

**PRE-OPERATIVE HEALTH EDUCATION FOR
PATIENTS UNDERGOING CARDIAC SURGERY**

by

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submitted in part fulfilment of the requirements for the degree of

MASTER OF ARTS

in the subject

HEALTH STUDIES

at the

UNIVERSITY OF SOUTH AFRICA

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June 2006

DECLARATION

I declare that ***PRE-OPERATIVE HEALTH EDUCATION FOR PATIENTS UNDERGOING CARDIAC SURGERY*** is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references and that this work has not been submitted before for any other degree at any other institution.

.....
Karien Meyer

.....
Date

ACKNOWLEDGEMENTS

I wish to express my appreciation to the following persons:

- *My husband, for his encouragement and belief in me.*
- *My son, for being such a good boy while I completed this study.*
- *My parents, for their confidence and support throughout my studies.*
- *My supervisor, Mrs. M.M. Moleki for her professional expertise.*
- *Mr. C. Tredoux for his academic input and assistance with interpreting the statistics.*
- *My colleagues, for their support with the data collection.*
- *Mrs. K. Lemmer for helping me with the editing of the dissertation.*

I am grateful to God for giving me the opportunity to complete this study, and give Him thanks and praise.

SOLI DEO GLORIA

PRE-OPERATIVE HEALTH EDUCATION FOR PATIENTS UNDERGOING CARDIAC SURGERY

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Abstract

The purpose of this study was to identify the strengths and weaknesses of a pre-operative health education programme provided to cardiac surgery patients at a private hospital in Gauteng.

A questionnaire was used to collect data and indicated that most patients were satisfied with the pre-operative education that they received before their cardiac surgery procedure, and therefore felt well prepared for the operation.

It is, however, evident that family involvement with pre-operative education was not satisfactory. This lack of family involvement is a limitation in the present programme. The study also noted that patients must be informed about visiting hours, and the intense feeling of the endotracheal tube post-operatively should be emphasised.

KEY CONCEPTS

Pre-operative education, pre-operative anxiety, post-operative outcomes, cardiac surgery patients, ICU nursing.

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CHAPTER 1

ORIENTATION TO THE STUDY

1.1 INTRODUCTION

Pre-operative health education of the cardiac surgery patient plays a vital role in the patient's post-operative care and the recovery process. Investing time in preparing cardiac surgery patients pre-operatively assists in eliminating information gaps and prevents post-operative complications (Shuldhham, Fleming & Goodman 2001:666). However, pre-operative health education in cardiac surgery is a complex aspect. It is complicated by the fact that cardiac surgery patients meet a large team of health care providers (van Weert, van Dulman, Bar & Venus 2003:105). Little is known about the health education process concerning interdisciplinary health education (van Weert et al 2003:14). It is therefore beneficial for all parties involved in cardiac surgery to review the process that prepares the patient for cardiac surgery. Comprehensive health education for cardiac surgery patients sets the stage for preventing post-operative complications and improving the patient's operative outcomes (Havrilak, 2005:1).

A number of tests as well as significant clinical education are required before surgery. It is recommended that a pre-admission appointment is scheduled prior to the day of surgery. This will provide time to review the test results and supply education for the patient. Candidates need to be adequately assessed, well educated and prepared both clinically and psychologically before surgery. It is from this premise that this study seeks to assess the pre-operative health education programme offered at a private hospital in Gauteng province, South Africa.

1.2 RESEARCH PROBLEM

1.2.1 Background to the problem

Comprehensive pre-operative education for cardiac surgery patients sets the stage for preventing post-operative complications and improving the patient's outcomes (Havrilak 2005:2). Ideally patients should be admitted days prior to surgery for the pre-operative work up. This ensures that the necessary preparations for cardiac surgery is completed, and could reduce the patient's anxiety. Nelson (1995:29) states that anxious and tense patients may make a slower recovery post-operatively due to psychological and physiological stress. Worried relatives and friends also need reassurance and support from the nursing staff.

Most client's (patients) are somewhat fearful of surgery. The extent to which a client fears surgery depends on his/ her personality, general responses to stress, mental health, past experiences with surgery and preconceptions about surgery and anaesthesia. Some respond by becoming silent, withdrawn, childish, belligerent, evasive, tearful and clingy. Most clients feel helpless when admitted to a health care facility. Therefore health care professionals need to remember that although surgery may be a commonplace for them, it is still a frightening experience for the client (Springhouse 1999:458).

Nurses are ideally placed to provide cardiac surgery patients and their families with the pre-operative health education advice, information and support. The cardio-thoracic nurse coordinator is equipped with appropriate knowledge, skills and time to deliver pre-operative education to the client. Clients and families need to be clear about the operation itself and the likely future effects. Research has shown that providing information decreases patients' anxiety by increasing feelings of control (Walsh 1997:320). Anxiety levels, stress and pain can also be reduced by good pre-operative information. In turn, reduced anxiety might help to shorten hospital stay (Nelson 1995:29).

The statistics in one private hospital in Gauteng did not indicate an increase in the number of cardiac surgery patients over a period of 5 years (see figure 1.1). The cardiac unit in this private hospital was opened in 2001 and consists of 14 beds. From its inception, Intensive Care Unit (ICU) nurses gave pre-operative health education to patients. It is offered when the patient arrived in the ward for elective cardiac surgery and when the patient is admitted to ICU in an acute phase.

As noted, cardiac surgery procedures increased after 2001, but decreased in 2005.

In 2001, 101 (one hundred and one) patients went for a cardiac surgery procedure. This increased a little over the five-year period. In 2002, there were 173 (one hundred and seventy three) patients. In 2003, the patients were 185 (one hundred and eighty five). In 2004, cardiac surgery procedures performed were 183 (one hundred and eighty three). In 2005 161 (one hundred and sixty one) cardiac surgery procedures were performed.

The average amount of cardiac surgery procedures in this private hospital in Gauteng per month is between 12 and 15. This makes it one procedure every second day.

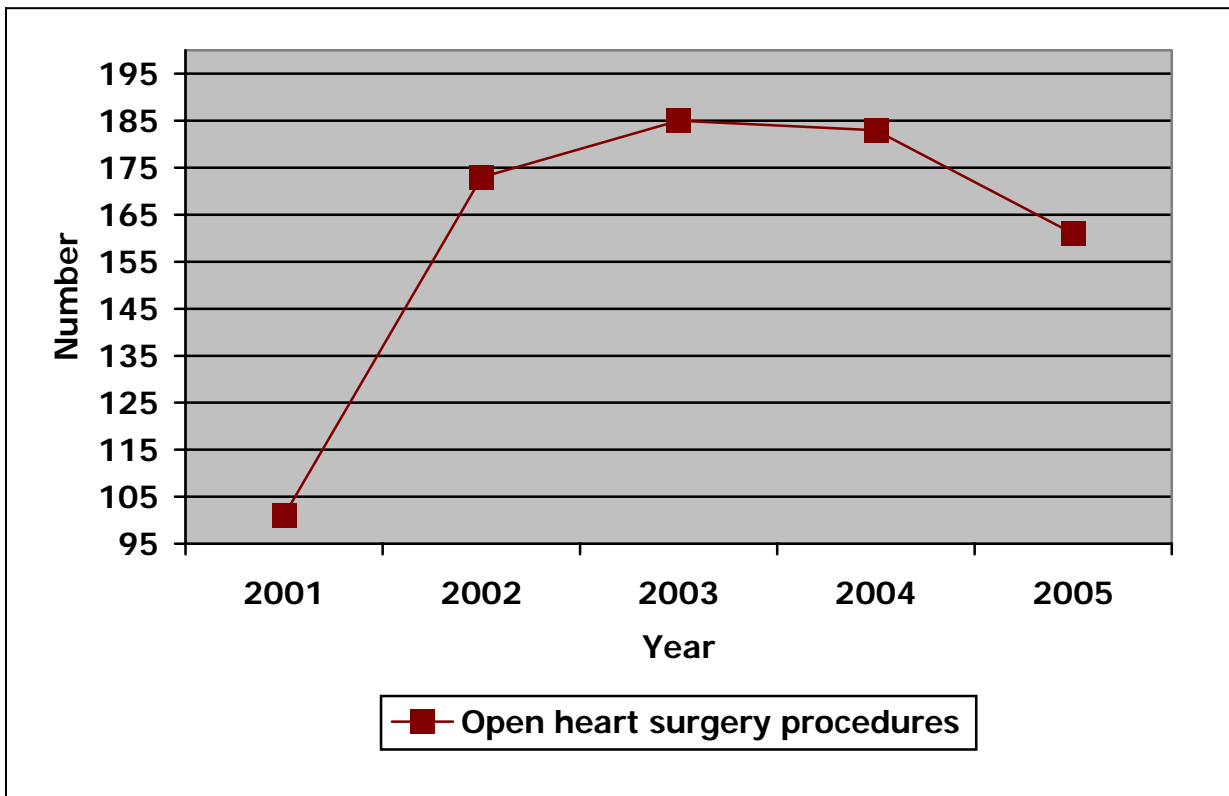


FIGURE 1.1 *Statistics reflecting open-heart surgery in a private hospital in Gauteng from 2001-2005*

1.2.2 Statement of the problem

Cardiac surgery can save lives and improves quality of life. The outcomes of cardiac surgery can be affected by the quality of pre-operative health education provided to these patients. A comprehensive health education programme for cardiac surgery patients sets the stage for preventing post-operative complications and improving patients' outcomes (Havrilak, 2005:1). Investing the time to detail the patients' pre-operative health education will assist in eliminating process gaps which can interfere with the patient's post-operative care.

A study conducted by van Weert et al (2003:105), indicated overlaps and gaps as well as a lack of a patient centred approach in the health education given to cardiac surgery patients. The physicians were over-lapped by the nurses, who spent 30% of the time talking about medical issues. Gaps were found in giving educational information and emotional support, needed to establish effective patient health education.

The quality of pre-operative health education provided to cardiac surgery patients at this private hospital in Gauteng has not been evaluated. This research will therefore strive to evaluate the pre-operative health education programme in use.

1.3 PURPOSE OF THE RESEARCH

The purpose of the study was to identify the strengths and weaknesses of pre-operative health education programme provided to cardiac surgery patients at a private hospital in Gauteng. The research results will be used to enhance the quality of pre-operative health education provided to cardiac surgery patients to assist speedy recovery without psychological complications such as ICU psychosis.

1.4 RESEARCH QUESTIONS

This study I endeavoured to answer the following research questions:

- What are the strengths of the current pre-operative health education provided to cardiac surgery patients at a private hospital in Gauteng?
- What are the weaknesses/ shortcomings of the current pre-operative health education provided to cardiac surgery patients at a private hospital in Gauteng?

1.5 OBJECTIVES OF THE RESEARCH

The objectives of this study are to:

- Describe the strengths of the current pre-operative information given to cardiac surgery patients at a private hospital in Gauteng.
- Describe the weaknesses/ shortcomings of the current pre-operative health education given to cardiac surgery patients at a private hospital in Gauteng.
- To make recommendations to address possible shortcomings in the current pre-operative programme.

1.6 SIGNIFICANCE OF THE STUDY

The pre-operative education of patients who undergo cardiac surgery can have a significant influence on their post-operative care. In the clinical setting, pre-operative education could be useful for nurses. Intensive care nurses are responsible for this education. This study could also be useful in establishing a basis for continuous nursing research regarding pre-operative education of patients who undergo cardiac surgery and its implications in nursing care.

1.7 THEORETICAL FRAMEWORK

This study adopted Roy's adaptation theory of Persons as an Adaptive System (Oermann 1991:44).

Roy's theory provides a conceptual framework to systematically examine how individuals cope and adapt to different environments and stimuli. The goal of this theory is to explain that nurses need to identify the demands placed on clients and how clients adapt to these demands. Therefore, nurses must consider the demands that affect the client physiologically and sociologically and assist them to adapt to these demands.

This theory also defines the adaptation as the adjustment of the individual to internal and external environment. It depicts adaptation as process that occurs continuously, affects change and involves interaction and response. The theory depicts human adaptation as occurring at three levels: The internal (self) the social (others) and the physical (biochemical reactions).

Within Roy's perspective, the goal of nursing is to bring about the person's adaptation modes and to free the energy for response to new changes in the environment. According to this theory, the environment consists of three categories of the stimuli, namely:

- **Focal stimuli**

This is the stimulus that confronts the person immediately. This focal stimulus necessitates a response to or action from the person so that he/ she can deal or cope with it. For example, when a patient goes for cardiac surgery, the operation (focal stimuli) consumes his/ her energy and attention, until some action is taken to ease the stimuli.

- **Contextual stimuli**

In contrast to the focal stimuli, contextual stimuli is present in the environment but outside the person. The ICU environment, which the patient will be taken to post-operatively, could be viewed as the contextual stimuli. In pre-operative health education the client is prepared to adapt to the environment post-operatively, to prevent sensory overload complications and ICU psychosis.

- **Residual stimuli**

These are possible potential factors that may influence the confrontational focal stimuli. Factors such as a lack of family involvement in the pre-operative health education might influence the patient when he/ she has no visitors and this may result in loneliness. While the presence of visitors might give the patient a feeling of being loved and supported by those he/ she loves.

The nursing interventions in this theory involve the management of the stimuli. Pre-operative health education on what to expect post-operatively, could allow the patient to adapt to stimuli that may be caused by the operation and the ICU environment, and adjust well without complications such as ICU psychosis (Oermann 1991:44).

1.8 OPERATIONAL DEFINITIONS USED IN THE RESEARCH REPORT

1.8.1 Pre-operative care

Pre-operative care begins when the decision for surgical intervention is made and ends when the client is transferred to the operative suite. The scope of nursing during this time could include baseline evaluation of the patient (Phipps, Sands & Marek 1999: 470).

1.8.2 Cardiac surgery

This involves opening of the thoracic cavity (thoracotomy) by cardio-thoracic personnel to repair or replace valve defects, and or to perform coronary artery bypass graft (Milander & Bucher 1999:209). In the context of this study, cardiac surgery will refer to open-heart surgery.

1.8.3 Cardiac surgery patient or client

These are patients who suffer from a disease, injury or abnormal state that requires them to undergo open-heart surgery (Stedman's 1997:656). In this study the cardiac surgery patient or client will refer to willing participants who underwent open-heart surgery at a private hospital in Gauteng.

1.8.4 Health education

Health education refers to nursing activities that include giving information, anticipating client's problems, encouraging client action and responsibility for self care and coping (Stanhope & Lancaster 2000:210). This study will refer to health education as the information that is given to the patient who undergoes cardiac surgery.

1.8.5 Health educator

This is a general term for any member of the health care team who provides education (Stedman's 1997: 383). In this study the term 'health educator' will refer to the ICU nurse who provides the pre-operative education.

