

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

In developing countries, coronary artery diseases including myocardial infarction have been recognized as a major public health problem (WHO, 1993). Survivors of myocardial infarction are required to cope with and adapt to life altering experiences in order to improve their long-term recovery and life quality. However, the period after discharge is stressful with evidence suggesting that a significant portion of patients experience continuing anxiety (Daly, Elliott, Cameron-Traub, Salamonson, Davidson, Jackson, Chin & Wade, 2000). Providing information for myocardial infarction patients is an important nursing function and is part of the role of health care professionals delivering cardiac rehabilitation. It is essential to acknowledge and incorporate the self-perceived needs of patients into the information they perceive (Smith & Liles, 2007: 662).

In this chapter, a review of literature is presented in order to provide a current theoretical and scientific knowledge (Burns & Grove, 2007: 135) and a foundation on which to base new evidence (Polit & Beck, 2008: 65) for the study. It describes the coronary care unit, the critically ill patients, the acute coronary syndrome, the CPLNI, which was the main instrument in the present study, the nurses' perception of patients/ family's information needs and the patients' perception of information needs, the coronary care nursing and coronary care unit, cardiac rehabilitation. Finally the other instruments will be described. A summary is given at the end of this chapter.

2.2 HISTORY OF CORONARY CARE UNITS

The first coronary care units opened in 1962 in Toronto, Kansas City and Philadelphia (Day, 1972). The prevention of death from arrhythmia in the acute phase of myocardial infarction had become feasible with the development of closed cardiac massage and ventricular defibrillation (Zoll, Linenthal, Gibson, 1956). The number of coronary care units has since grown, in spite of the absence of incontrovertible proof that they help to reduce death rates (Gordis, Naggan & Tonascia, 1977; Hill, Hampton & Mitchell, 1978).

Coronary care became more complex and expensive. To what extent the patient benefited is uncertain (Robin, 1985). Half of the deaths from myocardial infarction occur within 4 hours of the onset of symptoms. This statistic influences the geographic distribution of coronary care units. Ideally, coronary care units should be dispersed geographically to provide early care.

One obstacle to the provision of early coronary care is hospital overcrowding: patients sometimes wait hours in the emergency department while a bed is being made available in the coronary care unit. Optimal coronary care must now include easy and rapid access to both coronary arteriography and cardiac surgeons must collaborate even more closely than before. Each group must clearly understand the advantages and limitations of not only their therapies but also those of their colleagues.

Coronary care units in hospitals without access to coronary arteriographic facilities must develop mechanisms to permit the rapid transfer of patients for more specialized care. The main problem with this approach to patient care is getting the referring cardiologists and the referral hospitals to work together much more closely. Coronary care units were developed in response to a specific problem: how best to apply new life – saving techniques to appropriate patients. Recent advances in therapy now require that we change or fine – tune the concept of the coronary care unit (Waters , Walling ,Roy, 1986). The concept of Coronary Care Nursing has been perceived as a technological and physical specialty. The ultimate aim is often seen as one of “curing” the individuals who require care in the coronary care unit (CCU). Nurses have been rewarded for having expertise and skills in technology and observation of physical signs and symptoms (Hudson, 1993).

2.3 CRITICALLY ILL PATIENTS

Acute myocardial infarction (heart attacks) is particularly tragic as it often strikes down the victim in their productive years of life, removing the breadwinner from families. When non-fatal, it often results in severe disability and consequent impoverishment for entire families.

In the coronary care setting, it is always a challenge to meet the educational needs of patients and families because of the life-threatening nature of critical illness. Patient and

family education is a vital component of nursing care. The nurse must deal with the anxiety and fear that is associated with a diagnosis of critical illness, while trying to teach difficult concepts in an environment that is poorly suited to learning (Morton & Fontaine, 2009). The fact that patients' needs may vary, depending on stage of recovery (Moynihan, 1984), patients who are suffering the event for the first time may have specific needs (Casey, O'Connell & Price, 1984)). For cardiac patients, lifestyle changes, maintaining a social life and returning to work may be difficult issues to adjust to (Bergman & Bertero, 2001). Patients feel vulnerable when leaving hospital, and may therefore be especially receptive to information at that time (Sage, 2000).

Maslow argued that human needs could be classified, and that these categories could be arranged in a hierarchy from the most basic biological requirements necessary for survival, to the expression of more complex psychological needs which become important only after basic needs have been at least partially satisfied. Larson's (1984) study showed that patients needed to have their physical and safety needs met before the psychological needs became apparent. Once patients' physical needs are met however, the requirement for emotional support and empathy becomes very important (Chipman, 1991).

2.3.1 Adult Learning Principles and Teaching

The principles of adult learning are derived from on multiple learning theories that originate in many different disciplines, such as developmental psychology, sociology, philosophy, and education. Adult learning is a relatively new field (about 40 years old), with the fundamental principles grounded in childhood learning and education. A new conceptual framework known as the andragogical model emerged from research studies that identified some of the unique characteristics of adult learners. The core principles of the andragogical model of adult learning are as follows: the need to know, the learner's self-concept, the learner's life experience, readiness to learn, orientation to learning, motivation to learn (Morton & Fontaine, 2009)

Many studies confirm the continuing influence of medical models towards patient education, which are didactic and pedagogic in nature. Many patient education studies reflect the principles of the medical model, which may not be useful in addressing the physical, emotional, social and spiritual demands of chronic illness (Mirka, 1994). Cardiac

teaching programs, similarly, often consist of traditional approaches to education (Egan, 1999). Recognizing this, Mirka (1994) proposes a model of myocardial infarction patient education based on principles of Adult Learning (Knowles, Holton & Swanson, 2005).

