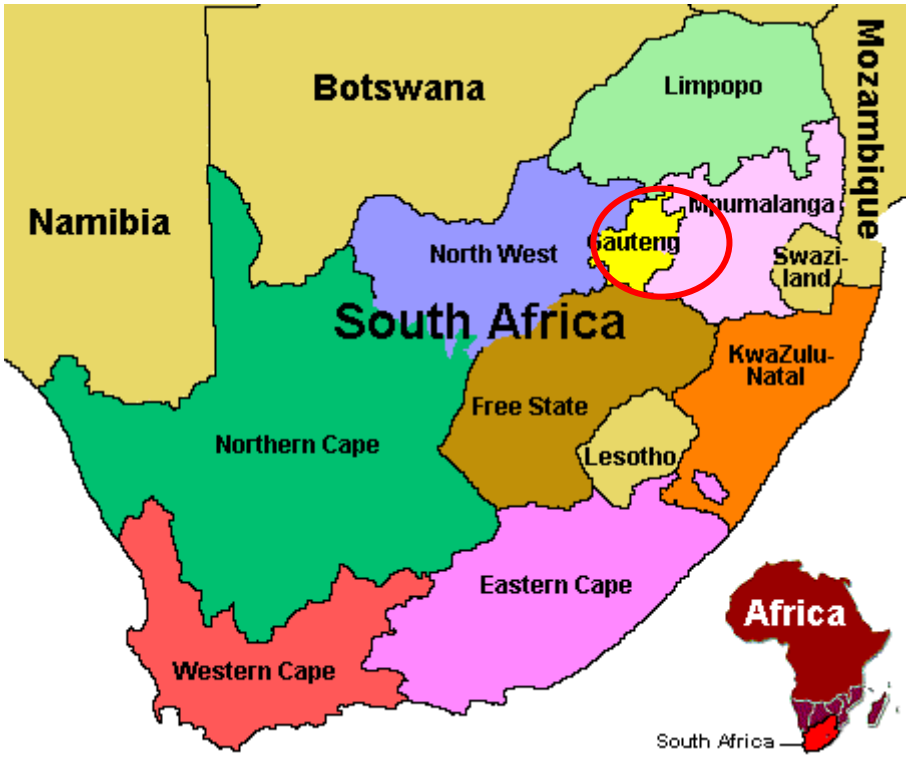

Figure 3.3 Map of South Africa (Google Images, 2010)

Table 3.1: Population of South Africa (Statistics South Africa, 2005)

	Population estimation	Percentage share of the total population
Eastern Cape	6 743 800	13,5
Free State	2 824 500	5,7
Gauteng	11 191 700	22,4
KwaZulu-Natal	10 645 400	21,3
Limpopo	5 439 600	10,9
Mpumalanga	3 617 600	7,2
Northern Cape	1 103 900	2,2
North West	3 200 900	6,4
Western Cape	5 223 900	10,4
Total	49 991 300	100,0

Private hospital beds constitute approximately 21% of the total hospital beds in South Africa (Matsebula & Willie, 2007:160) and 2385 critical care beds can be found in the private hospital sector (Bhagwanjee & Scribante, 2007:1312).

3.4.3. Population

A population may be seen as a group of people whose members have specific universal characteristics that can be investigated in a research study. The selected population must enable the researcher to answer the research question (Taylor *et al*. 2006:201; Polit & Beck, 2004:50; Burns & Grove, 2009:42; Walliman, 2005:437). The population for this research study included:

1. Any discipline adult CCU within private hospitals in Gauteng with more than 100 beds.
2. RNs with either critical care experience or training (degree, diploma or certificate) in critical care nursing (Pretorius, 2009:22).

3.4.4. Sampling

Various authors (Taylor *et al.,* 2006:202; Polit & Beck, 2004:291; Wisker, 2001:138) define a sample as a portion of the population that will be studied (refer to figure 3.5). This portion may include subjects, events, behaviors or elements for participation in a study (Burns & Grove, 2009:35). In this research study sampling was done in the following way:

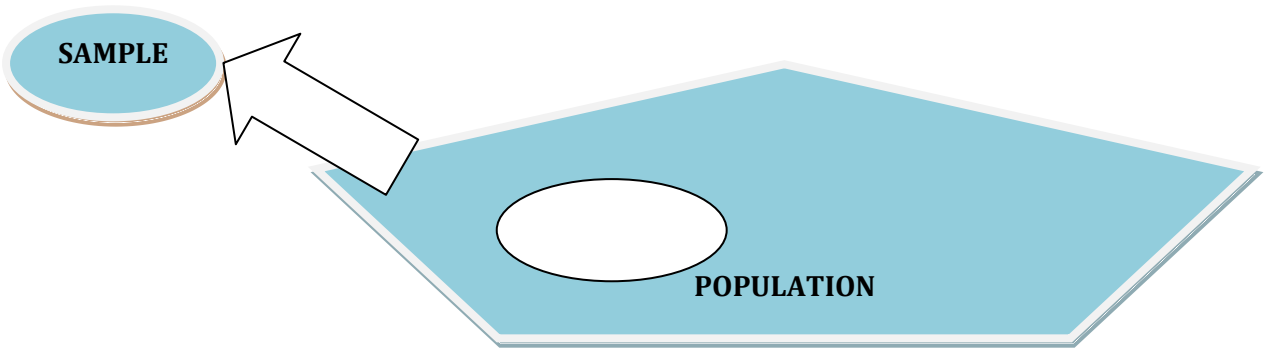

Figure 3.5 Sampling

1. An all-inclusive sample (N=42) of CCUs within the private hospital sector in Gauteng, were obtained. Of the 42 units invited a total of 31 units completed and returned the demographic checklist (n=31). CCUs were invited in accordance with the following inclusion criteria:
   - Any discipline adult CCU within private hospitals in Gauteng with more than 100 beds.
   - Only adult CCUs were selected; and
   - CCUs involved in all disciplines of care were included, i.e. trauma, medical, surgical and multi-disciplinary units. Multi-disciplinary units in the context of the research study refer to units that admit both surgical and medical cases to the unit (Pretorius, 2009:39).

2. As response rates to surveys involving nurses are at best, moderate, it was decided to invite all the nurses (that met the inclusion criteria) working within the selected CCUs to complete the questionnaire (Pretorius, 2009:22). According to staff figures provided by the hospitals, the nurse population for critical care units amounted to 741 (N=741). The RN4CAST questionnaire was completed and

returned by 298 RNs (n=298). To ensure a certain degree of homogeneity among the participants, they were included based on the following criteria:

- Nurses had to be registered with the South African Nursing Council (SANC), and either had to be trained critical care nurses (certificate, diploma or degree) or had to have experience in critical care nursing.
- Nurses had to be proficient in Afrikaans or English in light of the fact that the researcher collecting the data was proficient in these two languages (Pretorius, 2009:22).

3.5. DATA COLLECTION

Data collection is the exact, methodical gathering of information appropriate to the research purpose of the specific objectives, questions or hypotheses of the study. Data in quantitative studies are usually numerical (Burns & Grove, 2009:43). A discussion of data collection as it occurred in this research study follows:

3.5.1. Procedure for data collection

The data for this research study was obtained from a larger data bank that formed part of the RN4CAST programme. The collection process occurred over a period of three months during April, May and June 2009. All nursing service managers of the private hospitals were provided with an informational letter, and an informational session was arranged. Fieldworkers were appointed to assist in the distribution and collection of questionnaires in the different hospitals. All the fieldworkers were permanently employed in the hospital where the research was done. Each fieldworker received a letter with information and received a financial incentive for each completed questionnaire. Questionnaires were coded to ensure anonymity of the data. Each participant received an informational leaflet, in which the research study was explained and contact details of the researcher were provided in the case of any uncertainties (Pretorius, 2009:92-93).

The demographic checklist for the CCUs was electronically distributed to the unit managers and a period of one month was allowed for the completion thereof. Electronic reminders and telephone prompts were sent to the fieldworkers and unit

managers at weekly intervals. The data pertaining to the RN4CAST questionnaire was collected in person from each of the participating hospitals (Pretorius, 2009:93).

3.6. DATA ANALYSIS

Data for the RN4CAST project was captured via a computer programme EpiData 3.1 (Lauritsen, 2008) and analyzed using the SPSS 16.0 programme (SPSS, 2007). A discussion of the results and relevant literature will be provided in chapter 4. In the next section a discussion of the rigour in terms of the validity and reliability of the instruments used in the study will be presented.

3.7. VALIDITY AND RELIABILITY OF THE INSTRUMENTS

Klopper (2008:69) stated that rigour must be reflected throughout the entire research project and that rigour must be applied to certain criteria. Rigour implies excellence in research. This involves discipline, careful adherence to detail and strict accuracy (Burns & Grove, 2009:34). For the purpose of this research study rigour will be described in terms of validity and reliability for each of the instruments used namely the RN4CAST questionnaire, the MBI and the demographic checklist:

3.7.1. RN4CAST questionnaire and CCU demographic checklist

Validity refers to the degree to which a quantitative instrument measures what it is supposed to measure (Polit & Beck, 2008:457). Burns and Grove (2009:380) define validity as the extent to which an instrument is actually reflecting the abstract construct being examined. In 2009, a pilot study was conducted to determine the predictive validity of the RN4CAST questionnaire in Belgium hospitals. Nurses with a full-time equivalence greater than 40% were included in the study (n=179). From the study it was concluded that the RN4CAST questionnaire was valid and psychometrically sound (Bruyneel *et al*., 2009:202-203). The predictive validity of the instrument was supported by the confirmation of key factors, which were previously identified by research conducted in the USA. The findings had similar associations between these factors and nurse-perceived outcomes (Bruyneel *et al.,* 2009:209). The demographic checklist was reviewed during a previous doctoral study by two colleagues regarded as experts in the field of critical care nursing and research for

face validity. The experst confirmed that the variables included were relevant measures in describing the profile of the units (Pretorius, 2009:100).

Reliability indicates that when an instrument consistently assigns the same score to individuals or objects with equal values, it can be considered as reliable. In determining the predictive validity of the RN4CAST questionnaire in Belgium hospitals, Bruyneel *et al.* (2009:203), reported on a remarkable consistency in results from the International Hospital Outcomes study and other studies performed in differently organised health care systems. Cronbach's alphas and corrected item-total correlations were calculated. Given the small sample size the Cronbach's alphas of the factors were acceptable, ranging between 0.63 – 0.84 (Bruyneel *et al.,* 2009:203).

3.7.2. Maslach burnout inventory

Validity of the MBI was demonstrated through convergent and discriminant validity in the following ways:

Convergent validity: Convergence is indicative of the fact that different methods of measuring a construct yield similar results (Polit & Beck, 2004:426). Convergent validity refers to the fact that multiple lines of evidence converge on the same conclusion (Graziano & Raulin, 2004:87). The MBI's convergent validity was demonstrated in several ways:

- MBI scores were correlated with behavioral ratings made independently by a person who knew the individual well, like co-workers.
- MBI scores were correlated with the presence of certain job characteristics that were expected to contribute to experienced burnout. For example the greater the number of people a person needs to deal with, the higher the burnout scores on the MBI.
- MBI scores were correlated with measures of various outcomes that had been hypothesised to be related to burnout. This validity was provided through research done on participants with the prediction that people experiencing burnout would be dissatisfied with opportunities for personal growth (Maslach & Jackson, 1981:105-107; Maslach *et al.,* 1996:12-15).

Discriminant validity: Discriminability refers to the ability to differentiate the construct under investigation from other similar constructs (Polit & Beck, 2004:426). The MBI validity was further demonstrated through distinguishing it from measures of other psychological constructs that might be confounded with burnout. MBI subjects' scores was compared with "general job satisfaction scores" and provided sufficient support for this reasoning (Maslach & Jackson, 1981:109). During the development of the MBI, research was also conducted to distinguish between burnout and anxiety and depression. And a clear understanding of the difference between these concepts was established (Maslach *et al.* 2001:404; Maslach *et al.* 1996:15).

The psychometric soundness of the MBI is well documented in the literature with internal consistencies usually well above the 0.70 Cronbach alpha level (Van Der Colff & Rothman, 2005). Research done by Poghosyan, Aiken and Sloane (2009:894) confirmed **reliability** of the MBI through testing the MBI's applicability in international research. An analysis of data from large-scale cross-sectional surveys of nurses from eight countries was performed. The researchers came to the conclusion that the MBI has the same factor structure and performed similar across countries. The three subscales exhibited high reliability with Cronbach alphas exceeding the critical value of 0.70. The correlation coefficients for the emotional exhaustion and depersonalization subscales were strong and positive. Data on test-retest reliability of the MBI have been reported for five samples and several researchers performed the test-retest correlations to ensure the reliability of the MBI instrument. A high degree of consistency within each subscale was found in longitudinal studies of the MBI and does not seem to diminish markedly from a period of one month to a year (Maslach *et al.,* 1996:12). For the MBI, internal consistency was estimated by Cronbach's coefficient alpha (n=1 316) and the reliability coefficients for the subscales were the following: .90 for EE, .79 for Dp and .71 for PA. The test-retest coefficients for the subscales were the following: .82 for EE, .60 for Dp and .80 for PA (Maslach *et al.,* 1996:12).

