Coping, Anxiety, and Quality of Life of Patients with Myocardial Infarction in Sahid Gangalal National Heart Center, Bansbari, Nepal

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ABSTRACT

This descriptive study aimed to examine the relationships among coping, anxiety, and quality of life (QoL) of patients with myocardial infarction (MI). Eighty-eight patients of MI, after two months of initial diagnosis, were recruited by purposive sampling. A 40-item Jalowiec Coping Scale (JCS) was used to measure coping strategies, a 40-item State-Trait Anxiety Inventory (STAI) was used to measure anxiety, and a 70-item Quality of Life Index cardiac version (QLI) was used to measure QoL. The coefficients alpha of those instruments yielded acceptable values which ranged from .85 - .93. Pearson's Product Moment Correlation was used to examine the relationships among the study variables.

Findings showed that patients with MI used more problem-focused coping (M = 51.15, SD = 15.29) than emotion-focused coping strategies (M = 41.92, SD = 7.37). The most commonly used problem-focused and emotion-focused coping were "acceptance" (89.5%) and "telling oneself not to worry about" (85.2%). The patients reported moderate level of state anxiety (M = 40.39, SD = 12.3) and moderate level of overall QoL (M = 22.01, SD = 3.56). Partial correlation analysis, controlling for trait anxiety, showed significant negative correlation between problem-focused coping and state anxiety (*r* = -.22, p < .05), and significant positive correlation between problem-focused coping and QoL (*r* = .29, p < .01). However, emotion-focused coping was not significantly correlated with both state anxiety and QoL. In addition, state anxiety and QoL had a significant negative correlation (*r* = -.40, p < .01).

The results of this study revealed that the more often the use of problem-focused coping, the less anxiety and better QoL in Nepalese patients with MI. Findings from this study will help nurses design specific interventions to promote the use of problem-focused coping to lower anxiety levels and for the optimum QoL of Nepalese patients with MI.

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CHAPTER 1

INTRODUCTION

Background and Significance of the Problem

The incidence of cardiovascular diseases is increasing throughout the world (World Health Organization [WHO], 2008) and is expected to increase by 120% for women and 137% for men in developing countries contrasting with 30 - 60% in developed countries from 1990-2020. In addition, 60% of heart disease was expected to occur in India in 2010 (Yusuf, Reddy, Ounpuu, & Anand, 2001). In Nepal, it is estimated that 5.6% of people living in the mountainous, 1.5% of people living in the hilly, and 5% of people living in the plane regions suffer from cardiovascular diseases (Shankar, Partha, Shenoy, Chandrasekhar, & Dubey, 2007) with its increasing trend (Maskey, Sayami, & Pandey, 2003).

However, no national data regarding incidence and prevalence of myocardial infarction (MI) has been reported in Nepal (Maskey et al., 2003; Panta, Paudel, Paudel, Pathak, & Alurkar, 2009). Hospital based data in different hospitals of Kathmandu, the capital city of Nepal, showed a 40-fold increase in incidence of acute MI in the last 30 years (Maskey et al.). Based on the data available from the Sahid Gangalal National Heart Center [SGNHC], (2007) of the patients with cardiac diseases, 21% had ischemic heart diseases and 43% had coronary artery diseases with MI being more prevalent.

MI, a life-threatening cardiovascular disease commonly known as heart attack, is the necrosis of heart muscles resulting from ischemia (Kumar, Abbas, Fausto, & Mitchell, 2007). MI alters the physical, psychological, social, and spiritual well-being and adversely affects Quality of Life (QoL) (Alsen, Brink, & Persson, 2008). The primary physical alterations are incomprehensible fatigue (Alsen et al.), unexpected weakness, breathlessness after exercise, and angina (Thompson & Lewin, 2000). Likewise, psychological alterations include anxiety, low mood, tearfulness, sleep disturbance, and poor concentration or memory (Thompson & Roebuck, 2001). The role of anxiety as a prognostic factor in the development of adverse cardiac events among MI patients is well known to negatively affect the QoL. Social alterations were shown by patients with MI by restricted involvement in recreational activities, involvement in gathering, and shopping and spiritual alterations were explained by changes in identity, well-being, and a connection to others, especially to God, thereby affecting overall QoL (De Jong et al., 2004; Roebuck, Furze, & Thompson, 2001).

Despite the negative consequences of MI, survival after MI is increasing due to effective management strategies in the early recovery phase as well as secondary prevention (Gheorghiade, Ruzumna, Borzak, Havstad, & Goldstein, 1996; McGovern et al., 1996; Patel, Pawan, Arora, & Rohit, 2010). It is evident that the probability of survival for 5 years after MI is 71%-72% and survival for 10 years is 53%-54% (Brounnum-Hansen et al., 2001; Shibeshi, Young-Xu, & Blatt, 2007).

