

**CRITICALLY ILL PATIENTS' INTENSIVE CARE UNIT  
EXPERIENCES IN A PUBLIC SECTOR  
ACADEMIC HOSPITAL**

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A research report submitted to the  
Faculty of Health Sciences, University of the Witwatersrand, Johannesburg, in  
partial fulfillment of the requirements for the degree  
of  
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## DECLARATION

I, Lilian Jere Sitwala, hereby declare that this research report is my own work. It is being submitted for the degree of Master of Science in Nursing at the University of the Witwatersrand in Johannesburg. It has not been submitted before for any degree at this or any other University.

Signature \_\_\_\_\_

Date \_\_\_\_\_

Protocol number: M140466

## **DEDICATION**

I dedicate this work to my loving husband Nang'alelwa, my children Munalula,

Nang'alelwa Jr and Mufaro.

Thank you for your love, support and encouragement throughout the course.

To the almighty God be all the glory and honour.

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## ABSTRACT

Critically ill patients' experiences are an important aspect of quality of care in the Intensive Care Unit (ICU) and have been a consistent theme in the last four decades. Intensive Care therapy has been associated with physical and psychological problems that may affect patient's recovery from illness. Studies seem to indicate many patients recall ICU experiences in vivid details and frequently complain of fear, anxiety and pain. Now that the trend in sedation practices in Intensive Care has changed there are serious concerns that patients recalling memories of their experiences may be on the increase.

The aim of this study was to describe critically ill patient's experiences of their Intensive Care Unit experience, with the intention of making recommendations for clinical practice and education of intensive care nurses. A non-experimental, descriptive study was utilised in this study and non-probability sampling technique was employed to select patients. The setting for the study was a public sector academic institution, in South Africa.

The sample size comprised of 80 (n=80), participants were selected from five (5) ICUs in a period of three (3) months. Purposive sampling was utilised and data was collected by a means of an Intensive Care Experience Questionnaire (ICEQ) developed by Rattray, Johnston and Wildsmith (2004). The questionnaire includes 24 items that assess four domains of ICU experience, these are awareness of surroundings (nine items), frightening experiences (six items), recall of experience (five items) and satisfaction with care (four items). Data was collected from patients in the general wards 24 to 48 hours after discharge from ICU. Data analysis using descriptive and inferential statistics was utilised to investigate patients experience in ICU. Statistical assistance was sought from the Medical Research Council (MRC). An independent t-test was used to test the significance difference and Analysis of Variances (ANOVA) was used to determine the difference between the groups and finally Post hoc test (Turkey HSD test) was developed to determine the location of differences in the groups.

Post hoc comparison using turkey HSD test indicate there was a significant difference at  $p < 0.05$  level in frightened experience between age group 20-39 and 60-79.  $F(2, 80) = 4.949$ ,  $p = 0.010$ .

The results indicate that most of the time majority (81.3%) of the participants felt safe and that care was as good as it could have been (75%) in the ICU. Majority (73.8%) of the participants remembered being with their relatives and recognised them. More than half (55%) seemed to be pain most of the time and had no recollections of ICU.

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# CHAPTER ONE

## OVERVIEW OF THE STUDY

### 1.0 INTRODUCTION

Critically ill patients' experiences in the ICU are a significant part of quality of care. Patients are admitted to the Intensive Care Unit (ICU) for constant in-depth monitoring, therapeutic intervention and support to maintain their body functioning. Admission to ICU may be due to different diagnoses, including severe trauma, multiple organ dysfunction or inability to breathe normally; medical equipment may take the place of some of these functions for the patient to recover. The nature and complexity of critical illness demands specialised health professionals, such as doctors and Intensive Care staff, as the patient is totally dependent on them.

Critical illness and the ICU environment are stressful to both patients and their families, therefore patients experiencing numerous stressful experiences are subject to multiple physical and psychological consequences, leading to both long term and short term effects which may prolong recovery and impact on their lives.

Critical illness can be a source of stress to both the patient and their family. Events perceived to be stressful are invasive instrumentation, inability to breathe normally and poor communication with staff (Haghbin, Tayebi, Abbasian & Haghbin, 2011; Merilainen, Kyngas & Ala-Kokko, 2010).

Therefore, it is timely and appropriate to identify critically ill patients' experiences in the Intensive Care Unit, as this is the gap in knowledge that this study wishes to address.

## 1.1 BACKGROUND TO THE STUDY

Critically ill patients' experiences have been a consistent theme in research findings from as far back as the 1970s (Johnston, 1972; Asbury 1985; Burfitt, Greiner, Miers, Kinney & Branyon, 1993; Hofhuis, Spronk, Van Stel, Schrivvers, Rommes & Baker, 2008). A review of 26 studies on patient experiences in ICU indicates many patients recall these experiences in vivid detail, eliciting anxiety, fear and stress disorders (Stein-Parbury & McKinley, 2000). The review also shows the steps Critical Care staff can take to develop better ways of understanding patients' experiences. Overcoming such challenges can improve the quality of patients' experiences and reduce anxiety and may counteract the adverse effects, including Post Traumatic Stress Disorder, of being a patient in an Intensive Care Unit.

Hatchett, Langley and Schmollgruber (2010), conducted a study to determine the extent to which anxiety, depressive and post-traumatic stress symptoms were experienced by a group of patients after discharge from ICU at a tertiary hospital in Johannesburg, the results indicate 48% of the participants had anxiety symptoms, and more than quarter (28%) had symptoms of depression and post-traumatic stress disorder (32%). The study also concluded that a number of ICU patients develop psychological problems related to their admission and treatment for example mechanical ventilation. This psychological distress can affect patients' physical recovery (by an altered and decreased immune function), their quality of life and their functioning in the family and in society. The prevalence of psychological sequelae after treatment in an ICU was found to be high.

In another related study, conducted in a multi-disciplinary ICU at a private hospital in South Africa, results indicate 91.2% of the participants reported experiencing pain during their first night in the ICU which was relieved by pain medication and pain it was identified

as a contributing factor to sleep deprivation; 64% indicated anxiety as aggravating pain (Ehlers, Watson & Moleki, 2013).

Patients' recollection of negative experiences may include lack of being appreciated, being humiliated, disregarded, treated as objects, not recognising patients' suffering and not being nursed in a holistic manner (Almerud, Alapack, Fridlund & Ekebergh, 2007; Samuelsson, 2011). Critically ill patients that have negative experiences may have impaired cognitive functioning and discomfort such as problems with sleeping, pain and anxiety.

ICU patients do not only recall negative experiences but also positive ones which include feelings of safety and security, being supported by the nurse and presence of relatives (Hofhuis et al., 2008; Morton & Fontaine, 2013). Younger people are more likely to have frightening experiences because they are generally more anxious which may lead to seeing strange things and having bad dreams in a more negative way (Feinstein, O'Connor, Gray & Feinstein 1999; Martin & Thompson 2000; Rattray et al. 2004). Studies indicate a longer hospital stay was associated with being less satisfied with care (Cutler & Garner, 1995). The Critical Care nurse needs to be aware of patients' duration of stay and relate it to experiences. The focus should be more on the negative experiences, as overcoming critical illness may take long if no interventions are taken. In order to do this the nurse must come up with individualised care plans which will improve patient outcome.

Research studies indicate that even if there is an improvement in critical illness survival in the last 20 years, recovery time is still prolonged, negative experiences may affect psychological wellbeing (Rattray, Crocker, Jones & Connaghan, 2010). What perhaps is not clear is the relationship between patients experience in ICU and length of stay in ICU.

A uniform approach is necessary to examine patients' experiences in the ICU as it provides information about patients' experience within the ICU (Rattray et al. 2010).

Patients may undergo traumatic procedures and interventions and at times may not be fully conscious. Stressful procedures and interventions may include insertion of intravenous or central lines for drug infusions or total parenteral nutrition, arterial lines for haemodynamic monitoring and, common equipment, which in an Intensive Care Unit include mechanical ventilators which aids breathing through an endotracheal tube or a tracheostomy. Most patients admitted to ICU will at some point during their stay require analgesics or sedatives (Alexander, Fawcett & Runciman, 2000). Medications commonly administered to promote comfort, relieve pain and optimise mechanical ventilation in the ICUs, such as analgesics and sedatives, may predispose patients to weird dreams, nightmares, hallucinations and depression (McKinley, Nagy, Stein-Parbury, Bramwell & Hudson, 2002). Morphine, a narcotic used in the treatment of moderate to severe pain, depresses the pain perception centre in the brain, but the side effects include dizziness, confusion and mood changes. The sedative, Dormicum (Midazolam), is a short acting benzodiazepam which has anti-anxiety, hypnotic properties and side effects include hallucinations, ataxia, confusion, drowsiness and depression (Beers, Porter, Jones, Kaplan & Berkwits, 2006).

The technical skills and expertise of ICU nurses are viewed and considered as part of life saving interventions but caring behaviour, relieving worries and allaying fears may assist patients in improving which is more valuable. (Hofhuis et al., 2008). Inexperienced nurses find it easier to focus more on the technical aspects of care than meeting the physiological needs of patients, which is crucial for maintaining well-being of the critically ill (Mollerup & Mortensen, 2004). It may be more difficult for inexperienced nurses to focus on preventing psychological and physiological consequences.

Interventions are needed to make the experiences of patients in the ICU more positive. Orientation to the environment enables patients to focus on the healing processes (Demir, Korhan, Eser & Khorshid, 2013).

## **1.2 PROBLEM STATEMENT**

Critically ill patients are sedated to promote comfort, provide relief from pain, anxiety and sometimes to implement appropriate treatment. More recently, the trend of sedation has changed, from deep to light sedation due to increasing evidence suggesting negative long term patient consequences of deep sedation (Tingsvik, Bexell, Andersson & Henricson, 2013). Patients lightly sedated may be aware of what is happening around them and are able to communicate.

Recollections of patient's experiences in the ICU are increasing. If recovery is to be enhanced, there is a need to establish the prevalence of these experiences which might affect recovery from ICU and develop appropriate interventions. Studies done in other countries have established this, therefore, it requires an investigation in the South African setting as it cannot be presumed that the multi-cultural population consisting of both African and Western world views will experience Intensive Care in the same way as patients in the Netherlands or Asia.

The researcher will endeavour to answer the following research questions:

- What are the experiences of critically ill patients in the Intensive Care Unit?
- What are the experiences of critically ill patients based on their length of stay in the Intensive Care Unit?

### **1.3 PURPOSE OF THE STUDY**

The purpose of the study is to describe critically ill patient's experiences in the Intensive Care Unit with the intention of contributing to the intensive care practice and education in improving patient outcome.

### **1.4 OBJECTIVES OF THE STUDY**

The objectives of the study are:

- To describe the experiences of critically ill patients in the Intensive Care Unit.
- To compare critically ill patients' experiences with their length of stay in the Intensive Care Unit.

### **1.5 SIGNIFICANCE OF THE STUDY**

The significance of this study is to uncover experiences of critically ill patients admitted to ICU in South Africa. Knowing how patients experience nursing care is required to provide individualised and holistic care. Furthermore, the study findings will enhance ICU nurses knowledge on preparing patients understanding and interpretation of ICU experiences.

### **1.6 PARADIGMATIC PERSPECTIVE**

A paradigm is described as a world view, general perspective on the complexities of the world which encompasses a set of philosophical assumptions that guides ones approach to enquiry (Polit & Beck, 2012). This study was therefore based on the following assumptions.

### **1.6.1 Meta-theoretical Assumptions**

According to Burns and Grove (2011), assumptions are statements taken for granted or are considered true even though they have not been scientifically tested. These meta-theoretical assumptions reflect the researcher's view of a person, environment, nursing and health. These concepts are interrelated but have different meanings. A conceptual definition can be from a theorist's definition of concepts or may be developed through concept analysis (Burns & Grove, 2011). The researcher's meta-theoretical assumptions regarding these concepts were as follows:

- **Person**

A person in this study is a critically ill patient admitted to the ICU. According to Roy (2009), the person is a holistic, adaptive system that has parts that function in harmony for a purpose and these systems include individuals, families, communities and the society (Masters, 2014). Holistically, a patient has physiological and psychological needs which should be satisfied, if not met may affect the internal and external environment. The patient is in a vulnerable situation as his condition is unstable and death may be imminent. Critical illness may lead to experiences of anxiety in the patient and family which can cause stress. The main focus of nursing care should be the patient who is the recipient of care. The person (patient) is an adaptive system with cognator and regulator subsystems acting to maintain adaptation of the four adaptive modes (Roy, 2009). The four adaptive modes are physiologic-physical mode, self-concept-physiologic mode, role function mode and interdependence mode.

- **Environment**

Internal and external factors which constitute the environment affect the patients' physiological, psychological, social cultural and spiritual aspect. In this study, the environment is the ICU which is subject to complex technological advances and this new, unfamiliar and complex setting can be a source of stress to the ill patient and the family. The stressful environment can lead to long term physiological and psychological consequences for the patient, hence the need to make it safe and conducive to enhance recovery from critical illness. The patient's perceived experiences are associated with the changing ICU environment that stimulates reactions. Stimuli from the internal and external environment serve as inputs to the nervous system and affect the fluid, electrolyte and acid base balance, as well as the endocrine system (Roy & Andrews, 1999).

- **Health**

Health is the physical, psychological, social and spiritual state of wellbeing of a person. On admission to ICU the focus is mainly on the physical wellbeing of the patient due to their life threatening critical illness. The goal is to promote the wellbeing, prevent physical and psychological consequences which may affect recovery from critical illness and possible death.

- **Nursing**

Nursing involves caring for patients who are suffering from life-threatening illnesses or conditions, at the same time offering comfort and support to their family members. Promotion of adaptation for individuals and groups in the four adaptive modes is the aim, which contributes to health, quality of life and dying with dignity by assessing behaviour

and factors that influence adaptive abilities and enhance environmental factors (Roy, 2009). The Critical Care nurse's roles are to ensure a safe environment, advocate and participate in research and developing health policies in the healthcare systems to promote optimal outcome for the ICU patient.

### **1.6.2 Theoretical Assumptions**

Assumptions are rooted in the philosophical base of the framework, study plan and interpretation of findings; theories are developed on based on assumptions that may or may not be recognised by the researcher (Burns & Grove, 2011).

The researcher accepts the theoretical assumptions, based on the Synergy Model for patient care and Roy's Adaptation Model. The Synergy Model was developed by the American Association of Critical Care Nurses in 1990s, it focuses on describing nursing practice in terms of patients' needs and characteristics and the required nurses' competencies. The patients' needs drive the nurse's competences (Morton & Fontaine, 2013). The assumption of the synergy model is that patients are biologic, physiologic, social and spiritual entities who have similar needs and experiences at a particular developmental stage across wide ranges or continua from health to illness (Morton & Fontaine, 2013). Optimal outcomes result from the synergy of a nurse's competences matching the patients' needs.

The synergy model draws from Virginia Henderson's definition of nursing and reflects the values and philosophy of professional development. The model also suggests that synergy results when the needs and characteristics of a patient, clinical unit or system are within the nurse's environment.

The synergy model outlines eight patient characteristics forming the basis of the model; these are resiliency, vulnerability, complexity, stability, predictability, resource availability, participation in care and participation in decision making (Morton & Fontaine, 2013). Patient characteristics cannot be looked at in isolation as they are connected and contribute to each other. These characteristics span a continuum of health and illness.

The model also describes eight nurse competencies; clinical judgment, advocacy, caring practices, collaboration, systems thinking, response to diversity and facilitator of learning and clinical enquiry (Morton & Fontaine, 2013). The model postulates that the healthcare system (environment) acts as a facilitator to support patient needs and has the power to nurture the professional practice environment of the nurse. Successful outcomes for both the patient and nurse are dependent on the characteristics present in the healthcare system and success of the healthcare system is directly affected by both patient and nurse successful outcomes. It is important for the three components (patient, nurse, healthcare system) to work in collaboration to achieve synergism (Kaplow & Hardin, 2007).

Roy's Adaptation Model postulates that individuals are viewed as a whole and individuals responds to external and internal factors as they are stimulated in an open system (Roy 2009). Environmental stimuli includes focal, contextual, and residual stimulus; focal stimulus represents the internal and external stimulus, contextual stimuli symbolise all other stimuli present in the situation and residual stimuli relate to internal and external environmental factors within the human system, for example past experiences with illness may impact on patient's current condition (Masters, 2014). They may be unclear as there is no awareness on the patients' part that the stimulus is an influence, or may be unclear to the observer that these stimuli are having an influence on the patient's body. The nurse must use observational skills, intuition, accurate measures such as use of assessment

scale and interviewing skills to collect data systematically related to behaviour (Roy, 2009).

The Critical Care nurse needs to assess whether behaviour is adaptive or ineffective and should manipulate the stimuli that comes from the environment so that they fall within the patient's field of coping and result in adaptation which is considered positive.