1.8.6 Intensive care unit (ICU)

The ICU is a specialised area in the hospital where critically ill patients, who need close observation and frequent ministrations, are cared for by highly trained staff (Blackwell's 2002:359). In this study, the term ICU refers to ICU that admits coronary and cardiac surgery patients.

1.9 RESEARCH DESIGN AND METHOD

1.9.1 Research design

A quantitative descriptive design was used in this study. Quantitative research is a formal, objective, systematic process in which numerical data is used to obtain information about the world. This research method is used to describe variables, examine relationships among variables, and determine cause-and-effect interactions between variables (Burns & Grove 2001:26).

Descriptive research provides an accurate portrayal or account of characteristics of a particular individual, situation, or group. Descriptive studies are a way of (1) discovering new meaning, (2) describing what exists, (3) determining the frequency with which something occurs, and (4) categorising information. Descriptive studies are usually conducted when little is known about a phenomenon.

Descriptive studies are designed to give more information about characteristics within a particular field of study. Its purpose is to develop a theory, identify problems with current practice, justify the practice, make judgments or determine what others in the same situations are doing (Brink & Wood 1998: 250).

1.10 POPULATION AND SAMPLE

1.10.1 Population

The population is the entire set of individuals who meet the sampling criteria. An accessible population is the portion of the target population to which the researcher has reasonable access. The sample is then obtained from the accessible population (Burns & Grove 2001:365-366).

The population of this study were patients who underwent cardiac surgery.

1.10.2 Sample

The sample, meaning the accessible population of this study consisted of patients who had open-heart surgery at a specific private hospital in Gauteng. The data will be collected when they are transferred to the ward, before they are discharged from the hospital.

1.11 SAMPLING PROCEDURE

Sampling involves selecting a group of people, events, behaviours, or other elements with which to conduct a study. Sampling determines the most effective way to mathematically acquire a sample that would accurately reflect the population under study (Burns & Grove 2001:365). In this study a purposive sampling was used.

Purposive sampling is a type of non-probability sampling method in which the researcher used his or her own judgment in the selection of sample members. It is sometimes called a judgmental sample (Babbie 1995:227). Available patients were entered into the study on the day of data collection.

1.12 DATA COLLECTION

In quantitative research, data collection involves the generation of numerical data to address the research objective, questions, or hypotheses. During data collection, the study variables are measured through the use of questionnaires (Burns & Grove 2001:50).

In this study a questionnaire in a form of a checklist was used to collect data. According to Treece and Treece (1986:354) a checklist is a prepared list of items on which the respondents indicate their participation in a certain activity. Checklists may come in many forms. The checklist used may provide for only yes or no responses.

However, in view of the fact that the purpose is to identify the strengths and weaknesses in the existing programme, the researcher also included open-ended questions to give respondents the opportunity to indicate areas for improvement within the existing tool.

1.12.1 Data collection procedure

In this study, the checklist was handed over to the participants by the researcher. The checklist consisted of the closed and open-ended questions (See Annexure I). All the patients' data was collected on the same day. All these patients were in the ward on that day although admitted on different days for operations.

1.13 DATA ANALYSIS

Descriptive statistics was used to describe and synthesise the data and to draw conclusions regarding the pre-operative education of cardiac surgery patients. The aid of a statistician was sought for possible inferential statistics (See Annexure II). The data analysis will be discussed in Chapter 4.

1.14 ETHICAL CONSIDERATIONS

The researcher adhered to the ethical prescriptions regarding nursing research. The research proposal was submitted to the Ethics Committee of the University of South Africa (See Annexure III). The participating hospital gave consent before the study commenced (See Annexure IV).

The researcher took care to protect the rights of all participants in this study. Informed consent was obtained from all the respondents in written format (See Annexure V). The researcher explained the purpose of the study and clarified the extent of participation. Anonymity and confidentiality was assured. Nowhere in the questionnaire were the participants requested to indicate their identity. They were assured that participation was purely voluntary and they were free to withdraw at any time without any untoward consequences.

The study had no financial implications for any of the participants or the participating hospital, as the researcher provided everything.

The study yielded no risk for the patients and will have no influence on patients' treatment or care. It was also clearly stated that there will be no financial benefits for participating in the study.

1.15 RELIABILITY AND VALIDITY

Reliability and validity will be elaborated upon in Chapter 3 and briefly defined below:

1.15.1 Reliability

According to De Vos (1998:82,83), reliability refers to the accuracy and consistency of a measuring instrument. An instrument can be considered reliable if it yields similar results on separate occasions.

The following steps were taken to ensure reliability of the measuring instrument:

- A study leader evaluated the questionnaire.
- A pilot study conducted with one patient to make sure that the questionnaire was clear.
- The researcher was present when patients completed the questionnaire, to respond to questions.

1.15.2 Validity

The validity of an instrument is a determination of the extent to which the instrument actually reflects the abstract construct that is being examined. Validity addresses the appropriateness, meaningfulness, and usefulness of the specific inferences made from instrument scores (Burns & Grove 2001:399).

The existing health education programme offered to cardiac surgery patients at a private hospital in Gauteng was used to set up the checklist.

1.16 LIMITATIONS OF THE STUDY

The sample was drawn from one hospital and the findings of the study will therefore be valid for that specific context only. Since the sample will be small, the generalisation of the data will be limited.

1.17 ORGANISATION OF THE REPORT

- **CHAPTER 1**
Background information
This chapter examines the background to the research problem, the rationale behind the study, the significance of the study, the aim and objectives, the research questions, key concepts, the research methodology and ethical implications. The research topic is also reviewed briefly.
- **CHAPTER 2**
Literature review
This chapter includes a thorough literature review of all sources that could be found on the pre-operative education for cardiac patients. It promotes a basic understanding of the research topic and orientates the reader with regard to pre-operative education.
- **CHAPTER 3**
Research design methodology
The research design and method, data collection, population and sampling, validity and reliability, the operationalisation of data collection and the data analysis will be discussed in this chapter.
- **CHAPTER 4**
Data analysis

The data analysis is discussed in detail and the statistics and findings are illustrated by means of graphs and tables.

- **CHAPTER 5**

Findings and recommendations

The conclusions drawn from the data analysis and the recommendations for nursing education and nursing practice are discussed in this chapter. Recommendations for future research will be based on the study's limitations.

1.18 SUMMARY

According to this background information, it is clear that there is still a great deal of research required in this field. Patients who undergo cardiac surgery and their families have certain fears prior to and after surgery. It is our responsibility as nurses to address this problem and to make it easier for them. The literature review will be discussed in Chapter 2.

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

The previous chapter described the orientation to the purpose of this study; the objectives, the theoretical framework and the envisaged methodology were introduced. In this chapter literature on the topic is reviewed. This second chapter highlights the pre-operative health education of cardiac surgery patients as documented in literature.

The pre-operative preparation will assist in eliminating process gaps and identify opportunities to improve organizational communication, patient care and satisfaction. Development of standardized pre-operative open heart surgery orders help to create common practice routines that can reduce errors, improve the staff education, and reduce organizational cost by eliminating unnecessary tests and improving staff efficiencies. When multiple patient care providers are providing patient education it is recommended to script the education ensuring all topics are consistently presented. Poor patient outcomes place the whole open-heart surgery program in jeopardy (Havrilak 2006:1).

2.2 CARDIAC SURGERY

Despite emphasis on modification and preventive risk factors, cardiovascular diseases remain a leading cause of disability and death in the developed countries. Development of new treatments such as thrombolytic therapy, and interventional procedures such as percutaneous transluminal angioplasty, coronary bypass and valve replacements, to mention a few, has improved the medical management of cardiac diseases. Surgical interventions however, remain the treatment of choice for some patients (Urden, Stacy & Lough 2002:466).

Research by Davies (2000:318) has shown that the number of patients who undergo cardiac surgery has increased enormously over the last 20 years. In the United States of America the number of open-heart operations has increased fourfold between 1979 and 1996, with 759 000 operations conducted in 1996. In the United Kingdom, figures provided by the Society of cardio-thoracic Surgeons (1999) indicate that 343 666 open-heart operations were performed in 1997 (Davies 2000:318).

In South Africa, cardiac surgery is classified as major operations because it involves a major organ (the heart) which, if it fails to function, result in termination of life. Since the mid 1970's, dedicated researchers and practitioners have made tremendous advances in surgical intervention and pre-operative care. Surgical procedures and other invasive procedures that were considered last resort measures are now routine. Clients no longer spend weeks in bed following surgery, as was a common practice in the past (Springhouse 1999:449).

However, pre-operative care for patients who undergo cardiac surgery remains a challenge, especially in private practice. Logistical factors such as medical aid costs impact on patients who are admitted days before the operation.

Havrilak (2005:1) is of opinion that cardiac surgery's complexity and expense provides prudent reasons to ensure that candidates are assessed, well educated and prepared for the event. Effective pre-operative education can enhance the patients and family's decision making and the post-operative recovery, thus reducing costly delays and hospital stay.

The study conducted by Davies (2000: 325) revealed that patients and their families felt unsupported once they left the tertiary referral centre. They felt that information from hospital staff and health care professionals lacked. They continued to feel insecure when they assumed responsibility for looking after these patients at home.

2.3 PRE-OPERATIVE PREPARATION

Pre-operative preparation of patients has a physiological and a psychological component. The physiological preparation is similar to that of any other surgery. An important aspect of the psychological preparation is effective pre-operative education, which reduces anxiety and physiological responses to stress before and after surgery. The patient and the family's preparation is an important part of the cardiac surgery as it increases knowledge, decreases anxiety and promotes patient and family involvement (Milander & Bucher 1999:313). The majority of patients experience varying degrees of fear and anxiety while hospitalised before cardiac surgery. Pre-operative nursing aims to alleviate patients' feelings of anxiety (Stengrevics, Sirois, Schwartz, Friedman & Domar 1996:471). Patients' feelings of fear and anxiety are alleviated in nursing care through different forms of social support such as informational, emotional and tangible support (Fortner 1998:3).

Although patients may be hospitalised pre-operatively, most patients are admitted on the morning of the surgery. This approach challenges the health care professionals. It implies that they should have a coordinated system in place to meet the educational needs of patients and their family members. Patients and their families should be prepared for what to expect before, during and after cardiac surgery (Milander & Bucher 1999:313).

The *Standards for Nursing Care* developed by the American Association of Critical-Care Nurses (1989:64) clearly support a holistic approach to the care of the critically ill patient.

A holistic approach is based on the premise that disease is never the result of one causative agent or condition but rather the result of a complex interplay between people and their physical, emotional, cultural, social, and spiritual situations.

To care optimally for patients, nurses must assess all aspects of the patient's response to his/ her illness and hospitalisation, identify the physiologic and psychosocial concerns that may influence the patient's course, and use a variety of interventions targeted to the specific problems identified.

The *pre-operative* phase begins when the decision for surgical intervention is made. This phase ends when the patient is safely transported to the operating room and transferred to the operating room nurse for care. When the patient is moved onto the operating bed, the *intra-operative* phase begins. This period lasts until the patient is admitted to the recovery room. The *post-operative* phase begins with admission to the recovery room and ends with the final follow-up evaluation in the home or in a clinical setting. During all three phases nurses have certain responsibilities (Phipps et al 1999:470).

Cardiac surgery is considered to be a major event for patients, their families, and hospitals. Delays in surgery cause emotional distress for the patient and their family and are costly to the hospital. For these reasons, it is beneficial for all organisations that provide cardiac surgery to review their processes that prepare the patient for operation. Investing time to detail the patient flow processes involved in the pre-operative preparation will assist in eliminating process gaps and identify opportunities to improve organisational communication, patient care and satisfaction. It can be accomplished by instituting a task force/ committee to assist in this area. It is advisable to include departments involved with patient entry points into the open-heart process. These departments are usually the inpatient medical cardiac units, registration area, cardiovascular surgeon office, and cardiac cath lab (Havrilak 2005:1).

Communication is crucial at all stages of the patient's surgical experience and essential to achieve a high standard of patient care (Crawford 1999:12-15). A comprehensive preadmission process for open-heart surgery patients sets the stage for preventing post-operative complications and improving patient outcomes.

The cost and complexity of cardiac surgery should motivate organisations to ensure that the candidates are adequately assessed, well educated and prepared both clinically and psychologically, for the event. These efforts help to achieve programme goals and outcomes (Havrilak 2005:1).

Development of standardised pre-operative cardiac surgery orders help to create common practice routines that can reduce errors, improve staff education and decrease organisational costs by eliminating unnecessary tests and improving staff efficiency. These benefits outweigh the challenge of standardising pre-operative physician orders. The orders set should be approved by the appropriate organisational committees, explained to the staff, and then distributed to the appropriate departments for implementation. Input from the medical staff is essential to this process (Havrilak 2000:1).

2.4 PRE-OPERATIVE VISIT

A pre-operative visit refers to communication between a surgical patient and a nurse in the period before the patient is taken to theatre.

It is an unfortunate truth that most patients enter hospitals and operating rooms with unnecessary fears and anxieties. A great part of this apprehension stems from a lack of knowledge about their illness and the operative procedure that is to be performed on them. The persistence of these anxieties often interferes greatly with smooth post-operative results (Hayward 1975:14).

The ICU nurse's pre-operative visit should be offered systematically and appropriate resources should be safeguarded (Koivula, Tarkka, Tarkka, Laippala & Paunonen-Ilmonen 2002:418). A solid psychological preparation, pre-operatively, contributes greatly to reducing analgesia requirements in the post-operative period (Kalideen 1991:19-22).

The information given by the nurse should be objective and tangible in order to make a frightening situation more bearable and familiar for the patient (Clark, 1997:147-155). Information is not enough to alleviate anxiety. Each patient and their next of kin have a right to receive diverse information pre-operatively (Koivula et al, 2002:419).

According to a study performed by Levey, Dieter, Preston, Smith and Levey (2005:6) pre-operative education for the patient and family is important for post-operative recovery. The study explored specific information on the deleterious effects of the treatment, changes in physical condition, risk factors, convalescence, and knowledge of the disease. A variety of teaching methods were utilised. These included videos that outline the surgery and recovery period, group instruction classes for non-urgent cases, and written educational materials.

If possible, the patient and family should tour the unit and meet staff pre-operatively. This will provide some familiarity with procedure. Establishing a relationship with the nurse pre-operatively, allows the patient and family to develop a sense of trust in the intensive care phase.

Jaarsma, Kastermans, Dassen and Philipsen (1995:25) recommend that pre-operative educational programmes should include a tour to the ICU to help patients understand what to expect after surgery. Research by Parent and Fortin (2000:389) indicated that both patients and family had a decrease in anxiety after cardiac surgery teaching. Most patients who toured the ICU perceived the tour as beneficial and recommended a tour for future patients.

In-hospital anxiety tends to be a reaction to: physical care procedures (such as incubation) and one's tolerance for them, concerns about family members' anxieties, having to depend on others, sleeping in an unfamiliar and uncomfortable bed, and the fact that things are not easy to reach (Best 1992:5).