3.8. ETHICAL CONSIDERATIONS

To conclude the discussion related to the design and method for this research study a summary of the ethical considerations and principles adhered to in the study is provided in table 3.2.

Table 3.2: Ethical Considerations

ETHICAL CONSIDERATIONS	ACTION
Ethical clearance	• A preliminary literature review was conducted by the researcher to determine whether there was a need for the research study. • A research proposal was submitted to the NWU for ethical clearance (refer to Annexure A). • Ethical clearance was also obtained from the private hospital groups that participated in the RN4CAST programme.
Recruitment of participants	• Recruitment was done by a previous researcher (Pretorius, 2009: 57). A discussion of the recruitment process was provided in this chapter.
Respect for person	• Participants were informed that participation is free and voluntary (Pretorius, 2009:57). • Participants had the right to decline participation if they so choose.
The principle of beneficence	• No harm or discomfort was caused to participants (Pretorius, 2009:57). • There were no deleterious consequences for refusal to participate in the study.
The principle of justice	• Informed consent was obtained from each of the participants (Pretorius, 2009:57). • Data was processed anonymously and data was kept in a safe place. • Confidentiality was strictly upheld and no personal identifying information of the hospitals or participants was requested. • A unique code was used as identifier. • Data was not made available to persons that were not involved in the research project (Pretorius, 2009:57).

3.9. SUMMARY

In chapter 3 the researcher described the research design and research method. Information was provided regarding the different instruments utilised for the research study and included the RN4CAST questionnaire, MBI and demographic checklist of the critical care units. The setting, population and sampling were elaborated on. The procedure for data collection and data analysis were discussed and the validity and reliability of the different instruments utilised was provided. The Chapter concluded with the ethical considerations related to the study. A discussion of the results is presented in the following Chapter.

CHAPTER 4
ANALYSIS OF THE DATA AND RESULTS

4.1. INTRODUCTION

Data analysis reduces, organises and gives meaning to data and is mainly determined by the research objectives, questions or hypotheses, the research design and the level of measurement achieved by the research instruments (Burns & Grove, 2009:44). In this chapter the analysis and subsequent results that answer the research questions posed in chapter 1 will be addressed. An overview of the unit and participant demographics will be provided, followed by a discussion of the data collection and analysis process. A discussion of the results and related literature, as well as rigour will conclude the chapter.

4.2. UNIT AND PARTICIPANT DEMOGRAPHICS

In order to describe the characteristics of the units and participants of the study, the researcher extrapolated data from the RN4CAST questionnaire related to the demographics of the RNs (refer to Annexure B) and data from the checklist related to unit demographics (refer to Annexure C)(Pretorius, 2009:86). Only the variables relevant to this research study will be discussed in the paragraphs that follow:

4.2.1. Unit demographics

An overview of the unit demographics regarding the critical care sample (n=31) is provided in table 4.1. As stated in chapter 3, any discipline adult CCU within the private hospital sector in Gauteng was invited to participate in the programme. A total of 42 units that met the requirements were invited (N=42) and 31 units (n=31) completed and returned the demographic checklist. From the data it was evident that the majority of the units that participated in the study, operated as multi-disciplinary units (refer to figure 4.1), implying that these units admit both surgical and medical cases (Pretorius, 2009:39).

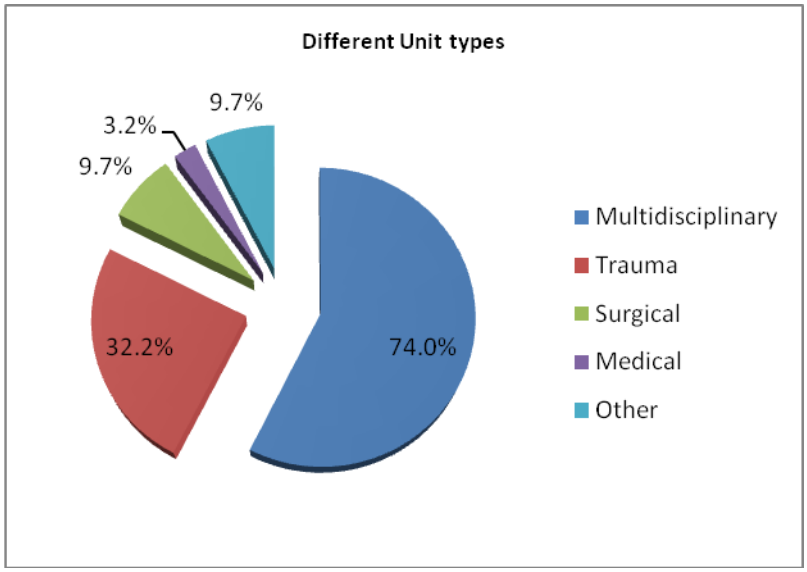

Figure 4.1: Different types of CCUs (n=31) (Pretorius, 2009:84)

Table 4.1: Unit characteristics (Pretorius, 2009:86)

	MEAN (M)	STANDARD DEVIATION (S.D)
Beds	12.7	5.62
Bed occupancy rate for 2008	68%	18.64
Patient acuity level per unit	20	1.31
Critical care trained nurses per unit	8.2	5.51
Critical care experienced nurses per unit	8.6	7.26
Staff turnover rate for 2008	11.2%	11.46
Staff absenteeism rate for 2008	7.74%	10.77

On average the CCUs had approximately 12.7 beds per unit with a bed occupancy rate of 68%. Most of the units admitted patients with acuity levels averaging 20 and the units had almost equal amounts of trained RNs and RNs with experience in critical care nursing. The staff turnover rates averaged 11.2% and the staff absenteeism rate was 7.74%.

4.2.2. Participant demographics

The demographics of the RNs were extrapolated from section D of the RN4CAST questionnaire. A total of 741 RNs (N=741) met the inclusion criteria and were invited to participate in the completion of the questionnaire. From this number 298 RNs (n=298) completed and returned the questionnaires. Only demographic data

that was applicable to this research study was analysed. The following variables were addressed: gender, education, satisfaction with nursing and employment status. A discussion of these variables is presented in table 4.2.

Table 4.2: Participant demographics

	F	PERCENTAGE (%)
Gender: Female	274	91.9%
Male	16	5.4%
Level of education: Degree in nursing	70	23.5%
Diploma in nursing	209	70.1%
Satisfaction with nursing		
Very dissatisfied	34	11.4%
A little dissatisfied	40	13.4%
Moderately satisfied	107	35.9%
Very satisfied	108	36.2%
Employment status: Permanent	267	89.6%
Part time	22	7.4%

Of the 298 participants that completed the questionnaire a total of 91.9% (274/298) were female and 5.4 % (16/298) male (refer to figure 4.2).

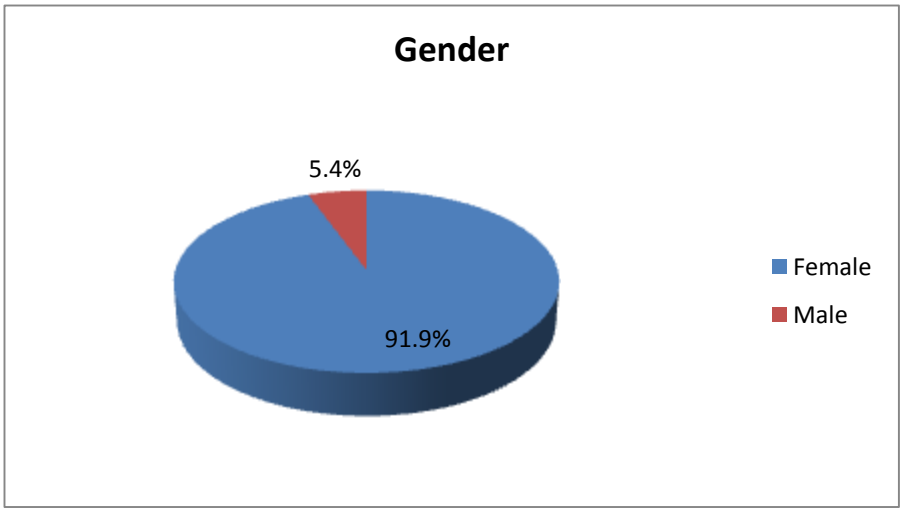

Figure 4.2: Gender of participants (n=298)[1]

[1]A missing value of 3% is not represented in this data.

When asked about their education, a total of 23.5% (70/298) of RNs had a baccalaureate degree in nursing, whilst 70.1% (209/298) indicated having a 4 year diploma in nursing (refer to figure 4.3).

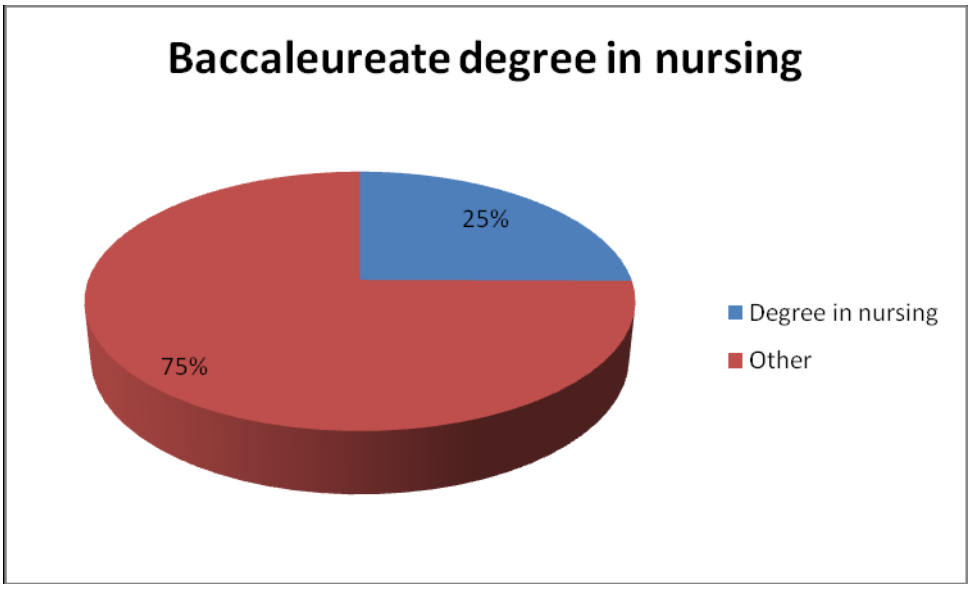

Figure 4.3: Level of education[2]

In terms of the RNs satisfaction with nursing as a career, 35.9% (107/298) indicated moderate satisfaction and 36.2% (108/298) were very satisfied. Only 13.4% (40/298) were a little dissatisfied and 11.4% (34/298) were very dissatisfied (refer to figure 4.4).

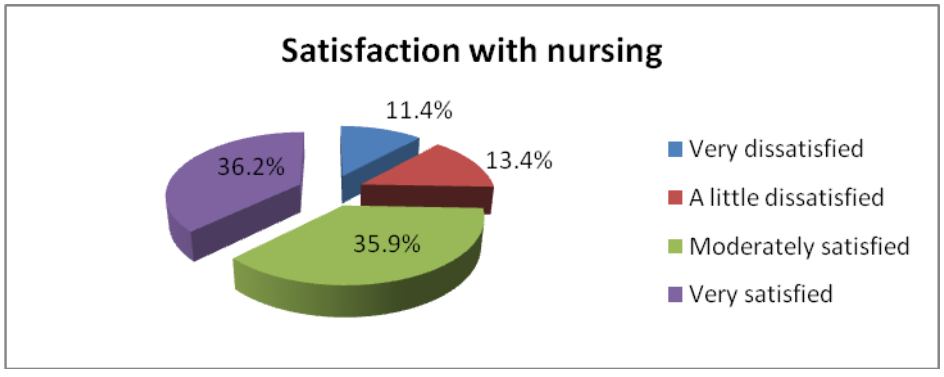

Figure 4.4: Satisfaction with nursing as a profession[3]

[2]A Missing value of 6.4% is not represented in this data.

[3]A missing value of 3% is not represented in this data

As illustrated in figure 4.5, 89.6% (267/298) of all the participants were permanently employed in the hospital where they completed the questionnaires. Only 7.4% (22/298) were part time workers.