#### 1.6.2.1 Operational definitions

Operational definitions are developed by the researcher so that the variables can be measured in the study and the knowledge gained from studying the variable increases the understanding of the theoretical concept from the study framework the variable represents (Burns & Grove, 2011). Definitions of terms consistently used in this study are as follows:

- **Critically ill patient**

This refers to an adult patient admitted to the Intensive Care Unit due to a life threatening or potentially life threatening illness or injury. In this study, a critically ill patient's problems will include medical, surgical (unscheduled and scheduled) categories.

- **Intensive Care experiences**

Daily occurrences and incidents in the ICU have a direct impact on the patient's physical, psychological, social and spiritual wellbeing. This may include unpleasant and pleasant recollections such as fear, pain, anxiety, dreams, delusions and satisfaction with care. In this study the Intensive Care experience (Rattray, Johnston & Wildsmith, 2004) was used to assess critically ill patients' experiences in an Intensive Care Unit

- **Intensive Care Unit (ICU) / Critical Care Unit (CCU)**

A specifically designated area, with specialised equipment and skilled personnel for the care of critically ill patients requiring immediate and continuous attention, which admits patients with any organ disease, disorder or injury, has a high nurse to patient ratio, invasive monitoring and mechanical and pharmacological life sustaining therapies for patients that are medically unstable, critically ill or require emergency interventions.

- **Intensive Care Unit Nurse /Critical Care Nurse (CCN)**

A person registered as a nurse by the South African Nursing Council, who has undergone an advanced education and training programme in the speciality and has the direct responsibility for caring for patients in the ICU. In this study the term is used interchangeably.

- **General Ward**

This is a hospital based general unit, or step down facility, to which the Intensive Care Unit patient is discharged.

### **1.6.3 Methodological Assumptions**

The researcher believes in a holistic patient approach which includes all aspects of life that is physiological, psychological, socio-cultural and spiritual. The Intensive Care nurse should be able to identify problems affecting these factors and have good understanding of patient needs in order to plan for care. Understanding the patient's needs is through research. The scientific knowledge gained through research can be developed to enable nurses to use evidence based care which improves patient outcome. This research study

was undertaken with the intention of making recommendations for clinical practice and education of Intensive Care nurses.

## **1.7 OVERVIEW OF THE METHODOLOGY**

A non-experimental, descriptive cross sectional design has been utilised. The study population (n=80) comprised of critically ill patients selected from five ICUs. Non-probability sampling was employed. The aim of using a descriptive approach has been to describe critically ill patients' experiences in the ICU. The protocol was submitted to the Faculty of Health Sciences Postgraduate Committee for approval and permission was granted and ethical clearance from the Human Ethics Research Committee (Medical) of the University of the Witwatersrand to conduct the study was sought; the research was approved and an ethical clearance certificate was issued (Certificate number M140466).

Data were collected using an Intensive Care Experience Questionnaire (ICEQ) developed by Rattray et al (2004). The questionnaire comprised 24 items on a five point Likert scale, to assess four domains of ICU experience. Data were analysed using descriptive inferential statistics with assistance sought from a statistician from the Medical Research Council (MRC). The setting for the study was one academic public sector institution in Johannesburg, South Africa.

## **1.8 VALIDITY AND RELIABILITY OF THE STUDY**

The procedures and study design, as stipulated in the protocol, were adhered to and the researcher followed the guidelines as set out by the author. This was verified every tenth sample, which was checked by the same ICU nursing expert for consistency thereby ensuring reliability. A pilot study was carried out on (n=10) patients to test the feasibility of the study and ensure the questions were understandable to the patients. A statistician

from the Medical Research Council was consulted and collaborated with the research supervisor before data collection, data analysis and interpretation of data. The researcher collected the data through a semi-structured questionnaire and marked the responses. This was done as participants were still recovering from critical illness. All data was collected by the researcher without assistance.

## **1.9 ETHICAL CONSIDERATIONS**

The protocol was submitted for peer review to the Department of Nursing Education to assess the feasibility of the study. The Faculty of Health Sciences Postgraduate Committee approved and permission to conduct the study was granted by the Human Ethics Research Committee (Medical) of the University of Witwatersrand (Appendix F). Permission to conduct research at the hospital was obtained from the Hospital Management (Appendix E). Permission to use the data collection instrument (ICEQ) from the developers was granted by Dr. Janice Rattray (Appendix D). Participants who met the inclusion criteria were invited to take part in the study and consent forms (Appendix B) were signed after receiving written and verbal information about the study. Participants were assured of confidentiality and anonymity by use of research codes during data collection and reporting of the study. Participants received explanations about participation being voluntary and withdrawal, at any time, was acceptable without consequences (Appendix A).

## **1.10 SUMMARY**

In this chapter, an outline of the study has been presented. The introduction, background problem statement, purpose of the study, research objectives and significance of the study were discussed. The researcher's assumptions have been described and

operational definitions defined. An overview of the research methodology, validity and reliability of the study and ethical issues pertaining to the study were considered.

The following chapters will include literature review which will be described in greater detail. The following chapter will discuss the methodology, data analysis, description and interpretation of research findings. The final chapter will present limitations of the study, a summary of research findings, conclusions and recommendations for future research.

# CHAPTER TWO

## LITERATURE REVIEW

### 2.1 INTRODUCTION

Critically ill patients may develop psychological or physiological problems after discharge from the Intensive Care Unit, which are related to their perceptions of ICU (Rattray et al. 2010). Therefore, recovery of the critically ill patient is dependent on the experiences faced while the patient is admitted to the ICU.

In many countries, it has been observed that ICU remains stressful either due to a disease process or related to the physical environment (So & Chan, 2004). Therapy in ICU includes combination of wide range use of equipment procedures, invasive procedures and subsequent interventions that contribute to critically ill patients' experiences.

The literature search generates a depiction of what is known and unknown about a particular problem, the overall purpose is to present a strong knowledge base for conducting the research study (Burns & Grove, 2011; LoBiondo-Wood & Haber 2010). An extensive literature review was conducted to gain an understanding of the research topic and developed the knowledge foundation for the study. In this chapter, related literature on critically ill patient's experiences in the ICU was reviewed.

Research previously done on this topic will be discussed and summarised under the headings : the Intensive Care Unit, patient in the ICU and critical illness, physiological and psychological needs and consequences, family members of the critically ill patient in ICU, Intensive Care nursing and the roles of the Intensive Care nurse in nursing critically ill patients

## **2.2 THE INTENSIVE CARE UNIT**

Intensive Care is a highly specialised unit in a hospital where medical and nursing staff with specialised knowledge and skills provides the treatment and care to critically ill patients (Patak, Gawlinski, Fung & Doering, 2004). The patient is connected to a lot of sophisticated medical equipment such as cardiac monitors, mechanical ventilator, intravenous and arterial lines. According to Merilainen, Kryngas and Ala-Kokko (2010), the ICU setting is made of three environments, the physical, social and symbolic environment. The physical environment relates to equipment that is used on or connected to the patient. The family or significant others belong to the social environment and the symbolic environment are connected through people's way of action. This means that the patient may not be able to influence the ICU environment. It is necessary to remove obstacles that affect recovery and promote a sense of feeling safe in all three environments therefore, it is also important to have knowledge of ICU patients' experiences in order to understand the patients' environment (Merilainen, Kryngas and Ala-Kokko (2010). This implies that the patient may not be able to influence the ICU environment. It is necessary to remove obstacles that affect recovery of the patient and promote a sense of feeling safe in the three environments. Therefore, it is also important to have knowledge of patients' experiences in the ICU order to understand the patients' environment (Merilainen et al. (2010). Sources of displeasure which lead to frustrations of being admitted to the ICU include inability to communicate, fear and anxiety, thirst and sleeplessness (Almerud et al., 2007).

## **2.3 PATIENT IN ICU AND CRITICAL ILLNESS**

Critically ill patients are defined as "those patients who are at high risk for actual or potential life-threatening health problems" Olausson, Ekebergh & Lindahl, 2011). Critically ill patients are likely to be highly vulnerable, unstable and complex and require intense

and vigilant nursing care. Patient's admission to the ICU is not only traumatic but one's whole life is threatened. There is total dependency as there is lack of self-control on bodily functions and needs, coupled with negative experiences such as pain (Olausson et al., 2011). Critical illness leads to multiple physical, psychological and environmental stressors which may lead to long term consequences (Morton & Fontaine 2013). The sources of stress in the ICU may sometimes be health care personnel, visitors and environmental mental factors such as lighting, noise (from alarms, telephone) and staff and invasive procedures such as tracheal intubation or endotracheal suctioning (Roberts, Richards, Rajbhandari & Reynolds, 2007). Inadequate communication, sleep disturbance, fear, pain, anxiety and loss of control are some of the problems related to critical illness (Morton & Fontaine 2013). Patients' awareness of being dependant on technical medical equipment and the staff in ICU may lead to vulnerability, feelings of helplessness and lack of control (Donchin & Seagull 2002; Mckinley et al., 2002).

According to Roy's Adaptation Theory, "a person is viewed as a holistic and adaptive system in constant interaction with the changing environment from which they receive stimuli" (Roy, 2009). The patient who is the person is adaptive with cognator and regulator subsystems acting to maintain adaptation in the four adaptive modes (physiologic, self-concept, role function and interdependence (Masters, 2014). Roy defines adaptation as the process and outcome in which thinking and feeling persons use conscious awareness to create an integration between human perception and their environment. The focal stimulus in the critically ill patient is the illness or injury which affects the cognator (psychological) and regulator (physiological) subsystems. The four modes are interrelated and can affect or have stimulus for one or all the other modes (Cypress, 2011; Masters, 2014). Based on the patient and family's past experiences in the ICU, they may view admission to ICU as a sign of imminent death (Morton & Fontaine, 2013) The patient and their family based on past experiences may view an admission to ICU as an indication of imminent death (Morton & Fontaine, 2013). Factors which may influence an individual's

response to critical illness include age, gender, previous experience with illness, family relationships, social support, stressful experiences and personal philosophies about life death and spirituality (Sole, Klein & Moseley, 2013). When compared to patients in the general wards, ICU patients are more susceptible to adverse events due to the kind of therapy they receive in ICU (Wassenar, Schoten & Schoonhoven, 2014).

Stress may affect patients in the ICU negatively or positively. Swaiss and Badran (2004), report the most stressful experiences recalled by majority of the patients were anxiety (68%), discomfort from endotracheal tube (60%), fear (54%) and pain (52%). Other distressing experiences were naso-gastric tube discomfort (48%), communication difficulties (33%), dreams and hallucinations (31%), noise (15%), sleeplessness (13%) and thirst (10%).

Stein Parbury and McKinley (2000) reviewed 26 studies on patients' recollections in the ICU and reported that patients recalled ICU in vivid details and could not only recall negative experiences but positive ones in vivid details. Impaired cognitive functioning, pain discomfort, anxiety and sleeping disturbances were recalled as negative experiences, while safety and security awareness promoted by nurses were recalled as positive experiences (Burfitt et al., 1993; Holland, Cason & Prater, 1997). Staff actions in the ICU were not only recalled by patients and families, but continued to affect patients up to six months after their discharge (Engstrom, Andersson & Soderberg, 2008).

Critically ill patients may have a positive outcome in an environment that incorporates elements of nature, natural light, meaningful and varied stimuli, peaceful sounds and pleasant views (Molter, 2007). The ICU nurses need to be proactive in order to overcome the challenges that patients face. In order to improve, Intensive care nurses need to develop patient's way of understanding experiences in the ICU.

Abraham Maslow identified the basic needs of survival for any human being. These basic needs are universal and essential to all human beings as they are needed for health survival. These include physiological and psychological needs. According to Maslow's hierarchy of needs, the most basic requirements for life are physiological needs which must be met, if not fulfilled; the needs at a higher level cannot be met. Maslow's hierarchy provides a basis for nursing care of a patient. The basic physiological needs of the patient include nutrition and water, shelter, air and oxygen, rest and sleep, elimination, freedom from restraint and protection from harm. The freedom from pain includes exercise of care when moving the patient.

## **2.4. PHYSIOLOGICAL AND PSYCHOLOGICAL NEEDS**

### **2.4.1 Safety and security needs**

Safety is freedom from psychological and physical injury and is a basic human need that must be met (Potter & Perry, 2009). Maslow's hierarchy of needs indicates safety and security as one of the basic needs. Safety in the ICU reduces the incidences of illness and injury, thereby reducing the length of stay of hospitalisation, improving patients' functional status and increasing the patients' sense of wellbeing. It is important for patients to feel safe and secured as this enhances recovery from critical illness, lack of this feeling can lead to distress (Morton & Fontaine, 2013).

A study conducted on the psychosocial needs of critically ill patients in the ICUs of a rural tertiary care medical centre in the United States, revealed that feeling safe was an overwhelming need of ICU patients. This perception of feelings of knowing, regaining control, hope and trust were influenced by religious beliefs, family and friends and the ICU staff (Hupcey, 2000).

Critically ill patients feel a sense of safety and security when their care is personalised and the family is involved. A descriptive qualitative study conducted by McKinley et al. (2002) in Australia indicate critically ill patients felt safe when their families were involved in the care and they received personalised care, they had anxiety, fear and felt insecure when they had no knowledge what was happening to them. Sleep disturbance contributed to the adverse experiences (McKinley et al., 2002).

A systematic review of quantitative and qualitative studies, focusing on describing the factors promoting Intensive Care patients' perception of feeling safe by Wassenaar, Schouten and Schoonhoven (2013), indicates that apart from the other factors, such as relatives, technological support and patient issues, nursing care was frequently described as the most important factor as it promoted patients' feelings of safety in the ICU. The study concluded that Intensive Care nurses can improve critically ill patients' views of feeling safe and enhance recovery and decrease distress. From these studies conducted on patient's safety and security, it signifies that Intensive Care nurses must have pre-established plans before they try to overcome the challenges of providing total nursing care for the ICU patients so they can acquire a feeling of being safe whilst in the unit.

#### **2.4.2 Sleep and Rest**

Critically ill patients need sleep and rest. Sleep is an essential part of healing and a recovery process for the critically ill patients in the ICU. Critically ill patients are faced with sleep disturbances and disruptions. In the last thirty years it has been continually reported that ICU patients endure a severe loss of sleep (Nesbitt & Goode, 2014). The relationship between poor sleep and recovery is well known, therefore its clinical significance is fully appreciated in Intensive Care (Morton & Fontaine, 2013). Sleep deprivation in ICU patients can have short and long term physiological and psychological sequelae including

poor cognition, susceptibility to infection and cardiovascular disease (Eliassen & Hopstock, 2011; Morton & Fontaine, 2013).

Sleep disruption in critically ill patients is common and many drugs are responsible for the disruption (Bourne & Mills, 2004). Simnini (1999) reported 61% of ICU patients had sleep deprivation and sleep disruption was attributed to environmental factors, symptom management and nursing care interventions. Almost 30% of patients in the ICU were dissatisfied with their night's rest, which nurses often fail to recognise (Johansson and Fjellman-Wiklund, 2005).

According to the 2012 clinical practice guidelines for sedatives and analgesics in the critically ill adult, developed by a multidisciplinary team of health care professionals (doctors, nurses, and pharmacists), sleep promotion should include optimisation of the patients environment through the use of strategies to improve the control of light and noise and decrease stimuli at night to protect the sleep cycle (Barr, Fraser, Puntillo, Ely, Gelinas, Dasta et al., 2013). The ICU nurses may be lacking in a clear understanding of the importance of sleep and interventions needed to promote it (Fontaine & Morton, 2013). "It is necessary to reduce disturbing and unexpected sounds and noises around critically ill patients in high-tech environments in order to facilitate wellbeing, sleep and recovery" (Johansson, Bergbom & Lindahl, 2012). "Not paying enough attention to sufficient training and unstructured protocols within clinical practice makes the provision of sleep for the ICU patient impossible therefore, there is need for development of evidence based teaching programmes, sleep assessment tools and continued empirical research" (Nesbitt & Goode, 2014).

### **2.4.3 Communication**

Communicating with critically ill patients has proved to be an important aspect in enhancing a sense of understanding on what is happening to them during an ICU admission (Hafsteindottir, 1996). Patients in the ICU may experience problems with communication due to critical illness. Barriers to communication may be related to patient's physiological condition, presence of endotracheal tubes may prevent verbal communication and medications such as sedatives or other medical conditions affect cognitive functioning (Morton & Fontaine, 2013). Relatives of the patient have empathy and recognise the critically ill patient's nonverbal cues, such as facial expressions of fear and restless physical movements. (Grossbach, Stranberg & Chlan, 2011), more importantly they have a deep understanding of the patient's needs, which can be helpful to the health care team. A familiar voice and touch can have a calming effect on a frightened or upset patient. (Grossbach, Stranberg & Chlan, 2011).

Patient outcomes are influenced by the patient's ability to communicate effectively. (Kleinpell, Patak, Stronks, Costello, Person, Henneman & Happ, 2008). An exploratory study on patients' perceptions, memories and experiences in the ICU, found the presence of good communication in ICU was both therapeutic and reassuring to the patient, but the lack of was distressing (Russells, 1999). Poor communication in the ICU not only caused anxiety to the patient but contributed to less than optimal recovery after discharge, therefore provision of information from nurses not only reduced anxiety but also empowered patients to become involved in decision making about their care needs (Russells, 1999). Some patients recalled everything about the ICU, they even recalled nurses discussing patients care at their bedside which lead to misinformation and fear. It was concluded, as previously mentioned that adequate communication was not only therapeutic and reassuring but decreased stress levels amongst ICU patients, whereas poor communication caused anxiety and affected recovery negatively (Russells, 1999).