Knowles is one of the main advocates for the use of learning contracts. This is a way of negotiating a compromise between the learners' needs and the needs of others, such as the educator or employer (Mellish, Brink Hill & Paton, 2009).

Malcolm Knowles developed a model for teaching adults which he called Andragogy. His approach to adult learning is based on what he sees as the differences between the learning and teaching of adults and children. The four basic assumptions of Andragogy are:

- As they mature, adults desire and show a tendency to self – directedness, which is taking responsibility for their own learning. They may, however still be dependent in certain situations.
- Adults' experiences are a rich resource for learning. For this reason they learn more effectively through methods such as discussion and problem solving, which utilize the experiences.
- Adults learn in relation to the specific learning needs created by the tasks and problems encountered in their everyday life. Adults' readiness to learn therefore depends on what they feel they need to know and do.
- Adults want to be able to apply the new knowledge and skills which they learn right away, which calls for problem – solving and task – centred approaches in education.

Knowles' views have met with considerable criticisms because some educators' feel that the characteristics he ascribes to adults can also be observed in children. They also argue that all adults do not necessarily display the characteristics on which Knowles' assumptions about adult learning are based, for example self – directed learning (Mellish *et al*, 2009).

2.4 ACUTE CORONARY SYNDROME (ACS)

The term acute coronary syndrome is used to describe patients with clinical symptoms compatible with acute myocardial ischemia. This term includes unstable angina and acute myocardial infarction. Unstable angina refers to unexpected chest pain or discomfort that usually occurs while at rest. Patients with myocardial infarction are further classified into one of two groups: those with ST-segment elevation myocardial infarction and those with non-segment elevation myocardial infarction (American Heart Association, 2008; Anderson, Adams & Antman, 2007).

Once a diagnosis of coronary artery disease is made, it requires ongoing care to limit disease progress, control symptoms, and ultimately improve quality of life (Egan, 1999: 164). Secondary prevention can slow down the progression of the disease as well as decrease mortality and morbidity rates (Yu, Lau, Cheung, Fong, Ho, Lam, & Li, 2000: 344). Much data are available from industrialized countries, in which ACS is a major cause of morbidity and mortality. (Anand, Xie, Mehta, Franzosi, Joyner, & Chrolavicius., 2005; Doyle, De la Harpe, Mc Gee, Shelley & Conroy, 2005). Studies have shown that primary prevention should be started during childhood to prevent coronary artery disease, since the risks for coronary artery disease are already detectable in childhood (Kavey, Daniels, Lauer, Atkins, Hayman, & Taubert, 2003: 1562). Secondary prevention is a multidisciplinary activity that brings together medical treatment, education and information on coronary risk factors.

According to statistics, cardiovascular diseases cause 12% of deaths amongst the black population (four million) and 40% of deaths amongst the white population (two million) in South Africa (National Health Plan for South Africa, ANC, 1994:29). The National Health Plan for South Africa (ANC, 1994) states that all citizens have the right to promotive, preventive, curative and rehabilitative care. Nursing fall within the ambit of the health care Act, therefore nurses are compelled to provide promotive, preventive, curative and rehabilitative care. Through rehabilitative care after a myocardial event, the patient's quality of life will be restored.

Every eight minutes, a South African dies from some form of heart disease. Globally, one out of every three men and one out of every four women develop a cardiovascular disease before the age of 60 (Pfizer's website: www.cholesterol.co.za). A report released in 2007 in South Africa, entitled "Heart Disease in South Africa", based on research carried out on

Heart Disease in South Africa, revealed shocking statistics requiring urgent intervention. Commissioned by the Heart and Stroke Foundation South Africa (HSFSA) and released by the Medical Research Council (MRC), this report was authored by Krisela from UNIVERSITY OF CAPE TOWN Department of Medicine. The report revealed the following:

- Between 1997 and 2004, 195 people died per day because of some form of heart and blood vessel disease (CVD) in South Africa (Note 1.1).
- About 33 people die per day because of a heart attack, while about 60 die per day because of stroke (Note 1.1).
- For every woman that dies of a heart attack, two men die.
- Despite the high death rates caused by AIDS in South Africa, actuarial projections suggest that the rate of chronic diseases, including Heart Disease, is also going to increase by 2010. The models suggest that chronic disease deaths will increase from 565 deaths per day in 2000 to 666 deaths per day in 2010.
- Premature deaths caused by heart and blood vessel disease (CVD) in people of working age (35 – 64 years) are expected to increase by 41 % between 2007 and 2030. The negative economic impact of this will be enormous (Note 1.4).
- The highest death rates for heart and blood vessel diseases in South Africa are found in Indian people followed by the coloured people, while the white and black African people have the lowest rates (Note 1.5).
- Although the white and black African people have similar rates for these diseases, their patterns differ considerably. White people mainly reflect a pattern of death caused by heart attacks, while the black African people reflect a death caused by stroke, and diseases of the heart muscle and high blood pressure (Note 1.5) (Steyn, K., 2007).

Prolonged ischemia caused by an imbalance between oxygen supply and oxygen demand causes myocardial infarction. The prolonged ischemia causes irreversible cell damage and muscle death. Although multiple factors can contribute to the imbalance between oxygen supply and oxygen demand, the presence of a coronary artery thrombosis characterizes most myocardial infarctions. In a classic investigation, DeWood, Spores and Notske (1980) demonstrated that 87% of patients studied in the first 4 hours after onset of myocardial infarction symptoms had a thrombotic occlusion.