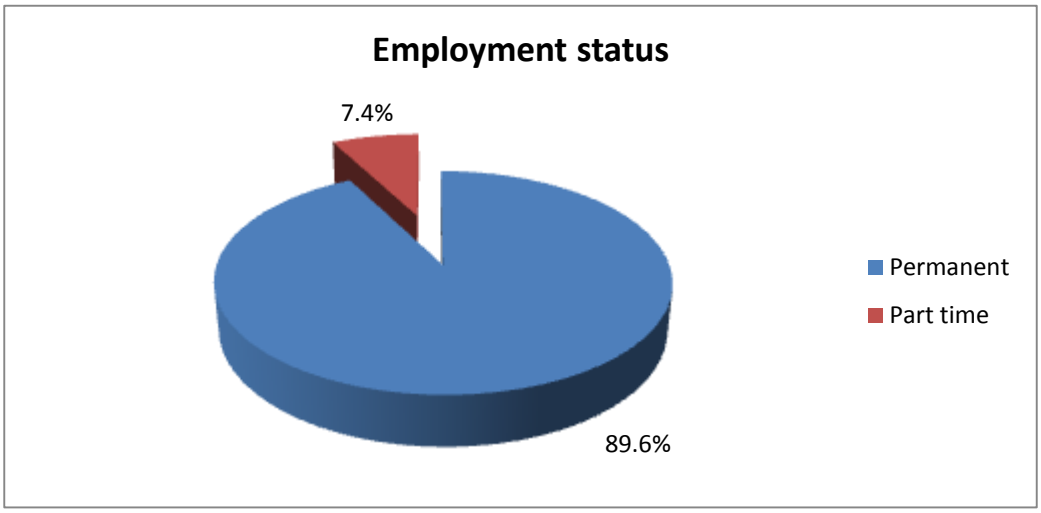

Figure 4.5: Employment status[4]

4.3. DATA COLLECTION

As outlined in chapter 3 the RN4CAST questionnaire was used to collect the data for this study. A detailed description of the questionnaire utilised for this research study and the procedure for the collection of the data was provided in Chapter 3, section 3.4 and 3.5.

4.4. DATA ANALYSIS

As described in the introduction of this chapter, data analysis can be seen as the grouping, ordering, controlling and summarising of the data that were collected during the course of the research study. Data analysis also includes a description of the analysed data in meaningful terms. In quantitative research, statistical strategies for analysis are most frequently utilised (Brink *et al.,* 2006:170). A discussion

[4]A missing value of 3% are not represented in this data

regarding statistical analysis and how it occurred in the study will be presented in following sections.

4.4.1. Data cleaning and capturing

The raw data was entered into Epidata 3.1 (Lauritsen, 2008) on two individual sheets and correlated for error eradication. Epidata 3.1 (Lauritsen, 2008) ensured the capturing of study data of high quality that is supported by the documentation of every procedure (Lauritsen, 2008). The data was then imported to a computer software statistical programme known as SPSS 16.0 (SPSS, 2007) that offered analysis capabilities, flexibility and usability for statistical analysis.

4.4.2. Statistical analysis

Statistics can be seen as numerical facts, and the academic discipline of statistics is concerned with the collection, presentation, analysis and interpretation of numerical information (Bruce, Pope & Stanistreet, 2008:7). In the process of data analysis, the researcher determined the frequency, mean scores of the subscales and the standard deviation in order to measure the central tendency of data distribution (refer to section 4.5). The correlation coefficient between the variables as well as the statistical significance and reliability indices of the MBI was also calculated and will be presented elsewhere in this chapter (refer to sections 4.6 and 4.7). A description of the different statistical measures applied in this study is presented in the paragraphs that follow.

The **standard deviation** indicated in what way variables vary around the mean of the distribution. The larger the standard deviation, the more spread out the scores are around the mean in a distribution (Brink *et al.,* 2006:178). Standard deviation can thus be seen as the "average" difference (deviation) score and indicates the degree of error that would be made if the mean alone were used to interpret the data. The higher the standard deviation, the bigger the variation in answers. If the standard deviation is very low, it indicates that most of the participant's answers were the same (Burns & Grove, 2009:474). A discussion of the measures of central tendency in this research study will be presented in section 4.5 of this Chapter.

If two continuous variables have an approximately linear relationship, a **correlation coefficient** can be calculated to indicate the strength and direction of the relationship (Bruce *et al.,* 2008:501). In this study the responses of the participants in Section B was compared with the three subscales of the MBI (depersonalization, emotional exhaustion and personal accomplishment) to determine whether a correlation exists (refer to section 4.6). To that end the **Spearman rank correlation coefficient** also known as the Spearman rho (r_s) was calculated. The Spearman rank correlation coefficient is generally used for ordinal-level measures (Polit & Beck, 2004:475) as was the case in this study.

Spearman rank correlation coefficients can take a value between -1.00 and +1.00. When two variables are totally unrelated, the correlation coefficient is equal to zero. A correlation coefficient between .00 and -1.00 express what is known as a negative or inverse relationship. This implies that increments in one variable will be associated with decrements in the second variable (Polit & Beck, 2004:334). When an increase in one variable is associated with an increase in the other variable, the correlation coefficient will exhibit a positive relationship (.00 to +1.00). According to Burns and Grove (2009:424) an ***r*** value of 0.1-0.29 is considered a weak relationship; a value between 0.3-0.5 a moderate relationship and a value above 0.5 a strong relationship. The interpretation of the relationship does however also depend, in part, on the judgment of the researcher.

In research, correlation coefficients are typically reported in what is known as correlation matrixes (refer to table 4.8) in which every variable is displayed in both a column and a row (Polit & Beck, 2004). With different types of data, different correlation coefficients will be calculated. To determine the percentage of a possible relationship between variables the result is squared e.g. -0.249 x 0.249 = 0.0062 or 6%, indicating that there is a 6% possibility of one variable influencing the other.

The **statistical significance, (Sig (2-Tailed) value)** indicates whether or not differences between groups are likely to be chance occurrences or a reflection of real differences between populations. This value will indicate if there is a statistically significant correlation between two variables. If the Sig (2-tailed) value is less than

0.05 it can conclude that there is a statistically significant correlation between the two variables. Should the value be higher than 0.05, there will be no statistically significant correlation between the two variables and the value often serves as a warning that there might be other variables influencing the results or statistical errors (Smith *et al*., 2008:135). The statistical significance of the correlation coefficients in this study will be presented in section 4.6 of this Chapter.

4.5. DISCUSSION OF THE DESCRIPTIVE STATISTICS IN THE STUDY

Descriptive statistics (mean sub scores and standard deviations) related to the items of the subscales of the MBI are presented below, followed by a discussion of the mean sub scores and standard deviations of the items related to the safety and quality of patient care.

4.5.1. Maslach burnout inventory (MBI)

As stated in chapter 3 the MBI consists of three subscales. A discussion of each of these subscales follows.

4.5.1.1. Emotional exhaustion (EE)

EE focused on feelings of being emotionally overextended and exhausted by one's work (Maslach *et al.,* 1996:4) and included 8 items on the questionnaire. The table below (table 4.3) provides an overview of the mean and standard deviation of each item related to EE.

A lower score of 0, 1, 2 and 3 on the scale indicated a response of never (0), a few times a year or less (1), once a month or less (2), and a few times a month (3). The higher scores of 4, 5 and 6 were indicative of once a week (4), a few times a week (5) and every day (6). The high mean of 4.94 in item 4 (refer to table 4.3), indicated that the participants have a good understanding of their patient's feelings and the lowest mean of 1.06 indicated that participants did not view patients as impersonal objects

Table 4.3: Emotional exhaustion

ITEM NUMBER	ITEM	MEAN (M)	STANDARD DEVIATION (S.D)
1	I feel emotionally drained from my work	3.57	1.63
2	I feel used up at the end of the day	3.59	1.67
3	I feel fatigue when I get up in the morning and have to face another day on the job	3.23	1.88
4	I can easily understand how my patients feel about things	4.94	1.46
5	I feel that I treat some patients as if they were impersonal objects	1.06	1.58
6	Working with people all day is really a strain for me	1.64	1.71
7	I deal very effectively with the problems of my patients	4.82	1.71
8	I feel burned out from my work	2.76	2.0

Overall 21.06% (63/298) of the participants experienced EE a few times a week, whilst 31.7% (94/298) never experience EE. 47.06% (140/298) experienced it once a month or less and 11.37% (34/298) experienced it on a daily basis (refer to figure 4.6).

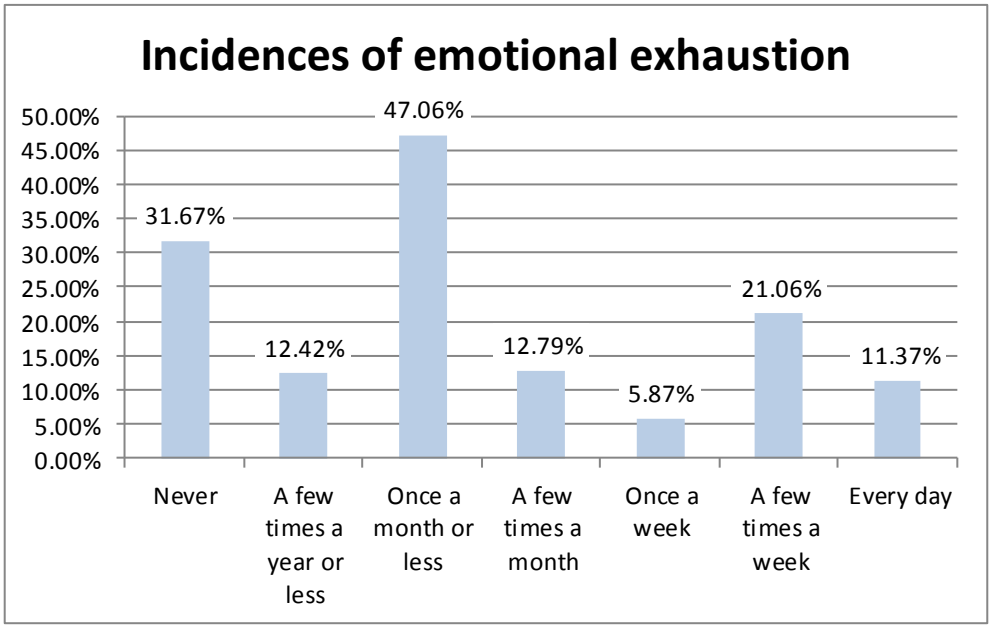

Figure 4.6: Summary of incidences of emotional exhaustion

A possible explanation for the low levels of EE reported on by the RNs in this study can be found in the research conducted by Jourdain and Chênevert (2010:718). According to the authors research conducted in the context of quantitative overload, might be indicative of RNs level of affective commitment to the profession. RNs seemed to be very sensitive to the absence of one resource, namely the "meaning of work".

4.5.1.2. Depersonalisation (Dp)

Dp consisted of 5 items and measured the participants' attachment to their working environment (Maslach *et al*., 1996:4). An overview of the scores is provided in table 4.4.

Table 4.4: Depersonalisation

ITEM NUMBER	ITEM	MEAN (M)	STANDARD DEVIATION (S.D)
1	I feel I'm positively influencing other people's lives	4.36	1.84
2	I've become more insensitive toward people since I took this job	2.52	2.20
3	I worry that this job is hardening me emotionally	2.33	2.16
4	I feel very energetic	3.68	1.90
5	I feel frustrated by my job	2.67	1.98

The highest mean score obtained indicated that participant's feel they do have a positive influence on people's lives at least once a week. Participants seemed to disagree with the statement that their job was hardening them emotionally (M=2.33). From the visual illustration presented in figure 4.7 it was evident that 40.43% (120/298) of the RNs seldom if ever experience Dp. 29% (86/298), experience it once a week or more and 14.43% (43/298) experience it a few times a month.

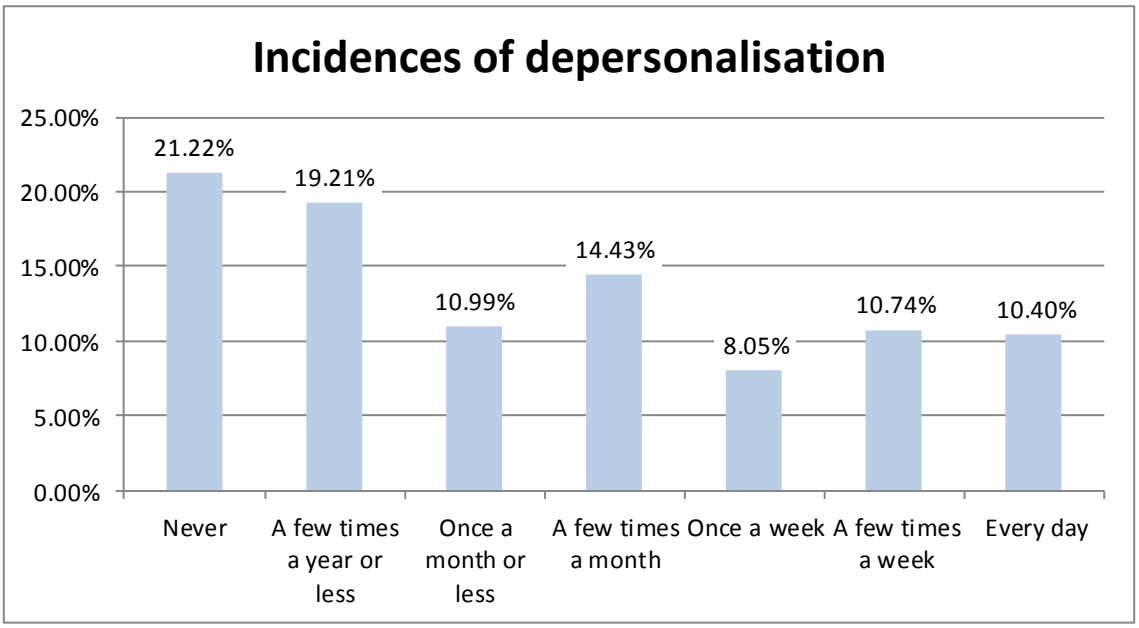

Figure 4.7: Summary of the experiences of depersonalisation

When compared with international counterparts, RNs working in South African private critical care units do not experience episodes of Dp often. Research conducted by Poncet, Toullic, Papazian, Kentish-Barnes and Timsit (2006:700) in a large population of 165 CCUs in France with a sample size of 2 392 RNs, reported that 32.8% of nurses experienced Dp.