Some of the psychological problems ICU patients experienced after discharge, may have been prevented if communication had improved between the patient and the staff (Russells 1999; Wang, Zang, Li & Wang, 2008). Inadequate communication and immobility increases the stress experienced by the ICU patient. In mechanically ventilated patients, the inability to speak and not understanding why they cannot speak worsens the situation. Mechanically ventilated patients describe 'not being understood' as extremely stressful (Wenham & Pittard, 2009). Hofhuis et al.'s (2008) study indicated patients in the weaning period of mechanical ventilation are less anxious when they are well informed about their condition. Poor communication related to ventilated patients may lead to feelings of powerlessness, helplessness and dependability (Engstrom, Nystrom, Sundelin & Rattray, 2013). Family Involvement, use of visual and hearing aids when communicating to the patient in ICU can improve communication (Wenham & Pittard, 2009). Communication in whatever type is vital in conveying thoughts to others (Engstrom et al., 2013).

Physiological and psychological needs of the critically ill patient need to be satisfied, if not, patients tend to develop physiological and psychological consequences which may have short and long term effects by preventing or prolonging their recovery from critical illness.

## **2.5 PHYSIOLOGICAL AND PSYCHOLOGICAL CONSEQUENCES**

### **2.5.1 Pain**

Pain is defined as an individual, subjective and complex bio-psycho-social process whose existence cannot be proved or disproved. If pain is not relieved it can become a major psychological and physiological stressor for patients (Marsac & Funk, 2008). Previously it was thought critically ill patients were unable to recall their pain experiences due to the acute nature of the illness or injury, but recent research has shown ICU patients can recall

painful experiences and mostly describe pain as being moderate to severe (Siffleet, Young, Nikoletti & Shaw, 2007). In a study conducted by Puntilo (1990), patients were interviewed after discharge and majority of these patients had pain (70%) and described the intensity of their pain as moderate to severe (63%). Pain may be the result of a variety of stimuli present in the ICU from monitoring devices such as intravenous, arterial and central venous catheter, therapeutic supports such as mechanical ventilators to routine nursing care such as turning (Morton & Fontaine, 2013). In addition to critical illness, injury or procedural pain, an ICU admission and environment will increase the patient's experience of pain and discomfort (Morton and Fontaine, 2013).

A number of factors are related to pain perception, these factors include, the patients psychological and emotional state, anxiety levels, past pain experience and knowledge of a patient understanding the procedure (Marsac & Funk, 2008).

The multi-dimensional characteristics of pain include five components:

- **Sensory dimension:** the perception of many characteristics of pain.
- **Affective dimension:** negative emotions such as anxiety and fear which are associated with the experience of pain.
- **Cognitive dimension:** meaning of pain by the person experiencing it.
- **Behavioural dimension:** strategies used by the person to control, avoid or express pain.
- **Physiological dimension:** stress response and nociception.

Unrelieved pain has negative effects on the body systems. Current evidence indicates patients experiencing severe uncontrolled pain during acute hospitalisation are at a high risk for delayed recovery and the development of chronic pain syndromes after discharge (Ead, 2005), whilst patients with no pain have better outcomes (Morton & Fontaine, 2013). McKinley and Stein-Parbury (2000) reviewed patients' experiences of being in an

Intensive Care unit and identified discomfort such as pain, anxiety and sleeping problems as some of the negative experiences of patients. A descriptive study, conducted by Puntillo, White, Morris, Perdue, Stanik-Hutt, Thompson and Wild (2001), indicate that 87% of ICU patients described pain as a disturbing experience which changed from moderate to severe during their stay in ICU. Patients experiencing pain had more negative experiences compared to those not reporting any experience of pain and awareness of the environment was less in patients experiencing pain (Puntillo et al., 2001).

The skill of the health care personnel carrying out a procedure can distress the patient. In addition, the medical condition, injury or environmental factors may affect the amount of distress experienced by the patient during a procedure (McNaughton, Zhou, Robert, Storrow & Kennedy, 2009). Unstable haemodynamic parameters may be indicators for pain, therefore nurses need to plan patient care accordingly and be aware that some procedures can be painful for patients (Siffleet et al., 2007).

Demir et al. (2013) conducted a descriptive study on patients who spent at least 48 hours in the ICU to determine the factors affecting a patient's Intensive Care experience. The study results indicate majority (71.5%) of the patients constantly experienced pain during hospitalisation and mechanically ventilation and those reporting no pain had significantly higher scores on the Intensive Care Experience Scale. Patients experiencing more pain could remember their experiences more than those that had less pain (Demir et al., 2013).

Aslan, Badir, Arli and Cakmackci (2009) conducted a study describing ICU patient's experience of pain after cardiac surgery; 59% of the patients described pain as aching and 51% as throbbing, the presence of endotracheal tubes, chest tubes, and the change of dressings and use of air mattresses on positioning were identified as being painful experiences. It was concluded that pain can be verbalised in different ways in different situations which decrease or increase pain. Critically ill patients with communication

difficulties are likely to have a higher risk for pain. Therefore, the role of the critical care nurse is to routinely monitor, assess and document patient's level of pain (Aslan et al., 2009).

The South African acute pain guidelines (2009), recommend nurses and doctors to have clear communication guidelines on the use of pain control medication (SASA 2009). According to the SASA guidelines the ICU nursing chart should include pain as the fifth vital sign along with other monitoring parameters. Further, ICU nurses should assess pain at rest and during movement and respond, treat promptly and appropriately.

### **2.5.2 Anxiety and Fear**

Anxiety is described as the apprehensive anticipation of future danger or misfortune accompanied by a feeling of dysphoria or somatic symptoms of tension. Multiple sources of anxiety in the ICU include unstable physiologic status, pain, fear of the unknown, procedures, separation from family and support system (Alspach, 2006). These sources may initiate a stress response and if left untreated, can contribute to long stay in hospital or mortality of ICU patients. According to Morton and Fontaine (2013), anxiety occurs when people experience the following:

- Sense or loss of function and self-esteem.
- Threat of or helplessness.
- Loss of control
- Failure of former defences.
- Fear of dying.

Patients experiencing anxiety have manifestations in a number of domains which include affective, cognitive, physical and behavioural. Effects in the affective domains may be feeling tense and fearful; in the cognitive domain impact on the patient may be a

decreasing ability to concentrate or creating confusion. Effects on the physical and behavioural domains are agitation, raised blood pressure, verbalisation of anxiety and restlessness (Tate, 2010). Lack of information and uncertainty about the outcome of patients' illness can lead to anxiety and fear of incomplete recovery (Granja, Lopes, Moreira, Dias, Costa-Pereira, Carneiro et al., 2005)

A study conducted in South Africa, to determine whether anxiety, depressive and post-traumatic stress (PTS) symptoms were experienced in ICU patients after discharge, revealed almost half (48%) the participants had symptoms of anxiety and 32% had symptoms of PTS (Hatchett et al., 2010). Another finding in this study indicated that patients could also recall physical restraints being used on them.

### **2.5.3 Stress**

The ICU environment has been regarded as a leading stressor due to the complex nature of patients' health problems, which also require extensive use of advanced technology (Hweidi & Nizamil (2014). Stress exists when an organism is faced with any stimulus which causes an imbalance between psychological and physiological functioning (Morton & Fontaine, 2013). Critical illness is a stressful situation because patients admitted to ICU are subjected to multiple physical, psychological and environmental stressors. A nonspecific response to a perceived threat is produced by stress. The hypothalamic-pituitary-adrenal axis and autonomic nervous system are responsible for modulation of the stress response which is responsible for protecting the body effects of acute stress. Body processes such as wound healing, fluid balance, metabolism, respiratory and cardiac workload can be affected by a prolonged stress response (Carlson, 2009). Some of the factors which increase stress levels are separation from loved ones, ineffective communication, changing of staff, disorientation to time, place and events (Almerud et al., 2007; Dyson 1999; Hweidi, 2007; Wilkin & Slevin 2004).

Invasive procedures, lack of privacy and fear of death contributed to stress (Akansel & Kaymakci, 2008; Granberg, Engberg & Lundberg, 1996). Physical stressors such as pain from invasive lines was considered as the principal stressor by ICU patients (Hweidi & Nizamil, 2014). Apart from pain, other physical stressors were having invasive tubes, inability to sleep due to noise, not having control of oneself or situation and immobility (Hweidi 2007; Pang & Suen, 2008). Immobility may be due to use of physical restraints to prevent falls and control behaviours (such as extubating themselves and pulling out invasive lines and tubes) which may in turn prolong hospitalisation and contribute to other complications (Morton & Fontaine, 2013). Being thirsty was one of the major stressors in the ICU, which indicated ICU nurses are performing life-saving procedures and being less aware of basic physical needs such as thirst (Hweidi, 2007). Environmental stressors were noise from the unfamiliar alarms, continuous lighting and overcrowding, which sometimes refers to the physical layout of the ICU (Akansel & Kaymakci, 2008). Decreasing stress levels has a positive impact on patients health outcome therefore nurses must use effective measures to relieve pain and provide a humane atmosphere to enhance rest (Hweidi & Nizamil, 2014).

Nurses are always with the patient in ICU and in a position to reduce the amount of stressors patients deal with. Basic nursing care such as, promoting comfortable positioning, effective pain relief, promoting periods of uninterrupted sleep, controlling noise and lighting , ensuring privacy and effective communication could assist with reducing the stressors the patient experiences in ICU (Hatchett, Langley & Schmollgruber, 2010). The ICU nurses need to be aware of the physical and psychological stressors which affect patients in the ICU and should address them seriously. The causes of stress are interrelated, for example if a patient's family is not allowed to visit them.

#### **2.5.4 Delirium**

Delirium is a disturbance in consciousness or a change in cognition and attention which occurs within a short period of time (hours to days), and may be considered temporary and reversible (Carlson, 2009) and with a reduced clarity of awareness of the environment, which may further be characterised by reduced ability to focus or shift attention in cognition or a perceptual disturbance with hallucinations (Krahne, Heymann & Spies, 2006). Delirium is associated with poor clinical outcomes and increased health care cost which contribute to increased morbidity and mortality and increased length of stay in ICU (Choi, 2013). Approximately 80% of patients may experience some degree of delirium, agitation or confusion during their stay in ICU (Jacobi, Fraser, Coursin, Riker, Fontaine, Lumb, et al., 2002). Delirium may lead to disturbed memories, vivid dreams and unreal experiences, which have been linked to the development of post-traumatic-stress disorder (PTSD) related symptoms and a reduction in health-related quality of life (Capuzzo, Valpondi, Cingolani, De Luca, Gianstefani, Grass & Alvisi 2004; Jones, Griffith, Humphris & Skirrow, 2001).

Critically ill patients are at risk of psychological disturbances due to numerous distressing factors such as mechanical ventilation, invasive procedures, old age, anxiety related to surgery and conditions such as hypotension; insertion of central, venous and arterial lines and conditions which interrupt the normal sleep cycle (Carlson, 2009; Choi, 2013).

Delirium is characterised by an acute onset and fluctuating course of altered level of consciousness, cognition and attention, often with a reduced awareness of the environment, impaired attention and/or disorganised thinking. The patient may be withdrawn, agitated and aggressive and may have hallucinations (Carlson, 2009).

Delirium commonly presents in majority (60 to 80%) of critically ill patients, more significantly in mechanically ventilated patients, 20 to 50% of non-mechanically ventilated patients in the ICU (Brummel, Vasilevskis, Han, Boehm, Pun & Ely, 2013). Delirium has been reported to occur in approximately 20% of older patients who were discharged from acute care settings (Carlson, 2009). It often goes unrecognised or missed despite the high incidence and prevalence. All critically ill patients are at risk of developing delirium, the greater the severity of illness the higher the risk. Delirium may complicate to dementia especially in the elderly patient. Different terms have been used to describe the cognitive impairment in the Intensive Care Unit, ICU syndrome, acute confused state, acute brain failure and encephalopathy (Carlson, 2009). There are three types of delirium patients may have: hyperactive delirium (agitation, restlessness, attempting to remove catheters, and/or emotional lability), hypoactive delirium (flat affect, withdrawal, apathy, lethargy and decreased responsiveness), or a combination of both (mixed). It is important for the Critical Care nurse to be aware of the risk factors of delirium and assess the critically ill patients for any signs as acute change in cognition. The goal should be to prevent or treat the condition.

### **2.5.5 Noise**

According to Wenham and Pittard (2009), noise is defined as “any unwanted or undesirable sound which is subjectively annoying or disrupts performance and is physiologically and psychologically stressful”. Noise is subjective as it can be influenced by factors such as socio-cultural factors, sensitivity of an individual, having a sense of control over sound. (Wenham & Pittard, 2009). The World Health Organization (WHO, 1999) recommends an average of background noise in hospitals not to exceed 30 A-weighted decibels (dB(A)) and peaks during night time to be less than 40 dB(A). Sleep occurs best below 35 dB(A). Noise being an environmental hazard creates discomfort in a patient, the consequences include disrupted sleep and impaired wound healing (Morton &

Fontaine, 2013). Patients have reported that noise or a sudden loud sound triggered the development of so-called unreal experiences (Granberg, Bergbom, Engberg & Lundberg 1999). Perceived lack of control over noise can result into stress and the presence of noise exposure may lead to activation of the sympathetic nervous system, which increases cardiac workload and may have adverse effects on the functioning of the respiratory muscles (Morton & Fontaine, 2013; Wenham & Pittard 2009).

Hofhuis, Spronk, Van Stel, Schrijvers, Rommes and Baker, (2008), reported 40% of patients recalled noise from their admission in ICU and 65% indicated they were very disturbed; patients have also indicated, in interviews, that the noise in the ICU is extremely disturbing and annoying (Hofhuis et al., 2008; Wang, Zhang, Li & Wang 2009). Moreover, it has been found that approximately 30 to 50 % of the sounds are unnecessary (Kahn, Cook, Carlisle, Nelson, Kramer & Millman, 1998). Noise from talking and alarms was the most disruptive to sleep (Baumhover & Hughes, 2009), other sources of noise included ringtones from telephones, mobile phones, televisions, air conditioners, day to day activities such as closing doors, opening packages and water sounds (Morton & Fontaine, 2013).

Noise created by other patients, monitor alarms and conversations amongst staff were the most disturbing sources and patients located closer to the nurses station were the most affected (Akansel & Kaymacki, 2008). Having had a previous experience of ICU was also a factor which affected the patients' disturbance levels of noise. Patients felt staff made a lot of noise by talking loudly during their conversations and wearing clogs, as well as a feeling of not improving (Hofhius et al., 2008). It is important for nurse to control noise in the ICU for instance, the false alarms (clinically insignificant) which are generally triggered by patients movement or a bad sensor connector which requires action by the ICU staff, whilst true alarms do not trigger any action by the clinician, such as when the nurse is changing an electrode on the patient (Konkani, 2012). Patients' environment should be

assessed as noise tolerance level is subjective. Patients should be kept well informed about the noise being experienced to avoid annoyance and promote sleep.

### **2.5.6 Dreams, Nightmares & Hallucinations**

The patients' recollections of hallucinations are a source of discomfort recalled even after discharge; these experiences can be a sign of ICU syndrome/delirium, a predictor of mortality (Ely, Shintani, Truman, Speroff, Gordon, Harrell, Inouye, Bernard & Dittus, 2004). ICU patients unnecessarily realise that vivid memories of hallucination and paranoid delusions are formed in their mind (Jones et al., 2000) which are non-factual events and are not the result of externally provoked stimuli. Patients who stayed longer than 24 hours in the ICU, indicated vivid memories of nightmares and hallucinations (Rundshagen, Schnabel, Wegner & Schulte am Esch, 2002).

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Hofhuis et al. (2008), evaluated critically ill patient's perception of nursing care in the ICU, the study indicate patients felt uncomfortable when nurses misunderstood their feelings and when their experiences where not taken seriously. In the same study, 11% of the patients experienced psychological consequences after discharge from ICU such as hallucinations, lack of concentration, depression and poor memory.

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Roberts, Rickard, Rajbhandari and Reynold (2007) reported that 44% of ICU patients recalled their dreams during ICU admission and there was increased prevalence of dreaming amongst the patients who were delirious during ICU admission than the non-delirious patients. Longer stay in the ICU was significantly associated with the experience of ICU dreaming; many dreams were disturbing therefore it was suggested it was necessary to provide information and counselling about delirium to patients who remain in ICU for longer periods. The experience of social isolation and use of physical

constraints in the ICU and the nature of critical illness, may increase on hallucinations (Jones, 2001).