Irreversible damage to the myocardium can begin as early as 20 to 40 minutes after interruption of blood flow. However, the dynamic process of infarction may not be completed for several hours. Necrosis of tissue appears to occur in a sequential fashion. Reimer, Lower and Rasmussen (1977) demonstrated that cellular death occurs first in the subendocardial layer and spreads like a “wave front” throughout the thickness of the wall of the heart. Using dogs, they showed that the shorter the time between coronary occlusion and coronary reperfusion, the greater the amount of myocardial tissue that could be salvaged. Their classic work indicates that a substantial amount of myocardial tissue can be salvaged if flow is restored within 6 hours after the onset of coronary occlusion.

Myocardial infarction can be determined from several different perspectives, including clinical, electrocardiographic, biochemical, imaging, and pathological. The European Society of Cardiology, the American College of Cardiology Foundation, the American Heart Association, and the World Heart Federation developed a joint consensus document for the redefinition of myocardial infarction (Thygesen, Alpert &, White, 2007). Their clinical classification of different types of Myocardial Infarction is presented as:

- Type 1: spontaneous myocardial infarction related to ischemia due to a primary coronary event such as plaque erosion and/or rupture, fissuring, or dissection.
- Type 2: myocardial infarction secondary to ischemia due to either increased oxygen demand or decreased supply (e.g., coronary artery spasm, coronary embolism, anaemia, arrhythmias, hypotension).
- Type 3: sudden unexpected cardiac death, including cardiac arrest, often with symptoms suggestive of myocardial ischemia, accompanied by presumably new ST elevation, or new left bundle branch block, or evidence of fresh thrombus in a coronary artery by angiography and/or at autopsy, but death occurring before blood samples could be obtained, or at time before the appearance of cardiac biomarkers in the blood.
- Type 4a: myocardial infarction associated with percutaneous coronary intervention.
- Type 4b: myocardial infarction associated with stent thrombosis as documented by angiography or at autopsy.
- Type 5: myocardial infarction associated with coronary artery bypass grafting.

Gender differences in the presentation and management of Acute Coronary Syndrome (ACS) are well established internationally (Kosuge, Kimura, Ishikawa, Ebina, Hibi, & Tsukahara, 2006; Patel, Rosengren & Ekman, 2004). The lack of gender-based research in Coronary Heart Disease (CHD) should be a particular concern since CHD is the number one killer of both women and men in the United States (American Heart Association, 2000).

Many gender differences exist among patients with Coronary Artery Disease (CAD), including risk factor profiles, predictive characteristics of stress testing, clinical presentations, and patient outcomes in Acute Coronary Syndromes (ACS) (Hochman, McCabe, Stone *et al.*, 1997; Scirica, Moliterno & Every, 1999). There is increasing evidence that there may be gender differences in the presenting symptoms of ACS (Ashton, 1997). The majority of studies addressing gender differences in the symptoms of ACS have been directed at identifying the symptoms of MI (Goldberg, O'Donnell, Yarzebski, Bigelow, Savageau, Gore, 1998). Many studies have examined gender related differences in the presenting symptoms, management and prognosis of patients with acute coronary syndrome (ACS) (Anand *et al.*, 2005; Doyle *et al.*, 2005).

Studies have also reported gender differences in the management of patients with ischemic heart disease (Gan, Beaver, Houck, Mac Lehosé, Lawson & Chan, 2000). When compared with men, women were more likely to receive, in the acute phase, a less aggressive therapy and, in general, a reduced amount of diagnostic and therapeutic procedures. The most obvious biologic difference between women and men lies in the expression of the sex hormones. The effects of diminishing levels of oestrogen on serum lipid concentration, coagulation, the antioxidant system, and vasoactive factors may contribute to the development of vascular disease during and after menopause. These factors and the variations in the development of ACS may contribute to symptom differences (Mendelsohn & Karas, 1999). Women have smaller coronary artery lumens than those of men, independent of body size. Women have less collateral circulation as well. These anatomic differences may lead to an increase in ischemia during periods of exertion or stress. Gender differences in cardiovascular physiologic factors may further contribute to differences between women and men in the symptoms of ACS (Sheifer, Canos, Weinfurt, Arora, Mendelsohn, Gersh & Weissman, 2000).

Single – centre databases, multicentre registries, and fewer randomized trials have all reported that when compared with men, women have a higher prevalence of risk factors, acute coronary syndromes, (Angina) symptoms, and a higher prevalence of congestive heart failure, despite preservation of Left Ventricular (LV) systolic function, but a similar (or lesser) extent of epicardial coronary disease (Edwards, Carey & Grover, 1998). Diagnosis and risk assessment of CAD in women has traditionally been more difficult than in men. The sensitivity and specificity of stress testing is lower in women (Hochman, Tamis & Thompson, 1999). Although not an entirely consistent finding (Lagerqvist, Safstrom & Stahle, 2001), prior studies have shown that women have higher rates of in-hospital complications and risk of death after ACS than men (Hochman, McCabe, Stone, *et al.*, 1997; Hochman, Tamis & Thompson, 1999).

Cardiac biomarkers play an important role in the risk stratification and choice of treatment strategies for patients with ACS. Cardiac troponins, sensitive markers of myocardial necrosis (Hamm, Ravkilde & Gerhardt, 1992), are an important component of risk stratification (Antman, Tanasijevic & Thompson, 1996) and are useful in the prediction of therapeutic efficacy for pharmacological (Hamm, Heeschen & Goldmann, 1999) and percutaneous interventions (PCI) (Morrow, Cannon, Rifai *et al.*, 2001). Brain Natriuretic Peptide (BNP) is associated with heart failure in patients with shortness of breath (McCullough, Nowak & McCord, 2002) and is an indication of short – and long - term prognosis in patients with ACS (De Lemos, Morrow & Bentley, 2001). High – sensitivity C – Reactive Protein (hs – CRP), a measure of inflammation, provides powerful prognostic information for the development of cardiovascular events in men and women (Ridker, Hennekens & Buring, 2000).