4.5.1.3. Personal accomplishment (PA)

PA consisted of 9 items and assessed feelings of competence and successful achievement in one's work with people (Maslach *et al*., 1996:4). Table 4.5 provides an overview of the scores. Most RNs seemed to report on the ability to create a relaxed atmosphere for their patients (M=4.76) and deal with their emotional problems calmly (M=4.53). When looking at figure 4.8 and the low mean scores in items 2, 3, 7 and 9 it was evident that the participants seldom if ever experienced low PA (54.61%) (163/298).

Table 4.5: Personal accomplishment

ITEM NUMBER	ITEM	MEAN (M)	STANDARD DEVIATION (S.D)
1	I feel I'm working too hard on my job	3.22	2.05
2	I don't really care what happens to some patients	0.44	1.12
3	Working directly with people puts too much stress on me	1.59	1.73
4	I can easily create a relaxed atmosphere with my patients	4.76	1.73
5	I accomplish many worthwhile things in this job	4.32	1.77
6	I feel exhilarated after working closely with the patients	3.81	1.89
7	I feel like I'm at the end of my rope	1.91	1.98
8	In my work, I deal with emotional problems very calmly	4.53	1.66
9	I feel patients blame me for some of their problems	1.61	1.81

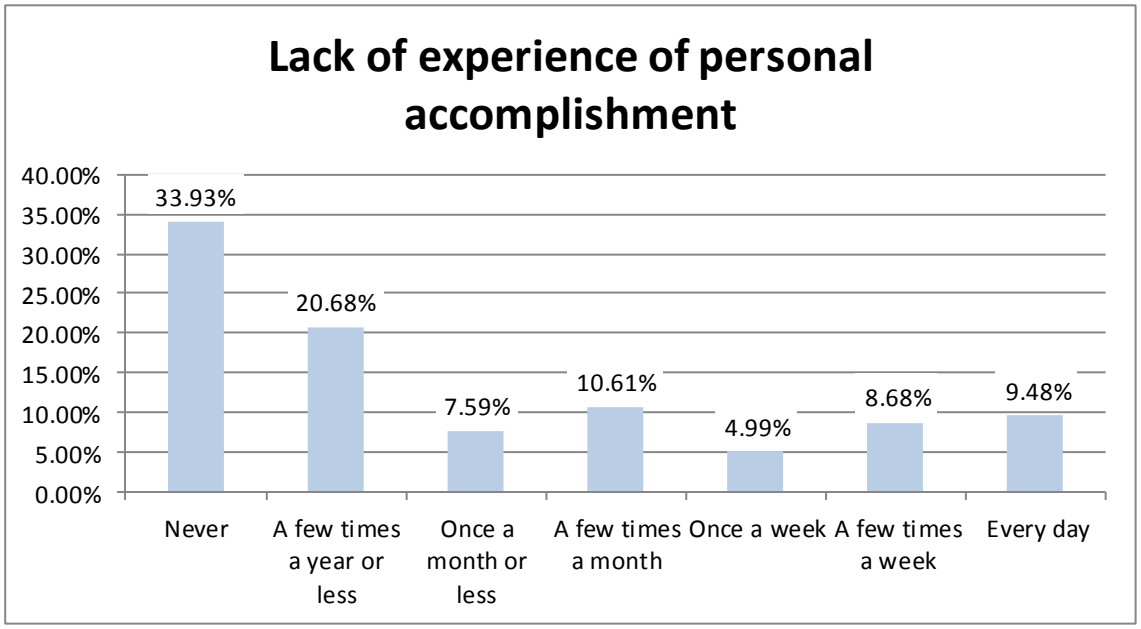

Figure 4.8: Summary of the experiences of a lack of personal accomplishment

According to Jourdain and Chênevert (2010:718) the high mean scores obtained in this subscale can be contributed to the fact that employees are intrinsically rewarded when they are aware of their accomplishment, in a task that has importance or worth to them.

In addressing objective 2 of this research study the results of the MBI indicated that 31.67% (94/298) of the participants never experienced EE and 33.93% (101/298) never seem to experience poor PA. Approximately 21.22% (63/298) never experienced Dp. As there are no norm scores for the MBI, (Maslach *et al*., 1996) lower mean scores on PA correspond with higher degrees of experienced burnout, whilst high mean scores on EE and DP correspond to higher degrees of experienced burnout. From the mean scores of each of the sub-scales of the MBI (refer to table 4.6) it was evident that RNs working in private critical care units in Gauteng province did not experience burnout. Interesting to note was that the study conducted by Bruyneel *et al.,* (2009:208) in Belgium concluded that Belgian nurses were far less likely to report on burnout compared to nurses from other countries. The authors suggested that this might be explained by the findings of Schaufeli and Van Dierendonck (1995) which indicated that the use of Maslach norms caused substantial underestimating of the number of burnout cases in the Netherlands. This can possibly be attributed to the fact that the mean burnout level of nurses in the USA is higher (Bruyneel *et al.* 2009:208).

Table 4.6: Mean scores and standard deviations of the MBI

MBI SUB-SCALE	MEAN	STANDARD DEVIATION
Emotional exhaustion	2.69	1.40
Depersonalisation	1.55	1.20
Personal accomplishment	4.43	1.08

4.5.2. Safety and quality of patient care

In the following section a comprehensive discussion of the analysis of items related to the safety and quality of patient care will be given. Overall, 45.3% (135/298) RNs were of opinion that the quality of care in their units was good. 19.1% (57/298) of the

participants indicated that the quality of care provided in their units was excellent, and only 1.7% (5/298) responded that quality care was poor (refer to figure 4.9). According to Allameddine *et al.,* (2009:246) there is a strong will to change critical care environments to ensure high quality patient care globally, but not all have reached this level.

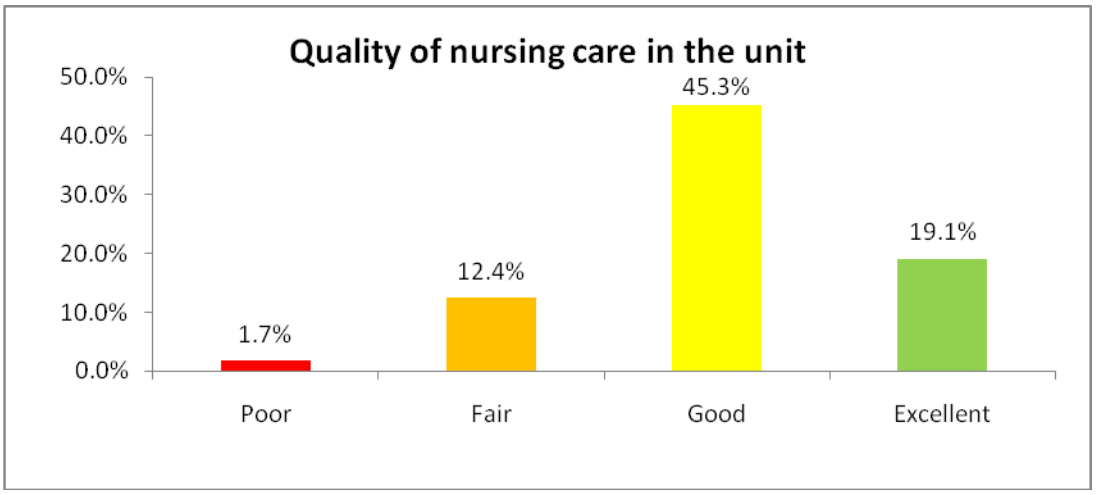

Figure 4.9 Quality of nursing care provided[5]

When asked about their confidence that patients will be able to manage their own care at home, 45.6% (136/298) of the participants were confident. 32.6% (97/298) were somewhat confident in their opinion and 4.4% (13/298) of the participants were not at all confident (refer to figure 4.10). Contradictory to the high percentage of confidence, Boughton and Halliday (2009:31) stated that health care professionals might consider patients to be ready for discharge on medical grounds, but many of the patients are uncertain and anxious about leaving the hospital. This fear and anxiety is supported by the patients' belief that they will not receive any follow-up support and little family support. Also, in contrast with the finding from this research, Kwak *et al*. (2010:5) found that 82.8% (406/496) of the participants in their research project indicated that they were somewhat or not confident that patients will be able to manage care after discharge. It was beyond the scope of this study to explore patients' views related to their confidence to manage their own care after discharge.

[5]A total of 21.5% was not captured due to missing values

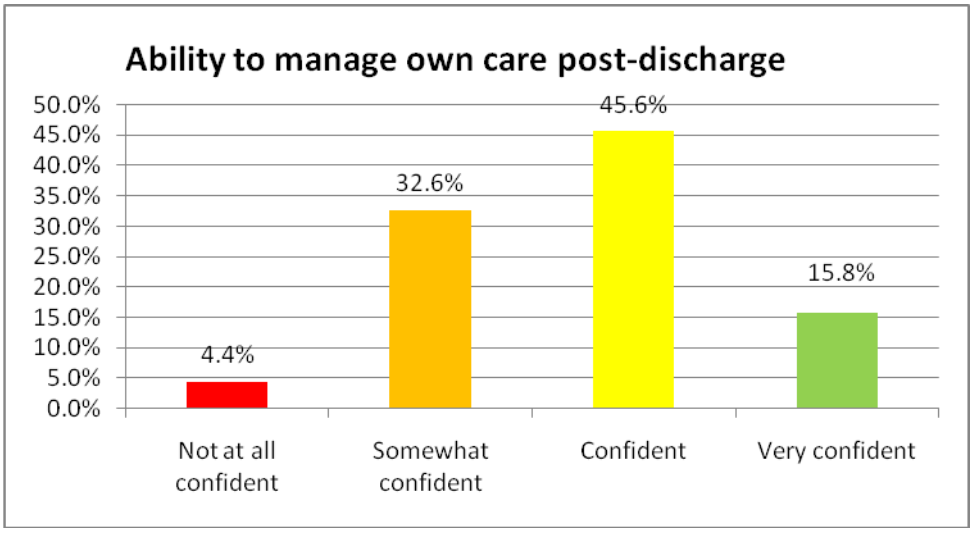

Fig 4.10: Ability to manage care post-discharge[6]

When asked to indicate the degree to which they think management will act to resolve problems in patient care, 44.6% (133/298) of the participants felt confident that management would be able to solve the problem. Only 13.4% (40/298) felt very confident, while 28.5% (85/298) were somewhat confident and 11.7% (35/298) had no confidence in their management's ability to solve patients' problems (refer to figure 4.11). In contrast with this Aiken, Clarke, Sloane, Sochalski, Busse, Clarke, Giovannetti, Hunt, Rafferty and Shamian (2001:51) commented that much of the re-engineering and restructuring undertaken by hospital management has been planned to follow industrial models of productivity improvement, rather than addressing nurses' concerns.