### **2.5.7 Recall of ICU Memories**

Patients with no clear memory of the ICU and those with an infection reported a greater number of delusional memories than those with a clear memory of the ICU and without infection, respectively (Capuzzo et al., 2004). In a prospective clinical study, patients were interviewed 48 to 72hrs after discharge from ICU where it was revealed that 64.7% of ICU patients did not recall any event, before they regained consciousness. However, 17% of all patients indicated they remembered the tracheal tube or being on the ventilator.

During the acute phase of critical illness, patients may be heavily sedated in order to tolerate invasive or painful treatments. As sedation is withdrawn (Jones et al., 2001; Rundshagen et al., 2002), many patients are unable to describe their immediate surroundings and about 5% have no recall of ICU stay at all. Some patients (20%) have only factual memories of the ICU stay.

In another study (Soh, Soh, Ibrahim, Ahmad, Japar and Raman, 2014), 65.4% of the patients were able to recall the physical and psychological effects of their ICU experience, with the most stressful experiences being endotracheal suctioning, pain, confinement to bed, general discomfort, ventilator dependence and needle punctures. It was concluded that health care staff working in the ICU must be aware of these experiences which affect patients even after discharge from ICU and work on providing care whilst at the same time communicating to alleviate fear and stress (Soh et al., 2014).

## **2.6 FAMILY MEMBERS OF THE CRITICALLY ILL PATIENT**

Critical illness can be sudden and unexpected and is often a life threatening event for both patient and the family which creates a sense of disequilibrium within the family system as established roles and functions of the families are disrupted (Morton and Fontaine 2013). Stress experienced by family members due to critical illness exerts a powerful influence on the functions of the family and the family's behaviour patterns can in turn influence patient outcomes (Cypress, 2011; Hickey & Leske, 1992). Having a critically ill patient in ICU is a difficult situation for the family as it means living in uncertainty, hovering between hope and despair (Engstrom, Anderson & Soderberg, 2008). It is common for each family member to be personally affected by the patients' experience of critical care. Their own health and well-being may be affected by their emotional and psychological experiences of the ICU environment and the impact can be directly related to the amount of support they receive in relation to these needs from staff in ICU (Kinrade, Jackson, & Tomnay, 2009).

The family is an important element of the healing process and caring must focus not only on the critically ill patient but the family as well. Family centred care is the focusing of treating the patient and family as inseparable entities, recognising that injury or illness to one of the family members invariably affects all the family (Sole, Klein, & Moseley, 2013). Family members' experience of being in the ICU environment may lead to stressful situations. It is therefore important that the ICU nurse ensures every interaction with the family is useful and therapeutic.

Research has shown that patients have increased satisfaction and decreased anxiety with family around and families are satisfied that communication is enhanced among them (Morton & Fontaine, 2013). Evidence suggests that flexible visiting hours for critically ill patient decreases anxiety, confusion and agitation and lowers the risk of reduces

cardiovascular complications, decreases length of stay, makes the patient feel more secure, increases patient satisfaction and increases quality and safety. During this period when the family is faced with stress it is important for the ICU nurse to give emotional support and ensure there is effective communication amongst them (the patient, family and nurse) to improve patient outcome. The meaning of the equipment around the patient should be clearly explained to the family before and during the family visits to prevent anxiety. The Critical Care nurse needs to assess the family as the database and identification of strengths and concerns on which care of the patient can be supported. Assessment can be done using tools such as the Critical Care Family Needs Inventory (Morton & Fontaine, 2013).

## **2.7 ROLE OF THE ICU NURSE IN CRITICAL ILLNESS**

The ICU environment is highly technological. It requires nurses to have a broad knowledge base and a high level of decision-making skills as they care for the critically ill patients and their families who are in vulnerable circumstances. Intensive Care nursing is constant, complex, detailed health care provided in various acute life-threatening conditions (De Beer, Brysiewicz, & Bhengu, 2011).

According to the International Council's for Nurses (ICN) Code of Ethics (2012), the term Nursing includes self-directed and collaborative care of individuals, families, groups and sick or well in all settings (ICN, 2012). There are four fundamental responsibilities of a nurse: promotion of health, prevention of illness, restoration of health and alleviation of suffering. Incorporated in the nursing practice is the respect for human rights including cultural rights, right to life and choice, to dignity and be treated with respect. Nurses have the right to practice in accordance with the nursing legislation of the country in which they work and to adopt the ICN Code of Ethics for nurses or their own national ethical code (WFCCN, 2007). The nurse's ability to read a situation, being sensitive to how the patient

appears and responds to treatment and readiness to change treatment or shift priorities is an aspect of having control. This awareness traditionally has a co-defined a proficient nurse (Benner, Tanner & Chelsea, 1996).

### **2.7.1 Intensive care nursing**

Intensive Care nursing (ICN) is a specialist area of nursing that involves caring for patients who are suffering from life-threatening illnesses or injuries, while at the same time offering comfort and support to their family members (De Beer et al., 2011). In addition to general nursing care, responsibilities of Intensive Care nurses include providing direct and individualised nursing care to patients based on the application of scientific nursing principles. Nurses working in an ICU need to “ensure that use of technology and scientific advances are compatible with the safety, dignity and rights of people’ (ICN, 2006). According to WFCCN (2007), the aim of nursing the critically ill is to establish a therapeutic relationship with them and their relatives so that they are empowered physically, psychologically, socially and spiritually and have the capability to prevent illness. The roles of Critical Care nurses are essential to the multidisciplinary team who are needed to provide their expertise when caring for patients and their relatives (WFCCN, 2007). Nursing care of the critically ill patient means assisting, supporting and restoring the patient towards health, or easing the patient’s pain.

Research in South Africa has shown the knowledge of ICU nurses in a number of clinical areas is lower than the acceptable standard. The difference between the knowledge of ICU-trained and non-trained nurses is little and there is poor correlation between knowledge levels and years of experience. Nursing care without expertise may be considered a potentially harmful intrusion for the patient (Bhagwanjee & Scribante, 2007).

The scope of practice for Critical Care nursing is defined by the dynamic interaction of the critically ill patient, the nurse and the health care environment (Alspach, 2006). Intensive Care nurses are personally accountable for their actions and omissions while carrying out their responsibilities in their profession; they must justify all decisions taken and carried out at any time (SANC, 2013).

Currently, South Africa does not have a specific Critical Care nursing scope of practice which regulates their practice and so Intensive Care nurses continue to practice under the registered nurses scope of practice, which is open to interpretation and in itself causes confusion (Scribante, Muller & Lipman, 1995). Critical illness requires expertise of the Intensive Care nurse working in collaboration with the multidisciplinary team. The CCN competences are driven by the needs of characteristics of the patient (Morton & Fontaine, 2013). One the most important role of the Critical Care nurse is to advocate for the patient, which means respecting and supporting the basic values, rights and beliefs of the critically ill patient (Alspach, 2006).

## **2.8 RESEARCH IN SOUTH AFRICA**

From the literature search on critically ill patient's experiences in the ICU, many studies have been undertaken in other regions (Europe, Asia, United States and Australia), both quantitative and qualitative research, however in South Africa, there was little evidence on the topic. South Africa is a multicultural population consisting of people with both African and Western views, which mean patient's may not have the same experience of Intensive Care as patients in other countries.

## **2.9 SUMMARY**

This chapter examined critically patients' experiences in the Intensive Care Unit. An admission to the ICU unit is not only stressful to the patient but to the family as well. The ICU environment is not only a strange place but a hostile environment that subjects both the patient and family to short and long term physiological and psychological consequences. The Intensive Care nurse needs to assess the patient using developed instruments to diagnose and take interventions to prevent the development of consequences which may lead to complications or death. The Critical Care nurse needs to be knowledgeable and should be competent with skills in order to implement care. The Code of Ethics and Scope of Practice guides Intensive Care nurses dealing with critically ill patients. There is need for the CCN to work in collaboration with other members of the health care team to achieve optimal outcomes.

# CHAPTER THREE

## RESEARCH DESIGN AND RESEARCH METHODS

### 3.1 INTRODUCTION

The research methods refer to techniques used to structure a study, to collect and analyse information in a systematic approach (Polit & Beck, 2012). This chapter, therefore describes the methodology in terms of the research design and methods which will include the research setting, study population, sample and sampling, data collection and the instrument used, including the validity and reliability of the study.

The purpose of this study was to describe critically ill patients' perceptions of their Intensive Care Unit experience, with the intention of making recommendations for clinical practice and education of Intensive Care nurses. The objectives of the study were to describe the experiences of critically ill patients in the ICU and compare their experiences with their length of stay in the ICU.

### 3.2 RESEARCH DESIGN

A non-experimental, quantitative descriptive, research design was utilised, focusing on investigating the phenomena which lend themselves to precise measurement and quantification, without introducing any intervention.

The ICU experiences were investigated by using the Intensive Care experience questionnaire. It was descriptive because the findings were described by using descriptive statistics.

## **Non-experimental**

According to LoBiondo-Wood and Haber (2010), in a non-experimental research, the independent variables have naturally occurred and the researcher or investigator cannot directly control them by manipulation. Relationships or differences amongst variables are explored. The variables in this study were not manipulated, as the study's aims were to describe the experiences of critically ill patients using descriptive statistics.

In this study a survey was a technique to collect detailed descriptions of existing phenomena. The collected data is used either to justify current conditions and practices or to make intelligent plans for improving them (LoBiondo-Wood & Haber, 2010). Surveys may obtain information from participants through self-report, which is a response to a series of questions posed by the investigators (Polit & Beck, 2012). In this study, a structured questionnaire was utilised and the researcher asked questions and ticked the responses as these patients were still recovering from critical illness. The advantage of a survey is that information can be obtained from a large population in a fairly economical manner and the survey research information accurate and if the sample is representative of the population, a relative small number of subjects can provide an accurate picture of the population (LoBiondo-Wood & Haber, 2010).

## **Descriptive**

Descriptive studies are utilised to acquire more information about the characteristic within a particular field of study and their main purpose is to provide a picture of the situation as it naturally happens (Burns & Grove, 2012). The variables are not manipulated and no treatment or intervention is given. In this study participants were not treated or given any treatment as part of the study.

## **Cross sectional**

The study design was cross sectional in nature as data were collected at one point in time. Cross sectional studies can explore relationships and correlations, or differences and comparisons, or both (LoBiondo-Wood & Haber, 2010). The data was only collected at one point, when the patients were discharged from ICU to the general ward. The advantage of this study is that a large amount of data can be collected at one point, it is less time consuming, cheaper and manageable for the researcher.

### **3.3 RESEARCH SETTING**

Research setting is the location in which a study is conducted (Burns & Grove, 2011). This study was conducted in five Intensive Care Units at one academic public sector tertiary level hospital in Johannesburg, which provides all areas of Intensive Care including referrals. This hospital accommodates approximately 1088 beds, of which the ICU makes up at least 6% of the total patient ICU admissions. The institution focuses on performing various procedures, investigations, imaging services and offers specialist consultation for all medical disciplines.

The five ICUs selected were Multidisciplinary (admits both medical and surgical cases), Cardiothoracic, Trauma, Coronary Care and Neurosurgical ICUs. These units were included in the study as they all admit adult critically ill patients, mainly with severe trauma and multiple organ dysfunction.

Each of these ICUs is divided into rooms of different sizes and has one to six beds, with movable screens for privacy. The front area of these rooms and doors are made of glass, making it easier for nurses to see patients from their bay. Most patients using this facility have no private medical aid and many of them are migrants. Each of these units has

intensivists with special qualifications in Intensive Care medicine who are responsible for managing and coordinating care. The nursing staff includes a unit manager who has an additional qualification in Intensive Care nursing. The nurse to patient ratio in the ICUs is 1:1, not every nurse has an ICU qualification (Hatchett et al., 2010). Nurses that have no ICU qualification may have inadequate knowledge on how to prevent psychological and physiological consequences of patients in the ICU.

### **3.4 POPULATION**

Population refers to the entire set of individuals having some common characteristics (Polit & Beck, 2012). In this study, the target population was composed of adult critically ill patients admitted to any of the five (5) ICUs at one public academic tertiary hospital in Johannesburg. Different ICUs with various specialties were included in the study to prevent bias. The patients were admitted to ICU as they had life threatening conditions and needed constant monitoring. A preliminary record review of ICU patient admission at the institution, over a three months period (July to September 2014) for the five ICUs, was 420 with an average number of 140 patients per month.

### **3.5 SAMPLE AND SAMPLING METHODS**

Sampling is a process of selecting a portion of the population to represent an entire population and sample size is the number of people who participate in a study (Polit & Beck, 2012). Following a discussion with the statistician, a sample size of 80 (n=80) critically ill patients was decided upon to ensure good representation of the population from which the sample was drawn and a power of 95% accuracy with a margin error of 5%. A statistician was consulted to prevent measurement errors. Respective intensive care Unit patient registers were used as the sampling frame. Non-probability sampling was employed, which refers to the fact that not every member of the population has a

probability of being selected for the sample (Burns & Gray, 2011). Purposive sampling was utilised which is selective sampling. With the use of purposive sampling “the researcher consciously selects certain participants to include in the study” (Burns & Gray, 2011). Purposive sampling may be used in quantitative research, mostly when the population of interest is unusual or difficult to access and it is not often utilised in quantitative research as the potential for introducing unintended bias into the sample can be high (Rebar, Gersch, Macnee & McCabe, 2011).

The study had both inclusion and exclusion sampling criteria. Inclusion criteria are characteristics that participants must possess to be part of the target population, while exclusion criteria are characteristics which can cause a participant to be excluded from the target population (Burns, Grove & Gray, 2013).

The inclusion criteria for prospective participants included:

- Critically ill patients admitted for more than 24 hours and after 24 - 48hrs after discharge from ICU
- Age 18 years and older.
- Patients who were able to speak and understand English.

The exclusion criteria included:

- Head injured patients or those following elective neurosurgery or neurological complications.
- Patients admitted to ICU for less than 24 hours, as they would not have been sufficiently exposed to the ICU environment for a reasonable time to adequately respond to the questionnaire.

### **3.6 DATA COLLECTION**

According to Burns and Grove (2011), "Data collection is a precise, systematic gathering of information relevant to the research purpose or the specific objectives, questions, or hypothesis of the study". During this period the researcher focused on collecting data in a consistent way, maintaining research controls, protecting the integrity (validity) of the study and solving problems which could threaten to disrupt the study. A time line was included when planning for data collection, in this study a period of three months was used to collect data. A structured interview schedule using the Intensive Care experience questionnaire, an instrument developed and validated by Rattray et al. (2004), was utilised in the study.

#### **3.6.1 Procedure**

Data collection commenced on approval to conduct the study from the Post Graduate Committee of University of the Witwatersrand (**Appendix G**), Health Research Ethics Committee (Medical) of the University of the Witwatersrand (**Appendix F**), Chief Executive Officer and Nursing Services Manager of the hospital (**Appendix E**) Unit Managers for the respective ICUs and general wards. The researcher visited all the ICUs daily, introduced herself to the ICU staff and explained the purpose of the research. She observed the admission registers for pre- selection of participants (according to the selection criteria). Once the patients had been discharged to the general wards. The researcher approached the patients in the general wards 24 to 48 hours after their discharge from ICU. It was assumed that patients had recovered sufficiently during this period, were in a state to give consent and their recollections of ICU were fresh.

The researcher introduced herself to the participants and gave a brief presentation of the study. The significance and all relevant information about the study were given in writing

(information letter - **Appendix A**) and clarified verbally. Once the participants had read and understood the information letter and indicated they were willing to participate, a consent form (**Appendix B**) was signed. To ensure privacy, a quiet corner in the main ward was utilised. An experienced counsellor was available in case the participants felt distressed during or after answering the questions regarding their experience. No participant was distressed during or after the interview. The researcher independently collected data through a semi structured questionnaire. Participants were still recovering from critical illness and so the researcher was ticking the responses

After the interviews, the completed questionnaires were sealed in an envelope. Participant's names were recorded in a separate notebook by the researcher which was kept in a locked drawer and the keys were only accessible by the researcher and supervisor.

The interviews took approximately 10 to 15 minutes to complete, as there were 24 items. Data was collected over a period of three months. A total of 80 questionnaires were completed.

### **3.6.2 Instrument**

The Intensive Care Experience Questionnaire (ICEQ), developed and validated by Rattray et al (2004) and assesses patients' experiences in Intensive Care, was used to collect data to achieve the study objectives (**Appendix C**).

The questionnaire consisted of two sections. The first section contained socio-demographic data; age, gender, length of stay in ICU, reason for admission which was either medical or surgical (unscheduled or scheduled surgery). The second section of questionnaire consists of 24 items that were used to assess four domains of ICU

experience. Items are grouped in two response formats – a Likert-type (strongly agree – strongly disagree) and frequency (all of the time to never). A Likert scale is designed to determine the opinion or attitude of a subject and contains a number of declarative statements with a scale (Burns, Grove & Gray 2013). This implies that a statement is given and the participant chooses an item which best described their experience. The scores ranged from 1 to 5; Never =1, Rarely =2, Sometimes =3, Most of the time =4 and All of the time =5 and was allocated to one of the four domains.