Hs –CRP also predicts outcome in patients with ACS (Lindahl, Toss & Siegbahn, 2000) or those undergoing PCI (Blake & Ridker, 2002). A multimarker approach to the evaluation of ACS has demonstrated that these markers provide independent, complementary information regarding prognosis of patients presenting with a spectrum of ACS (Sabatine, Morrow & de Lemos, 2002).

2.5 THE CARDIAC PATIENT LEARNING NEEDS INVENTORY (CPLNI)

Gerard (1976) devised the original questionnaire called the cardiac patient learning needs inventory (CPLNI) contained 43 individual items grouped by subject matter into eight categories (‘introduction to the CCU’, ‘anatomy and physiology’, ‘psychological factors’, ‘risk factors’, ‘medication information’, ‘diet information’, ‘physical activity’ and ‘other pertinent information’). ‘Introduction to the CCU’ was not used by either Chan (1987) or Turton (1998).

In a study, the perceptions of 31 patients, who had suffered a myocardial infarction, were explored using the cardiac patients learning needs inventory (CPLNI). Of the 31 patient subjects, 15 were from CCU, whilst 16 were post – discharge patient. Their responses were then compared with those obtained from 36 nurses, of whom 20 worked in CCU and 16 worked on a general medical ward.

Using the CPLNI, the category “risk factors” emerged as the primary concern of both patient groups. This was in contrast to the nursing group, which ranked “risk factors” as almost the lowest topic in term of its importance, and instead placed “medication” as the most important. Besides ‘Risk factors’, patients from CCU also considered information about “medication” and “psychological concerns” as important. However, the post – discharge patients rated this as less important and instead they assigned greater importance to CCU information and cardiovascular anatomy and physiology. Yet, both patient and nurse subjects rated “signs and symptoms of myocardial infarction” and “what to do for chest pain” as the most important individual items of information (Gerard & Peterson, 1984).

The CPLNI had previously undergone both reliability and validity testing (Gerard & Peterson, 1984; Turton, 1998) and was piloted by Turton (1998). Gerard and Peterson (1984) devised the cardiac patient learning needs inventory (CPLNI). This tool has been used and validated in several subsequent studies. It contained eight categories/clusters (constructs) relevant to cardiac teaching.

A significant body of knowledge has developed with regard to the information needs of myocardial infarction, and despite limitations the repeated use of the CPLNI strengthens

and validates the findings (Scott & Thompson, 2003). The same authors performed a systematic review of this area and concluded that repeated use of this instrument allowed for good collation of data for interpretation in practice, whereas ad hoc use of other instruments were more difficult to interpret. In general, the results of previous studies on the topic revealed that all categories and items within the CPLNI to be important for learning for both nurses and patients (Timmins, 2005).

Scott and Thompson (2003), who examined the literature on the topic with a particular emphasis on the CPLNI, due to the consistency of its use, drew attention to several criticisms of this instrument and the knowledge that has developed as a result. They suggested that the use of a survey instrument designed and validated by health professionals provided a “distorted view of patients” real concerns and priorities. They also noted an absence of patient involvement in the tool’s development, suggesting that a new measurement tool should be devised based on systematic review, qualitative research and involvement of patients and experts in the area.

There is also concern about the discriminatory ability of measurement scales (Timmins & Kaliszer, 2003) reliability and the stem question “I need to know” (Hughes, 2000). However, despite these limitations, many of the emerging needs are also supported in other studies using both quantitative (Moynihan, 1984) and qualitative methods (Gambling, 2003; Hanssen, Norderehaug & Hanestad, 2005; Roebuck, Furze & Thompson, 2001; Thompson, Ersser & Webster, 1995; Wiles & Kinmonth, 2001). Hughes (2000) adapted instrument demonstrated only a marginal improvement in test-re-test reliability, and similar overall findings emerged.

The questionnaire used in this study was Timmins & Kaliszer (2003) version and it contained 37 items grouped into eight clusters (constructs) (‘anatomy and physiology’, ‘psychological factors’, ‘lifestyle factors’, ‘medication information’, ‘dietary information’, ‘symptom management’, ‘physical activity’ and ‘miscellaneous’ (*Appendix F*). Each item begins with the stem ‘I need to know’ in the patients’ version, in the nurses’ version ‘the patient needs to know’. The respondents were asked to grade the items into one of five importance levels, from ‘not important’, to ‘very important’. Following Turton a ‘not applicable’ section was included. In this present study, a section ‘comments’ was also added. In the statistical analysis, these levels were scored from 1 to 5 (Timmins &

Kaliszer, 2003). Each item is awarded from one to 5 point. The top grade is score five (very important). The higher the score, the more the need required to care for the patient.

Based on rank ordering of the results, Turton (1998) concluded that there were little differences between nurse and patient groups, unlike previous studies. Two categories revealed significant differences between nurse and patient groups: activities and drug information, which patients viewed as being of lesser importance. Differences in responses to individual items were not compared, although graphical representation of the differences in ranking of the least important items was used to visually compare differences in responses. Differences that emerged here were more emphasis on resuming sexual activity by nurses (of least importance to patient).

In a study, the categories entitled “medication”, “cardiovascular anatomy and physiology” and “risk factors” achieved the highest mean ratings, both before and after discharge from hospital (Turton, 1998:772). This led Chan (1990:1143) to deduce that following Myocardial infarction, patients consider information relevant to “their survival of primary importance”.