2.5 STRESSORS

Anxiety and stress are increased in situations where a person cannot control the events involved, and it is thought that information giving reduces uncertainty (Teasdale 1993:1125). Admission to hospital and the prospect of surgery is accepted to provoke anxiety considerably (Teasdale 1995:79). While in intensive care, patients are afraid of being in pain, having tubes in their mouths, being thirsty and not being able to sleep (Cochran & Ganong 1989:1038-). Being placed on a ventilator particularly induces fear of death and anxiety in patients (Halm & Alpen 1993:443). Strong anxiety is also detrimental to recovery (Stengrevics et al 1996:471).

Numerous studies have demonstrated the positive relationship between anxiety and pain; patients who are less anxious experience less pain.

A structured counselling programme has been found to significantly reduce anxiety in cardiac patients, both immediately and in the long run (Mott 1999:41). Relatives of patients awaiting cardiac surgery have significantly higher frequency of anxiety, depression, irritability and sleep disorders (Bengtson, Herlitz, Karlsson & Hjalmarson 1996:257).

However, research reports are in conflict as to the effects of patient education and social support on patients' fears and anxiety (Linden, Stossel & Maurice 1996:843). The adjustment when awaiting surgery is often characterised by high levels of anxiety and anticipation (Bergmann, Huber, Machler, Liebl, Higghofer-Szalkay, Rehak & Righler 2000:13(2)).

Additional concerns may include: helplessness, fears of impairment, seriousness of the surgery, fears of dying, future plans, post-operative pain, and the appearance of incisions (King 1985:579).

Stressors are situational demands that disrupt smooth functioning and interfere with understood meanings in one's life. Almost universally, critically ill patients recognise noise, lack of sleep, social isolation, enforced immobility, pain from procedures, and poor communication with staff as stressful (Rakoczy 1977:280).

A critical illness that involves hospitalisation in a critical care unit by itself creates predictable stressors (Wilson 1987:267). Pain, separation from support systems, fear, and anxiety related to death are all aspects of an illness that can lead to feelings of vulnerability. The critical care environment itself can lead to decompensation and ineffective coping.

Radwin (1987:258), in a summary article on patients with acute pain, cites several studies that demonstrate that patients who learn about the potential pain and discomfort of upcoming procedures as well as methods to reduce pain experience less subjective pain. In some cases, patients have been able to decrease the amount of analgesia used and even the length of the hospital stay. Teaching patients about the procedural and sensory components of upcoming treatments can reduce pain and increase feelings of self-control. It is also an example of facilitating problem-focused coping.

Interviews with patients, who had been mechanically ventilated, revealed the specific stressors associated with that experience (Gries and Fernsler 1988:52). Immobility, positive pressure ventilation, insufficient explanations, suctioning, and extubation were some of the situations that were identified by patients as stressful.

Helping to prepare patients by giving simple, clear pre-procedural information to reduce the impact of specific stressors is an important intervention that nurses can use. However, in the study mentioned of patients undergoing mechanical ventilation, most patients were unable to recall specific nursing interventions conducted. Patients did recall reassuring words, the nurse's presence and caring manner.

Studies like these help nurses understand the patient experience and allow them to plan their interventions accordingly (Clochesy, Breu, Cardin, Whittaker & Rudy 1996:52).

2.6 EDUCATION

Patients who undergo cardiac surgery are most afraid of pain, deterioration of health and uncertainty.

Being dependent on staff and possible economic problems induces levels of fear. When emotional support is high, patients' fears are significantly lower as compared to when there is no support at all (Koivula et al 2002:418).

Multi-professional counselling reported the highest fear levels. Reasons for this could be that the counselling did not fit in with the patient's coping style (Mitchell 1997:356) or failed to meet the patient's individual need for information or different occupational groups may provide conflicting information (Cortis & Lacey 1996:674).

Earlier research suggests that cardiac patients rate the support provided by their family as most important (Lamarche, Taddeo & Pepler 1998:390). The patient's spouse, especially experiences fears and therefore needs support and information (Stewart, Davidson, Meade, Hirth & Makrides 2000:1351). It would thus be advisable to improve the position of next of kin in the pre-operative phase.

Patients also need support: acceptance of their feelings of fear and helplessness, encouragement to express feelings, reassuring discussions and touching (Fortner 1998:3). The need for social support and specifically emotional support increases in stressful situations such as cardiac surgery (Hildingh, Segerston & Fridlund 1997:5).

Koivula et al (2000:437) found that nurses can influence pre-operative well being in cardiac surgery patients significantly, by alleviating fear and anxiety through social support. It would be advisable to offer ample social support and information to those who experience intense fear and anxiety because this benefits patients.

Since a number of tests and significant clinical education is required it is recommended that a pre-admission appointment be scheduled prior to the day of surgery. This provides time to supply the patient with comprehensive education and to review the test results.

A standardised patient education session is a major component of the patient's surgical preparation. One of the first steps should be to determine who would be involved in the education process. The cardiac care coordinator, clinical nurse specialist, or cardiovascular unit staff nurses are good choices to provide this education. When multiple patient care providers conduct patient education it is recommended that the education be scripted to ensure that all topics are presented consistently. Many hospitals' heart programmes now offer pre-operative cardiovascular patient education online through their website. This is another educational opportunity that compliments the individualised approach.

The patient education session should be brief as to not frighten the patient, but should review major care components such as monitoring, invasive lines, tubes, and alarms. Most patients want to know when the lines and tubes are inserted and how long they will remain there. Ambulation protocol should be explained so that the patient can anticipate getting out of bed shortly after they awake from surgery. The educational session is also a good time to review specific discharge issues like the expected length of stay and need for someone to stay with them the first few days following discharge. A tour of the post-operative recovery unit allows the patient and their family to visualise the high level of care that will be provided. This can start the surgical experience off on a favourable note (Havrilak 2000:2).

Consistent communication throughout the patient's stay in the critical care unit is essential. An individualised care plan, specific to patient and family's needs, is reported to produce greater satisfaction and lower anxiety levels, thus enabling the spouse to support the surgery patient better (Davey, Bartley & Blane 1990:373).

Teaching should be timed carefully, as pain, anxiety and sleep deprivation may interfere with the patient's receptiveness to the information provided. It is important to normalise these feelings for the patient (Levey et al 2005).

Vicarious experience through peer support may help surgery patients to cope better with the experience. One-on-one support given by former surgery patients to current surgery patients may be effective in lowering anxiety, rising efficacy expectation, and increasing self-reported activity (Davey et al 1990:373).

Levey et al (2005) suggest that the following should be discussed pre-operatively:

- Approximate schedule for the day of surgery, including expected length of the surgery, communication sources and post-operative visitation schedule.
- What the patient should expect – intravenous lines, endotracheal tube (inability to talk, etc.), incisions and dressings. Also, their role in post-operative recovery, i.e. deep breathing and coughing.

Evidence suggests that the need for diagnostic and treatment information is consistently high across the various phases of chronic illness. Patients also have a need to be understood, relative to services they believe are required to control their illness. Although these needs rank high in a hierarchy of needs across all phases of chronic illness, it is not known if these needs continue during a crisis that requires critical care hospitalisation (Salmond 1987:39).

Therefore, critical care nurses must assess what, if any, information patients and families require. The belief that more information is always best for all patients under all circumstances is not documented by current research (Burckhardt 1987:543). The nurse must look for cues that indicate that the patient seeks information, and the type of information requested.

2.7 ADULT TEACHING

In the mid- 1960's Malcolm Knowles first used the term "andragogy" to describe adult learning. Whilst pedagogy is generally used to describe the "the science of teaching children" andragogy relates to the, " the art and science of helping adults learn" (Knowles 1970:3). Knowles was the first to clearly theorise how adults learn and describe adult learning as a process of self directed inquiry.

Knowles argued that:

- Adults have a need to know why they should learn something. The adult has to consider it important to acquire the new skill knowledge or attitude.
- Adults have a need to be self-directing and decide for themselves what they want to learn.
- Adults have a far greater volume and different quality of experiences than young people so that connecting learning experiences to past experience/s can make the learning experience more meaningful and assist the participant to acquire the new knowledge.
- Adults become ready to learn when they experience a life situation where the need to know.
- Adults enter into the learning process with a task centred orientation to learning.
- Adults are motivated to learn by both extrinsic and intrinsic motivation.

Knowles' theories have formed the basis of much of the current adult learning theory. So how can these theories be applied to the world? As a nursing educator you can provide real or simulated experiences through which the learner can experience the positive benefits of knowing and the negatives of not knowing. Teaching should be commenced by creating a climate of mutual trust and clarification of mutual expectations with the learner. (<http://www.southerhealth.org.au/cpme/articles/adult.learning.htm>).

Allow for as much choice as possible in making decisions during the learning experience. The teacher (ICU nurse) needs to create a mechanism for mutual planning to help adults diagnose their needs during the cardiac surgery period. The objectives and the learning activities can be designed specifically to suit their needs (<http://www.southerhealth.org.au/cpme/articles/adult.learning.htm>).

Part of being an effective instructor involves understanding how adults learn best. Compared to children and teens, adults have special needs and requirements as learners. Despite the apparent truth, adult learning is a relatively new area of study. As mentioned the field of Malcolm Knowles pioneered adult learning. He identified the following characteristics of adult learners. He identified the following characteristics of adult learners:

- Adults are autonomous and self –directed. The need to be free to direct themselves. Their teachers must actively involve adult participants in the learning process and serve as facilitators for them.
- Adults have accumulated a foundation of life experiences and knowledge that may include word-related activities, family responsibilities and previous education.
- Adults are goal-orientated. They want to know the goal they want to obtain.
- Adults are relevancy-orientated. They must have a reason for learning something.

- Adults are practical. They may not be interested in knowledge for its own sake.
- As do all learners, adults need to be shown respect. Instructors must acknowledge the wealth of experiences that adult participants have (Lieb 1991:1).

Where someone's life is at stake it is very important to give the information needed. People have a great fear for open-heart surgery and should be educated as adults pre-operatively.

2.8 CONCLUSION

Misinformation about the heart condition and poor communication with clinical staff are predictors of negative rehabilitation outcomes (Lewin 1993).

Achieving optimum patient outcomes has always been the primary focus of healthcare providers. The degree to which any healthcare discipline can impact outcomes varies since patient outcomes are multiple and diverse (Whitman 2004:293).

Research that links psychosocial factors has taken many directions. These directions have been influenced by, amongst others, researchers' inability to conclusively explain why some people become ill and others remain well even when they have been exposed to the same pathogens. The course of illness is heavily influenced by the individual's psychological and social milieu (Benner 1984).

In this chapter, a review of the literature about cardiac surgery was described. Research design and methodology will be discussed in Chapter 3.

CHAPTER 3

RESEARCH DESIGN AND METHODOLOGY

3.1 INTRODUCTION

A quantitative descriptive research design was used to describe the pre-operative health education programme offered to cardiac surgery patients. The statement of the problem and the nature of data that would be generated to address the research question influenced the choice of the quantitative design.

3.2 RESEARCH DESIGN

The design is seen as the structural frame of the study (Burns & Grove 2001: 795). The study's design helps the researcher to plan and implement the study towards answering the research questions. The researcher adopted a quantitative descriptive design. This design choice was based on the fact that the data was presented numerically in percentages and frequencies. Below is a detailed explanation of the design.

3.2.1 Quantitative design

Quantitative implies that the study uses quantification for the measurement of data (Polit & Hungler 1997:466). The research design in a quantitative study explicates the strategies that the researcher plans to adopt to develop information that is accurate and interpretable (Polit & Hungler 1997:153).

3.2.2 Descriptive design

Description involves identifying and understanding the nature of nursing phenomena and, sometimes, the relationships between the phenomena (Burns & Grove 2001:4).

Descriptive study design can be used in a study when:

- The researcher identifies a phenomenon of interest and variables within the phenomenon;
- The researcher develops conceptual and operational definitions of the variables; or when
- The researcher describes variables.

The description of the variables leads to an interpretation of the findings' theoretical meaning and provides knowledge of the variables and the study population that can be used for future research in the area (Burns & Grove 2001:30). According to Waltz and Bausell (1981), a descriptive study design is used for developing theory, identifying problems with current practice, justifying current practice, making judgment, or determining what others are doing in similar situations. A descriptive study design provides an accurate portrayal or account of characteristics of a particular individual, situation or group. In this study, a descriptive design was used to describe the pre-operative health education offered to patients undergoing cardiac surgery.

3.3 POPULATION AND SAMPLING

3.3.1 Population

Population is described as all the elements or subjects that meet the criteria (Burns & Grove 2001:806). In this study, the population consisted of patients who have undergone cardiac surgery.

3.3.2 Sample

A sample is a portion or subset of a population selected to participate in the research (Burns & Grove 2001: 810).

A purposive sample was used in this study. This sample was chosen because patients were selected based on preselected criteria. Typically, purposive sampling is used to study groups not well represented in the population. The sample consisted of post-operative cardiac surgery patients at a private hospital in Gauteng.

The inclusive criteria included:

- The patient had to have had cardiac surgery.
- The patient still had to be admitted at this hospital during data collection.
- The patient had to have had pre-operative education.

3.4 DATA COLLECTION INSTRUMENT

A checklist developed by the researcher that contained both closed and an open-ended questions, was used as research instrument. It was used to determine facts about the education given to cardiac surgery patient's pre-operatively at this particular private hospital.

According to Treece and Treece (1986:353), a checklist is prepared items in which the respondents indicate their participation in a certain activity. Checklists are used to ensure that no task is left undone.

The advantages of a checklist questionnaire were: it only required pen and paper; it could be completed though mail and the resulting data is in definite categories because the subjects either engaged or did not engage in the activity.

The distinctive disadvantages of a checklist are:

- It does not supply an opportunity for respondents to classify their judgment.

- It is a rigid method in both question and the responses.
- Extra time must be planned for pre-testing and validating the instrument.
- The respondent is required to make a forced choice response, so each item must be carefully worded and based on the research purpose.

Since its inception the tool employed open-ended questions, which allowed the respondents to state their opinions. This overcame the above disadvantages.

To enhance the protection against bias in this descriptive study, the following precautions, as described by Burns and Grove (2001:248), were taken:

- A valid and reliable instrument for data collection was used.
- The data collection procedure achieved some environmental control.
- Precise and replicable criteria were established before the population was assembled.
- It was decided that only six patients would be included in the study, because there were only a few patients who underwent cardiac surgery at the time.

Attention was paid to the following aspects in the development of a the checklist:

- The development phase.
- The compilation of the questionnaire.
- The refinement of the questionnaire.
- The confirmation phase.

➤ **THE DEVELOPMENT PHASE**

A thorough literature review was conducted to assess the most important aspects that had to be included in this questionnaire.

Based on this information, a questionnaire that captures all relevant data in a consistent and organised manner was compiled.