These four domains are:

- Awareness of surroundings (9 items).
- Frightening experiences (6 items).
- Recall of experience (5 items).
- Satisfaction with care (4 items).

Each answer was scored 1 to 5 and the scores in each domain were summed accordingly, with high scores indicating greater awareness of surrounding, more frequent frightening experiences, greater recall and greater satisfaction and a low score indicating unclear recollections about the experience (Rattray et al., 2010).

### **3.6.3 Validity and Reliability of the instrument**

According to Schmidt and Brown (2009), validity is the degree to which an instrument measures what it is supposed to measure. It must reflect the characteristics or concepts being measured.

The ICEQ was generated and items were developed in a two part study; Study 1, (n=34), evaluated the factor analytic structure and psychometrics of the questionnaire and in Study 2 (n=109), pre analysis was checked to ensure appropriate data (Rattray et al.,

2004). Factors with a loading of  $\geq 0.4$  on one factor only were retained. Items were reduced from 31 to 24 and four domains were identified. Cronbach's alpha statistics for each domain was  $\geq 0.7$ . Concurrent validity was established by correlating domain scores from two measures with demonstrated validity, for example the Hospital Anxiety and Depression Scale and Impact of Event Scale (Rattray & Jones, 2007).

Validity of the ICEQ has been established, as it has been used in similar studies in the United Kingdom, Malaysia and United States (Eng et al, 2008; Guttormson, 2014; Rattray et al. 2004).

The use of a structured questionnaire might have bias as some participants would want to give more information. Permission to use the data collection instrument was sought from the developer (**Annexure D**). Reliability is the extent of consistency or accuracy which an instrument measures an attribute, the more reliable an instrument is, the lesser the amount of error in obtained scores (Polit & Beck, 2012). Reliability was maintained by using the same questionnaire for all participants and the same researcher at each interview, the researcher collected all data without assistance to ensure consistency with data collection.

Internal consistency was established through reliability by using the independent t-test

### **3.7 DATA ANALYSIS**

In quantitative analysis, numeric data is manipulated through statistical procedures for the purpose of describing phenomena or assessing the magnitude and reliability of relationships among them (Polit & Beck, 2012). Data analysis was done with assistance from a biostatistician. Descriptive statistics were used to determine the frequency of responses regarding their ICU experiences. Descriptive statistics allow the researcher to

organise data in such way that it gives meaning and facilitates insight (Burns, Grove & Gray, 2013) and so the 5 point Likert scale was collapsed to three levels (never or rarely, sometimes and most of the time or all the time) to give meaning. Nominal values were displayed as numbers and percentages, interval scaled variables are reported as mean values and standard deviations.

Independent t-test samples were used to test the significance differences between males and females (gender), short and long stay (length of stay). According to Grove, Burns and Gray (2013), independent t-test samples are a common parametric analysis technique used to test the significance differences between two independent samples. The analysis of Variance (ANOVA), which is a statistical test to determine differences amongst two or more groups by comparing the variability between groups with the variability within each group (Burns, Grove & Gray, 2013), was employed in this study. Age was grouped into three groups and compared between groups and within groups to get the significance differences. The post hoc test, which is a statistical test developed to specifically determine the location of differences in the more than two groups, such as when the ANOVA results shows a significant difference (Burns, Grove & Gray, 2013), was utilised in the three age groups. In this study the post hoc test used was the Turkey HSD test.

### **3.8 PILOT TEST**

A pilot test, with a sample size of 10 participants (n=10), was conducted prior to the commencement of the study. A pilot test is a smaller version of the proposed study conducted to develop and refine the methodology, such as instruments or the data collection process to be used in the larger study (Burns & Grove 2011). The purpose of the pilot test was to determine whether the statements on the questionnaire were easily understandable by patients in a South African setting.

Participants who met the inclusion criteria were included in the pilot study. Participants were selected from all five ICUs and ethical considerations were applied. The questionnaire was understood in this setting and no changes but additions were made to the tool. Demographic data was added as part of the questionnaire which included the age, sex, length of stay in ICU, and type of admission (medical, scheduled or unscheduled surgery). The results obtained from the pilot study were not used in the main study.

### **3.9 ETHICAL CONSIDERATIONS**

Researchers, including reviewers, have an ethical responsibility to protect the rights of human research participants. Human rights include the right to anonymity and confidentiality, privacy, justice, protection from harm and self-determination (Burns, Grove & Gray, 2013). In order to consider these human rights, the following ethical requirements were taken in to consideration prior to commencement of the study:

- The protocol was submitted to the Department of Nursing Education for peer review and assessment of feasibility of the study.
- The protocol was submitted to the Faculty of Health Sciences Postgraduate Committee for permission to conduct the study (**Appendix G**).
- Ethical clearance was sought from the Human Ethics Research Committee (Medical) of the University of Witwatersrand to conduct the study and was approved. Ethical clearance certificate was issued- certificate number M 140466 (**Appendix F**).
- Application for permission to conduct the study was obtained from the Hospital Management (**Appendix E**) to conduct research at the hospital.
- Permission to use the data collection instrument was granted by the author, Dr. Janice Rattray (**Appendix D**).

- Each participant was given an information letter, after receiving verbal information, to read through and understand before participating in the study to ensure justice and fair treatment of participants (**Appendix A**).
- Participants who volunteered were asked to sign a consent form (**Appendix B**) to show their willingness to participate in the study. To ensure confidentiality, only the supervisor and researcher had access to the documents which were locked away. Research codes were used to ensure anonymity.
- Explanations to participants that their participation in the study was voluntary and they could decline to answer any question, as well as discontinue participation at any time without fear of victimisation, were made. The researcher kept in mind that the ICU patients were vulnerable, as classified by the Helsinki agreement.
- An experienced counsellor was available, in case the participant felt distressed during or after answering the questions regarding their experience in the ICU. During data collection none of the participants had such an experience.

### **3.10. VALIDITY AND RELIABILITY OF THE STUDY**

A pilot test was undertaken to ensure reliability of the study in the South African context. The researcher adhered to the guidelines of the data collection instrument from the developers. Patients' demographic data was added and included; age, gender, length of stay and reason for admission which was either medical or surgical (unscheduled or scheduled surgery) case. A pilot study enabled the researcher to investigate unusual or unexpected results during data collection and investigate possible causes that produced such results.

Reliability was maintained by being consistent and accurate when recording data. The researcher collected data independently. An appropriate sample was discussed with a

statistician before data collection to ensure a representation of the study population taking in to consideration refusal. Inclusion criteria will be adhered to.

### **3.11 SUMMARY**

In this chapter the methodology of the study was described. The research design, population and sample were described, data collection and analysis were discussed and methods to ensure validity and reliability described and related to this study and ethical considerations were explained. The following chapter presents data analysis and research findings results.

# CHAPTER FOUR

## DATA ANALYSIS AND RESULTS

### 4.1 INTRODUCTION

This chapter describes the approach used for data analysis and interpretation of the findings. The data was collected from patients just after being discharged from the five ICUs. The raw data was entered on a Microsoft Excel spreadsheet and then imported to software statistical package STATA with assistance from the statistician for analysis.

### 4.2 APPROACH TO DATA ANALYSIS

Descriptive and inferential statistics were used to interpret the findings on demographic data and critically ill patients' experiences in the ICU. Descriptive statistics included measures of central tendency, such as the mean (M) and measures of dispersion, variance and Standard deviation (SD). Frequency distribution tables, cross tables, pie charts and graphs were used to present this data. Percentages in these findings were rounded off to the nearest whole number for ease of analysis. Inferential statistics were used to describe the relationships between the demographic data and the critically ill patient's experiences in the ICU to achieve the objectives of the study. Inferential statistics combine mathematical processes and logic to test hypotheses about a population with the help of sample data (LoBiondo-wood & Haber, 2010).

Collapsing of categories on a Likert scale was done to facilitate presentation of data. There were five categories (never, rarely, sometimes, most of the time, all the time) which were collapsed into three (never/ rarely, sometimes, most of the time/ all the time). High

scores (on most of the time/all the time) on awareness of surroundings represented greater awareness and on frightening experiences represented more fright and lower scores on satisfaction with care represented dissatisfaction with care.

Statistical tests applied included the independent sample t-test, one way ANOVA and Post Hoc Multiple Comparison Tests. The independent samples, t-test and analysis of variance (ANOVA), were implemented followed by the post hoc analysis conducted. T-test analysis significant differences between measures of two samples, used when the dependent variable is a continuous variable or ratio scale and the independent variable can be a two level categorical variable (Burns & Grove 2011). The categorical variables in this study were gender (male/female) and length of stay (short/ long stay) in ICU. The critically ill patient's experiences were compared between female and male and with length of stay, which were short or long stay. Testing was done at 0.05 level of significance ( $p = 0.05$ ), with confidence interval of 95%.

ANOVA is a parametric statistical method used to examine differences between means of three or more groups (Burns & Grove, 2011). This yields values that can be tested to determine whether a significant relation exists between variables. Results of ANOVA are reported as an  $F$  statistic and the distribution table is used to determine the significance level of the  $F$  statistic. If more than two groups, as in this study, are being examined it is not possible to determine where the significant differences lie and it cannot be assumed all the age groups are significantly different. The data met the homogeneity of various assumptions, therefore to determine the location of the differences among groups, a post hoc test was conducted. Post hoc test is a statistical technique performed in studies with more than two groups to determine which groups are significantly different (Burns & Grove, 2011).

In this study, the critically ill patients ICU experiences of three age groups were compared with the variables. The post hoc test used in the study was Turkey's Honestly Significantly Different (HSD) after the ANOVA. Findings will be discussed basing on construct, scale and item.

### **4.3 RESULTS AND FINDINGS**

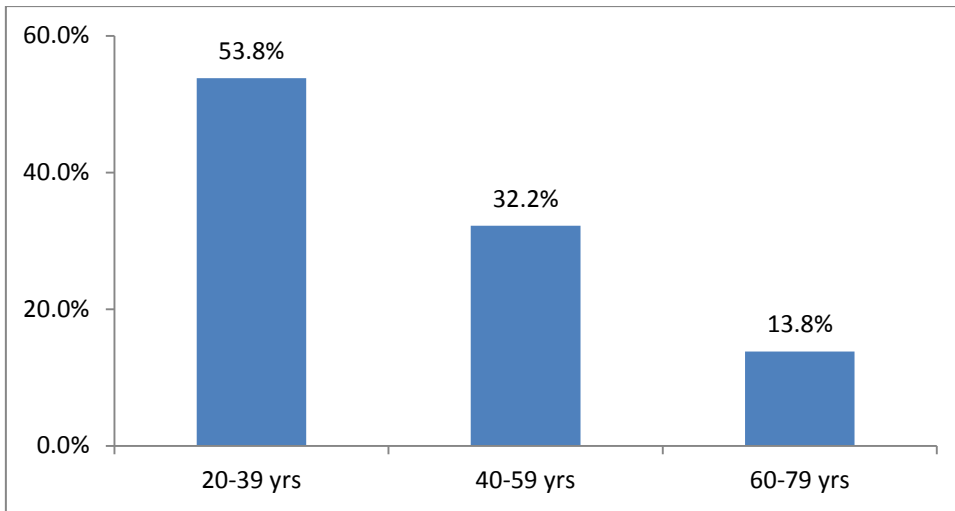
#### **4.3.1 Questionnaire Section 1: Patient Socio- demographic Data**

This section relates to the critically ill patients demographic data which comprised four (4) items including the age, gender, length of ICU admission and the reason for admission. The researcher obtained this data through a prospective record review. The result of this process are summarised in **Table 4.1** for the total sample (n=80). Items were combined to form coherent groups in order to facilitate the discussion of data

**Table 4.1:** Social-demographic data for patient participants for the total sample (n=80).

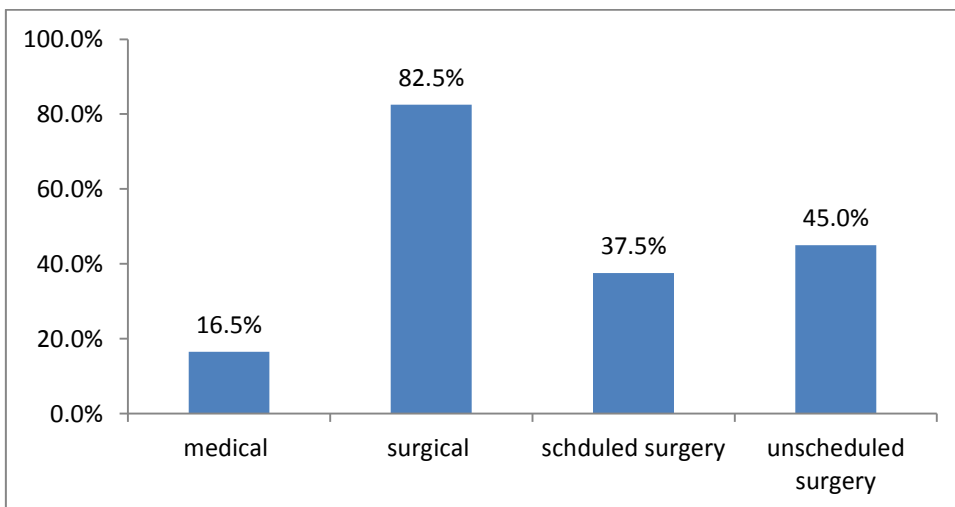
Item	Demographic data	Frequency	Percentage
	Research code	-	-
	Age in years		
	<20	-	-
	20 to 39	43	<b>53.8</b>
	40 to 59	26	<b>32.2</b>
	60 to 79	11	13.8
	Gender		
	Male	47	58.8
	Female	33	41.3
	Diagnosis	-	-
	Reason for ICU admission		
	Medical	14	17.5
	Surgical	66	<b>82.5</b>
	- Scheduled surgery	30	37.5
	- Unscheduled surgery	36	45.0
	Length of ICU stay		
	1 to 3 days	51	<b>63.8</b>
	4 to 7 days	25	31.2
	8 to 11 days	4	5%

Males accounted for 58.8 % ( n=47) and females 41.3% (n=33) of the total patient sample (n=80). The majority (53.8%; n=43) was aged between the ages of 20 and 39 years, followed by 32.3% (n=26) in the 40 to 59 years and 13.8% (n=11) between 60 to 79 years categories. It can be extrapolated from these findings that male participants dominated the total sample. However, the age categories indicated higher frequencies in the age category 20 to 39 years and lower score in 40 to 59 years group, implying this is a young population. In terms of gender distribution trends, these results are consistent with similar studies done in other countries. **Table 4.1** displays the findings.



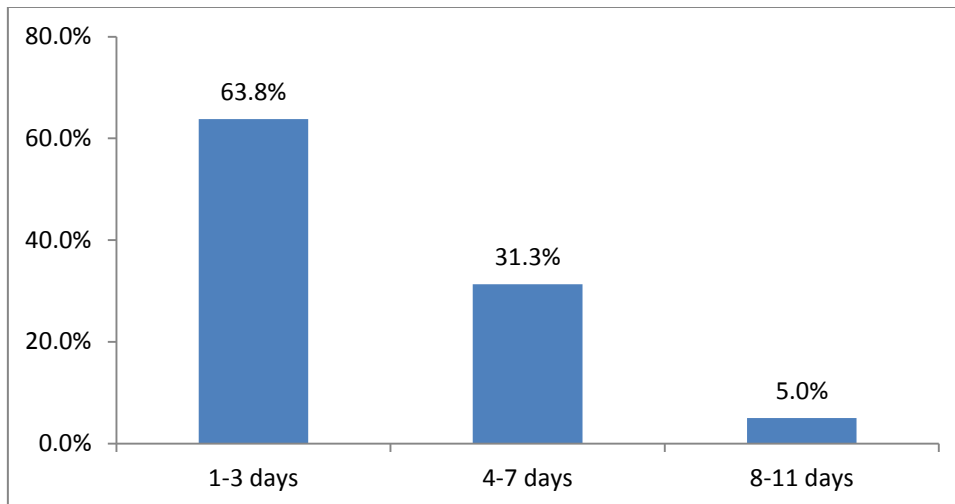
**Figure 4.1** Age distribution of the participants

The majority (82.5%; n=66) of participants were surgical and 17.5% (n=14) were medical cases. Surgical cases were subdivided into scheduled and unscheduled surgery for statistical purposes, as it was presumed the difference would have an impact on patients' experiences in the ICU. Findings indicate unscheduled surgical cases had a slightly higher (45%; n=36) load than those (37.5%; n=30) in scheduled surgery. The higher surgical case load is due to a high number of critically ill patients being admitted in all the ICUs except the coronary care unit. The findings are displayed in **Figure 4.2**.



**Figure 4.2** Frequency distributions obtained for patients' reason for admission.

Findings in terms of length of stay in the ICU indicate 63.8% (n=51) of the participants spent one (1) to three (3) days, more than a third (31.3%; n=24) four (4) to seven (7) days and 5% (n=4) spent eight (8) to 11 days. To facilitate analysis, participants were grouped in to two categories: short stay (<3 days) and long stay (>4 days). The findings are displayed in **Figure 4.3**.