[6] 1.7% was not calculated due to missing values

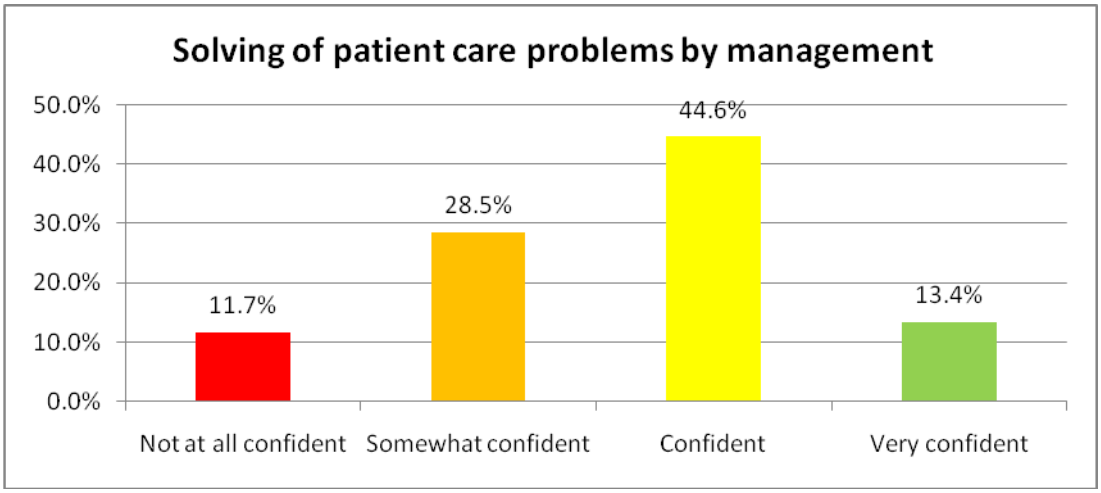

Figure 4.11: Solving of patient care problems by management[7]

In rating patient safety (refer to figure 4.12) in their units, 43.3% (129/298) of the participants responded that it was very good and 20.5% (61/298) excellent. 31.2% (93/298) of the participants viewed it to be acceptable while only 3.4% (10/298) rated it poor. In a survey conducted by Sorra, Nieva, Famolaro and Dyer (2007:25) on the patient safety culture in hospitals in the USA, on average, the majority of participants (70%) gave their work area or unit a grade of "A-Excellent" (22%) or "B-Very Good" (48%) on patient safety.

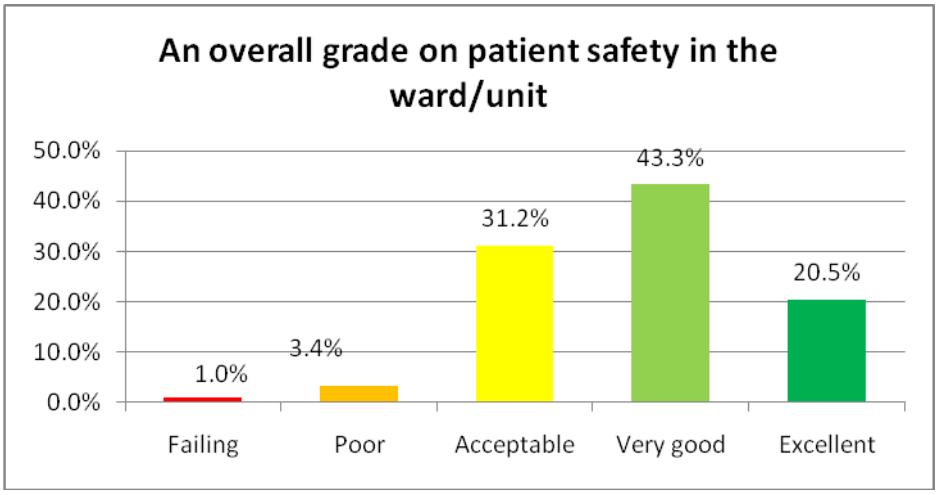

Figure 4.12: An overall grade on patient safety in the ward/unit[8]

[7] 1.7% was not calculated due to missing values

[8] 7% was not calculated due to missing values

Overall there seemed to be an almost equal amount of participants agreeing that the quality of patient care deteriorated (31.9%, 92/298), remained the same (32%, 95/298), or improved (30.9%, 92/298) over the last year as illustrated in figure 4.13. Storesund and McMurray (2009:124) conducted a mini-ethnographic case study to gain knowledge about the nurses' perception of quality of practice in CCUs and came to the conclusion that quality practice was very important to nurses practicing in the CCU.

Contrary to the results of this study, research conducted by Kwak *et al.,* (2010:5) to determine the relationship of job satisfaction with perceived organsational support and quality of care among South Korean nurses, indicated that only 7.3% (36/496) of participants agreed that the quality of care in their units have deteriorated in the last year. Similarly Aiken *et al.,* (2002:190) reported on the effects of nurse staffing and organisational support for nursing care on nurse's dissatisfaction with their jobs, and concluded that most nurses rated the quality of care in their units as fair or poor. Van Bogaert *et al.,* (2009:2179) investigated the relationships between nurse practice environments, burnout, job outcomes and nurse-assessed quality of care. 34% of the participants indicated that the quality of care in their units deteriorated in the past year.

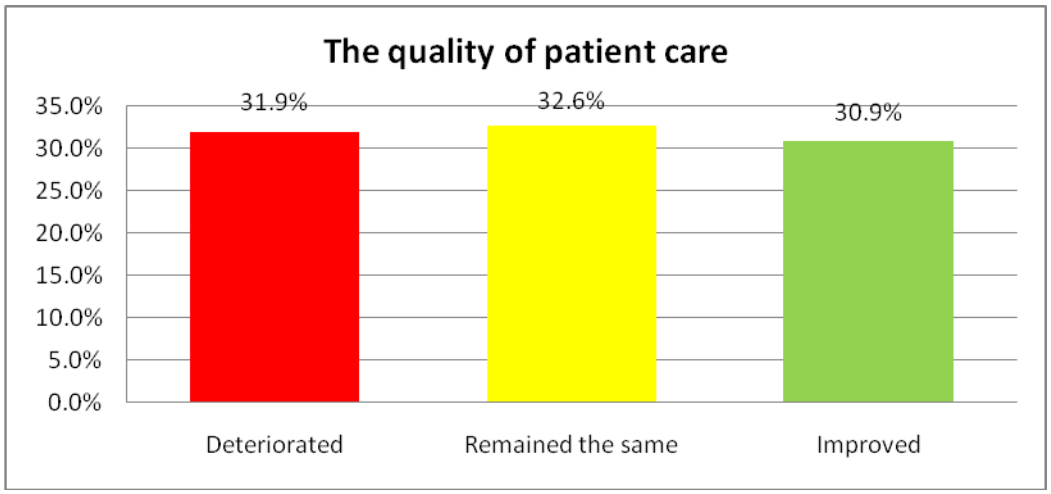

Figure 4.13: The quality of patient care[9]

[9]5% was not calculated due to missing values

In terms of the inappropriateness of managerial approaches to errors (refer to figure 4.14), 38.9% (116/298) of the RNs agreed that management did not deal with staff errors appropriately, whilst 19.5% (58/298) disagreed and 6% (18/298) strongly disagreed. These findings seem to correspond with survey research done by Sorra *et al*. (2007:25) regarding patient safety in critical care units in the USA. 35% of the participants in this study were concerned that their mistakes will be kept against them in their personnel files. Jeongeun, Kyungeh, Minah Kang & Sook Hee (2007:827) also stated that nurses feel uncomfortable in reporting errors, and suggested that safety must be improved in a culture where employees can openly discuss errors that occurred.

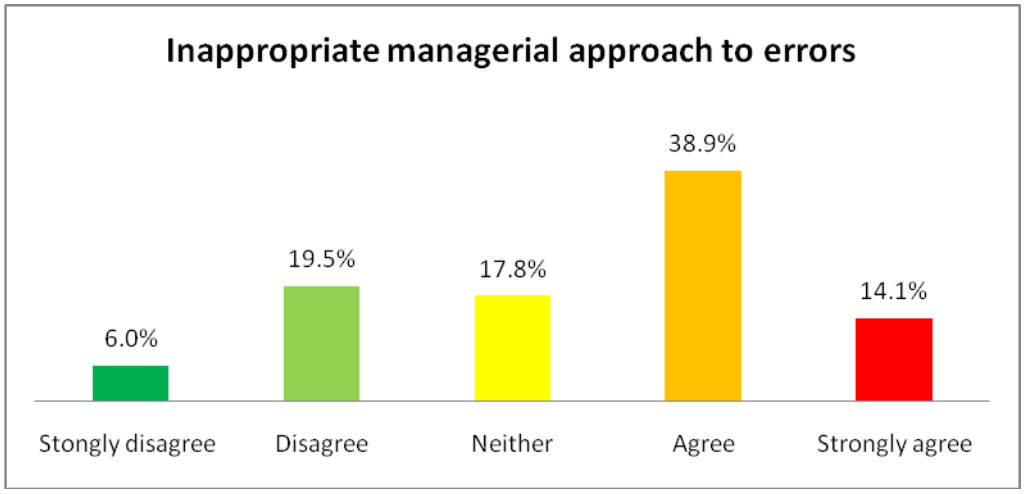

Figure 4.14: Inappropriate managerial approach to errors[10]

When asked about the loss of information during shift changes (refer to figure 4.15) 39.9% (119/298) of the participants agreed that information on patients was lost during shift changes, while 9.4% (28/298) strongly agreed (resulting in a total of 49.3%). This is confirmed by Alvarado, Lee, Christoffersen, Fram, Boblin, Poole, Lucas and Forsyth (2006:79) in stating that the lack of communication and significant patient information among nurses might lead to inappropriate nursing care plans and negative patient outcomes.

[10] 3.7% was not calculated due to missing values

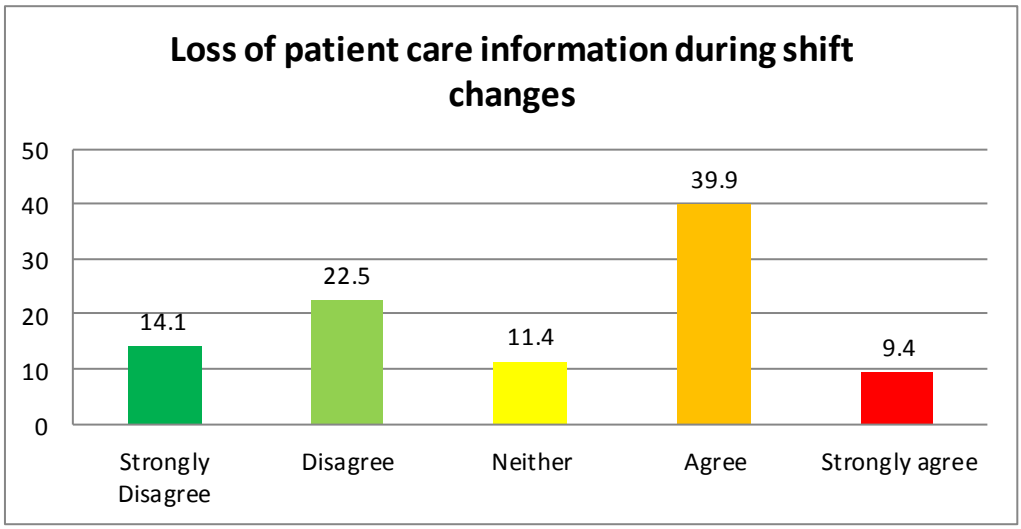

Figure 4.15: Loss of patient care information during shift changes[11]

As indicated in figure 4.16, 38.9% (116/298) of the participants agreed that information is lost when transferring a patient from one ward to another. These findings are consistent with research done by Häggström, Asplund and Kristiansen (2009:181) which stated that nurses are struggling with the gap between CCUs and other wards due to the differences in the altered level of care, and difficulties for nurses encountering an overlap during the transitional care.

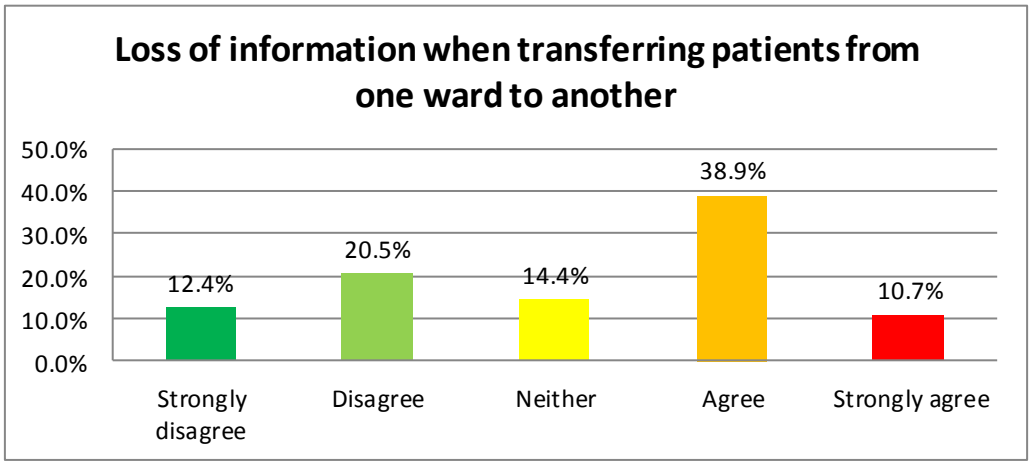

Figure 4.16: Loss of information when transferring patients from one ward to another[12]

[11] 2.7% was not calculated due to missing values

In terms of the transparency and accessibility of management, 29.5% (88/298) of the participants indicated that they did not feel free to ask questions regarding the decisions of those in authority (refer to figure 4.17). An almost similar amount 30.2% (90/298) did however agree with the transparency and accessibility of their management.