An information leaflet accompanied the questionnaire and contained the following:

- A covering letter indicating the (i) purpose of this study (ii) the name of the researcher and a contact number and (iii) institution supporting this study.
- An informed consent letter.

➤ **COMPILATION OF THE QUESTIONNAIRE**

The questionnaire consisted of itemised questions. Space was provided for the respondents' answers. It was important that the patient's treatment was not influenced by the completion of questionnaires. To ensure this, the questionnaires were handed out at 11 o'clock in the morning when doctor's rounds were finished.

➤ **REFINEMENT OF THE QUESTIONNAIRE**

Two registered nurses who have expertise in the field of intensive care nursing were given the tool for pre-testing to secure content validity. Corrections were made to the final tool based on their suggestions.

The tool was also pre-tested on one patient who had had open-heart surgery. This patient was not included as a participant in the final study. He indicated that he understood all the questions, and no changes were required.

➤ **CONFIRMATION PHASE**

The questionnaire was revised, and presented to the Research Ethics Committee of the Faculty of Health Sciences at the University of South Africa for approval.

3.5 VALIDITY AND RELIABILITY

3.5.1 Reliability

According to Polit and Hungler (1997:295) reliability is “...the degree of consistency with which the instrument measures the attribute.” Reliability is a matter of whether a particular technique, applied repeatedly to the same object, would yield the same result each time. Reliability does not ensure accuracy any more than precision ensure it. Even total reliability does not ensure that our measures measure what we think they measure (Babbie 1995:124).

Reliability of the research process was ensured through the following steps:

- A study leader evaluated the questionnaire.
- A pilot study was done on one patient to rule out any uncertainties or ambiguity in the questionnaire.
- The researcher was present while the patients completed the questionnaires. No questions arose.

3.5.2 Validity

Validity refers to the degree to which an instrument measures what it is supposed to measure (Polit & Hungler 1997:229). *Internal validity* is defined as the degree to which results are a true reflection of the truth and the realities that are being researched (Burns & Grove 1997:230).

There are numerous yardsticks for determining validity: face validity, criterion-related validity, content validity, and construct validity (Babbie 1995:129). Asking the patients to be as truthful as possible when completing the questionnaires secured this.

Validity was also promoted by the following:

- All questionnaires were completed under the researcher's supervision, and therefore, no questionnaires were removed from the environment.
- The patients completed the questionnaires themselves.

External validity is defined as the degree to which the results of the study can be generalised to settings or samples other than the ones studied (Polit & Hungler 1997:457). This study was conducted in one hospital only, and therefore the sample is not necessarily representative of the larger population. The results of this study cannot be generalised to samples or settings other than the one studied.

Construct validity is defined as the degree to which an instrument measures the construct under investigation (Polit & Hungler 1997:454). The theme of this research was pre-operative health education given to cardiac surgery patients. The researcher followed this theme throughout the study.

Content validity is concerned with the sampling adequacy of the content area being measured (Polit & Hungler 1997:300). In this study the researcher ensured content validity through a thorough literature review and the use of expert opinions in the development of a questionnaire.

3.6 DATA COLLECTION PROCEDURE

The researcher explained the purpose of the study to each patient. The hospital was consulted and written permission obtained before the study commenced. The anonymity and confidentiality of each participant was assured, as information obtained would not be linked to their names in any way.

The questionnaires were handed out on the same day between 11 and 12 o'clock in the morning. The researcher was present while the patients completed the questionnaire. Six patients participated in the study. Consent was obtained from the patients before the questionnaires were handed out.

3.7 CONTROL OF EXTERNAL VARIABLES

Control of external variables contributed to the validity and reliability of the study. After an extensive literature review and questionnaire implementation, the researcher identified the following external variables:

- No family members or other nursing staff was present during the completion of the questionnaire. Patients could therefore not be influenced.
- The nursing staff that did the specific pre-operative education was not aware of the study.
- Only patients who had uncomplicated surgery participated.

3.8 ETHICAL CONSIDERATIONS

The researcher adhered to the ethical prescriptions regarding nursing research. The research protocol was submitted to and approved by the University of South Africa, Faculty of Health Sciences Ethics Committee.

The researcher ensured the protection of the participants' rights. Written consent was obtained from the patients themselves, and their names were not revealed. The researcher explained the purpose of the study and clarified the extent of participation.

This study had no cost implications for any patients or the hospital involved. There was also no financial benefit for participating in the study. The questionnaires were printed and bonded by the researcher.

3.9 DATA ANALYSIS

The data analysis will be discussed in Chapter 4. The analysis was done by means of descriptive statistics and interpreted and presented in frequencies and percentages. The process of data analysis is largely a search for patterns of similarities and differences - followed by an interpretation of those patterns (Babbie 1995:303).

3.10 CONCLUSION

This quantitative descriptive research study aimed to establish the impact of providing pre-operative education to cardiac surgery patients. A checklist for data collection was developed based on a thorough literature review. Intensive care specialists reviewed the tool and their advice and suggestions were incorporated. The study involved only one hospital, and questionnaires were completed under the researcher's supervision. The researcher aimed to limit external variables. As the sample was small, special precautions such as precise and replicable inclusion criteria were established in advance to enhance the reliability and validity of the study. The data analysis will be discussed in Chapter 4.

CHAPTER 4

DATA ANALYSIS

4.1 INTRODUCTION

In this chapter, the data analysis is discussed. Six respondents were included in this study (n=6). An already existing pre-operative education programme was used to design a questionnaire that could capture all relevant data. The data was divided into 4 sections:

- Section A: Biographic data
- Section B: Pre-operative health education
- Section C: Post-operative information
- Section D: Areas for improvement

The data analysis and data interpretation is presented simultaneously. Conclusions were drawn and presented in the form of percentages, graphs and tables. The researcher used descriptive statistics to describe and synthesise the obtained data. Averages and percentages are examples of descriptive statistics (Polit & Hungler 1997:321). The researcher used statistics to describe and draw conclusions about the pre-operative education given to cardiac surgery patients in a private hospital in Gauteng. All answers to open-ended questions were included in the study by means of keywords.

Six respondents that met the inclusive criteria as stipulated in Chapter 3 were included in the study. To ensure anonymity, a number was assigned to each participant in order of appearance. A discussion on the analysis of the results follows.

SECTION A: BIOGRAPHIC DATA

ITEM 1: AGE OF RESPONDENTS (n=6)

Coronary artery disease has a long latent period. It is an insidious, progressive disease that results in coronary arterial narrowing or complete occlusion (Urden et al 2002: 395). Valvular diseases have different etiologies. Stenosis or regurgitation of the different valves can be a result of aging, secondary to certain diseases or a birth defect (Phipps et al 1999: 717). This is the reason for all respondents to be mature. Five (83%) respondents were between the ages of 60 and 69 years. Only one (17%) was above 70 years.

The age distribution is illustrated in Table 4.1 on this page.

TABLE 4.1: Age of the respondents

AGE	n	%
60 - 69	5	83
70 and above	1	17
Total	6	100.00

ITEM 2: GENDER (n=6)

In this item, the genders of the respondents were recorded.

Three (3) of the respondents, representing fifty per cent (50%) of the sample, were male and three (50%) were female. This was coincidental; the researcher did not plan to include an equal amount of male and female study participants.

The genders of the respondents are illustrated in Figure 4.1 on page 41.

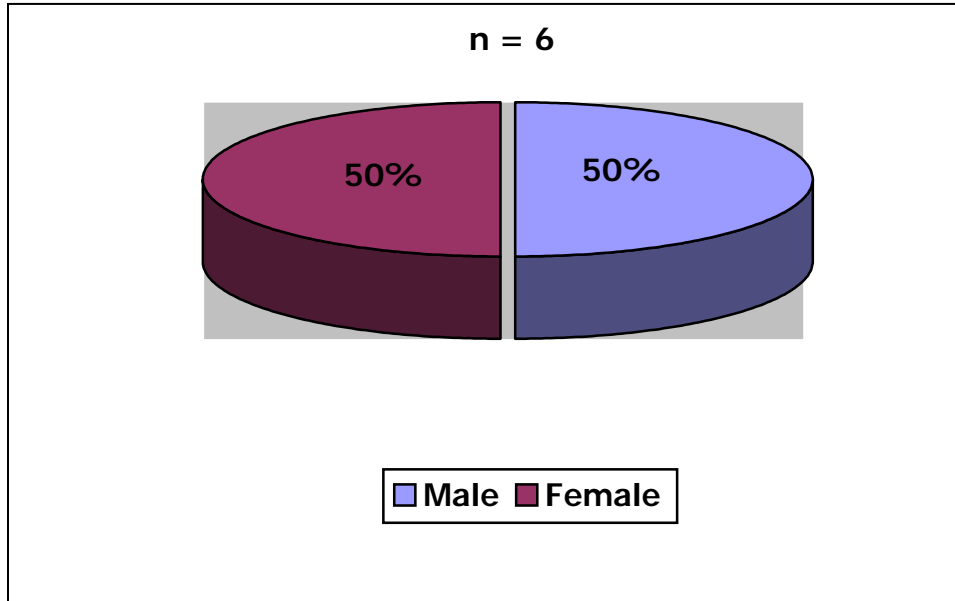


FIGURE 4.1: Sector diagram indicating the respondents' genders

ITEM 3: OCCUPATIONS OF RESPONDENTS (n=6)

In this item the respondents' different occupations were recorded. This was done to determine if the occupation had anything to do with the nature of the operation. It was found that four (4), 67% respondents were pensioners, one (1), 17% was a teacher and one (1), 17% was a broker.

The different occupations are illustrated in Table 4.2 on this page.

TABLE 4.2: Occupations of the respondents

OCCUPATION	n	%
Pensioner	4	67
Teacher	1	17
Broker	1	17
Total	6	100.00

ITEM 4: TYPE OF OPERATION (n=6)

Coronary artery bypass surgery implies that vein grafts or other conduits are used to shunt blood from the aorta to branches of the coronary arteries, to increase the flow beyond the local obstruction (Stedmands concise 1997:121). Valve replacement is a surgical procedure where an existing valve is replaced with either a mechanical or biological valve to relieve stenosis or incompetence (Stedmands concise 1997: 928). Four (4), 67% respondents had a bypass and two (2), 33% a bypass and valve replacement.

The type of operation respondents had is illustrated in Figure 4.2 on this page.

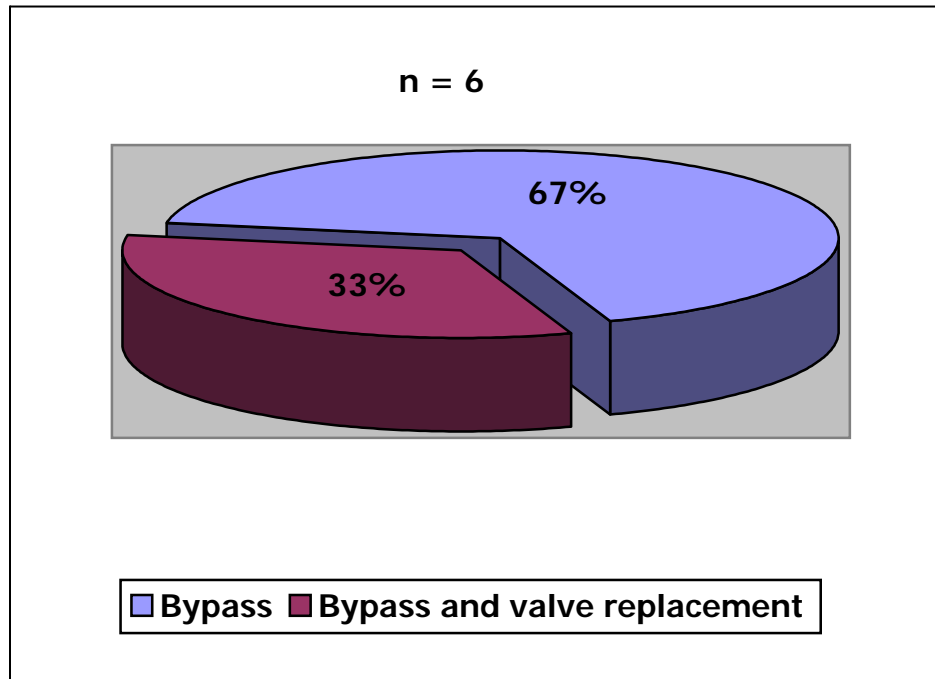


FIGURE 4.2: Sector diagram indicating the operation types

ITEM 5: NUMBER OF DAYS POST-OPERATIVELY (n=6)

Four (4), 67% respondents were 2-3 days post-operative and two (2), 33% were between 4 and 5 days post-operative. The researcher concluded that the respondents had had adequate stay in intensive care, and could respond appropriately to the questionnaire.

The number of days post-operative is illustrated in Figure 4.3 on this page.

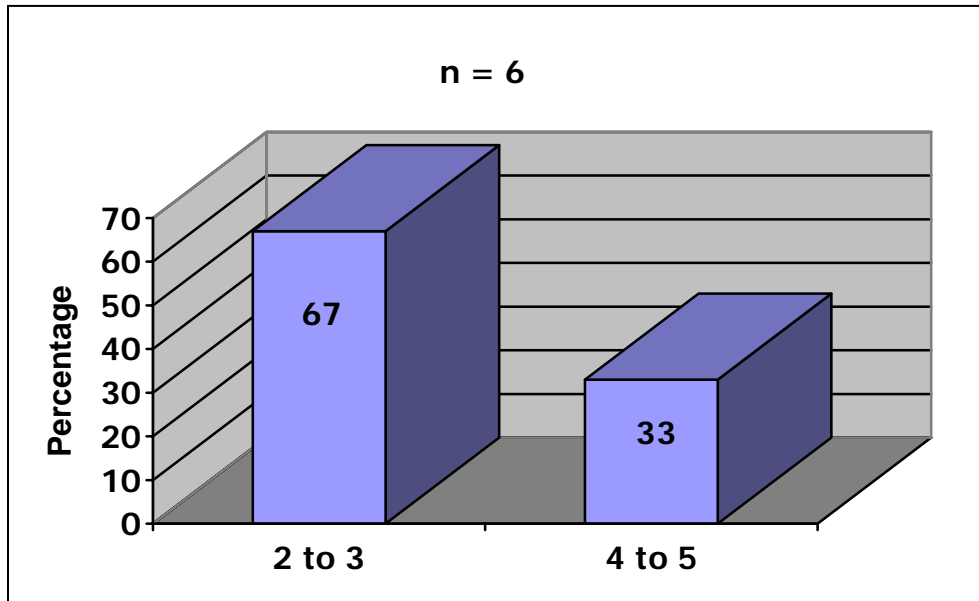


FIGURE 4.3: *This indicates the number of days post-operative*

SECTION B: PRE-OPERATIVE HEALTH EDUCATION

This section focused on the external variables that could have influenced the level of pre-operative education given to the patients. This information was of importance to this study, as it could have influenced the respondents' stay and their response to post-operative recovery.