Up until 1998, all of the published works in relation to the learning needs of patients post myocardial infarction and all the main studies identified were North American. This aspect of cardiac nursing had received little attention in Europe or UK. The first published British study on the topic emerged in 1998 (Turton, 1998). Therefore, given the differences between British and North American Health care system and cultures, one needs to be careful in how these studies and their findings are interpreted in relation to the U.K. (Murray, 1989). Turton (1998) surveyed patients (18) and their partners (18) and nurses who cared for them (18). The CPLNI was used to collect data. Findings revealed that lifestyle factors ranked first for both nurses and patients, while partners results ranked symptom management number one. Both categories were the two most important categories of information for both the patient/partner and nurse groups (Turton, 1998).

A study conducted in the USA used the CPLNI to collect data from 30 myocardial infarction patients in the first two phases of recovery. The category of medications received the highest overall mean score from patients in the first phase, and the risk factor category emerged as priority learning in phase 2. The individual item “when to resume

sexual activity” was reported as receiving the lowest overall response across both phases of recovery (Chan, 1990). While in the same year in the USA, Wingate (1990) used the CPLNI to collect data; this author used Knowles (1989) theory to support the study. The study of 32 MI patients across the first two phases of recovery revealed risk factors as a priority (Wingate, 1990). A modified version of the CPLNI was used to gather data from 28 patients with diagnoses of either MI or angina. Symptom management received the highest overall mean score during phase 1, cardiac anatomy and physiology ranked highest in phase 2. Lowest ranking priorities during both phases were smoking, work and sex (Czar & Engler, 1997).

2.6 NURSES’ PERCEPTION OF INFORMATION NEEDS

The rationale for comparing the perceived information needs of patients with nursing staff, is that nurses are “traditionally recognized as patient educators” (Moynihan, 1984), and they are usually the most immediate source of pertinent information for patients and their families whilst they are in hospital (Close, 1988). Therefore, given this relationship, the comparison appears a valid area of investigation. The need for information is considered important by families. Relatives have a need to know what happened to the patient, the condition of the patient, and what might happen to the patient (Verhaeghe, Defloor, Van Zuuren, Duijnste & Grypdonck, 2005; Agard & Harder, 2007). Information is very important for the families’ adaptation to critical illness.

From the literature review, a number of studies were identified which investigated the learning needs of different clinical populations (Chan, 1990; Gerard & Peterson, 1984; Karlik & Yarcheski, 1987). The majority of these studies compared the perception of patients with nurses, with regard to the importance of different information relative to the patients particular condition, although in this review, this literature review will only discuss the studies related to the information needs of post Myocardial Infarction patients in recovery stage (Pre discharge).

The perception of Myocardial infarction patients and professionals about their information needs frequently differ (Scott & Thompson, 2003; Wingate, 1990) because patients’ learning needs and their ability to retain information change in different stages of recovery (Wang, 1994).

Family members of patients with myocardial infarction should be included in the educational process so that they can learn about heart disease and help the patient achieve the goals of rehabilitation. Family members also should be given the opportunity to learn cardiopulmonary resuscitation because most episodes of cardiac arrest in patients with myocardial infarction occur within the first 18 months after discharge from the hospital (Antman, Anbe & Armstrong, 2004).

The experience of a cardiac event is a source of stress for both patients and their family members that may be viewed as a crisis that significantly disrupts family functioning and dynamics (Gilliss, 1991; King & Parinello, 1988). The trajectory of cardiovascular disease, including both the acute and recovery stages, involves continuous adjustment by patients and family members as the attempt to reconcile the impact of the event and adapt to the uncertainties associated with the chronicity of coronary heart disease (Marsden & Dracup, 1991; Moore, 1994).

A study by Orzack and Staniloff (1987) compared the information needs of patients and spouses post myocardial infarction, which is rather surprising given that the spouse plays a major role in the patient's recovery and "largely determines the rate and extent of his recovery" (Thompson, 1990: 6). Indeed, from this study it was found that the spouses' information needs were just as important as those of the patients were, with information related to receiving emotional support (Orzack & Staniloff, 1987). It appears that practical information about matters such as "risk factors" are the primary concern of patients' post myocardial infarction. Given the findings of Orzack and Staniloff (1987), it is likely that such information will also be rated very highly by spouse/partners. However, the perceptions of patients and spouse/partners regarding their information needs, appear to vary at different stages in the recovery process, and may be at variance with the perceptions of nursing staff.

The findings of Turton (1998) indicate that patients appear to favour practical information about their condition, its cause and prevention, whereas nurses are more focused on medical aspects of care such as medication and anatomy and physiology. A suggested reason for this was that during illness patients might view information central to their survival as being of utmost importance.

More recent authors argue that information seeking helps to minimize stress in difficult situations (Lazarus & Folkman, 1984) and the desire to obtain information when facing a new experience is relevant to the learning needs of patients (Jickling & Graydon, 1997), as the uncertainty encountered during an episode of ill health may be decreased by information seeking (Galloway & Graydon, 1996). It is important for health professionals to recognize these insights, as identifying and attending to patients' information needs may help them increase their understanding of illness-related events and consequently improve their quality of life (Galloway, Bubela, McKibbin, McCay & Ross, 1993).

In a study, 12 physicians, 33 nurses and 30 patients completed questionnaires in order to elicit similarities and differences in their perceptions of the educational needs of patients post myocardial infarction. From the results, it appeared that general agreement existed between the three groups since they all felt that "dealing with emotions and stress", "medications" and "risk factors" were the most important areas of information need (Casey, O'Connell & Price, 1984).