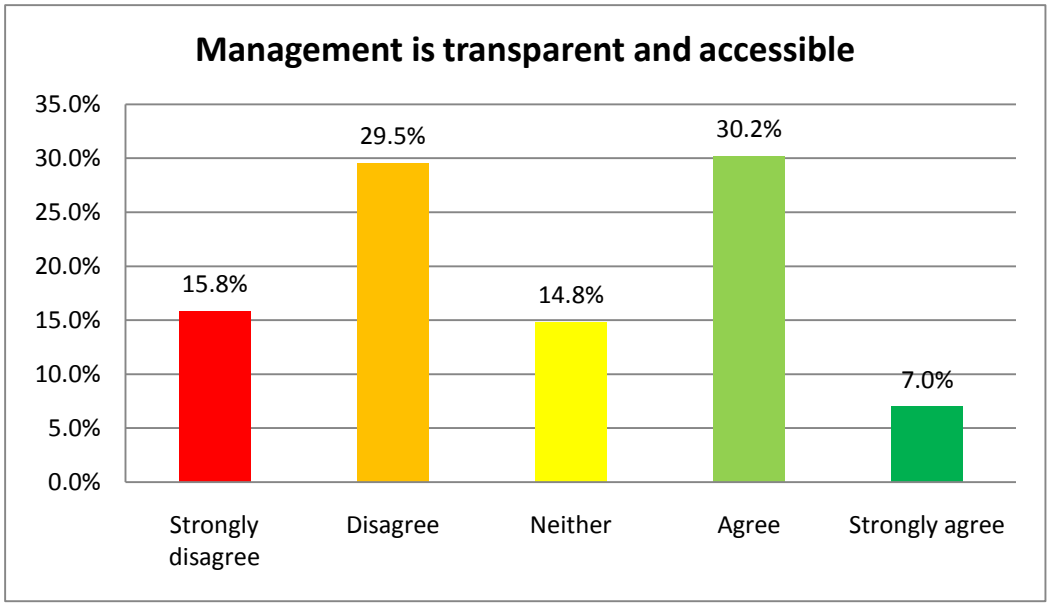

Figure 4.17: Management is transparent and accessible[13]

When asked about strategies to prevent the recurrence of errors in patient care, 49.3% (147/298) of the participants agreed that error prevention is a priority in their unit. As indicated in figure 4.18 the minority of the participants either disagreed 12.1% (36/298) or strongly disagreed 4.4% (13/298) that error prevention strategies are not a priority in their units.

[12]3% was not calculated due to missing values

[13]2.7% was not calculated due to missing values

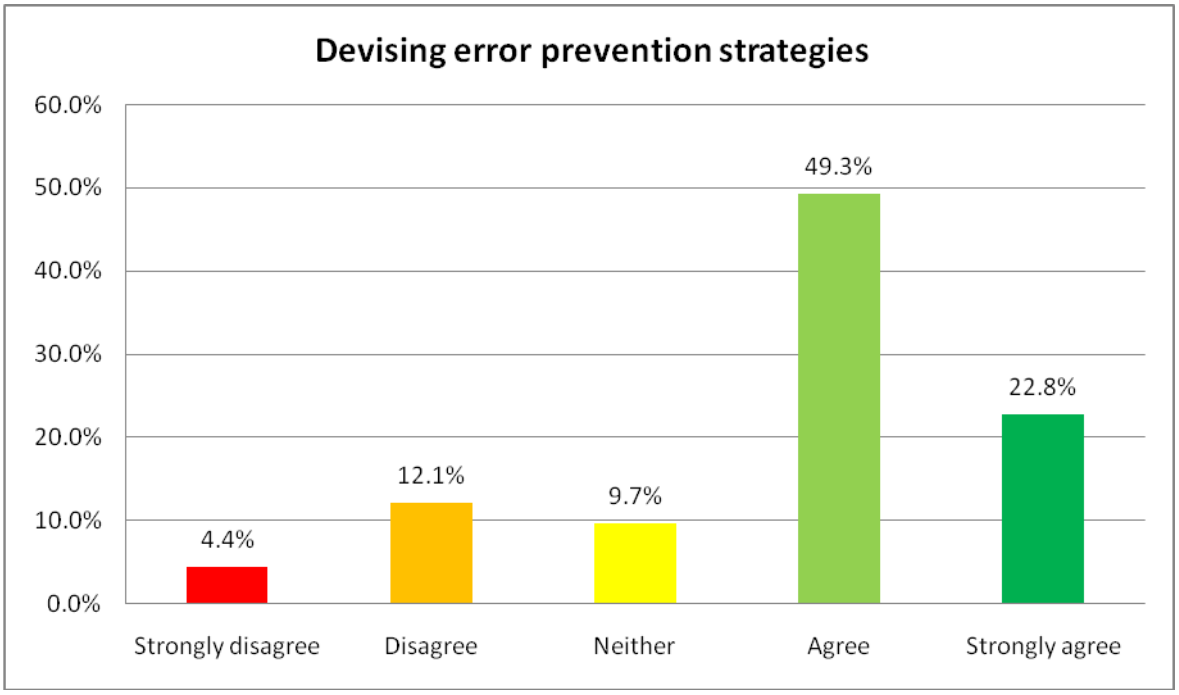

Figure 4.18: Devising error prevention strategies[14]

In terms of communication and feedback between management and the RNs, most of the participants 48.3% (144/298) agreed that management communicated changes that were put in place based on event reports (refer to figure 4.19). In a study conducted by Van Bogaert *et al.,* (2009:2182) the researchers concluded that nurse involvement in hospital and unit policies is important for professional satisfaction, to prevent burnout, and to stimulate engagement. The researchers further reported that poor organisational environments at different levels may lead to feelings of exhaustion, cynicism and inefficacy, which in turn decreases job satisfaction, with potential negative impacts on quality patient care (Van Bogaert *et al*., 2009:2183).

[14] 1.7% was not calculated due to missing values

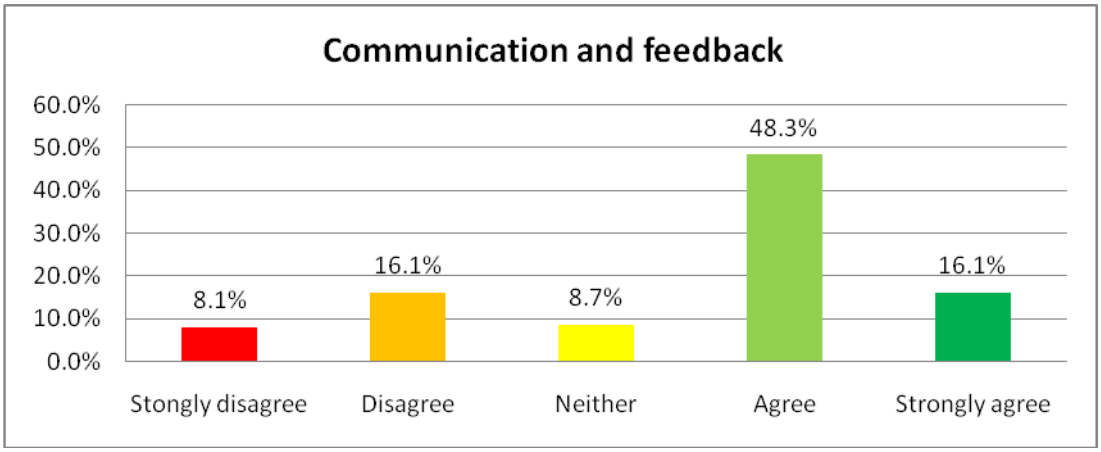

Figure 4.19: Communication and feedback[15]

When asked about patient safety as a priority for management, 47.7% (142/298) of the participants agreed that patient safety is a managerial priority in their hospitals (refer to figure 4.20).

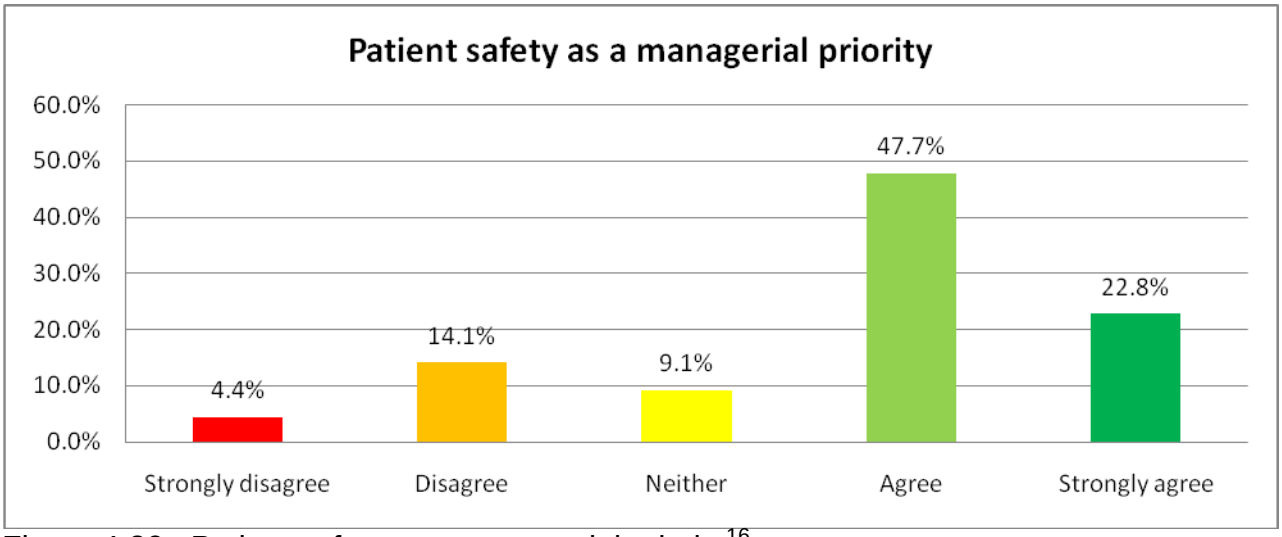

Figure 4.20: Patient safety as a managerial priority[16]

From the discussion in the preceding paragraphs it was evident that most of participants felt confident that the safety and quality of care provided in their units was of a good standard. A summary of the descriptive statistics related to the items of the safety and quality of patient care is provided in table 4.7.

[15] 2.7% was not calculated due to missing values

[16] 2% was not calculated due to missing values

Table 4.7: Mean and standard deviation of safety and quality in patient care

	n	MEAN	STANDARD DEVIATION (S.D)
Managerial approach to errors	287	3.37	1.145
Loss of information during shift changes	290	3.08	1.267
Loss of patient information with transfers	289	3.16	1.244
Management's transparency and accessibility	290	2.83	1.236
Devising error prevention strategies	293	3.75	1.080
Communication and feedback	290	3.50	1.189
Patient safety as managerial priority	292	3.72	1.108

Following the discussion of the descriptive statistics in the preceding paragraphs and in order to report on the relationship between burnout among RNs working in private CCUs in Gauteng and the safety and quality of patient care (objective 3), a discussion of the correlation coefficient follows.

4.6. DISCUSSION OF THE CORRELATION COEFFICIENTS IN THE STUDY

As stated in an earlier paragraph the correlation coefficient expresses the magnitude and direction of the association between two or more variables. To that end a discussion of the index of the correlation coefficients in his study is provided below.

4.6.1. Spearman's rank correlation coefficient

Once the correlation coefficient (cc) was determined, the statistical significance (Sig 2-tailed value) was used to indicate the presence of a statistically significant relationship between the two variables (Mitchell & Jolley, 2007:197). The correlation matrix in table 4.7, provide the subscales of the MBI compared with the questions related to the safety and quality of patient care.