All these aspects are concluded in table 4.3 on page 47. These aspects include:

- Admission day;
- Visitation by the ICU nurse;
- Blood ordering;
- Consent given for a blood transfusion;
- Placement of infusions;
- Reason for an urine catheter;
- Connection to ventilator;
- Inability to speak;

- Restricted mobility;
- Visitation to ICU prior to the operation; and
- Explanation of the monitors.

ITEM 6: ADMISSION DAY (n=6)

The day of admission had to be determined to see if there had been enough time for the ICU staff to conduct pre-operative education. Due to its intensity, cardiac surgery requires several preparations before the patient can go to theatre. This pre-operative preparation includes: x-rays, lung tests, ECG's, bowel, bladder and skin preparations, visits from the anaesthetist and surgeon, a visit to ICU and psychological preparation. It is important to confirm the medical aid's permission that the patient can be admitted the day before surgery for these preparations. All the respondents were admitted to hospital the day before the operation, which makes it 100%.

ITEM 7: VISITATION BY THE ICU NURSE (n=4)

This question was confusing for some of the patients, as it did not apply to all of them. Two (2), 33% patients were admitted to the ICU before the operation and therefore had contact with the ICU nurse. The other four (4) respondents were admitted to the ward and the ICU nurse visited 100%.

ITEM 8: BLOOD ORDERING (n=6)

In this private hospital in Gauteng blood is not ordered routinely. The surgeon assesses each patient's haemoglobin individually and he/ she decides if blood must be ordered. It was coincidental that blood was ordered for all the respondents. All the respondents, 100%, knew that blood was ordered.

ITEM 9: CONSENT FOR BLOOD TRANSFUSION (n=6)

It is a basic patient right to decide if you are willing to receive blood products or not. Patients can therefore refuse blood products. It is important to get consent from patients prior to major surgery in case blood loss is excessive and a transfusion becomes necessary. All respondents, 100%, gave consent to receive blood and blood products, if necessary.

ITEM 10: PLACEMENT OF INFUSIONS (n=6)

Patients are restricted to bed and unable to move all extremities freely, due to all the gadgets and infusions that are necessary for intra- and post-operative care. Patients must know the infusion sites, to enable them to cooperate during the recovery phase. All of the respondents (100%) said that they knew exactly where the infusions are going to be placed.

ITEM 11: REASON FOR A URINE CATHETER (n=6)

A urine catheter is very uncomfortable and sometimes patients complain of a burning sensation. It is important that patients know that they are going to have a catheter and that they will not be able to urinate on their own for the first few days after surgery. In the case of this question, five (5), 83% respondents knew why a urine catheter was necessary, only one (1), 17%, respondent did not know.

ITEM 12: CONNECTION TO VENTILATOR (n=6)

This variable was important since the respondents would have been confined to bed, unable to speak and experience some vocal hoarseness post-operatively. Cardiopulmonary bypass is a mechanical means of circulating and oxygenating a patient's blood while diverting most of the circulation from the heart and lungs during cardiac surgical procedures.

While a patient is still under sedation, he/ she has to breathe (Urden et al 2002: 468). All six (6), 100% respondents knew that they would be connected to a ventilator.

ITEM 13: INABILITY TO SPEAK (n=6)

Intubation means that a tube is inserted through the nose or mouth into the trachea to maintain the airway during anaesthesia. As a result the patient is unable to speak (Stedmans concise 1997:451). Six (6) respondents (100%) knew that they be unable to speak due to the tube.

ITEM 14: RESTRICTED MOBILITY (n=6)

As explained, patients are connected to gadgets for post-operative observation and recovery after cardiac surgery. All the respondents (6), 100% knew that these invasive gadgets would restrict their mobility.

ITEM 15: VISITATION TO ICU PRIOR TO THE OPERATION (n=4)

This question also confused the respondents who were admitted to ICU before the operation. Two (2) respondents were admitted to ICU and four (4) visited the ICU before the operation. This response is congruent to the response that the respondents gave in Item 7.

ITEM 16: EXPLANATION OF THE MONITORS (n=6)

In an intensive care unit, patients are monitored with different kind of monitors, for example a cardiac monitor. It is necessary to inform patients that every monitor has an alarm that will go off sometimes. They need not worry about this, because a professional nurse will be allocated to him/ her for every 12-hour shift. In this item, all six (6), 100% respondents answered that the monitors were explained.

TABLE 4.3: Pre-operative information

	Yes	No	Not applicable	Total
	%	%	%	n
1. Admission day	100	0	0	6
2. Visited by ICU nurse	67	0	33	6
3. Blood: ordered and consent	100	0	0	6
4. Placement of infusions	100	0	0	6
5. Reason for urine catheter	83	17	0	6
6. Connection to ventilator	100	0	0	6
7. Inability to speak	100	0	0	6
8. Restricted mobility	100	0	0	6
9. Visitation to ICU	67	0	33	6
10. Explanation of monitors	100	0	0	6

ITEM 17: PRESENCE OF FAMILY DURING ORIENTATION (n=6)

A support structure is important for any patient who faces a surgical procedure. Families must also be orientated about the operation that their loved one will undergo. This ensures that the family will know what to expect afterwards in ICU. It is important to always maintain patient confidentiality. Four respondents' (4), 67% families were present during orientation, unfortunately the other two (2), 33% were not present. There could be variables that influenced this question; for example, family may live far from the hospital and certain families may not want to know about the operation.

This item is illustrated in Figure 4.4 on page 48.

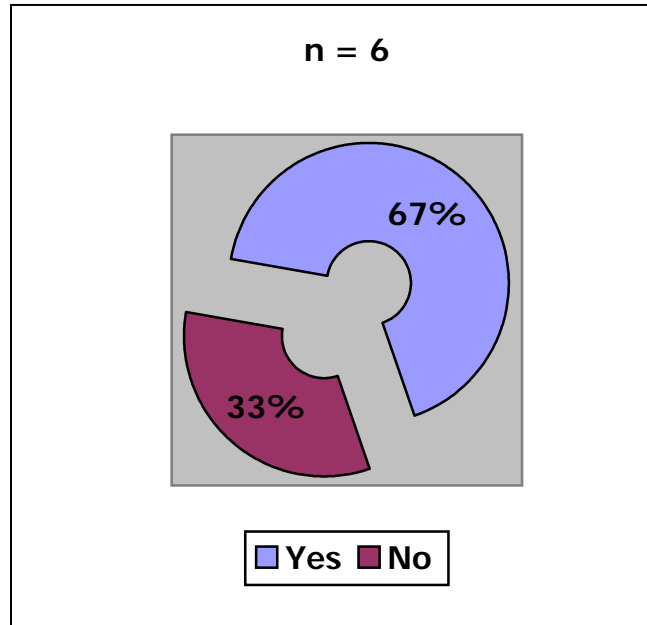


FIGURE 4.4: Sector diagram indicating families who were present during orientation

ITEM 18: INFORMATION ABOUT VISITING HOURS (n=6)

There was an overall negative response to this question. Unfortunately six (6), 100% respondents were not informed about visiting hours.

This is illustrated in figure 4.5 on Page 49.

ITEM 19: VISITATION WHEN WISHED

Out of the six (6) respondents, four (4), 67% stated that their families could visit them when they wished to, and the remaining two (2), 33% were restricted. In this item it is clear that there is not consistency regarding this issue in the participating ICU.

Item 19 is illustrated in figure 4.5 on Page 49.

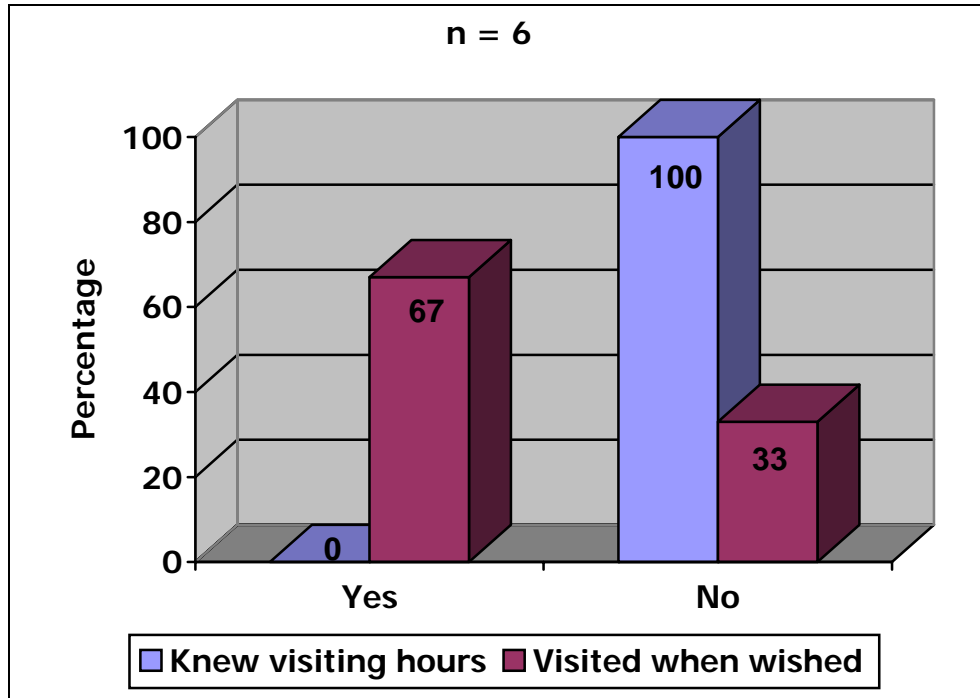


FIGURE 4.5: *This depicts the number of patients who knew the visiting hours and the number of families able to visit when they wished to*

SECTION C: POST-OPERATIVE INFORMATION

The variables in this section were intended to elicit information that might have been missed during the pre-operative preparation and that would have been important in the preparation of the respondents. In this section open-ended questions were also asked.

ITEM 20: FEELING OF AN ENDOTRACHEAL TUBE (n=6)

There were no significant differences regarding this question. Four (4), 67% respondents said it was the most awful experience of their lives. Four (4), 67% said that it felt like they were choking and another four (4), 67% that it was very uncomfortable. One (1), 17% patient said that it is a feeling you can not describe and another responded (1), 17% indicated that it makes you very nauseous. One (1), 17% more respondent answered that you are not able to speak at all.

Item 20 is illustrated in figure 4.6 on this page.

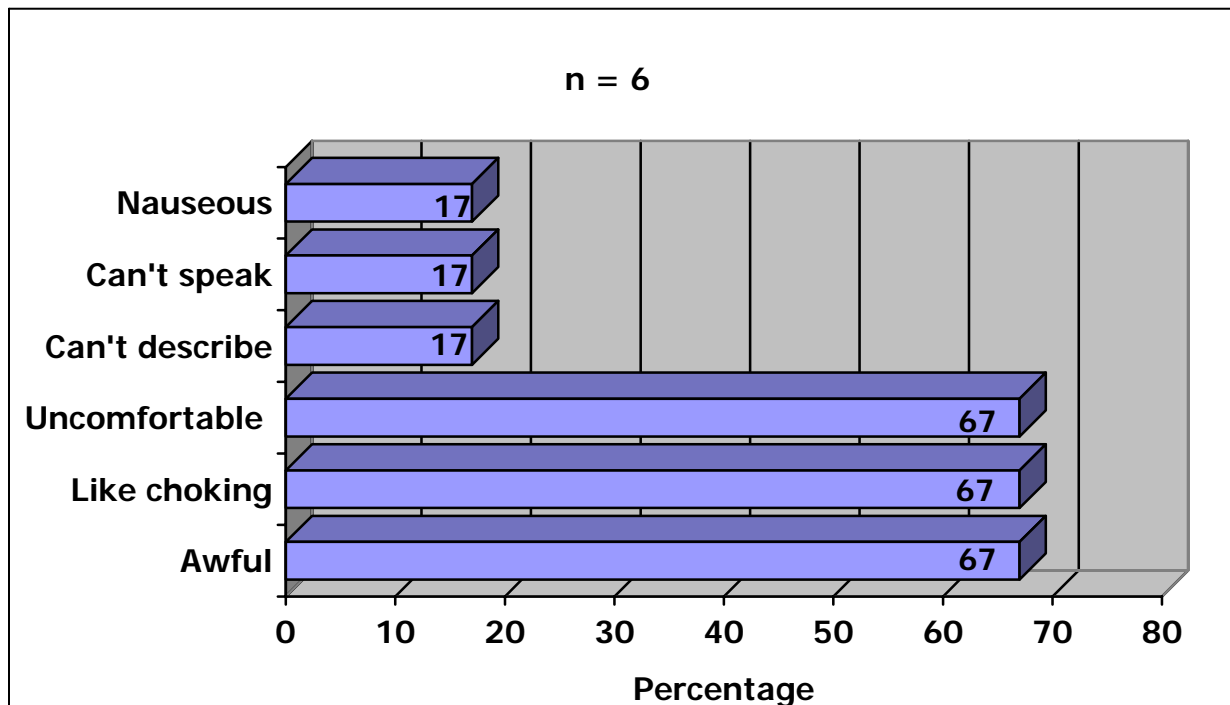


FIGURE 4.6: This indicates how participants experienced an endotracheal tube

ITEM 21: PERCEPTION OF ICU ENVIRONMENT (n=6)

The overwhelming response to this question was that it is a very busy environment, as reported by five (5), 83% respondents. There was a feeling of agony for the nursing staff. Two (2), 33% respondents said that they felt sorry for the nurses and that more staff should be appointed. One (1), 17% patient said that it always feels like day, another one (1), 17% declared that he/ she did not rest at all. One (1), 17% respondent answered that it was a beautiful environment.

The perceptions of the ICU environment are shown in Figure 4.7 on page 51.