A study by Karlik and Yarcheski (1987) attempted to duplicate the findings of Gerard and Peterson (1984) by undertaking a partial replication study. Using a patient sample similar in size and age range to that of the original study, they found that the category "risk factors" was again the most important area of information need. However, unlike nursing staff in the original study who rated information about "risk factors" as being one of the lowest categories of information need, nurses in this study ranked it as being higher in its importance, although this was still lower than the rating given by the patients in both studies.

2.7 PATIENTS' PERCEPTION OF INFORMATION NEEDS

With regard to the post myocardial infarction patients in hospital, Moynihan (1984) found that the four most important areas of information in descending order of priority were: "diet", "medication", "activities" and "risk factors". This differed from those perceived as being important after discharge from hospital, when the most important areas of information in descending order of priority were: "hobbies", "sexual activities", "medication follow up" and "limitation on activities".

Perceptions of less adverse consequences of illness appear to be associated with more positive health outcomes in a variety of health settings (Petrie & Weinman, 1997; Scharloo, Kaptein, Weinman, Hazes, Breedveld, & Rooijmans, 1999). Similarly, Meyer, Leventhal and Gutmann (1985) found patients' initial perceptions about their illness 'timeline' to be a good predictor of whether they remained in treatment.

According to Bandura (1977), expectations of self-efficacy are the most powerful determinants of behavioural change because self-efficacy determines the initial decision to perform behaviour, the effort expended, and persistence in the face of adversity. Convincing the patient that certain behaviour will lead to a desirable outcome may not produce behavioural change unless they believe that they can perform the behaviour in the required situation.

A seminal study on patient information needs reports that well-informed patients are more likely to adhere to treatment regimes and are better prepared to meet their self-care needs (Dodge, 1969). Research shows that myocardial infarction patients often rate information needs highly in relation to other self-perceived needs (Scott & Thompson, 2003) and the approach of acknowledging the needs of cardiac patients within their education has long been advocated (Karlik & Yarcheski, 1987; Solman, Conway & McMillan, 2004). Similarly, the education needs of myocardial infarction patients have been researched over many years (Goodman, 1997).

Identifying at – risk patients for targeted interventions to prevent premature cardiac medication discontinuation is vital.

Empirical research by Bandura and by others (Bandura, 1977) has demonstrated positive correlations between therapeutic changes in behaviour and changes in self-efficacy. The psycho-educational interventions based on expectancy theory aim to respond to individual patient constructs of their illness and the potential for recovery (Linden, Stossel & Maurice, 1996; Dusseldorp, van Elderen, Maes, Meulman & Kraaij, 1999), and are particularly relevant for individualized care, as evidenced in numerous studies with a range of conditions: cardiac patients compliance to exercise regimes (Jeng & Braun, 1997); adjustment in cancer patients (Beckham, Burkner, Lytle, Feldman & Costakis, 1997); control of chronic pain (Asghari & Nicholas, 2001) and addictive behaviour (Marlett, Baer, Quigley, 1994).

Self-efficacy has been primarily conceptualized as a situation-specific belief; there is evidence that the experiences of personal mastery that contribute to efficacy expectancies generalize the actions other than the target behaviour (Sherer & Maddux, 1982).

2.8 CORONARY CARE NURSING AND CORONARY CARE UNIT (CCU)

Literature suggests that nursing has always been a reflection of the position and status of women in society (Hancock, 1989; Oakley, 1984). With reference to Briggs' (1991), male-female personality traits reveal that the perceived qualities of the CCU nurse are essentially male. One could argue that the ability to assume serious responsibility requires logic, independence and assertiveness (male characteristics), rather than dependence, emotional instability and passivity (female characteristics).

In the mid 19th century nursing began to evolve as a separate occupation to medicine. It was no more, and less, than a specialized form of domestic work (Oakley, 1984). The model of the Florence Nightingale nurse was to be obedient to the physician and selflessly devoted to the patient (Chipman, 1991). Nursing and teaching are considered elements of the fundamental female life purposes! Meaning, despite the presence of males who are in the minority in the nursing profession, it is still a female predominance because of the nature and the role which consists of nurturing and mothering.

2.8.1 Nursing

Trying to define the roles of the nurse is not without difficulties. Nurses themselves spend a great deal of time attempting to define their activities, roles and functions. In the United Kingdom the title "Nurse" can only be used by those who hold a recognized nursing qualification (Hunt, 1984). However this does little to help the definition of the qualities a nurse possesses and the roles fulfilled.

Nevertheless the enormous range of work which any single nurse undertakes, and kaleidoscopic variety of the occupation, makes simple definitions of the role of the nurse difficult, if not impossible. It may therefore be simpler to explore one area of nursing in an attempt to examine aspects of nursing work and the qualities he or she must possess to fulfil that role.

2.8.2 Coronary Care Nursing

The concept of coronary care was conceived in 1962 when it was reasoned that, if patients' following myocardial infarction were kept under constant surveillance in a special coronary care unit cardiac rhythm they could be observed continuously where resuscitative equipment was always ready for immediate use. It would thus be possible to detect and terminate lethal arrhythmias the instant they occurred. In this way, sudden, unexpected death from arrhythmias could be avoided. Research at the Presbyterian University of Pennsylvania Medical Centre revealed that specially trained nurses were capable of serving in this critical position (Meltzer, Pinneo & Kitshell, 1983). This was the beginning of the CCU nurse as he/she is today.

CCU nursing therefore began with its roots held firmly in the technological aspects of care, arguably developing a distinct type of nurse. According to Thompson (1982) nurses who wish to work in this area often desire a hectic pace and high tension, whilst McCulloch, Townsend and O'Williams (1985) claim CCU nurses have a capacity for leadership, expertise in technology and an ability to teach.