**Figure 4.3** Frequency distributions obtained for patients length of stay in ICU.

#### **4.3.2 Questionnaire Section 2: Intensive care experience questionnaire (ICEQ) items**

This section comprised twenty four items to which participants responded to, obtained through a structured interview by the researcher, within 24 to 48 hours after discharge from the ICU to determine patients' experiences in the ICU before they could forget them. Descriptive and comparative statistics were applied to analyse the data on scale, construct and item levels.

The sample comprised 80 participants, who were adult critically ill patients admitted to one of the five selected ICUs. The instrument used in this study was the Intensive Care

Experience Questionnaire (ICEQ), which assess patients experiences in the ICU on a five point Likert scale with rating options of 1, 2, 3, 4 or 5 reflected as never, rarely, sometimes, most of the time or all the time. Data were analysed to assess patients' experiences in the ICU for total questionnaire scores after collapsing two of the categories of the Likert scale, where 1 and 2 were used as never or rarely, 3 sometimes, 4 and 5 as most of the time or all the time. Categories on the Likert scale were collapsed to ease discussion of data however, it was noted that larger presentations from the sample responses were moderate on the itemised items. The decision to collapse the categories of data was done in consultation with the statistician and researcher's supervisor.

#### 4.3.2.1 Awareness of surroundings

**Table 4.2** Frequencies obtained for awareness of surroundings (items 2.1 to 2.9).

Item	Statements	Participants Responses					
		Never and Rarely		Sometimes		Most of the time and all the time	
		n	%	n	%	n	%
2.1	I recognised my relatives.	11	13.8	13	16.3	56	70.0
2.2	I was aware of someone nearby.	13	16.3	13	16.3	54	67.5
2.3	I knew where I was.	17	21.3	9	11.3	54	67.5
2.4	I knew what was happening to me.	20	25.0	9	11.3	51	63.8
2.5	I remember my relatives being with me.	10	12.5	11	13.8	59	73.8
2.6	I felt safe.	5	6.3	10	12.5	65	81.3
2.7	I felt in control.	22	27.5	23	28.8	35	43.8
2.8	I was able to let people know what I wanted.	8	10.0	18	22.5	54	67.5
2.9	I have no recollection of being in ICU.	9	11.3	27	33.8	44	55.0

Item 2.1 to 2.9 inquired about participants' awareness of surroundings. Findings related to item 2.9 revealed the majority (55.0%; n=44) of participants indicate most of the time "I

have no recollection of being in the ICU” and less than half (43.8%; n=35) “I felt in control” (item 2.7) most of the time. A higher response was elicited to most of the time (Item 2.2, 2.3, 2.4, 2.5, 2.6. and 2.8) “I was aware of someone nearby,” “I knew where I was”, “I knew what was happening to me,” “I remember my relatives being with me,” “I felt safe” and “I was able to let people know what I wanted” (67.5%, 67.5%, 63.8%, 73.8%, 81.3% and 67.5% respectively). It can be extrapolated from the findings that these participants were aware of the surroundings in the ICU. **Table 4.2** presented the findings.

#### 4.3.2.2 Frightening experiences

**Table 4.3** Frequencies obtained for frightening experiences (items 2.10 to 2.15).

Item	Statements	Participants Responses					
		Never and Rarely		Sometimes		Most of the time and all the time	
		n	%	n	%	n	%
2.10	I seemed to have bad dreams.	42	<b>52.5</b>	22	27.5	16	20.0
2.11	I felt scared.	37	46.3	24	<b>30.0</b>	19	23.8
2.12	I saw strange things.	57	<b>71.3</b>	15	18.8	8	10.0
2.13	I felt helpless.	24	30.0	42	<b>52.5</b>	14	17.5
2.14	I thought I would die.	36	<b>45.0</b>	20	25.0	24	<b>30.0</b>
2.15	I seemed to be in pain.	18	22.5	18	22.5	44	<b>55.0</b>

Items 2.10 to 2.15 on the data collection instrument enquired about participants perceived frightening experiences in the ICU. Findings in this study indicate the majority (55.0 %; n=44) of participants ‘seemed to be in pain’ most of the time (Item 2.15), 52.5% (n=42) felt ‘helpless’ sometimes and more than a quarter (30.0%; n=24) ‘thought they would die’ (Item 2.14) most of the time and ‘felt scared’ sometimes (Item 2.11). However, findings indicate more than half (52.5%; n=42) of the participants never or rarely seemed to ‘have bad dreams’ (item 2.10) or (71.3%; n= 57) ‘saw any strange things’ (Item 2.12). It can be

extrapolated from these findings that participants' most frightening experiences were 'pain' and 'feeling helpless'. **Table 4.3** displayed these findings.

#### 4.3.2.3 Recall of experiences.

**Table 4.4** Frequencies obtained for recall of experiences (items 2.16 to 2.20)

Item	Statements	Participants Responses					
		Never and Rarely		Sometimes		Most of the time and all the time	
		n	%	n	%	n	%
2.16	I wish I remembered more about it.	46	<b>57.5</b>	14	17.5	20	25.0
2.17	I wish I had known more about it.	32	<b>40.0</b>	27	33.8	21	26.3
2.18	What was happening to me? I wish I had known more about what was happening to me	32	<b>40.0</b>	20	25.0	28	35.0
2.19	I seemed to sleep too much.	14	17.5	<b>33</b>	<b>41.3</b>	<b>33</b>	<b>41.3</b>
2.20	I never knew whether it was day or night.	17	21.3	14	17.5	49	<b>61.3</b>

Item 2.16 to 2.20 of the data collection instrument enquired about participants' recall of experiences in the ICU. The majority (61.3%; n=49) of participants indicate most of the time "I never knew whether it was day or night," (item 2.20), 57.5% (n=46), never or rarely "I wish I remembered more about it" (Item 2.16), less than half (41.3%; n=33) indicate never or rarely "I seemed to sleep too much" (item 2.19), 40% (n=32) "I wish I had known more about it" (item 2.17) and "I wish I had known more about what was happening to me" (item 2.18). It can be extrapolated from these findings that participants were disoriented to

time. The findings are presented in **Table 4.4**.

#### 4.3.2.4 Satisfaction with care.

**Table 4.5** Frequencies obtained for satisfaction with care (items 2.21 to 2.24).

Item	Statements	Participants Responses					
		Never and Rarely		Sometimes		Most of the time and all the time	
		n	%	n	%	n	%
2.21	My care could have been much better.	23	28.8	29	36.3	28	36.0
2.22	My care was as good as it could have been.	4	5.0	16	20.0	60	<b>75.0</b>
2.23	I was constantly disturbed.	31	36.8	33	41.3	16	20.0
2.24	It was always noisy.	41	51.3	26	32.3	13	16.3

Items 2.21 to 2.24 enquired about participants' satisfaction with their care. Findings indicate the majority (75%; n=60) of the participants responded most of the time "my care was as good as it could have been" (item 2.22), slightly more than one third (36.3%; n=29) indicate sometimes "my care could have been much better" (item 2.21). More than half (51.3%; n=41) of participants indicated never "it was always noisy" (item 2.24) and more than one third (41.3%; n=33) indicate sometimes "I was constantly disturbed" (item 2.23). From the findings it can be extrapolated that the majority of participants were satisfied with the care.

#### 4.3.3 Inferential statistics

Measurement of central tendency and variation (mean and standard deviation) were used to summarise the data. Summary for selected respondent socio-demographic categorical

variables, namely age, gender and length of stay are discussed in the next section. Summary of mean scores for comparison of gender, age and length of stay are provided in **tables 4.6 to 4.9**.

**Table 4.6** Summary mean total scores of gender and age for comparison of ICU experiences

Categories	Age (in years)	Male			Female		
		n	M	SD	n	M	SD
Awareness of surroundings	20 – 39	28	31.29	7.41	15	30.80	7.44
	40 – 59	14	<b>36.57</b>	5.76	12	41.00	7.56
	60 – 79	5	36.00	5.70	6	<b>38.17</b>	2.56
Frightening experiences	20 – 39	28	<b>16.54</b>	3.50	15	<b>16.73</b>	3.88
	40 – 59	14	14.07	4.58	12	14.83	4.11
	60 – 79	5	12.60	6.02	6	13.17	3.49
Recall of experiences	20 – 39	28	15.57	3.99	15	<b>14.47</b>	2.61
	40 – 59	14	13.21	3.14	12	14.92	4.44
	60 – 79	5	<b>17.40</b>	5.68	6	<b>15.55</b>	4.72
Satisfaction with care	20 – 39	28	<b>12.54</b>	1.60	15	12.33	1.99
	40 – 59	14	12.43	2.62	12	12.50	1.73
	60 – 79	5	11.40	2.30	6	<b>13.33</b>	1.96

**Table 4.6** presents the summary mean total scores for comparison of ICU experience with gender and age. Of the total sample (n=80) the highest mean score for male participants on **awareness of surroundings** was 36.57 (SD 5.76) for age group 40 to 59 years, contrasting with the highest mean score, 38.17(SD 5.76), for female participants age group 60 to 79 years. This is an observed difference of -1.6. The highest mean score for male participants on **frightening experiences** was 16.54 (SD 3.50) for age group 20 to

39 years, in contrast to 16.73 (SD 3.88) for female participants with the same age group. This is an observed difference of -0.19. The mean score for recall of experience for male participants was 17.40 (SD 5.68, age group 60 to 79 years, in contrast to 15.55 (4.72) score for female participants with the same age group. This is an observed difference of 1.85. Similarly, the mean score for **satisfaction with care** amongst male participants was 12.54 (SD 1.60, age group 20 to 39 years, in contrast to 13.33 (SD 1.86) for female participants, age group 60 to 79 years. This is observed difference of -0.79.

**Table 4.7** Summary of mean total scores for comparison of ICU experience by gender

ICU experience	Gender					
	Male			Female		
	n	M	SD	n	M	SD
Frightening experiences	47	15.38	4.29	33	15.39	4.02
Recall of experiences	47	15.06	4.09	33	14.78	3.65
Satisfaction with care	47	12.38	2.00	33	12.57	1.85

**Table 4.7** presents the summary of mean total scores for comparison of ICU experience by gender. Of the total sample (n=80), the mean score was for frightening experiences for female respondents was 15.39 (SD 4.02) compared with 15.38 (SD 4.29) for males. This is an observed difference of 0.01. Similarly, the mean score obtained for recall of experiences was a higher 15.06 (SD 4.09) for male respondents, compared with 14.78 (SD 3.65) for females. This is an observed difference of 0.28. The mean score obtained for satisfaction with care was a higher 12.57 (SD 1.85) for female respondents, compared with 12.38 (SD 2.00) for males. This is an observed difference of 0.19.

**Table 4.8** Summary of mean total scores for comparison of ICU experience by length of stay

ICU experience	Length of stay					
	Short term			Long term		
	<3 days			>4 days		
	n	M	SD	n	M	SD
Frightening experiences	51	14.86	4.19	29	16.31	4.00
Recall of experiences	51	15.07	4.06	29	14.72	3.63
Satisfaction with care	51	12.23	1.77	29	12.86	2.16

**Table 4.8** presents the summary of mean total scores for comparison of ICU experience by length of stay. Of the total sample (n=80), the mean score for frightening experiences was a higher 16.31 (SD 4.00) in long term length of stay, compared with 14.86 (SD 4.19) in short term. This is an observed difference of 1.45. Similarly, the mean score for recall of experiences was a higher 15.07 (SD 4.06) for short term length of stay, compared with 14.72 (SD 3.63) for long term. This is an observed difference of 0.65. The mean score for satisfaction with care was a higher 12.86 (SD 2.16) for long term length of stay, compared with 12.23 (SD 1.77) in short term. This is an observed difference of 0.63.

Based on the observed differences in mean construct scores and item scores an independent t-test was conducted to compare ICU experiences with selected categorical variables. Testing was done at the 0.05 level of significance. Findings are displayed in **tables 4.9 to 4.10**.

**Table 4.9** Summary for independent t-test for mean scores obtained for ICU experience by gender

ICU experience	Gender						CI	t-test	p-value
	Male			Female					
	n	M	SD	n	M	SD			
Frightening experiences	47	15.38	4.29	33	15.39	4.02	-1.90 to 1.88	-0.120	0.991
Recall of experiences	47	15.06	4.09	33	14.78	3.65	-1.49 to 2.04	0.316	0.753
Satisfaction with care	47	12.38	2.00	33	12.57	1.85	-1.07 to 0.68	0.442	0.656

**Table 4.9** presents an independent t-test for frequencies obtained for gender with ICU experiences. Of the total sample (n=80), the mean score for male participants on **frightening experiences** was 15.38 (SD 4.29), for females 15.39 (SD 4.02),  $t$  (-0.120). The confidence interval (CI) was -1.90 to 1.88 and p- value 0.991. There is no observed difference in the scores. The mean scores obtained for recall of experience for male participants were 15.06 (SD 4.09) and female 14.78 (SD 3.65),  $t$  (0.354), CI (-1.49 to 2.04) and p- value 0.757. There is no observed difference in the score. Similarly, the mean scores for **satisfaction with care** male for participants were 12.38(SD 2.00), for female 12.57 (SD 1.95),  $t$  (-0.436), CI (1.07 to 0.68) and p- value 0.664. There was no observed difference. There was no significance difference in the scores for male and female within the three construct in this test.

**Table 4.10** Summary for independent t-test for mean scores obtained for ICU experience by length of stay

ICU Experience	Length of Stay						CI	t-test	p-value
	Short stay <3 days			Long stay >4 days					
	n	M	SD	n	M	SD			
Frightening experiences	51	14.86	4.19	29	16.31	4.00	-3.35 to 0.46	-1.508	0.136
Recall of experiences	51	15.07	4.06	29	14.72	3.63	-1.45 to 2.16	0.389	0.698
Satisfaction with care	51	12.23	1.77	29	12.86	2.16	-1.40	-1.401	0.165

**Table 4.10** presents an independent t-test for frequencies obtained for length of stay with ICU experiences. The mean score for short stay on **frightening experiences** was 14.86 (SD 4.19), for long stay 16.31(SD 4.00),  $t$  (-1.508), CI (-3.35 to 0.46) was and p- value 0.136. There is no observed difference in the score. The mean scores obtained for **recall of experience** for short stay were 15.07 (SD=4.06) and long stay 14.72 (SD= 3.63),  $t$  (0.389), CI (-1.45 to 2.16) and p value 0.698. There is no statistically significant difference in the score. Similarly, the mean score for **satisfaction with care** for short stay was 12.23(SD=1.77) and long stay 12.86(SD = 2.16),  $t$  (-1.401), CI (-1.51 to 0.26) and p- value 0.263. There was no observed difference. This test was found to be statistically non-significant in that there was no difference in the scores for male and female within the three construct.

Data were then analysed to determine whether there was a statistical significant difference in ICU experience (frightening experience, recall of experience and satisfaction with care) by age. Age was divided into three groups 20 to 39 years, 40 to 49 years and

60 to 69 years. A one way analysis of variance (ANOVA) was employed. Testing was done on the 0.05 level of significance. Results of this process are presented in **table 4.11**.

**Table 4.11** Summary of One way ANOVA test for age on ICU experiences

ICU experience	Age in years	n	M	SD	CI	p-value
Frightening experience	20 to 39	43	16.60	3.59	15.49 to 17.71	0.814
	40 to 59	26	14.42	4.30	12.68 to 16.16	
	60 to 79	11	12.90	4.54	9.85 to 15.96	
	TOTAL	80	15.38	4.15	14.46 to 16.31	
Recall of experience	20 to 39	43	15.18	3.58	14.08 to 16.28	0.287
	40 to 59	26	14.00	3.81	12.45 to 15.54	
	60 to 79	11	16.27	5.02	12.89 to 19.64	
	TOTAL	80	14.95	3.89	14.08 to 15.81	
Satisfaction with care	20 to 39	43	12.46	1.72	11.03 to 12.99	0.337
	40 to 49	26	12.46	2.21	11.56 to 13.35	
	60 to 79	11	12.45	2.20	10.97 to 13.93	
	TOTAL	80	12.46	1.93	12.03 to 12.89	

**Table 4.11** presents the results of the one-way analysis of variance for selected categorical variables for ICU experience by age. Findings indicated that there was no statistically ( $p>0.05$ ) significant difference between age categories and ICU experience.