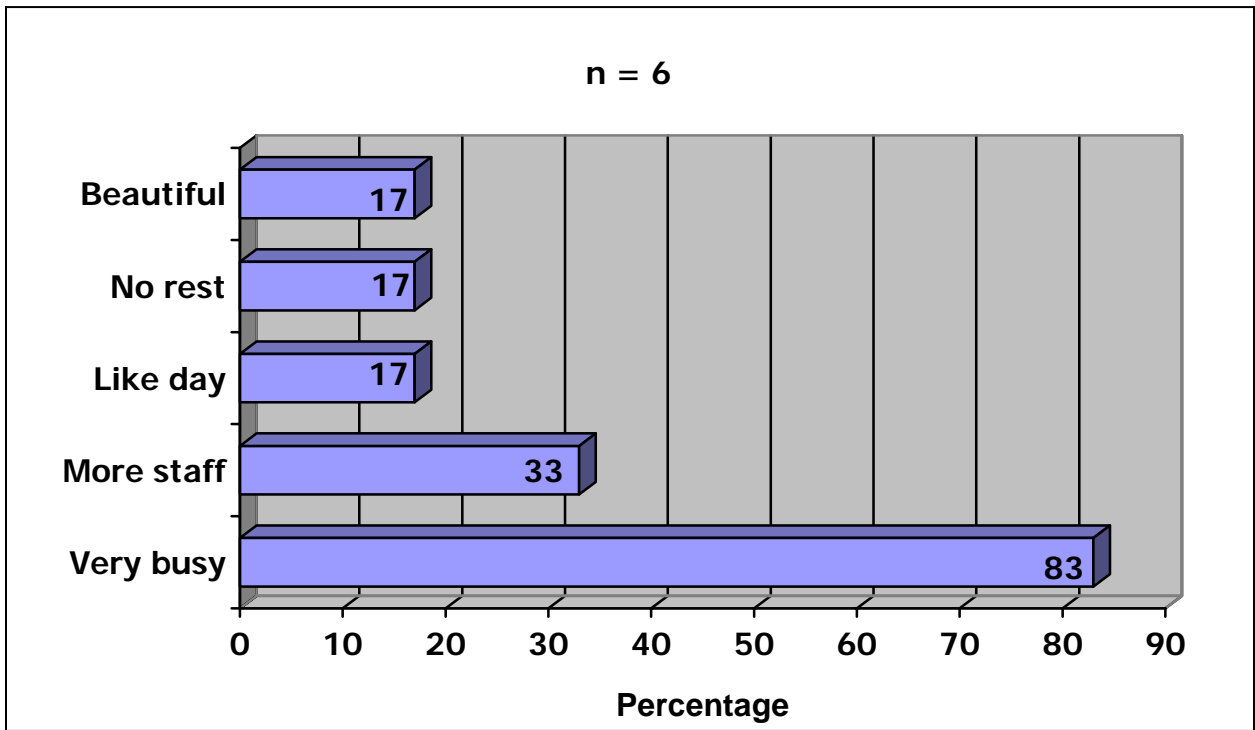


FIGURE 4.7: This indicates patients' perceptions of the ICU environment

ITEM 22: PAIN MANAGEMENT (n=6)

Pain is a very important factor after any surgical procedure as it delays a patient's healing process. Four (4), 67% respondents answered that they were always free of pain, but two (2), 33% patients experienced pain at some time. Most of the responses were therefore positive, and pain seemed to be managed well.

Pain management is illustrated in figure 4.8 on page 52.

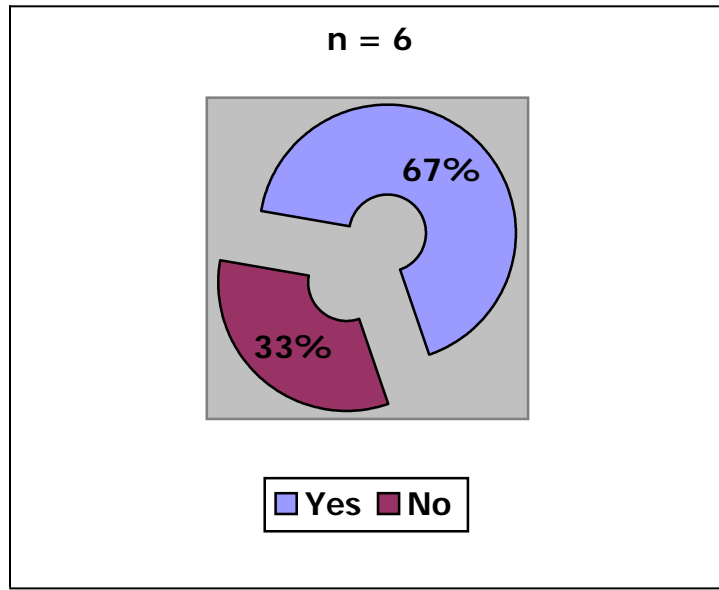


FIGURE 4.8: This portrays the participants' experience of pain

SECTION D: AREAS FOR IMPROVEMENT

In this section open-ended questions were asked to determine areas where improvement(s) can be made.

ITEM 23: FEAR OF ENVIRONMENT (n=6)

An ICU is a highly technological environment that is feared by most people, especially when they have to be admitted to an ICU. There is 24 hour monitoring in an ICU, and patients are mostly restricted to bed. It is therefore very different from any other ward. Two (2), 33% of respondents answered that they were scared every time the monitors alarmed, because they feared that something was wrong with them. Four (4), 67% of patients said that they were well prepared, and was not afraid of anything in the environment.

Fear for the environment is illustrated in figure 4.9 on page 53.

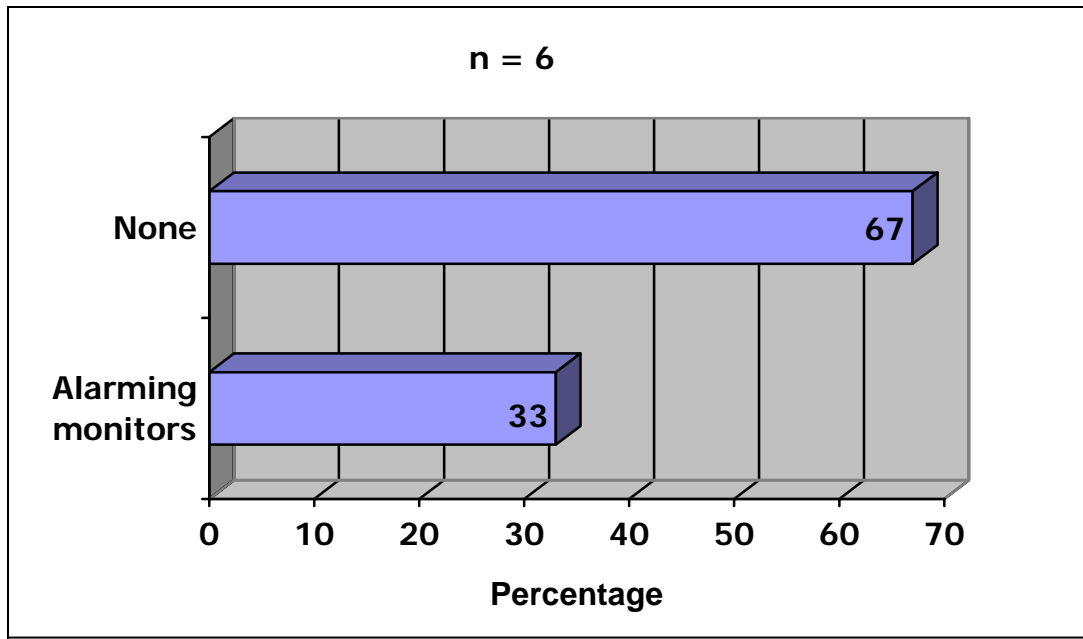


FIGURE 4.9: *This shows what participants feared in the ICU*

ITEM 24: FEAR OF OPERATION (n=6)

Four (4), 67% of the respondents said that they were most afraid of the unknown. One (1), 17% respondent replied that he/ she feared the ventilator and another (1), 17% feared that something would go wrong. One (1) 17% said that before he/ she could be afraid, it was all over.

Fear of the operation is illustrated in figure 4.10 on page 54.

ITEM 25: BETTER ORIENTATION BY STAFF (n=6)

Five (5), 83% of the respondents said they had all the information they needed in preparation for the operation. One (1), 17% respondent indicated that they could try to tell you how bad the ventilator really is.

Inputs regarding better orientation are illustrated in figure 4.11 on page 54.

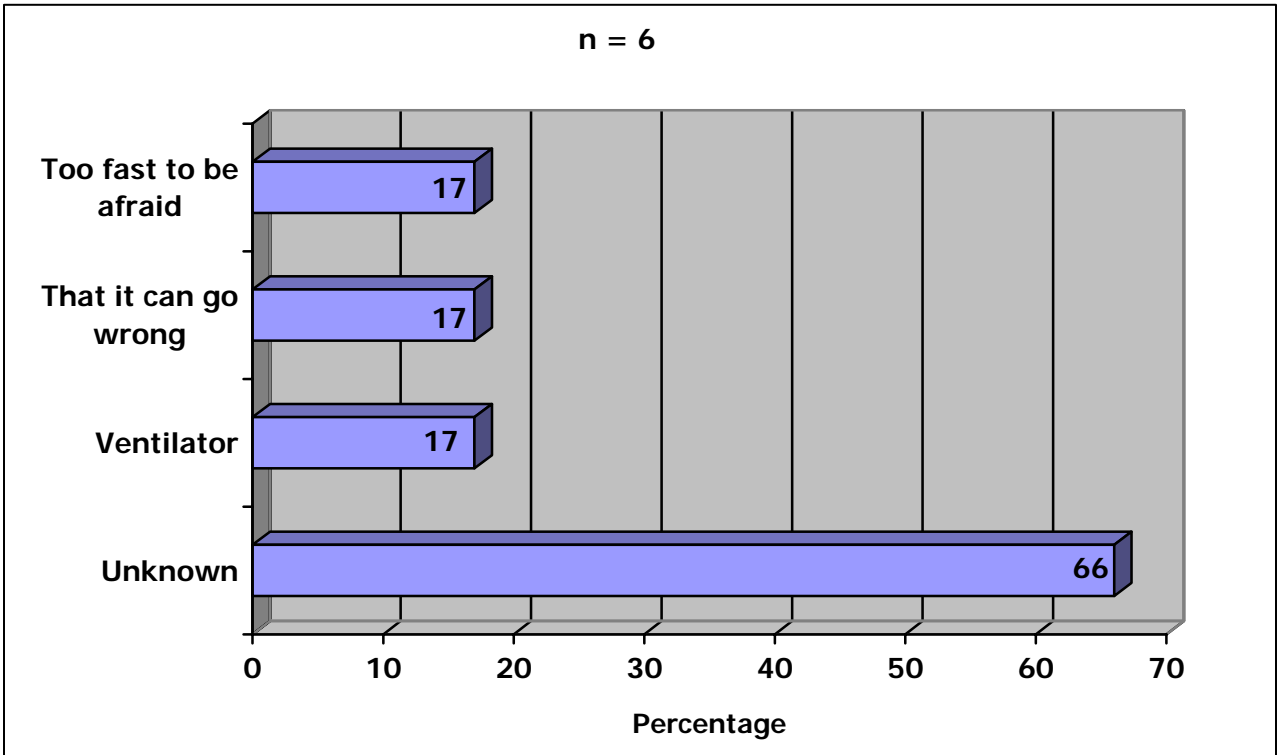


FIGURE 4.10: This displays what patients feared most regarding the operation

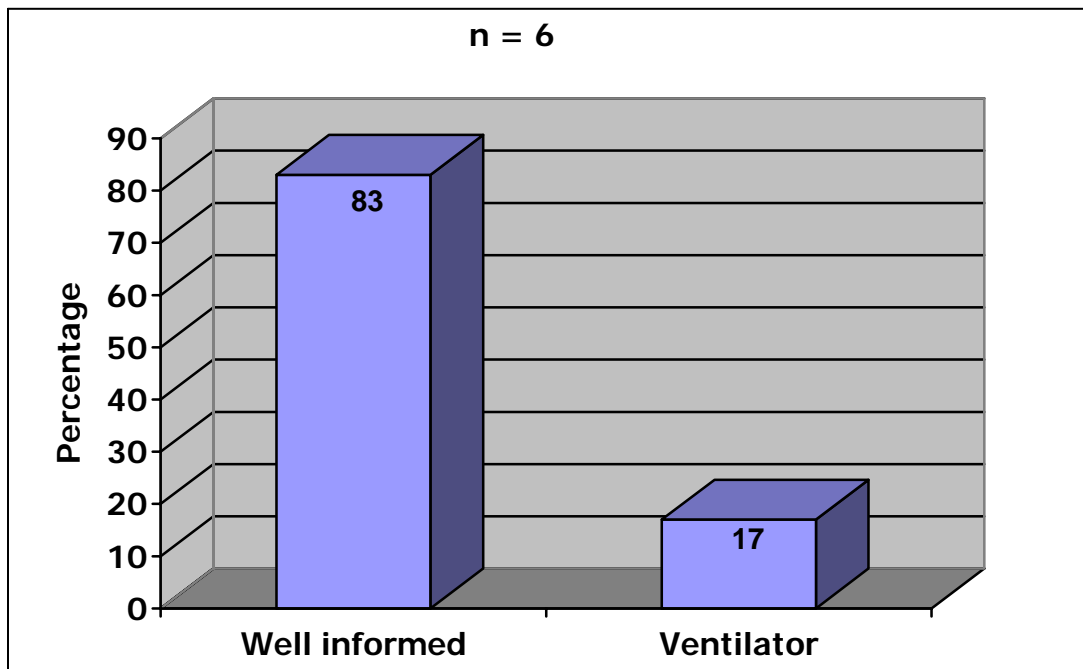


FIGURE 4.11: This displays respondent's satisfaction with the orientation, and possible improvements

ITEM 26: BETTER POST-OPERATIVE PREPARATION (n=6)

Five (5), 83% respondents were satisfied with the information that they received before the operation, and said that nothing could have made it better. Only one (1), 17% respondent indicated that people must know that a ventilator is the worst thing that will ever happen to you.

Item 26 are illustrated in figure 4.12 on this page.