Meltzer *et al.*, (1983) expands on these characteristics and describes specific qualities required as necessary for CCU nursing. The first quality is that of emotional stability; making decisions instantly and assuming serious responsibility. The second is social maturity; CCU nurses must maintain a secure, interdependent relationship with the physician members of the team, which may be difficult due to the traditional nurse/doctor relationship. Meltzer suggests that it takes considerable discretion and a mature approach for nurses to handle these situations. The third is intelligence; nurses whose academic record in nursing school indicates a high level of intelligence and superior learning ability are apt to be the best candidates for coronary care nursing.

Secondary prevention of myocardial infarction starts in Coronary Care Unit (Brvar, Mozina, Noc, Koiim, 2007). Speedier patient discharges have reduced nurse's opportunities to provide pre discharge education (Ashton, 1997) as hospital stays have become shorter for many patients (Hughes, 2000; Scott & Thompson, 2003). In spite of this, nurses must continue to assess comprehensively the needs of patients to give them

useful and appropriate information in preparation for going home. Discharge teaching is a critical component of nursing care (Jickling & Graydon, 1997).

At the same time, hospitals are facing an ongoing shortage of critical care nurses. ICUs that were once reserved for the most experienced nurses are now training ground for the newly graduated nurse. The novice nurse must focus on learning how to manage the myriad of technological devices used to support the critically ill patient while understanding the pathophysiology of multisystem illness. For the new nurse, it may be very difficult to move beyond the essential nursing tasks that are an integral part of patient care to address the educational needs of the patient and family (Morton & Fontaine, 2009).

The nurse advancement systems provide a process for recognizing nurses who move from novice to expert in providing or influencing patient care. Nursing advancement systems were developed in the early 1970s to promote clinical excellence and recognize nurses who worked at the bedside. Nurse advancement systems offer an avenue for professional development, promotion, increased recognition, and financial rewards. Benner's (1984) structural explanation of her findings was presented as five stages of gaining experience in clinical practice, which describe the nurse in a particular clinical situation as a novice, an advanced beginner, competent, proficient, or expert. The stages identified are based on the Dreyfus model of skill acquisition (Dreyfus & Dreyfus, 1982).

In addition, the expanded use of contract nurses to meet the demands of a variable patient census or to fill staff vacancies can also have a negative impact on patient and family education. A nurse working only one or two shifts a week may not develop a relationship with the patient and family or be able to follow up and validate learning. Difficulties mount when there is little or no continuity of care to assess learning needs and promote education. The research literature shows that both illness representation and self-efficacy offer health care professionals a basis from which to address the individual needs of patients (Walker, 2004). In the South African context, it is rare in the coronary care unit to have the same nurse taking care of the same patient often.

Following the Alma Ata Declaration in 1978 and subsequent targets for health published by the World Health Organization (1985), a reorientation towards promoting healthy lifestyles occurred in international health care. Health promotion initiatives were adopted

in many countries and continue as a predominant paradigm in current health care practice. Influential aspects of these developments were the recognition of the important role of the nurse in health promotion and needs based health promotion programs (World Health Organization, 1991).

Registered nurses working in the South African setting have an obligation, in terms of their professional regulation (SANC, 1984) to meet the health needs of patients assigned to their care. As professional nurses, intensive care registered nurses also have a responsibility to extend their acute care to incorporate health promotion practices as determined by the individual needs of their patients; such is the need of myocardial infarction patients. This area has not yet been explored in the South Africa setting.

The Declaration of Helsinki is an important ethical document and sets out the guidance for physicians in biomedical research involving human subjects. The most recent amendment was introduced at the 41st World Medical Assembly in South Africa in October 1996. It is also important that if practitioners are to be patient advocates then they too should be aware of these guiding principles. At the very heart of the declaration is the principle that the health and safety of the patient is the prime consideration at all times. The declaration forms the foundation for good clinical practice for research (Tarling & Crofts, 2002).

Since the Framingham Study of risk factors in 1951 and the development of Coronary Care Units in the 1960s, the critical care nurse has played a major role in helping to reduce the mortality associated with heart disease. The critical care nurse uses advanced assessment skills, rapid decision-making and therapeutic intervention to treat the patient in the acute phase of cardiovascular disease. Patient education and psychological support provided by the nurse have enabled patients and their families to return home and maximize their health status (Morton & Fontaine, 2009).

2.9 CARDIAC REHABILITATION

The World Health Organization (WHO) defined rehabilitation as “... the sum of activities required to influence favourably the underlying cause of the disease, as well as to ensure patients the best possible physical, mental and social conditions so that they may, by their own efforts, preserve, or presume when lost, as normal a place as possible in the life of the

community” (Bethell, 2000: 92). In the early 1960s cardiac rehabilitation programmes were developed (Ades, 2001:892) to educate patients about modifying their lifestyles to reduce recurrent coronary events (Baessler, Hengstenberg, Holmer, Fischer, Mayer, Hubauer *et al.*, 2001: 1111).

Research has demonstrated that nurses and patients’ views about what is important in cardiac rehabilitation are not always the same (Normington & Goodwin, 2000) and that patients often have very different models of illness from professionals, which influence patients’ understanding of their cardiac problems (Gassner, Dunn & Piller., 2002). The content of patient information and how it is devised is, therefore, a very important consideration. However, judging when it is best to deliver the information is also highly significant (Wingate, 1990).

Preparation for discharge must begin early in the patient’s course of hospitalization. Patient and family education is an essential component of the process. A severely compromised, critically ill patient may lack the ability to process and retain new information but usually is motivated to learn after the life-threatening event (Morton & Fontaine, 2009).