**Table 4.12** Summary of ANOVA test between and within age groups on ICU experiences

		Sum of Squares	df	Mean Square	F	p-value
Frightening experiences	Between groups	155.453	2	77.727	4.940	0.010*
	Within groups	1211.534	77	15.734		
	Total	1366.988	79			
Recall of experiences	Between groups	45.107	2	22.553	1.504	0.229
	Within groups	1154.693	77	14.996		
	Total	1199.800	79			
Satisfaction with care	Between groups	.001	2	.001	.000	1.000
	Within groups	295.886	77	3.843		
	Total	295.888	79			

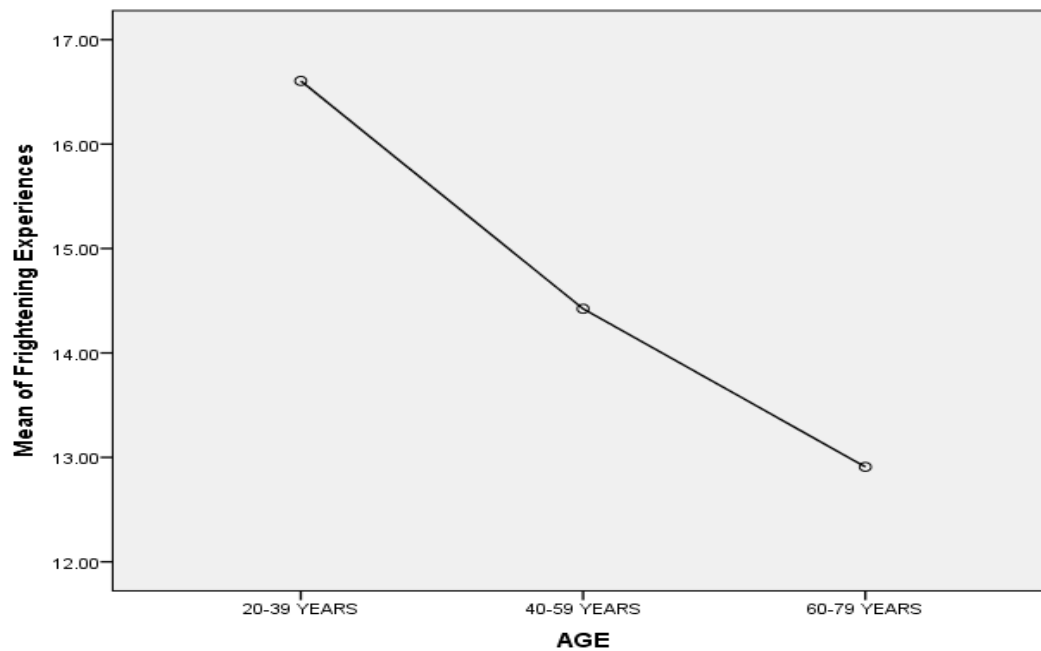
Key: \*=statistical significance

However, there was a significant difference at  $p<0.05$  level in frightened experience between age group ( $F(2,80) = 4.94, p=0.010$ ). Results of this process are displayed in **table 4.12** and reveal that the rule of homogeneity has not been violated and does not show the age group.

**Table 4.13** Summary of Post Hoc Tests comparison of age and ICU experience

Dependent Variable	Age (I)	Age (J)	Mean difference	p-value	Confidence Interval	
Frightening experiences	20-39 years	40-59 years	2.181	.075	-.1735	4.536
		60-79 years	3.695*	.020	.4925	6.898
	40-59 years	20-39 years	-2.181	.075	-4.536	.1735
		60-79 years	1.513	.541	-1.895	4.923
	60-79 years	20-39 years	-3.695*	.020	-6.898	-.492
		40-59 years	-1.513	.541	-4.923	1.895
Recall of experience	20-39 years	40-59 years	1.186	.438	-1.113	3.485
		60-79 years	1.086	.685	-4.213	2.040
	40-59 years	20-39 years	-1.186	.438	-3.485	1.113
		60-79 years	-2.272	.239	-5.601	1.056
	60-79 years	20-39 years	1.086	.685	-2.040	4.213
		40-59 years	2.272	.239	-1.056	5.601
Satisfaction with care	20-39 years	40-59 years	.003	1.00	-1.160	1.167
		60-79 years	.010	1.00	-1.572	1.593
	40-59 years	20-39 years	-.003	1.00	-1.160	1.160
		60-79 years	.006	1.00	-1.678	1.692
	60-79 years	20-39 years	-.010	1.00	-1.593	1.572
		40-59 years	-.006	1.00	-1.692	1.678

Despite reaching a statistical significance with mean difference of 3.69, the effective size calculated using the eta square, was 0.114 (large effect). Post-hoc comparisons using the Turkey HSD test indicated the mean score of age group 20 to 39 (M 16.60; SD 3.59) was significantly different from age group 60 to 70 (M 12.90; SD 4.54), as displayed in **table 4.10**. Age group 40 to 59 (M 14.42; SD 4.30) did not differ significantly from the two other groups. **Figure 4.4** presents these results.



**Figure 4.4** Mean plot of frightening experience and age group

#### 4.4 DISCUSSION OF MAIN FINDINGS

The purpose of this study was to describe critically ill patients' experiences in the Intensive Care Unit with the intention of making recommendations for clinical practice and education for Intensive Care Nurses.

In this study, the first part of the questionnaire elicited participants' awareness of surroundings regarding the ICU during their admission. In this discussion patient's experiences were regarded negative or positive. The results and discussion of findings in this part of the questionnaire were supported by nine (9) items. Participants' responses indicate there was much awareness of the surroundings (**item 2.1 to 2.9**). The majority ( $\geq 70\%$ ) of the participants indicated 'recognising their relatives' and 'remembering being with them' most of the time. Similarly, high scores ( $67.5\% = 54$ ) were obtained on 'being aware of someone nearby', 'knowing where they were', 'what was happening to them' and 'able to let people know what they wanted'. Findings in this study indicate some

similarities to studies conducted in Australia (Karlson & Forsberg, 2008) and Sweden (Roberts et al., 2007) as participants indicated, in both studies, being aware of people around them. The presence of a loved one, family or somebody trusted to the patient is associated with a feeling of security (Cutler et al., 2013).

The majority (81.3%; n=65) of the participants indicated 'feeling safe' most of the time however, less than half (43.8; n=35) indicated 'feeling in control most of the time'. A study that consistently shares most of the findings with this study, conducted by Rattray et al (2004), indicates 70% of the participants felt safe and relatives were viewed as patient interpreters communicating with others and able to provide consolation. Guttormson (2014) identified that the majority of patients' frustrations were related to lack of control and communication difficulties. Other studies have shown Intensive Care nurses have a major impact on fostering a safe environment for the patients therefore they should consider patients views (Merilainen, Kyngas & Ala-Kokko, 2010; Sauls & Warise, 2010).

In this study, more than half (55%) of the participants had 'no recollection of being in the ICU'. This finding is also similar to that of Rattray et al. (2004), which indicate patients' recollections of ICU were mainly unclear as the majority (64%) reported blurred recollections and 48% seemed to remember being in the unit and communicating with those around them.

The age group 40 to 45 years (male) and 60 to 79 years (female) had the least sense of awareness of surroundings.

In a study conducted by Eng, Hassan, Saidi and Syed (2008), in Malaysia, 44% of the participants were aware of their surroundings, which was found to be the strongest factor statistically and a unique contribution to the prediction of their abilities to recall ICU. The

findings from this study indicate participants may have had greater awareness of their surroundings.

The second part of the questionnaire aimed to elicit participants frightening experiences in the ICU. Six (6) items supported the results and discussion in this part of the questionnaire (item 2.10 to 2.15). 'Pain' and 'feeling helpless' were the most frightening experiences. More than half (>50%) of the participants' indicated 'pain' (55%; n=44) most of the time and 'feeling helpless' sometimes (52.2%; n=42). In a related study by Ehlers, Watson and Moleki (2013), conducted in one multidisciplinary ICU (South Africa), results indicate over 90% of patients experience pain during their first night in the ICU which was only relieved by pain medication; pain was identified as one of the most contributing factors to sleep deprivation.

More than one quarter (30%) 'felt scared' sometimes and 'thought they would die' most of the time. This is similar to Rattray et al.'s (2004) finding, where more than 40% 'never felt scared' whilst being treated in the ICU. The nurses' presence and caring relationship can have a positive effect on the patient and can reduce levels of fear (Scraag, Jones & Fauvel, 2001). The majority (over 50%) of the participants indicate they 'never saw strange things' (71.3%; n=57) or 'had bad dreams' (52.2%; n=42). This finding is inconsistent with Guttormson (2014), who used the ICEQ as one of the instruments to describe ICU patients delusional memories and interpretations of those memories, where the results indicated opposite findings, patients recalled seeing strange things (70%) and (54%) having had bad dreams sometimes. The study also indicates that ICU patients with delirium are likely to have scary dreams, but this has not yet been established. Another study which used the ICEQ, conducted by Eng. et al. (2008) in Malaysia, indicated the majority (69%) of the participants reported frightening experiences. In this study, the age group 20 to 39 years had the highest mean amongst both male and female, showing that

in both age groups and within both sexes the highest level was that of fright (Eng. et al 2008).

The third part of the questionnaire aimed to elicit participant's recall of experience. Five (5) items supported the results and discussion in this part of the questionnaire (item 2.16 to 2.20). More than half (61.3%; n=49) of the participants indicated most of the time they 'never knew whether it was day or night' (Item 2.20) and (57.5%; n=46) 'never wished to remember more about it'. These findings are similar to other study findings, where more than half of the participants were unable to differentiate between day and night (Ehlers et al. 2013; Rattray et al, 2004) and suffered from sleep deprivation (Ehlers et al. 2013). Inability to differentiate between day and night in an ICU patient was related to distress and associated with development of ICU syndrome (Rattray, 2004). It is important to orientate patients to the ICU as this may be helpful to fill the gaps in recollections from admission through the complete stay in ICU (Robert et al., 2007).

In this study, less than half (40%) of the participants indicated they 'never wished to know more about it' or 'what was happening to them'. This could be due to the negative or unpleasant experiences they could have had in the ICU. Sometimes patients' memories are extremely vivid and real and some patients try to block recall of traumatic experiences (Scraag, Jones & Fauvel, 2001). Patients may have problems in recalling what happened to them in ICU after deep sedation and sometimes they may not recall receiving mechanical ventilation or their time in ICU (Lof, Berggren, & Ahlstrom, 2006; Engstrom, Andersson & Soderberg, 2008).

Over forty per cent (41.3%) of the participants indicated that they 'seemed to sleep most of the time'. This finding is inconsistent with the study of Ehlers et al. (2013) who reported 70% of the participants had sleep deprivation and factors such as noise from the alarms and stress were some of the factors; Hofhuis et al. (2008) reported 54% of the

participant's sleeping disturbance was due to noise. Nurses' reassurance enhances patients' abilities to sleep. The age group 60 to 79 years had the highest mean amongst the male and female groups, showing that both age groups cannot recall most of their experiences in ICU.

Satisfaction with care was the fourth part of questionnaire and elicited participant's satisfaction of care they received whilst in ICU (Item 2.21 to 2.24). The majority (75 %; n=60) of the participants rated their care 'as good as it could have been' most of the time, indicating satisfaction. This finding is consistent with other study results as Rattray et al (2004) reported about 80% indicated their care was as good as it could have been. Ehlers et al. (2013), in their study, reported the majority (above 80%) of participants indicated nurses in the ICU were approachable, friendly, had good attitudes and addressed visitors with respect. More than half 'never wished to remember more about it' (57.5%), a finding consistent with Rattray et al (2004) where a low score was obtained on this item indicating less satisfaction. Less than half the participant's responses in this study indicated sometimes 'they were constantly disturbed' (41.3%) and 'it was always noisy' (32.2%).

Another study conducted by Granja et al. (2005) reported the majority (94%) of participants rated confidence in the physicians and ICU nurses excellent. The findings in this study indicate the age group 60 to 79 years have the highest mean amongst male and female, showing that both age groups have the least sense of satisfaction.

Of the total questionnaire, six out of twenty four items were found to be statistically significant ( $p < 0.05$ ). Six of the fifteen items comprised frightening experiences (second part). The total questionnaire scores were utilised to compare selected demographic data categorical variable, namely age, gender and length of stay in ICU.

Related to age, findings indicate there was a significant difference at  $p < 0.05$  level in frightened experience between the age groups,  $p=0.010$ . Despite reaching a statistical significance, effect size using the eta square was 0.114, which was large. The age group 20 to 39 years was significantly different from the group 60 to 79 years; the age group 40 to 59 years did not differ significantly from the two other groups.

Related to gender, length of stay in ICU findings, as indicated by 15 items, related to ICU experience. There was no significance difference in the scores for male and female, short and long stay within the three constructs (frightening experience, recall of experience and satisfaction with care).

#### **4.5 SUMMARY**

This chapter discussed the descriptive and comparative statistics that were used to describe and analyse the data collected. The data and interpretation of findings were presented.

Overall, of the total 24 items on the questionnaire, the items with the highest response (81.3%) indicated by the participants were 'feeling safe' (81.3%) and 'care being as good as it could have been' (75.0%) most of the time. The other items highly rated were participants 'remembering their relatives' (73.8%) and 'recognising them' (70.0%) most of the time. Most participants 'felt safe' in the ICU and were 'satisfied with the care', which were positive experiences.

More than half (over 50%) of the participants indicated 'seeming in pain' and having 'no recollection of ICU' most of the time (55%), 'feeling helpless' sometimes (52.5%), whilst nearly half (43.8%), 'felt in control'. 'Pain' and 'feeling helpless' were the most frightening experiences. Over 55.0 % of participants indicated 'not knowing whether it was day and

night', seemed to 'be in pain' most of the time and 'never wished to remember more about ICU', which were negative experiences. According to Rattray et al. (2004), inability to differentiate between day and night in an ICU patient was related to distress and associated with development of ICU syndrome.

Among the demographic categorical variables, age, gender and length of stay in ICU mean scores were compared with ICU experiences (frightening experience, recall of experience, satisfaction with care). There were no significant findings on gender and length of stay. On age, It was only in frightening experiences where there was a statistical significance  $<0.05$  amongst the three constructs. There was a significance difference,  $p=0.010$ .

The following chapter will discuss the limitations of the study, summary of the research findings, conclusions and recommendations for further research.

# CHAPTER FIVE

## SUMMARY AND CONCLUSION

### 5.1 INTRODUCTION

The final chapter presents a summary of the study, main findings are discussed and the limitations described. Furthermore, recommendations for clinical nursing practice, education and areas for further nursing research will be presented.

### 5.2 SUMMARY OF THE STUDY

#### 5.2.1 Purpose of the study

The purpose of the study was to describe critically ill patient's experiences in the Intensive Care Unit with the intention of contributing to the Critical Care practice in improving patient outcome.

#### 5.2.2 Objectives of the study

The objectives of the study were to describe the experiences of critically ill patients in the Intensive Care Unit and to compare these experiences with their length of stay in the Intensive Care Unit.

#### 5.2.3 Methodology

Prior to inception of the study, ethical clearance to conduct the study was granted by the Research on Human Subjects Committee (Medical) of the University of the Witwatersrand

and approval from the Faculty of Health Sciences Post Graduate Committee, the Deputy Director of Gauteng Health Department and the Chief Executive Officer at the hospital.

Five (5) adult Intensive Care Units at a public sector academic hospital were used to conduct the study. A medical statistician was consulted prior to collecting data and a sample size of 80 was decided upon. Testing was done at 0.05 level of significance ( $p < 0.05$ ) with confidence interval of 95%.

A pilot study was conducted on 10 participants to test the feasibility of the study, understanding of the information letter, informed consent and questionnaire prior to commencement of the study.

A structured questionnaire, the Intensive Care Experience Questionnaire (ICEQ), developed and validated by Rattray et al. (2004), was used to collect data on patients' experiences in the ICU. The first section of the questionnaire was demographic data and the second part of the questionnaire comprises 24 items which assess patients' experiences in four domains, awareness of surroundings (9 items), frightening experiences (6 items), recall of experiences (5 items) and satisfaction with care (4 items). A five point Likert scale was used.

To achieve the study objectives, a quantitative, descriptive research design was used. Data was collected over a three months period, from July to September 2014. Descriptive and inferential statistics were used to analyse the data in consultation with the statistician.

### 5.3 SUMMARY OF RESEARCH FINDINGS

The purpose of this study was to describe critically ill patients' experiences in the Intensive Care Unit with the intention of contributing to the Critical Care practice in improving patient outcome. In this study structured interviews were conducted with 80 participants. The Intensive Experience Questionnaire was used to collect data from participants who met the inclusion criteria. The interviews were conducted in the general ward, 24 to 72hrs after discharge from the ICU.

The first objective was to describe critically ill patients' experiences in the ICU. The first section had demographic data and the second part of the questionnaire had the tool. The first part of the questionnaire assessed patients' awareness of surroundings with regards to ICU. The highest scores reported were on 'feeling safe' (81.3%) most of the time. Participants 'remembering their relatives' (73.8%) and 'recognising them (70%) most of the time' were also rated high. This finding was consistent with other studies (Demir et al. Rattray et al. 2004), whereby more than half (55.0%) of the participants indicated most of the time 'having no recollection of ICU' and less than half (43.8%) of the participants 'felt in control'.

The second part of the questionnaire elicited participants frightening experiences. The majority of the participants indicated 'seemed to be in pain' (55%) most the time and sometimes 'felt helpless' (52.5%).

The third part of the questionnaire elicited participants' recall of experience. Majority (61.3%) of the participants indicated they 'never knew whether it was day or night' most of the time and (57.5%) of the participants 'never wished to remember more about it'.