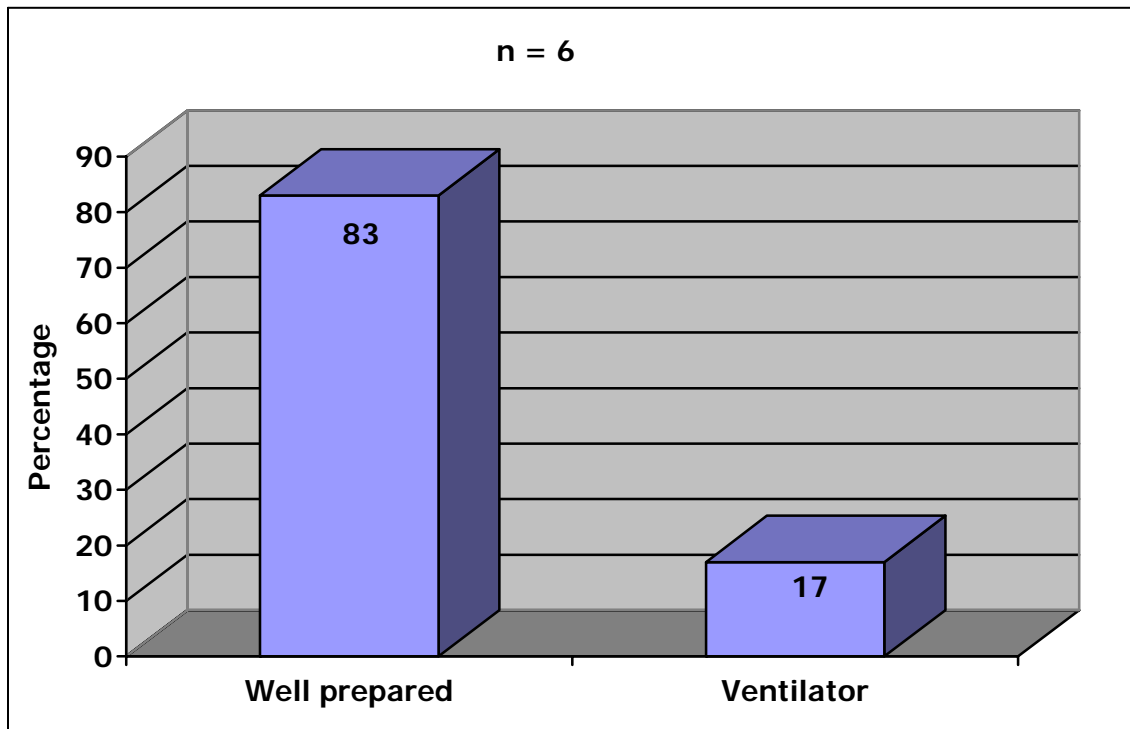


FIGURE 4.12: *This shows how many patients were well prepared, how many wanted to receive more information*

ITEM 27: ADDITIONAL EXPERIENCES (n=6)

The overwhelming response was that the nursing care was excellent, with professional and friendly staff. One (1), 17% respondent said that someone must be appointed to help with the feeding of patients, because the nurses are too busy. The other five (5), 83% were satisfied.

Additional experiences are illustrated in figure 4.13 on this page.

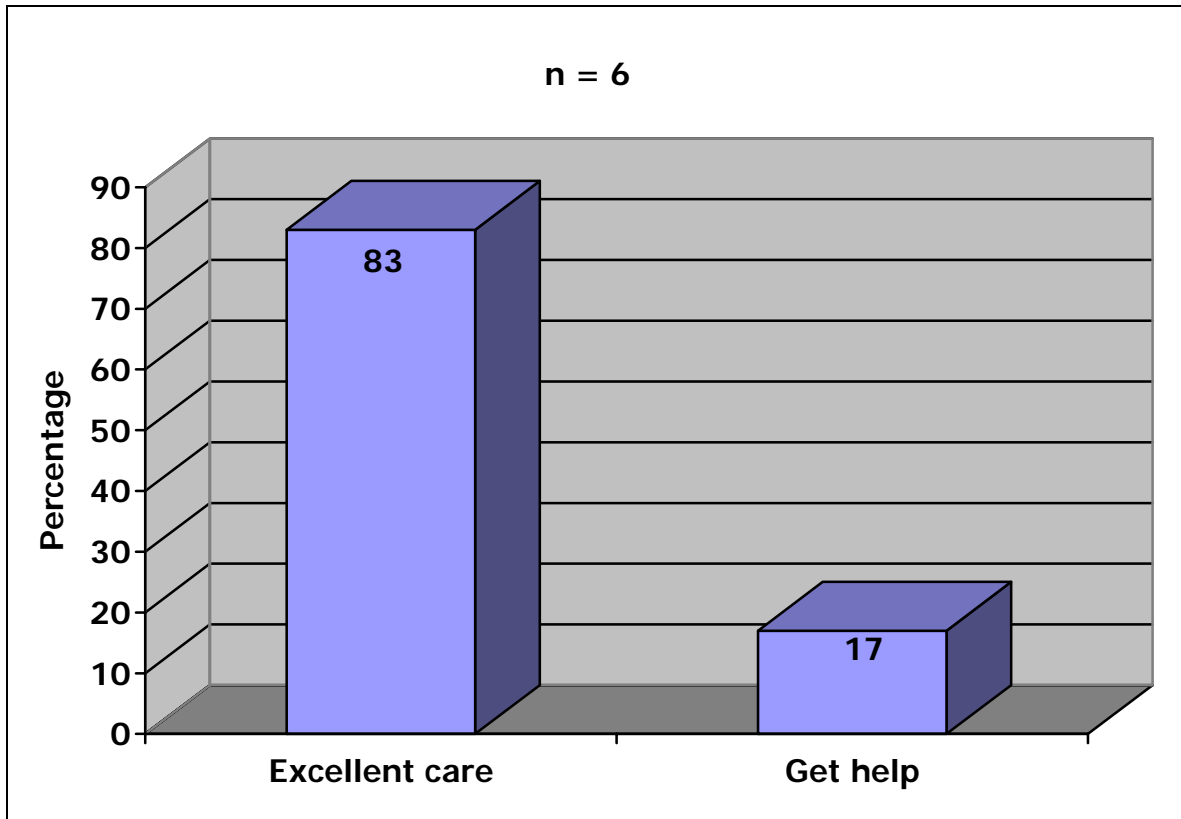


FIGURE 4.13: *This shows the experiences the participants wanted to share*

4.2 CONCLUSION

In this chapter the data analysis was discussed. The indication is that most patients were satisfied with the pre-operative education that they received before their cardiac surgery procedure, and were therefore well prepared for the operation.

The findings and the recommendations regarding pre-operative education for patients who undergo cardiac surgery will be discussed in Chapter 5.

CHAPTER 5

FINDINGS AND RECOMMENDATIONS OF THE STUDY

5.1 INTRODUCTION

The aim of this study was to identify the strengths and weaknesses of the pre-operative health education programme provided to cardiac surgery patients at a private hospital in Gauteng, and if necessary, to make recommendations based on the study's findings. The focus was to improve patient care in the unit where the researcher works.

In the previous chapter, the data was analysed, interpreted and presented by means of descriptive statistics, tables and graphs.

In this chapter, the findings and recommendations of the study will be discussed, based on the results of the data analysis conducted in Chapter 4. Recommendations are made for pre-operative education in cardiac surgery patients, nursing education and nursing research.

5.2 FINDINGS

The findings regarding the pre-operative education given to cardiac surgery patients in a private hospital in Gauteng will be described under the headings below.

5.2.1 Biographic data

- Age, gender, occupation, type of operation and number of days post-operatively were addressed.

Although it was expected that the biographic data would not be of any great importance to the study, it was interesting to note that an equal number of male and female respondents were included.

- All respondents were older than 60 years, and only one was over 70 years. More than 50% of the participants were already retired. Four patients had a bypass only, and two had bypasses and valve replacements. Four patients were in post-operative care for 2 – 3 and two for 4 – 5 days.

5.2.2 Pre-operative information

- The overall response in this section was that the respondents were orientated regarding: blood ordering in case of need, consent was given for blood transfusion, placement of infusions, purpose of a urine catheter, ventilator, inability to speak due to the tube, immobility, ICU environment and monitors.
- There was confusion about two questions that were not applicable to all respondents. Two patients were admitted to ICU before the operation and came in contact with an ICU nurse.
- Only one respondent did not know the purpose of the urine catheter.
- As evident in the data analysis, the overall response to the programme is positive. There is however room for improvement.
- Family orientation and visiting hours were also addressed in this section and, unfortunately a defect regarding family involvement was identified.
- Only 50% of families were orientated about the operation.
- Not one patient (0%) was orientated about visiting hours, and only 67% of families could visit their family member when they wished to.
- In this section there is evidence to support the statement that families are neglected during the pre-, intra- and post-operative phase.

5.2.3 Post-operative information

- This section contained closed- and open-ended questions about the feeling of an endotracheal tube, perception of the ICU environment and pain management.
- All respondents (100%) were negative about the endotracheal tube. Most participants said that it felt awful, uncomfortable and like they were choking. Unfortunately, patients will be mechanically ventilated after cardiac surgery. The discomfort caused by the endotracheal tube must be discussed in the programme to prepare patients better. Five respondents said that the ICU environment was very busy.
- Not all patients' pain management was successful. 33 % of the respondents were not always pain free.

5.2.4 Areas for improvement

This section is relevant as it identified strengths, weaknesses and the patients' wishes. Questions were used to elicit the respondents' experiences of the ICU environment.

- Only open-ended questions were asked. Questions addressed fear of environment, fear of operation, better orientation by staff, better pre-operative education and other experiences.
- More than 50% of the participants said that they had no fear of the environment. 33% was afraid when the monitors alarmed, and more intense education could be given in this regard.
- While in intensive care, patients are afraid of being in pain, having tubes in their mouths, being thirsty and unable to sleep (Cochran & Ganong 1989:1038-1043). Patients particularly fear being placed on a ventilator as this induces fear of death and anxiety (Halm & Alpen 1993:443-455). Strong anxiety is detrimental to recovery (Stengrevics et al 1996:471-477).

Stressors are situational demands that disrupt smooth functioning and interfere with understood meanings in one's life. Almost universally noise, lack of sleep, social isolation, enforced immobility, pain from procedures, and poor communications with staff are recognised as stressful by critically ill patients (Rakoczy 1977:280-286).

- All participants (100%) were afraid of something concerning the operation. Most of them, of the unknown nature of the whole process.
- The response to better orientation was good. Five participants (83%) said that it was conducted effectively and they were well prepared for the operation. Only one wanted more information about the discomfort of a ventilator.
- One patient requested that more staff must be appointed to help with basic tasks such as feeding of patients. The remaining five participants said that the care was excellent.

5.3 RECOMMENDATIONS

Based on the findings of this study, the following recommendations are made for intensive care nursing education and intensive care nursing practice.

5.3.1 Recommendations for intensive care nursing education

- Regular in-service training on pre-operative education for cardiac surgery patients should be provided for intensive care nurses to maintain the standard high. It is crucial nurses understand how important it is that families are included in the education process.
- Effective in-service training, knowledge, and understanding the importance of pre-operative education will inspire confidence and ensure better patient care and outcomes.
- Training sessions should be held when intensive care nurses are on duty or on-duty time should be allocated for these sessions. Attendance should be compulsory.

- Lectures could be used to explain the importance of pre-operative education to nurses.
- Members of the multidisciplinary team should partake in training sessions to ensure effective patient care.

5.3.2 Recommendations for intensive care nursing practice

- As concluded in the literature review, pre-operative education influences the post-operative outcomes of patients who undergo cardiac surgery and intensive care nurses must practice this.
- Pre-operative education includes all aspects of post-operative outcomes therefore other members of the multidisciplinary team, e.g. physiotherapists and dieticians, should also be requested to visit the patient pre-operatively.
- The ICU-nurse must visit the patient before the operation, either in the ward or ICU to educate him/ her. A follow-up visit must also be implemented to answer all questions.

5.3.3 Recommendations for nursing research

Recommendations for further research are based on the limitations of this study. The recommendations include the following:

- The study could be replicated, involving a larger population and sample.
- Hospitals from public and/ or private sector could be involved in a study about the pre-operative education for patients who undergo cardiac surgery.
- Comprehensive research could support the findings of this research, and will enhance the generalisability of study results.
- Further research could be conducted to explore the post-operative outcome of patients who underwent selective cardiac surgery and critical patient.

- This study could serve as a basis for continuous research regarding pre-operative education for cardiac surgery patients.

5.4 GENERALISABILITY

The aim of this study was not to generalise but to improve an existing pre-operative health education programme in a private hospital in Gauteng, where the researcher works. This programme was used to develop a questionnaire that could enhance the programme.

5.5 LIMITATIONS

This study's limitations are noted as it could potentially assist future studies on related topics. Firstly, the sample was too small due to the limited number of cardiac surgeries performed. More patients should have been used to gain a better overall perspective. Another limitation is the fact that all respondents were elderly. As described, there are reasons why cardiac surgery is performed more on the elderly. However, participants of a younger population may yield different findings.

5.6 FINAL CONCLUSION

The purpose of this study was to identify the strengths and weaknesses of the pre-operative health education programme provided to cardiac surgery patients at a private hospital in Gauteng, and if necessary, to make recommendations to enhance this programme. The results of this study showed that patients were well educated before they went for cardiac surgery. This made the post-operative process easier for them. However, due to the small sample size, findings cannot be quantified statistically. Trends were identified and since this study was conducted on pre-experimental level, the researcher did not aim to prove significances.

It is, however, evident that family involvement with pre-operative education was not satisfactory. This is a limitation in the programme that is currently in use. It is recommended that families be involved more and patients must be informed of visiting hours. The intense feeling and discomfort of the endotracheal tube must also be emphasised post-operatively.

Although not evident in the research data, the researcher noted that ICU nurses did not realise the important impact that pre-operative education has on the post-operative phase in cardiac surgery.

LIST OF REFERENCES

American association of Critical-Care Nurses. 1989. *Standards for nursing care of the critically ill* (p. 64). 2nd Edition. Aliso Viejo, CA: American Association of Critical-Care Nurses.

Anderson G.R. 1987. *Health care critics: a guide for decision makers*. Rockville: Aspen Publishers.

Babbie, E. 1995. *The practice of social reseach*. 6th Edition. United States of America: Wadsworth.

Bengston, A., Herlitz, J., Karlsson, T. & Hjalmarson, A. 1996. Distress correlates with the degree of chest pain: a description of patients awaiting revascularisation. *Heart* , 75: 257-260.

Benner, P. 1984. *From novice to expert: Excellence and power in clinical nursing practice*. Menlo Park, CA: Addison-Wesley.

Bergmann, P., Huber, S., Machler, H., Liebl, E., Hinghofer-Szalkay, H., Rehak, P. & Righler, B. 2000. Pre-operative cause of stress in patients confronting cardiac surgery. *The internet Journal of Thoracic and Cardiovascular Surgery*, 13(2): [<http://www.icaap.org/iuicode 87.3.2.5>].

Best, D.G. 1992. The perceptions of stressors in coronary artery bypass graft patients. *Can J Cardiovac Nurs*, 3(2-3): 5-12.

Blackwell's dictionary of nursing. 2002. London: Blackwell Scientific Publications.

Brink, P.J. & Wood, M.J. 1998. *Advanced designs in nursing research*. 2nd Edition. Thousand oaks: SAGE.

Burckhardt, C.S. 1987. Coping strategies of the chronically ill. *Nursing Clinics of North America*, 22: 543-550.

Burns, N. & Grove, S.K. 2001. The practice of nursing research: conduct, critique and utilization. 4th Edition. Philadelphia: Saunders.

Clark, C. 1997. Creating information messages for reducing patient distress during health care procedures. *Patient Education and Counselling*, 30: 147-155.

Clochesy, J.M., Breu, C., Cardin, S., Rudy, E.B. & Whittaker, A.A. 1996. Critical care nursing, 2nd Edition. Philadelphia: WB. Saunders.

Cochran, J. & Ganong, L. 1989. A comparison of nurses' and patients' perceptions of intensive care unit stressors. *Journal of Advanced Nursing*, 14: 1038-1043.

Cortis, J. & Lacey, A. 1996. Measuring the quality and quantity of information-giving to in-patients. *Journal of Advanced Nursing*, 24: 674-681.