Table 4.8 Correlation matrix: .Burnout among RNs in private CCUs in Gauteng and the safety and quality of patient care

		EMOTIONAL EXHAUSTION (EE)	DEPERSONALISATION (Dp)	PERSONAL ACCOMPLISHMENT (PA)
Quality of nursing care in the unit.	Correlation Coefficient	-.275	-.249	.197
	Sig. (2-tailed)	0.000	0.000	0.003
	N	233	232	233
Ability of the patients to manage their own post-discharge care.	Correlation Coefficient	-.217**	-.246**	.157**
	Sig. (2-tailed)	0.000	0.000	0.007
	N	292	291	292
Ability of the management to solve patient related problems	Correlation Coefficient	-.277**	-.304**	.322**
	Sig. (2-tailed)	0.000	0.000	0.000
	N	292	292	292
Patient safety in the ward/unit	Correlation Coefficient	-.245**	-.205**	.204**
	Sig. (2-tailed)	0.000	0.000	0.000
	N	295	294	295
Quality of patient care	Correlation Coefficient	-.376**	-.264**	.113
	Sig. (2-tailed)	0.000	0.000	0.057
	N	284	283	284
Managerial approach to errors	Correlation Coefficient	.280**	.201**	.061
	Sig. (2-tailed)	0.000	0.001	0.304
	N	287	287	287

Loss of patient care information during shift changes	Correlation Coefficient	.153**	.143*	-0.094
	Sig. (2-tailed)	0.009	0.015	0.111
	N	289	289	289
Loss of patient care information when transferring patients from one unit to the other.	Correlation Coefficient	.109	.183**	-.200**
	Sig. (2-tailed)	0.065	0.002	0.001
	N		289	289
Transparent and accessible management	Correlation Coefficient	-.254**	-.201**	0.048
	Sig. (2-tailed)	0.000	0.001	0.418
	N	289	289	28
Formulation of error prevention strategies	Correlation Coefficient	-.172**	-.153**	.206**
	Sig. (2-tailed)	0.003	0.009	0.000
	N	292	291	292
Managerial communication and feedback strategies	Correlation Coefficient	-.230**	-.154**	.223**
	Sig. (2-tailed)	0.000	0.009	0.000
	N	289	289	289
Patient safety as a managerial priority	Correlation Coefficient	-.232**	-.218**	.210**
	Sig. (2-tailed)	0.000	0.000	0.000
	N	291	291	291

From the analysis it was evident that Dp negatively correlated with the RNs' perception of the quality of nursing care in their units (r=-0.249; p=0.00). Moreover, EE also negatively correlated with the RNs' perception of quality nursing care in the units (r = -.275; p = 0.000). Although there is a correlation indicating that when Dp increase, the quality of care would decrease, the relationship is weak. Personal accomplishments (PA) seemed to have a weak positive correlation with the RNs' perception of quality of nursing care (r = .197; p = 0.003), implying that if PA increases so would the quality of nursing care.

The cc between the patients' ability to manage their own care after discharge and EE (r =-.217; p = 0.000), and Dp (r =-.246; p = 0.000) demonstrated a weak negative relationship. PA (r = .157; p = 0.007) and the patient's ability to manage their own care post discharge demonstrated a weak positive correlation. The cc between management's ability to solve patient related problems and EE (r = -.277, p = 0.000), demonstrated a weak negative relationship. Dp (r = -.304; p = 0.000) and management's ability to solve patient related problem demonstrated a moderate negative relationship, whilst PA (r = .322; p = 0.00) demonstrated a moderate positive correlation.

The cc between safety in the unit and EE (r = -.245; p = 0.000), and Dp (r = -.205; p = 0.000) demonstrated a weak negative relationship and PA (r = .204; p = 0.000) and safety a weak positive relationship. EE and the quality of care in the units (r = -.376; p = 0.000) demonstrated a moderate negative relationship, whilst Dp and quality of care exhibited a weak negative correlation (r = -.264; p = 0.000). PA and quality of care demonstrated a weak positive relationship (r = .113; p = 0.057), implying that if PA increases so would the quality of patient care.

A weak positive relationship between management's approach to errors, and EE (r = .280; p = 0.000) implied that as the inappropriateness of management to errors increased so would the EE of the RN's. The same could be found in the weak positive relationship between Dp and management's approach to errors (r = .201; p = 0.001). Personal accomplishment demonstrated a weak positive relationship to managerial approach to errors (r = .061; p = 0.304).

Perceptions regarding the loss of patient care information during shift changes had a weak positive correlation with EE (r = .153; p = 0.009) and Dp (r = .143; p = 0.015). PA demonstrated a weak negative relationship with (r = 0.094; p = 0.111) the loss of patient information during shift changes. A weak positive correlation in perceptions of the loss of patient information when transferring patients from one unit to the other and EE (r = .109; p = 0.065) was seen. The same could be found between Dp (r = .183; p = 0.002) and the loss of patient information with the transfer of patients. PA demonstrated a weak negative correlation (r = -.200; p = 0.001).

EE (r = -.254; p = 0.000) and Dp (r = -.201; p = 0.001) both demonstrated a weak negative relationship with perceptions regarding the transparency and accessibility of management. PA demonstrated a weak positive correlation (r = .048; p = 0.418) with perceptions regarding the transparency and accessibility of management. In terms of the formulation of error prevention strategies in units, EE demonstrated a weak negative relationship with EE (r = -.172; p = 0.003) and Dp (r = -.153; p = 0.009). PA demonstrated a weak positive relationship (r = .0.048; p = 0.148).

Managerial communication and feedback strategies revealed a weak negative correlation with EE (r = -.230; p = 0.000) and Dp (r = -.154; p = 0.009), whilst PA demonstrated a weak positive relationship with good managerial communication and feedback strategies (r = .223; p = 0.000). The participants' perception regarding safety as a managerial priority demonstrated a weak negative correlation with EE (r = -.232; p = 0.000) and Dp (r = -.218; p = 0.000). PA and the perceptions regarding patient safety as a managerial priority demonstrated a weak positive correlation (r = .210; p = 0.000).

Although many of the correlations were statistically significant, the relationships may not necessarily be regarded as meaningful based on Tabachnick and Fidell's (2001) recommendation that coefficients greater than 0.3 may be regarded as meaningful.
The Sig (2-tailed) value measuring less than 0.05 implied that there is a statistically significant correlation between the variables. For values higher than 0.05 (as with quality of patient care and PA; managerial approach to errors and PA; loss of patient care information during shift changes and Dp and PA; loss of patient care

information when transferring patients from one unit to the other and EE; and transparent and accessible management and PA), there was no statistically significant correlation between the two variables. These values often serve as a warning that there might be other variables influencing the results or statistical errors (Smith *et al*., 2008:135). In light of the statistically significant relationships between the variables, the null hypothesis (H_{01}) that there is no statistically significant relationship between burnout among RNs and the safety and quality of patient care in CCUs in Gauteng was rejected. The alternative hypothesis (H_{a1}) that there is a statistically significant relationship between burnout among RNs and the safety and quality of patient care in CCUs in Gauteng was accepted.

4.7. RELIABILITY INDICES OF THE MBI

As stated in chapter 3, reliability is primarily concerned with how well an instrument measures what it is supposed to measure (Pretorius, 2009:103). Reliability therefore refers to the consistency of an instrument. The Cronbach's alpha is the most commonly used measure of reliability. Cronbach's alpha reliability coefficient normally ranges between 0 and 1. The closer Cronbach's alpha coefficient is to 1.0 the greater the internal consistency of the items in the scale (Nunnally & Bernstein, 1994). Nunnally and Bernstein (1994) suggest alpha values equal or greater than 0.70 to indicate good reliability.

The Cronbach's alpha's for the sub-scales of the MBI ranged between 0.24-0.80. The Cronbach's alphas were acceptable for the EE sub-scale and modest for the PA sub-scale. Although the reliability of Dp is considered to be low, previous studies conducted in a South African context by Basson and Rothmann (2002) found internal consistencies of 0.89 for EE, 0.67 for Dp and 0.73 for PA. Similarly Van der Colff and Rothman (2009) found Cronbach alphas of 0.73 for Dp, 0.88 for EE and 0.71 for PA. The authors also reported on a study conducted abroad that documented internal consistencies well above 0.70 Cronbach alpha levels in EE and PA but not in Dp (Schaufeli, Salanova, Gonzales-Rom & Bakker, 2002).

Table 4.9: Reliability statistics for the three subscales of the MBI (Cronbach Alpha)

SUB-SCALES OF THE MBI	CRONBACH'S ALPHA COEFFICIENT (n=298)
Emotional exhaustion	0.80
Depersonalisation	0.24
Personal accomplishment	0.62

4.8. SUMMARY

In chapter 4 the unit and participant demographics were discussed, as well as descriptive and inferential statistics related to the variables under investigation. The results indicated that critical care nurses working in the private healthcare sector in South Africa are not experiencing burnout. A positive correlation between burnout and the safety and quality of patient care was demonstrated in the statistically significant relationship among the variables. The subsequent Chapter provides a discussion of the limitations of the study and future directions by means of recommendations for nursing practice, research, education and policy development.

CHAPTER 5
EVALUATION OF THE STUDY, LIMITATIONS AND RECOMMENDATIONS FOR PRACTICE, RESEARCH, EDUCATION AND POLICY

5.1. INTRODUCTION

In this chapter, the researcher reflects on the findings by means of an evaluation of the attainment of the objectives set in chapter 1. The limitations encountered during the study are discussed, followed by recommendations for nursing practice, research, education and policy development.

5.2. EVALUATION OF THE STUDY

The aim of this study was to investigate the relationship between burnout among RNs working in private CCUs in Gauteng and the safety and quality of patient care. To achieve the aim of the study, three objectives were set. A comprehensive literature review was performed to attain the first objective. Objective 2 was achieved by means of the statistical analysis of the data from the MBI and a subsequent interpretation and description thereof. The third objective was reached in determining the correlation coefficient between the three variables and reporting on the index.

Because of the high incidence of burnout internationally, it was considered important to determine the level of burnout amongst critical care nurses in South Africa. In terms of objective 2 the study indicated that nurses might experience emotional exhaustion once to a few times a month, but no definite conclusion could be made that critical care nurses experienced burnout. In light of the statistically significant relationships between the variables demonstrated by the correlation coefficients, the null hypothesis (H_{01}) that there is no statistically significant relationship between burnout among RNs and the safety and quality of patient care in CCUs in Gauteng was rejected. International literature indicated that burnout might be caused by poor nurse staffing levels (Charney & Schirmer, 2007:473; Hassmiller & Cozine, 2006:269; Demir *et al.* 2003:811), suboptimal nurse practice environments (Maslach, 1982:37; McCauley & Irwin, 2006:541; Aiken *et al*., 2008:223) and might lead to adverse events in patient care. Although critical care nurses in the context of

this study did not experience burnout, the study contributed to the current knowledge base of nursing in South Africa. To that end, the aim of the study was achieved. Important questions as to why South African critical care nurses are not burned out arises and similar findings in a Belgian and Netherland context supplicate the question that the Maslach norms derived from studies in the USA underestimates the number of burnout cases in other countries.

5.3. LIMITATIONS OF THE STUDY

All studies are subject to limitations and in light of the secondary analysis of the data the researcher, as a novice, often felt out of contact with the data. Due to the poor response rates associated with survey research in South Africa, an all inclusive sample implied that participants were selected based on their willingness to complete the questionnaire. Thus the sample was biased towards those RNs who were more willing to complete the questionnaire. Data was only collected from the private healthcare sector in Gauteng and the results can therefore not be generalised to the public healthcare sector in South Africa.

5.4. RECOMMENDATIONS

The following recommendations in terms of nursing practice, - research, - education and policy development emanated from the findings of his study.

5.4.1. Recommendations for nursing practice

- The researcher included two of the Department of Health's guidelines from "The National Strategy for Nurses" (Nursing Strategy for South Africa, 2008:17,30) as recommendations for nursing practice:
    - Quality of nursing practice must be promoted and quality of patient care must be assured through the implementation of the reviewed scope of practice. This must be performed in line with education, training and developing scopes of practice for advanced nursing practice; and
    - Safe nursing practice must be ensured in having appropriate nursing resources by determining the minimum staffing norm for safe practice (Nursing Strategy for South Africa, 2008:17,30).

In Chapter 2, the researcher provided global organisational guidelines regarding best practice environments and specifically supported the AACN's guidelines for best practice environments (AACN, 2005:13). Through the implementation of these guidelines, management of hospitals might be able to prevent the development of burnout, and improve patient outcomes dramatically. More attention must be given to in-service training regarding compassion fatigue, so that nurses can be aware of the symptoms thereof and take adequate measures to avoid it (Coetzee & Klopper, 2010:241).

It is also important that a specific work system should be followed, like the SEIPS model introduced in chapter 1, in order to identify any specific stressors affecting the nurse workload. According to this model there are certain factors in the nurse's immediate environment that add unnecessary workload, increasing stress levels and decreasing performance. Performance facilitators may facilitate the critical care nurse in performing her work (Carayon & Gurses, 2005:298). The model focuses on system design and the impact thereof on processes and outcomes. The model describes the system, its components and interactions among components and the impact on patient safety and employee/organizational outcomes. Human factor engineers developed and used various methods to assess each element of the work system model and the interaction between the elements. Once they have identified the elements and characteristics of the nurse's work system that contributes to workload, they then redesign the work system to reduce the workload. These elements affecting nurses included:

- Technology and tools available: In terms of technology and tools the researcher recommends that hospital management budget for adequate and updated equipment and tools, to enhance the quality of patient care and patient safety.
- Organisational factors/elements: As a recommendation, appropriate communication channels must be established between hospital management and nursing staff to prevent conflict and negative perceptions between these levels in the organisation.