The last part of the questionnaire elicited participants' satisfaction with care. Majority of the participants indicated 'care was as good as it could have been' (75%) most of the time, more than a quarter (41.3%) indicated they were 'constantly disturbed' and sometimes 'it was always noisy' (32.3%).

The second objective of the study was to compare critically ill patient's experiences with their length of stay in ICU. Descriptive, comparative and inferential statistics were employed. The mean score for the categorical variables age, gender, and length of stay were calculated. Independent t-tests were employed to compare ICU experiences (frightening experience, recall of experience and satisfaction with care with age, gender and length of stay in ICU). There was no significant difference in the score for gender (male and female), length of stay (short and long) within the three constructs.

One way ANOVA was employed, where age was divided into three age groups (20 to 39 years, 40 to 59 years and 60 to 79 years). The results indicate there was a significant difference at  $p < 0.05$  level in frightened experience between the age groups ( $F(2, 80) = 4.949, p = 0.010$ ). Further Post hoc comparisons, using the turkey HSD test, indicated the mean score age group 20 to 39 years was significantly different from age group 60 to 79 years; the age group 40 to 59 years did not differ significantly from the other two groups. The findings from a related study (Eng. et al 2008) reported patients awareness of surroundings had the strongest statistical significance as a contribution to the prediction of abilities to recall their experiences with a beta coefficient value of 0.353 and  $p < 0.05$ .

#### **5.4 LIMITATIONS OF THE STUDY**

The researcher acknowledges the following limitations in this study:

- The study was conducted in five ICUs at a single public tertiary institution. Views of other critically ill patients' experience in the ICU at other tertiary institutions may differ throughout South Africa.
- The sample size (n=80) was too small to generalise findings.
- The study was quantitative and a developed tool was used.
- The researcher's presence during data collection may have affected the participants' responses for possible fear of victimisation.
- Severity of illness was not considered in the study.

## **5.5 CONCLUSION**

The study is based on Roy's Adaptation Theory (Roy, 2009) and the Synergy Model (Morton & Fontaine, 2013). According to Roy, the main aim of nursing is to focus on promoting health of an individual by promoting adaptation in the four adaptive modes (physiological-physical, self-concept, role function and interdependence). The person is considered as an open, adaptive system using coping skills to deal with stressors. The environment includes conditions, circumstances and influences that surround and affect the person's development and behaviour. Physiological stressors such as pain, feeling helpless, disorientation and not able to recall experiences may prolong recovery for the critical ill person. Optimal outcomes can only result from the patients' needs matching synergy of a nurse's competences. The purpose of this study was to describe critically ill patient's experiences in the Intensive Care Unit.

The results of this study show that critically ill patients feel safe in the ICU and that the care was as good as it could have been. This study provides an insight into critically ill patients' experiences in the ICU and suggests there is a need for improvement in the identified areas and includes pain management and orientating patients to the ICU environment.

Even though most participants indicated recognising and remembering their relatives, it shows that patients are not orientated to the (time) environment meaning there is lack of communication between the nurse and the patient. Findings in this study suggest that even though participants felt safe and satisfied with care in the ICU, they felt helpless and had no control of themselves. Furthermore, the findings show that most patients had no recollection of ICU and never wished to remember the ICU experience.

To improve on pain management, it is important for Intensive Care nurses to routinely monitor, assess and document the patient's pain. To improve patient's recollections of ICU and to enable them to feel in control of themselves and not helpless, there is a need to constantly communicate with them so that they are aware of their surroundings.

## **5.6 RECOMMENDATIONS OF THE STUDY**

Literature on critically ill patient's experiences in the ICU from a South African perspective is insufficient considering physical, psychological and environmental entities. There is a need to further examine critically ill patients' experiences. The nature of critical illness and the complexity of Intensive Care Units require nurses to view the patient holistically. By defining ICU patient experiences and the characteristics of such patients, the present study tried to function as a basis for further such studies. The recommendations are made based on the findings in this study.

### **5.6.1 Nursing practice**

Recommendations for nursing practice are made as follows:

- Nurses working in the ICU need to identify factors which stimulate pain and avoid or relieve pain. Pain experience may be influenced by a number of factors such as emotional, psychological state, anxiety (Marsac & Funk, 2008).
- Use of scales or tools to assess different patient experiences in the ICU in order to come up with nursing diagnosis and plan care according to the findings, for example to assess levels of pain.
- There is a need to communicate effectively with critically ill patients to restore a sense of being in control. Provision of adequate information to the patient empowers patient and relieves stress. Use of pens, paper, letter, word charts, hearing aids or wearing glasses can improve communication (Wenham & Pittard, 2009). Information regarding admission to ICU and procedures must be available to prevent psychological and physiological consequences.
- A better understanding of patient's unpleasant recollections of ICU experiences reported by patients, for example feeling helpless or loss of control could enable the nurses to better anticipate patient care and may improve quality of life during the ICU stay (Strahan et al. 2003).

### **5.6.2 Nursing Research**

The following recommendations were for nursing research:

- The study was quantitative, which may influence participants' response to a semi structured questionnaire; there is need to do a qualitative study in other public academic hospitals.
- The study was conducted at one public academic institution, there is need to do the same study on a larger scale, with a larger sample size in order to generalise

the findings. It should be extended to include both public and private institutions in the province and other provinces in order to generalise the results for South Africa. The researcher was present during data collection which may have affected the participant's responses for possible fear of victimisation.

- Further research needs to be done to find out why most patients did not wish to remember more about their experience, as this finding was different from other similar studies where most patients wished they could remember more about it.
- Literature on patients' experiences in the ICU in South Africa and Africa at large is insufficient. There is need to conduct further research in these areas in order to generalise findings.

### **5.6.3 Nursing education**

The following recommendations are made for nursing education:

- Institutions training nurses should include in their programme and emphasise the importance of incorporating evidence based practice into Intensive Care nursing practice, for example management of pain in critically ill patients in the ICU.
- Nurse educators should ensure adequate knowledge is given with regard to critically ill patient experiences.
- Holistic nursing care to be emphasised, as concentrating on one area does affect patients' recovery from critical illness

## **5.7 CONCLUSION OF THE STUDY**

This chapter concludes the report on critically ill patients' experiences in the ICU. To acquire more knowledge and expand literature on the subject from a South African perspective, continuous assessment of patients using different scales or tools is required for data collection.

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**CRITICALLY ILL PATIENTS' INTENSIVE CARE UNIT EXPERIENCES IN A PUBLIC  
SECTOR ACADEMIC HOSPITAL IN JOHANNESBURG**

**PATIENTS' INFORMATION LETTER**

Dear \_\_\_\_\_  
(Name of patient participant)

My name is Lilian Jere Sitwala. I am currently registered as a student at the University of the Witwatersrand, in the Department of Nursing Education for the degree of Master of Science in Nursing (Intensive Care Nursing). I am expected to conduct a research project under supervision. I would therefore like to invite you to consent to my including you in my sample of patients that I hope to study as you have recently been discharged from the Intensive Care Unit.

The purpose of the study is to investigate critically ill patients' experiences in the Intensive Care Unit. Critical illness and being treated in an ICU can illicit anxiety, fear and stress in many patients. Research conducted in other parts of the world such as Europe indicate that survival from critical illness has improved greatly over the last two decades but it is more evident that recovery time is prolonged and subsequent psychological well-being may be influenced by unpleasant or distressing recollections of the ICU stay. I would like to investigate critically ill patients' experiences in the ICU in the South African context as your health both physically and psychologically are important to the recovery process. Your opinion and experiences as a unique patient who has had ICU experience, would make a valuable contribution towards identifying what patients go through. Your opinion is required to ensure that nurses working in ICU are informed, and would improve on giving treatment and care to ensure a quick and complete recovery from critical illness.

You would be expected to answer a total of 24, questions. Each answer that you give will be chosen from a set range of answers e.g. 1. Never 2. Rarely 3. Sometimes 4. Most of the time 5. All the time. The interview should take approximately 10 minutes from the start to finish.

It would be a wonderful opportunity for you to say how you truly felt and what you have been through. This may not benefit you immediately, but other patients who will experience critical illness and receive treatment to ICU. The result of this research will help nurses and other medical personnel be aware of what patients go through in ICU and will improve on the quality of care given to patients having the same experiences. Proper care plans and interventions can be implemented to ensure that future patients, having similar experiences to yours.

There is a small risk that answering questions could make you become distressed. If you experience this I have arranged that a counsellor be available to do crisis intervention if you require so.

Participation in the study is entirely voluntary, you may choose not to participate or withdraw from the study at any time which will have no effect on the services that you may receive from this institution or the health care provider. This will not affect your treatment in anyway. Anonymity and confidentiality will be ensured by using a code number instead of your real name, personal information will not appear on any research forms or the final report to protect your identification. If you would be interested in the final research findings, I will gladly provide you the details.

Thank you for your time and taking part in research that will benefit patients in a similar situation. Should you have any queries concerning the study, as a participant you are free to contact me, I would be pleased to answer them.

My contact details are

Lilian Jere Sitwala: [ljsitwala@yahoo.co.uk](mailto:ljsitwala@yahoo.co.uk)

Cell: 27604128053

**CRITICALLY ILL PATIENTS' INTENSIVE CARE UNIT EXPERIENCES IN A PUBLIC  
SECTOR ACADEMIC HOSPITAL IN JOHANNESBURG**

**PATIENT CONSENT FORM**

I ..... (Name of the patient) give permission to participate in this study.

I have read and understood the content of information sheet and I have been given the opportunity to ask questions, where deemed necessary, about the study and its procedures

I agree to answer the questions honestly and to the best of my ability. All information will remain confidential and my name will not appear anywhere on the questionnaire.

Number assigned to patient: .....

Date.....

Signature.....

**CRITICALLY ILL PATIENTS' INTENSIVE CARE UNIT EXPERIENCES IN  
A PUBLIC SECTOR ACADEMIC HOSPITAL IN JOHANNESBURG**

**DATA COLLECTION QUESTIONNAIRE**

**1.0 PATIENT DEMOGRAPHIC DATA**

1.1	Research Code Number	<input type="text"/>			
1.2	Age	< 20	20 - 39	40 - 59	60 - 79
1.3	Gender	Male	Female		
1.4	Date of Admission	<input type="text"/>			
1.5	Diagnosis	<input type="text"/>			
1.6	Reason for admission	medical	scheduled surgery	unscheduled surgery	
1.7	SAPS II score on admission	30 - 39	40 - 49	50 - 59	> 60
1.8	Date of Discharge from ICU	<input type="text"/>			
1.9	Total number of ICU days	<input type="text"/>			
1.10	Date of Discharge from hospital	<input type="text"/>			

## 2.0: EVALUATION OF PATIENTS EXPERIENCES IN THE INTENSIVE CARE UNIT

	Statement	Never	Rarely	Some- times	Most of the time	All the time
	<b>Awareness of surroundings</b>					
1	I recognised my relatives					
2	I was aware of some near me					
3	I knew where I was					
4	I knew what was happening to me					
5	I remember my relatives being with me					
6	I felt safe					
7	I felt in control					
8	I was able to let people know what I wanted					
9	I have no recollection of being in ICU					
	<b>Frightening Experiences</b>					
10	I seemed to have bad dreams					
11	I felt scared					
12	I saw strange things					
13	I felt helpless					
14	I thought I would die					
15	I seemed to be in pain					
	<b>Recall of Experiences</b>					
16	I wish I remembered more about it					
17	I wish I had known more about					
18	what was happening to me					
19	I seemed to sleep too much					
20	I never knew whether it was day or night					
	<b>Satisfaction with care</b>					
21	My care could have been much better					
22	My care was good as it could have been					
23	I was constantly disturbed					
24	It was always too noisy					

PERMISSION TO USE THE DATA COLLECTION INSTRUMENT

**From:** Janice Rattray [mailto:j.z.rattray@dundee.ac.uk]  
**Sent:** 02 April 2014 11:38 AM  
**To:** Shelley Schmollgruber  
**Subject:** Re: permission to use ICE instrument

Dear Shelly, thank you for your email. Please feel free to use the ICEQ. I will send this when I return to the office next week. Janice

Sent from my iPhone

On 2 Apr 2014, at 09:25, "Shelley Schmollgruber" <[Shelley.Schmollgruber@wits.ac.za](mailto:Shelley.Schmollgruber@wits.ac.za)> wrote:

Dear Dr Rattray,

My name is Shelley Schmollgruber. I am the Postgraduate research coordinator for the Department of Nursing Education, University of the Witwatersrand. One of my MSc students would like to request your permission to use the ICE instrument in her study (Journal of Advanced Nursing, 2004, pp. 64-73).

We are about to submit the proposal to the postgraduate faculty and our ethics committee for permission to conduct the study. I anticipate the student will finish the study early next year. Should you agree to us using the instrument we would be willing to send you a copy of the proposal once it has been approved by our ethics committee.

Should you require additional information. Please do not hesitate to contact me.

Kind regards

Shelley Schmollgruber

Senior Lecturer: Intensive and Critical Care Nursing

Faculty of Health Sciences

University of the Witwatersrand

Department of Nursing Education.

This communication is intended for the addressee only. It is confidential. If you have received this communication in error, please notify us immediately and destroy the original message. You may not copy or disseminate this communication without the permission of the University. Only authorised signatories are competent to enter into agreements on behalf of the University and recipients are thus advised that the content of this message may not be legally binding on the University and may contain the personal views and opinions of the author, which are not necessarily the views and opinions of The University of the Witwatersrand, Johannesburg. All agreements between the University and outsiders are subject to South African Law unless the University agrees in writing to the contrary.

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APPROVAL OBTAINED FROM HOSPITAL AUTHORITIES



**GAUTENG PROVINCE**  
HEALTH  
REPUBLIC OF SOUTH AFRICA

**CHARLOTTE MAXEKE JOHANNESBURG ACADEMIC HOSPITAL**

Enquiries:  
Ms. G. Ngwenya  
Office of the Nursing Director  
Tell: (011) 488-4558  
Fax: (011) 488-3786  
10<sup>th</sup> June 2014

Ms. Lilian Jere Sitwala  
Department of Nursing Education  
Faculty of Health Sciences  
University of Witwatersrand

Dear. Ms. Lilian Jere Sitwala

**RE: "Critical ill patients Intensive Care Unit experiences in a public sector academic Hospital in Johannesburg"**

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

1. Charlotte Maxeke Johannesburg Academic hospital will not in anyway incur or inherit costs as a result of the said study.
2. Your study shall not disrupt services at the study sites.
3. Strict confidentiality shall be observed at all times.
4. Informed consent shall be solicited from patients participating in your study.
- 5.

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

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

~~Supported / not supported~~

Ms. M.M Pule  
Nursing Director  
Date: 03/07/2014

Approved / not approved

Ms. G. Bogoshi  
Chief Executive Officer  
3/7/2014



**HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL)**  
**CLEARANCE CERTIFICATE NO. M140466**

**NAME:** Ms Lilian Jere Sitwala  
**(Principal Investigator)**

**DEPARTMENT:** Nursing Education  
 Charlotte Maxeke Johannesburg Academic Hospital

**PROJECT TITLE:** Critically Ill Patients' Intensive Care Unit Experiences in a Public Sector Academic Hospital

**DATE CONSIDERED:** 25/04/2014

**DECISION:** Approved unconditionally

**CONDITIONS:**

**SUPERVISOR:** Shelley Schmolgruber

**APPROVED BY:**   
 Professor PE Cleator-Jones, Chairperson, HREC (Medical)

**DATE OF APPROVAL:** 06/06/2014

This clearance certificate is valid for 5 years from date of approval. Extension may be applied for.

**DECLARATION OF INVESTIGATORS**

To be completed in duplicate and ONE COPY returned to the Secretary in Room 10004, 10th floor, Senate House, University.  
 I/we fully understand the conditions under which I am/we are authorized to carry out the above-mentioned research and I/we undertake to ensure compliance with these conditions. Should any departure be contemplated, from the research protocol as approved, I/we undertake to resubmit the application to the Committee. I agree to submit a yearly progress report

  
 Principal Investigator Signature

15/06/2014  
 M140466 Date

PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES

**POST GRADUATE COMMITTEE APPROVAL TO CONDUCT THE STUDY**

# *Gill Smithies*

## *Proofreading & Language Editing Services*

59, Lewis Drive, Amanzimtoti, 4126, Kwazulu Natal

Cell: 071 352 5410 E-mail: [moramist@vodamail.co.za](mailto:moramist@vodamail.co.za)

### *Work Certificate*

To	Lilian Sitwala
Address	Wits Dept of Nursing Education
Date	26/2/2015
Subject	CRITICALLY ILL PATIENTS' EXPERIENCES IN A PUBLIC ACADEMIC HOSPITAL IN GAUTENG, by Lilian Jere Sitwala
Ref	SS/GS/07

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

Masters: Foreward and Chapters 1 to 5 by Lilian Jere Sitwala,

CRITICALLY ILL PATIENTS' EXPERIENCES IN A PUBLIC ACADEMIC HOSPITAL IN GAUTENG,

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

*Gill Smithies*

26/2/2015