Crawford, B. 1999. Highlighting the role of the pre-operative nurse: is pre-operative assessment necessary? *British Journal of Theatre Nursing*, 3(4): 12-15.

Davey, S.G., Bartley, M. & Blane, D. 1990. The Black report on socio-economic inequalities in health 10 years on. *British Medical Journal*, 301: 373-377.

Davies, L.C. 2000. Chronic heart failure in the elderly: value of cardiopulmonary exercise testing in risk stratification. *Heart*, 83: 147 – 151.

De Vos, A.S. Editor. 1998. Research at gross roots. A primer for the caring professions. Pretoria: Van Schaik.

Fortner, P. 1998. Preoperative patient preparation: psychological and educational aspects. *Seminars in Pre-operative Nursing*, 7: 3-9.

Gries, M.L. & Fernsler, J. 1988. Patient perceptions of the mechanical ventilation experience. *Focus on Critical care*, 15(2): 52-59.

Halm, M. & Alpen, M. 1993. The impact of technology on patients and families. *Nursing Clinics of North America*, 28(2): 443-455.

Havrilak, C. 2005. Streamlining the pre-operative process for the Open Heart Surgery Patient. <http://www.sensiblesoftware.com/articles/a/Streamlining-the-preoperative-process-for-...> (06/22/2005)

Hayward, J. 1975. *Information: A Prescription Against Pain*. London: RCN.

Hildingh, C., Segersten, K. & Fridlund, B. 1997. Elderly persons' social network and need for social support after their first myocardial infarction. *Scandinavian Journal of Caring Sciences*, 11: 5-11.

Hunt, J.O., Hendrate, M.V. & Nyles, P.S. 2000. Quality of life 12 months after coronary artery bypass graft surgery. *Heart Lung*, 29(6): 401-411.

Jaarsma, T., Kastermans, M., Dassen, E. and Philipsen, H. 1995. Problems of cardiac patients in early recovery. *Journal of Advanced Nursing*, 21: 21-27.

Kalideen, C. 1991. The case for pre-operative visiting. *British Journal of Theatre Nursing*, 1(5): 19-22.

King, R.B. 1985. Measurement of coping strategies, concerns, and emotional response in patients undergoing coronary artery bypass grafting. *Heart Lung*, 14: 579-586.

Knowles, M.S. 1970. *The Modern Practice of Ault Education: Andragogy Versus pedagogy*. New York: Association Press.

Koivula, M., Tarkka, M.T., Tarkka, M. Laippala, P. & Paunonen-Ilmonen, M. 2002. Fear and in-hospital social support for coronary artery bypass grafting patients on the day before surgery. *International Journal of Nursing Studies*, 39 (4): 415-427.

Lamarche, D., Taddeio, R. & Pepler, C. 1998. The preparation of patients for cardiac surgery. *Clinical Nursing Research* 7(4): 390-405.

Lewin, B. 1993. Psychological aspects of cardiac rehabilitation, http://www.cardiacrehabilitation.org.uk/various_docs/Guidelines.htm

Levey, R.E., Dieter, R.A., Preston, J.C., Smith, P.M. & Levey, T.L. 2005. Psychological Needs of Coronary Artery Bypass Surgery Patients. <http://www.fac.org.ar/scvc/llave/surgery/levey1/levey1i.htm>

Lieb, S. 1991. *Principles of adult learning*. Arizona: VISION.

Linden, W., Stossel, C. & Maurice, J. 1996. Psychosocial interventions for patients with coronary artery disease. *Archives of Internal Medicine*, 156: 843-852.

Milander, S. & Bucher, L. 1999. *Critical care nursing*, 1st Edition. Philadelphia: Saunders.

Mitchell, M. 1997. Patients' perceptions of pre-operative preparation for day surgery. *Journal of Advanced Nursing*, 22: 356-363.

Mott, A. 1999. Psychologic preparation to decrease anxiety associated with cardiac catheterisation. *Journal of Vascular Nursing*, 17: 41-49.

Nelson, S. 1995. Pre-admission clinics for thoracic patients. *Nursing Times*, 91: 29-32.

Oermann. H.M. 1991. Professional Nursing Practice. A conceptual approach. Washington: Lippincott.

Parent, N. & Fortin, F.A. 2000. Randomised, controlled trial of vicarious experience through peer support for male first time cardiac surgery patients: Impact on anxiety, self-efficacy expectation, and self-reported activity. *Heart Lung*, 29(6): 389-400.

Phipps, W.J., Sands, J.K. & Marek, J.F. 1999. Medical Surgical Nursing, Concepts and clinical Practice. St. Louis: Mosby.

Polit, D.F. & Hungler, B.P. 1997. Nursing research: Principles and methods. 4th Edition. Philadelphia: Lippincott-Raven

Radwin, L.E. 1987. Autonomous nursing interventions for treating the patient in acute pain: A standard. *Heart and lung*, 16: 258-265.

Rakoczy, M. 1977. The thoughts and feelings of patients in the waiting period prior to cardiac surgery: A descriptive study. *Heart Lung*, 6: 280-286.

Salmond, S.W. 1987. Health care needs of the critical ill. *Orthopaedic Nursing*, 6(6): 39-45.

Shuldman, C.M., Fleming, S. and Goodman, H. 2001. The impact of pre-operative education following coronary artery bypass surgery. *European Heart Journal*, 23: 666-674.

Springhouse. 1999. Nurses handbook of alternative and complementary therapies, Springhouse, Pa: Springhouse corporation.

Stanhope, M. & Lancaster, J. 2000. Community and public health nursing. 5th Edition. St. Louis: Mosby.

Stedman's concise medical and allied health dictionary. 1997. 3rd Edition. Philadelphia: Lippincott, Williams & Wilkens

Stewart, M., Davidson, K., Meade, D., Hirth, & A. Hakrides, L. 2000. Myocardial infarction: survivors' and spouses' stress, coping and support. *Journal of Advanced Nursing*, 31(6): 1351-1369.

Strengrevics, S., Sirois, C., Schwartz, C., Friedman, R. & Domar, A. 1996. The predictors of cardiac surgery outcome based upon preoperative psychological factors. *Psychology and Health*, 11: 471-477.

Teasdale, K. 1993. Information and anxiety: a critical reappraisal. *Journal of Advanced Nursing*, 18: 1125-1132.

Teasdale, K. 1995. Theoretical and practical considerations on the use of reassurance in the nursing management of anxious patients. *Journal of Advanced Nursing*, 22: 79-86.

Treece, E. W. & Treece, J. W. 1986. Elements of Research in Nursing. Toronto: Mosby

Urden, L.D., Stacy, K.M. & Lough, M.E. 2002. Thelan's critical care nursing. Diagnosis en management. 4th Edition. United States of Americ: Mosby.

Van Weert, J., van Dulman, S., Bar, P. & Venus, E. 2003. Interdisciplinary preoperative patient education in cardiac surgery. *Patient Education and Counseling*, 49(2): 105-114.

Walsh, M. 1997. *Watson's clinical nursing and related sciences*. 5th Edition. London: Baillire Tindall.

Waltz, C.F. and Bausell, R.B. 1981. *Nursing research: Design, statistics and computer analysis*. Philadelphia: F.A.Davis.

Wilson, V.S. 1987. Identification of stressors related to patient's psychological responses to the surgical intensive care unit. *Heart and Lung*, 16: 267-273.

Whitman, G. 2004. Nursing-Sensitive Outcomes in Cardiac Surgery Patients. *Journal of Cardiovascular Nursing*, 19(5): 293-298.

<http://www.southerhealth.org.au/cpme/articles/adult.learning.htm>

ANNEXURE I

QUESTIONNAIRE

PROJECT:

Pre-operative health education for patients undergoing cardiac surgery

Information to participants:

- a) Please answer all questions as honestly as possible.
- b) Indicate your response by means of a cross (X).

Section A: Biographic data

1 How old are you?

30 - 49	1
50 - 59	2
60 - 69	3
70 and above	4

1

2 Gender

Male	1
Female	2

2

3 Occupation

3

4 What kind of operation did you have?

Bypass	1
Valve replacement	2
Maize procedure	3
Bypass and valve replacement	4
Bypass and maize procedure	5
Valve replacement and maize procedure	6
Bypass, valve replacement and maize procedure	7

4

5 Number of days post operatively

2 - 3	1
4 - 5	2
6 - 7	3
7 and above	4

5

Section B: Pre-operative health education

6 Were you admitted the day before surgery?

Yes	1
No	2

6

7 Were you visited by the ICU nurse before the operation?

Yes	1
No	2

7

Was the following explained to you?

8 Blood ordered for you in case of need.

Yes	1
No	2

8

9 Consent for blood transfusion.

Yes	1
No	2

9

10 Where they are going to put up the drips.

Yes	1
No	2

10

11 Why you are going to have a urine catheter.

Yes	1
No	2

11

12 That you are going to be connected to a ventilator right from theatre.

Yes	1
No	2

12

13 That you will not be able to speak due to the tube in your mouth.

Yes	1
No	2

13

14 That your mobility will be restricted due to invasive gadgets around you.

Yes	1
No	2

14

15 Did you visit the ICU prior to your operation?

Yes	1
No	2

15

16 Were the monitors explained?

Yes	1
No	2

16

17 Was your family present during orientation about the operation?

Yes	1
No	2

17

18 Were you informed about visiting hours in ICU?

Yes	1
No	2

18

19 Could your family able to visit you when they wished to?

Yes	1
No	2

19

Section C: Post-operative information

20 How did it feel to have a tube in your throat?

21 What was your perception of the ICU?

22 Were you always free of pain?

Yes	1
No	2

20

Section D: Areas for improvement

23 What was your biggest fear of the environment?

24 What was your biggest fear about the operation?

25 How could the ICU staff have orientated you better for the operation?

26 What information would you wish to have received to prepare you better for post-operative care?

27 Do you have any experiences that you would like to share?

THANK YOU FOR PARTICIPATING.

GET WELL SOON!

ANNEXURE II

LETTER FROM

STATITION

**C J TREDOUX. VOORLIGTING EN NAVORSINGSIELKUNDIGE
Honns. BA, MA (VOORLIGTINGSIELKUNDE)**


Posbus 4114
Nylstroom
0510
23 Maart 2006

VIR WIE DIT MAG AANGAAN

As geregistreerde sielkundige by die Mediese- en Tandheelkundige Raad (Beroepsraad vir sielkunde) was ek Hoofnavorser in die Psigometrie-afdeling van die Raad vir Geesteswetenskaplike Navorsing. Ek is op die oomblik afgetree.

Ek was vir Karien Meyer behulpsaam met die verwerking van haar Meestersverhandeling en het haar aan die nodige kritiek onderwerp en aanbevelings gedoen.

Vir verdere navrae is ek beskikbaar by telefoon: (014) 717 4944



CJ TREDOUX

ANNEXURE III

APPROVAL OF

ETHICS

COMMITTEE



UNIVERSITY OF SOUTH AFRICA
Health Studies Research & Ethics Committee
(HSREC)
College of Human Sciences
CLEARANCE CERTIFICATE

Date of meeting: **22 August 2005** Project No: **3529347**

Project Title: **Pre-operative health education for patients undergoing cardiac surgery**

Researcher: **Mrs K Meyer**

Supervisor/Promoter: **Mrs MM Moleki**

Joint Supervisor/Joint Promoter:

Department: **Health Studies**

Degree: **MCUR in Health Studies(Critical Care)**

DECISION OF COMMITTEE

Approved

Conditionally Approved

Date: **20 October 2005**

Prof TR Mavundla
RESEARCH COORDINATOR: DEPARTMENT OF HEALTH STUDIES

Prof SM Mogotlane
ACADEMIC CHAIRPERSON: DEPARTMENT OF HEALTH STUDIES

PLEASE QUOTE THE PROJECT NUMBER IN ALL ENQUIRES

ANNEXURE IV

CONSENT FROM

PARTICIPATING

HOSPITAL



VEREENIGING MEDI-CLINIC

ACCREDITED BY COHSASA GEAKKREDITEER

MEDI-CLINIC LIMITED / MEDI-CLINIC BEPERK - Reg. No. 1969/009218/06

CNR HOFMEYER AVENUE & JOUBERT STREET / H/v HOFMEYERLAAN & JOUBERTSTRAAT
PO BOX/POSBUS 760, VEREENIGING 1930
TEL +27 16 440 5000 FAX/FAKS +27 16 440 5005
www.mediclinic.co.za

Me K. Meyer
P/a Kardio Torakale ISE
VEREENIGING MEDI-CLINIC

Geagte Me Meyer

**IN SAKE : NAVORSING PRE-OPERATIEWE ONDERRIG AAN
PASIËNTE WAT KARDIALE CHIRURGIE BENODIG**

Baie dankie vir u referaat wat ons ontvang het.

Die aangeleentheid is met Me C. Findlay (Hoofkantoor) bespreek en u mag voortgaan met u navorsing.

Byvoorbaat Dank

M.S.H. Snyman (Mev)
VERPLEEG BESTUURDER

ANNEXURE V

CONSENT FROM RESPONDENTS

UNIVERSITY OF SOUTH AFRICA

FACULTY OF HEALTH SCIENCES

**M(CUR) IN CRITICAL CARE
DISSERTATION**

Dear Participant

As part of the requirements for completion of the M(CUR) degree in critical care I am required to complete a mini-dissertation. The title of my study is:

**PRE-OPERATIVE HEALTH EDUCATION FOR PATIENTS UNDERGOING
CARDIAC SURGERY**

There is a pre-operative education program in the Cardiac Unit in Vereeniging Medi-Clinic. The success of the program has not been evaluated before. If you choose to participate, I therefore request you to complete this questionnaire for me.

Completing the questionnaire will not take you more than ten (10) minutes. No sensitive questions will be asked.

I request you to answer all questions as truthfully as possible.

I want to assure you that:

- **Participation is voluntarily.**

- You can withdraw from the study at any time without discrimination.
- Your name won't be mentioned at any time.
- All information will be handled with confidentiality.

The consent that you sign won't be put with your questionnaire, but I need it to be free of any claims.

Thank you

Karien Meyer
082 926 1851

I agree to participate voluntarily in the study.	
_____	_____
Participant's signature	Date

ANNEXURE VI

LETTER FROM

EDITOR

March 2006

872 Witwatersrand Ave
Strubensvalley
Johannesburg

This confirms that I edited Karien Meyer's dissertation: ***“PRE-OPERATIVE HEALTH EDUCATION FOR PATIENTS UNDERGOING CARDIAC SURGERY”***

During the editing process I focused on:

- Syntax
- Punctuation
- Spelling
- Clarity and readability
- General style aspects and
- Consistency

Although style was refined in places, care was taken not to adjust the author's writing style.

Regards,

Karina Lemmer (MA – English)

082 825 6284

karina@lemmer.co.za