- Tasks to be performed: The researcher recommends that the workload of nursing staff be evaluated on a regular basis, and that the staff ratio per shift be calculated according to the patient index to ensure adequate staffing.
- Environmental factors/elements: Environmental factors like poor relationships with physicians, violence, moral distress and excessive administrative duties should be controlled by management in maintaining the emotional wellbeing of the nursing staff

The interaction between these elements and the critical care nurse are constantly happening and can be seen as the “work system” which influences work processes. Work processes leads to patient outcomes, which include patient safety and quality care. Patient outcomes then again influence employee/organisational outcomes (Carayon *et al.,* 2006:i52)

In the analysis of the RN4CAST data for this research project, nurses reported on a high workload in private critical care units. According to the SEIPS model, the work system can affect the safety of the patient and the outcomes of the organisation. One of the employee outcomes due to inadequate work systems includes burnout. This system can be implemented to address the systematic problems of patient safety (Carayon *et al.,* 2006:i50). In chapter 2 section 2.3.4.1, the causes of burnout, unsafe patient care (please refer to 2.3.7.2) and poor quality patient care (refer to 2.3.8.2) were discussed and these causes seemed to overlap with the components of the SEIPS model. The work environment was often the first cause for burnout and was reinforced by the SEIPS model, where one of the 5 components included the physical environment. Organisational support can also be seen as a cause of burnout and is one of the components of the SEIPS model concerning the specific organisational conditions in which nurse’s work. Lack of equipment and resources and the component of technology and tools are also overlapping. All these causes of burnout, unsafe and poor quality practice together with the components of the SEIPS model are interrelated and interdependent on each other (Carayon *et al.,* 2006:i50).

5.4.2. Recommendations for nursing research

- Research exploring resilience to burnout amongst South African nurses might prove valuable.
- The Sig (2-tailed) value measuring higher than 0.05 in this study should be further explored to determine the influence of other variables on the findings.
- A qualitative study exploring the precursors of burnout in RNs working in CCU might allow for the prevention and intervention of burnout in nursing staff.
- South Africa is a multi-cultural society and comparative research projects on burnout in the public healthcare service versus the private healthcare service should be performed.
- Research regarding the prevalence of compassion fatigue as opposed to burnout is recommended. A valid and reliable questionnaire to measure compassion fatigue among nurses need to be developed (Coetzee & Klopper, 2010:242).
- The low Cronbach alpha value for the sub-scale Dp requires research attention.

5.4.3. Recommendations for nursing education

- In-service training on the causes, signs and symptoms of burnout and the impact thereof, so that burnout among staff is detected early.
- It is also recommended that management and staff to be trained in strategies that can be used to decrease the negative effects of mental stress in RNs, specifically interventions focused on changing their work environment and personal coping skills in order to ensure higher levels of job satisfaction.
- It is further important to educate nurses about the causes and risk factors of compassion fatigue and burnout so that they can be able to recognise it when it occurs. When informed, these nurses will be able to cope better in stressful environments (Coetzee & Klopper, 2010:241).

5.4.4. Recommendations for policy development

The development, implementation and expanding of policies regarding safe patient care must involve all disciplines to strengthen interdisciplinary relationships. Policy makers must formulate policies that aim at minimising the occurrence of adverse patient outcomes, improving restructuring's effect on the quality of patient care, and

improving the systems that underpin hospital patient care and the conditions facing nurses.

Nurses must be valued and committed partners in making policy, directing and evaluating clinical care and leading organisational operations (AACN, 2008:13). Managers and leaders should consider burnout to be the extreme opposite of the engagement of nurses in their work, and it should be viewed as a possible reflection of a failure in the organisation to create a professional practice environment.

5.5. SUMMARY

In this Chapter the researcher reflected on the objectives by means of an evaluation of the study. Limitations and recommendations were also provided. In drawing this study to a close it is vital to recognise the importance of a professional practice environment and sound managerial practices in the prevention of burnout. Ensuring optimal work environments for nurses will contribute to their wellbeing and the safety and quality of patient care in South Africa.

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ANNEXURE A

ETHICAL APPROVAL CERTIFICATE: NORTH-WEST UNIVERSITY

NORTH-WEST UNIVERSITY
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Ethics Committee
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Prof H Klopper

11 July 2008

Dear Prof Klopper

ETHICS APPROVAL OF PROJECT

The North-West University Ethics Committee (NWU-EC) hereby approves your project as indicated below. This implies that the NWU-EC grants its permission that, provided the special conditions specified below are met and pending any other authorisation that may be necessary, the project may be initiated, using the ethics number below.

Project title: Leadership and policy development improving the quality of nursing in South Africa through nursing staffing and patient safety

Ethics number: N W U - 0 0 1 5 - 0 8 - S 1
(Institution | Project Number | Year | Status)

Status: S = Submission, R = Re-Submission, P = Provisional Authorisation, A = Authorisation

Approval date: 11 July 2008 **Expiry date**: 10 July 2013

Special conditions of the approval (if any): None

General conditions:

While this ethics approval is subject to all declarations, undertakings and agreements incorporated and signed in the application form, please note the following:

- *The project leader (principle investigator) must report in the prescribed format to the NWU-EC:*
  - *annually (or as otherwise requested) on the progress of the project,*
  - *without any delay in case of any adverse event (or any matter that interrupts sound ethical principles) during the course of the project.*
- *The approval applies strictly to the protocol as stipulated in the application form. Would any changes to the protocol be deemed necessary during the course of the project, the project leader must apply for approval of these changes at the NWU-EC. Would there be deviated from the project protocol without the necessary approval of such changes, the ethics approval is immediately and automatically forfeited.*
- *The date of approval indicates the first date that the project may be started. Would the project have to continue after the expiry date, a new application must be made to the NWU-EC and new approval received before or on the expiry date.*
- *In the interest of ethical responsibility the NWU-EC retains the right to:*
  - *request access to any information or data at any time during the course or after completion of the project;*
  - *withdraw or postpone approval if:*
    - *any unethical principles or practices of the project are revealed or suspected,*
    - *it becomes apparent that any relevant information was withheld from the NWU-EC or that information has been false or misrepresented,*
    - *the required annual report and reporting of adverse events was not done timely and accurately,*
    - *new institutional rules, national legislation or international conventions deem it necessary.*

The Ethics Committee would like to remain at your service as scientist and researcher, and wishes you well with your project. Please do not hesitate to contact the Ethics Committee for any further enquiries or requests for assistance.

Yours sincerely

Prof MMJ Lowes
(chair NWU Ethics Committee)

ANNEXURE B

RN4CAST QUESTIONNAIRE: SECTIONS RELEVANT TO THIS STUDY

9. Please mark the response that best describes <u>how frequently</u> you have each feeling in relation to your current job in this hospital.

	Never	A few times a year or less	Once a month or less	A few times a month	Once a week	A few times a week	Every day
1. I feel emotionally drained from my work.	0☐	1☐	2☐	3☐	4☐	5☐	6☐
2. I feel used up at the end of the workday.	0☐	1☐	2☐	3☐	4☐	5☐	6☐
3. I feel fatigued when I get up in the morning and have to face another day on the job	0☐	1☐	2☐	3☐	4☐	5☐	6☐
4. I can easily understand how my patients feel about things.	0☐	1☐	2☐	3☐	4☐	5☐	6☐
5. I feel I treat some patients as if they were impersonal objects.	0☐	1☐	2☐	3☐	4☐	5☐	6☐
6. Working with people all day is really a strain for me.	0☐	1☐	2☐	3☐	4☐	5☐	6☐
7. I deal very effectively with the problems of my patients.	0☐	1☐	2☐	3☐	4☐	5☐	6☐
8. I feel burned-out from my work.	0☐	1☐	2☐	3☐	4☐	5☐	6☐
9. I feel I'm positively influencing other people's lives.	0☐	1☐	2☐	3☐	4☐	5☐	6☐
10. I've become more insensitive toward people since I took this job.	0☐	1☐	2☐	3☐	4☐	5☐	6☐
11. I worry that this job is hardening me emotionally.	0☐	1☐	2☐	3☐	4☐	5☐	6☐
12. I feel very energetic.	0☐	1☐	2☐	3☐	4☐	5☐	6☐
13. I feel frustrated by my job.	0☐	1☐	2☐	3☐	4☐	5☐	6☐
14. I feel I'm working too hard on my job.	0☐	1☐	2☐	3☐	4☐	5☐	6☐
15. I don't really care what happens to some patients.	0☐	1☐	2☐	3☐	4☐	5☐	6☐
16. Working directly with people puts too much stress on me.	0☐	1☐	2☐	3☐	4☐	5☐	6☐
17. I can easily create a relaxed atmosphere with my patients.	0☐	1☐	2☐	3☐	4☐	5☐	6☐
18. I accomplish many worthwhile things in this job.	0☐	1☐	2☐	3☐	4☐	5☐	6☐
19. I feel exhilarated after working closely with my patients.	0☐	1☐	2☐	3☐	4☐	5☐	6☐
20. I feel like I'm at the end of my rope.	0☐	1☐	2☐	3☐	4☐	5☐	6☐
21. In my work, I deal with emotional problems very calmly.	0☐	1☐	2☐	3☐	4☐	5☐	6☐
22. I feel patients blame me for some of their problems.	0☐	1☐	2☐	3☐	4☐	5☐	6☐

B. QUALITY AND SAFETY

1. In general, how would you describe the quality of nursing care delivered to patients on your unit/ward?
[1]☐ Poor [2]☐ Fair [3]☐ Good [4]☐ Excellent

2. How confident are you that your patients are able to manage their care when discharged?
[1]☐ Not at all confident [2]☐ Somewhat confident [3]☐ Confident [4]☐ Very confident

3. How confident are you that hospital management will act to resolve problems in patient care that you report?
[1]☐ Not at all confident [2]☐ Somewhat confident [3]☐ Confident [4]☐ Very confident

4. Please give your unit/ward an overall grade on patient safety.
[1]☐ Failing [2]☐ Poor [3]☐ Acceptable [4]☐ Very good [5]☐ Excellent

5. In the past year would you say the quality of patient care in your hospital has …
[1]☐ Deteriorated [2]☐ Remained the same [3]☐ Improved

6. The following questions ask for your opinion about patient safety issues in your employment setting.

	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
1. Staff feel like their mistakes are held against them.	[1]☐	[2]☐	[3]☐	[4]☐	[5]☐
2. Important patient care information is often lost during shift changes.	[1]☐	[2]☐	[3]☐	[4]☐	[5]☐
3. Things "fall between the cracks" when transferring patients from one unit to another.	[1]☐	[2]☐	[3]☐	[4]☐	[5]☐
4. Staff feel free to question the decisions or actions of those in authority.	[1]☐	[2]☐	[3]☐	[4]☐	[5]☐
5. In this unit, we discuss ways to prevent errors from happening again.	[1]☐	[2]☐	[3]☐	[4]☐	[5]☐
6. We are given feedback about changes put into place based on event reports.	[1]☐	[2]☐	[3]☐	[4]☐	[5]☐
7. The actions of hospital management show that patient safety is a top priority.	[1]☐	[2]☐	[3]☐	[4]☐	[5]☐

D. ABOUT YOU

1. What is your gender?
[1]☐ Female [2]☐ Male

2. What is your age? Years: ☐☐

3a. Did you receive your basic nursing education in the country where you currently work as a professional nurse?
[1]☐ Yes [2]☐ No

b. **If no, in what country did you receive your basic nursing education? Country:** ☐

4. Not including the country where you currently work, list the last three countries, if any, (and years) where you have worked as a professional nurse.

Country|Years: ☐ **Country|Years:** ☐ **Country|Years:** ☐

5. What was your age when you first became a professional nurse (completed your training)? Years: ☐☐

6. Do you have a baccalaureate degree in nursing?
[1]☐ Yes [2]☐ No

7. How satisfied are you with your choice of nursing as a career?
[1]☐ Very dissatisfied [2]☐ A little dissatisfied [3]☐ Moderately satisfied [4]☐ Very satisfied

8. Are you working in this hospital full time?
[1]☐ Yes [2]☐ No

9. How many years have you worked as a registered nurse …

a. in your career **Years:** ☐☐

b. in this hospital **Years:** ☐☐

10. Please write the name/number of the ward/unit that you work in (e.g Ward 1A or Ward C): _____

11. Do you have an additional qualification in critical care nursing? If yes, please indicate the type.
[1]☐ Masters degree [2]☐ Diploma

Thank you for taking the time to complete and return this survey.

ANNEXURE C

DEMOGRAPHIC CHECKLIST

DEMOGRAPHIC CHECKLIST FOR CRITICAL CARE UNITS

CRITICAL CARE UNIT: _____ *(FOR OFFICIAL USE ONLY)*

(Please mark the appropriate response with an "x")

What type of unit?	Medical	1
	Surgical	2
	Trauma	3
	Multi-disciplinary	4
	Other	5

(Please write the number in the blank space)

Number of beds in your unit	
Number of patients in your unit on that day	
Bed turnover/occupancy rate for 2008 (%)	

Number of staff in unit on that day (inclusive of RN, EN and care workers)	
Full time registered nurses on that day	
Part time registered nurses on that day	

(Please mark the appropriate response with an "x")

Average patient acuity per month	16	1
	18	2
	20	3
	22	4
	>22	5

(Please write the number in the blank space)

Critical Care trained nurses working in your unit	
Critical Care experienced nurses working in your unit	

Staff turnover rate for 2008 (%)	

Staff absenteeism rate for 2008 (%)	

Notes:

_____

_____

_____