Cardiac rehabilitation is recommended for most patients after myocardial infarction. Cardiac rehabilitation involves a combination of prescribed exercise, education, and counselling. The goals of cardiac rehabilitation are to limit the adverse physiological and psychological effects of heart disease, modify risk factors, reduce the risk for sudden death or reinfarction, control cardiac symptoms, stabilize or reverse the atherosclerotic process, and enhance the patient’s psychosocial and vocational status (Antman, Anbe & Armstrong, 2004). The benefits to patients are achieved through the exercise, education and psychological support, which are present in cardiac rehabilitation (Tod ,Lacey,McNeill, 2002).

The National Health Plan for South Africa (ANC, 1994) states that all citizens have the right to promotive, preventive, curative and rehabilitative care. Through rehabilitative care after a myocardial event, the patient quality of life will be restored.

Most hospitals that treat patients with coronary artery disease offer secondary prevention by using structured cardiac rehabilitation programmes. However, not all the patients who

are appropriate candidates for the rehabilitation programme are included in a structured rehabilitation programme (Fonarow, Gawlinski, Moughrabi, & Tillisch, 2001:819).

An additional problem in the South African community is the lack of specialized hospitals, with cardiac rehabilitation programmes in the surrounding neighbourhood and therefore it is difficult for patients to attend these programmes. It is not always possible also to have the personnel available to manage these cardiac rehabilitation programmes. Even in hospitals where there are established cardiac rehabilitation programmes the attendance of patients is poor. Research done on participation rates showed that participation in cardiac rehabilitation programmes is as low as 10 – 20% (Carlson, Johnson, Franklin & VanderLaan, 2000). The reasons given for poor participation are geographic misdistribution of available programmes, transportation, work constraints, medical contraindications, and non-referrals by doctors (Ades, 2001; Ades, Pashkow, Fletcher, Pina, Zohman & Nestor, 2000).

There is evidence that cardiac rehabilitation can decrease the debilitating effects of myocardial infarction and can improve the confidence of cardiac patients. Like the illness representation model, self-efficacy expectation is associated with a wide range of health outcomes (Schwarzer, 1992), and has been shown to predict recovery of function in rehabilitation (Johnson & King, 1995).

In the incidence of Coronary Heart Disease increases as people age, older patients have been relatively ignored in research into cardiac rehabilitation (Kennedy, 2002). Even though older patients may benefit from appropriate medical treatment after a myocardial infarction, they do not always receive this as frequently as young patients (Chorzempa & Tabloski, 2001). There is clearly, therefore, a gap in research and practice relating to the cardiac rehabilitative needs of older patients. Studies on other patient groups have, however, found differences in the information needs of patients according to their age, both in hospital (Dodge, 1969) and after discharge (Johansson, Hupli & Salanterä, 2002). Wang (1994) calls for more research to address the lack of studies specific to elderly myocardial infarction patients, suggesting a comparison between the needs for patients younger and older than 65.

2.10 OTHER INSTRUMENTS

After our critical review on the literature, it was found that there are other categories of instrument, but they were not suitable as they intended to focus on single topics in relation to myocardial infarction, e.g. Hughes (2000) who developed the instrument INIPPI, Leventhal, Nerenz and Steele (1984) who devised the SRM, Sherer and Maddux (1982) who developed the GSES. The CPLNI was suitable as it was comprehensive to holistic perspective of nursing

2.11 SUMMARY

The literature indicates that cardiac rehabilitation programmes can ensure the reduction of risk factors of myocardial infarction, which will lower readmission to the hospital, morbidity, and mortality. However, despite the current emphasis, on individualized cardiac patient education, both in hospital and post discharge phase, many patients and families report information deficits following an acute cardiac event (Hanssen *et al.*, 2005; Scott & Thompson, 2003; Webster, Thompson & Mayou, 2002).

Nurses working with coronary care or recovery wards, by virtue of their close contact and time spent with patients, are in a prime position to impart information to patients with coronary heart disease recovering from acute events (Mirka, 1994). However, the approach to information giving is not uniform across hospital settings, and there are wide varieties in practice.

Nurses have their priorities in patient information needs; individual patient assessment may reveal that some patients actually require little information as a result of prior knowledge, whereas others may require a lot of support to achieve knowledge and understanding. So, to overcome these issues, it is better to have an initial individual identification of patient perceived information needs. The CPLNI item that is relevant for nurses or one group of patients may not always be relevant for others.

There is therefore a professional responsibility to educate and inform patients appropriately regarding their condition as identified in the SANC code of conduct for registered nurses. The question remains as to whether these responsibilities can be met while at the same

time, providing an approach that is needs based and individualized, also to consider the context and circumstances should nurse/patient negotiated needs assessment take place. In the context of nurses' time constraints and short hospital stays, this presents a great challenge.

Literature also indicates a shortage of ICU nurses as a major crisis facing South Africa. Currently, within South Africa, it is estimated that only 25,6% of all nurses working in the intensive care units (ICUs) are intensive care trained, and 21,4% are drawn from the ranks of sub professional nurses (Scribante, Schmollgruber & Nel, 2004:113). The available staff may not be able to meet the patients' needs and demands at a specific time. At times also, the patient doesn't appear to want to know or need to know, only because they are unable to absorb the information during their hospital stay due to post-traumatic stress or other negative psychological responses to their illness, which may impair cognition. Good nurse and patient communication is essential.

The next chapter will describe the research design used to compare nurses' and patients' perceptions of information needs of acute myocardial infarction patient, population, sample and sampling methods and data collection. Ethical considerations as well as aspects of validity and reliability related to this study are also discussed.