Hence, patients live with the consequences for a long period of time after the diagnosis of MI. Consequences such as breathlessness, particularly during the night, were reported as having the most negative effect because it evoked fears of drowning and imminent death and disturbed sleep and resulted in a fragile physical and emotional state. Similarly, fatigue altered daily activities to the extent that patients with MI could not get through the day without a rest. In addition, chest pain was described as the most important cause of worry (Roebuck et al., 2001). In response to the consequences of the disease, generally a coping process is initiated. Coping is associated with regulation of emotion and solutions to the problems throughout the stressful period (Folkman & Moskowitz, 2004). According to Lazarus and Folkman (1984), there are two types of coping strategies namely; problem-focused and emotion-focused coping strategies. In problem-focused coping strategies, a person tries to change his/her situation and in emotion-focused coping strategies, a person tries to regulate the emotions caused by the stressful situation (Lazarus & Folkman). Problem-focused and emotion-focused strategies can both facilitate or impede each other in the outcome of the coping process.

There are many studies related to coping, anxiety, and the QoL of patients with MI both in western and eastern countries. The results show that patients with MI use different coping strategies such as problem-focused, emotion-focused, confrontive, or the seeking of social support (Chiou, Potempa, & Buschmann, 1997; Fox-Wasylyshyn, El-Masri, & Krohn, 2007; Kristofferzon, Lofmark, & Carlsson, 2003; Stewart, Davidson, Meade, Hirth, & Makrides, 2000). Outcomes, measured in relation to anxiety and QoL differ based on the coping strategy used.

In Nepal, public knowledge regarding heart attacks is inadequate (Limbu et al., 2006). The common symptoms named by the community people of

Nepal for heart attack were fainting or collapsing and common treatment for such symptoms were giving water, providing fresh air, and rest (Limbu et al.). Due to the lack of knowledge of MI people may treat the symptoms of MI as simple ailments which might have a detrimental effect. In addition, the rural people of Nepal seek health care from traditional healers first for moderate or severe illness before visiting other health workers while, mild illness is treated at home (Jimba, Poudyal, & Wakai, 2003; Subedi, 1989). Moreover, in the rural villages of Nepal, community people do not want to utilize health care services due to long distances to health centers and a lack of time to visit health centers (Yadav, 2010). Therefore, people prefer to use self-medication, or home remedies for simple ailments.

There is no study on coping strategies, anxiety, and QoL of patients with MI in Nepal. The use of coping strategies is different from one culture to another, and its outcome also varies from individual to individual. Patients with MI in Nepal might have been using different coping strategies to deal with their illness than patients with MI in western culture. Therefore, the coping strategies frequently used to respond to illness, psychological state, and the QoL of MI patients are not well understood and need to be examined. An evaluation of the coping strategies that are used, the prevalence of anxiety, and the level of QoL will help nursing staff design an appropriate intervention regimen for patients with MI that affords the best outcome. Therefore, this research is focused on the relationships between coping, anxiety, and the QoL of Nepalese patients with MI.

Objectives of the Study

The objectives of this study were as follows:

1. To identify the types of coping strategies frequently used by patients with MI
2. To identify the level of anxiety of patients with MI
3. To identify the level of quality of life of patients with MI
4. To examine the relationship between coping strategies and anxiety of patients with MI
5. To examine the relationship between coping strategies and QoL of patients with MI
6. To examine the relationship between anxiety and QoL of patients with MI

Research Questions of the Study

This study aimed to answer the following questions:

1. What are the types of coping strategies that are frequently used by patients with MI?
2. What are the levels of anxiety of patients with MI?
3. What are the levels of QoL of patients with MI?
4. Is there any relationship between coping strategies and anxiety of patients with MI?
5. Is there any relationship between coping strategies and QoL of patients with MI?
6. Is there any relationship between anxiety and QoL of patients with MI?

Conceptual Framework of the Study

The theoretical framework of this study was guided by Lazarus and Folkman's stress and coping theory (1984). In 1966, Lazarus (as cited in Lazarus & Folkman, 1984) developed a three-phase approach to stress theory that involved a cognitive process of appraisal, coping, and outcome. According to Lazarus and Folkman (1984), when a person encounters a stressful situation, he/she appraises such situation as harm/loss, threat, or challenge (primary appraisal). In harm/loss appraisal, some damage to the person has already happened. In threat appraisal, harm or loss has not yet taken place but is anticipated to occur. To this extent, an individual can anticipate the future, plan for it and work through some of the difficulties in advance. Challenge appraisal is characterized by pleasurable emotions such as eagerness, excitement, and exhilaration, whereas, threat centers on the potential harm and is characterized by negative emotions such as anxiety, fear, and anger. After primary appraisal, one appraises if he/she can handle the situation, in other words, whether one has coping resources (secondary appraisal). Appraisal of the specific situation determines the unique coping strategies that an individual uses. Coping is executed to manage such situations which results in coping outcomes. In this study, the researcher conceptualized a situation of a patient being diagnosed with MI as a stressful event. He or she needs to cope with it, either to regulate the emotion, or handle the problem. Anxiety and QoL were conceptualized as situation-specific emotional outcome and an adaptational outcome, respectively. Spielberger's (1983) conceptualization of anxiety and Ferrans and Powers's (1985) concept of QoL were used to elaborate anxiety and QoL, respectively. The conceptual framework of this study is presented in Figure 1.

According to Lazarus and Folkman (1984) coping is a constantly changing cognitive and behavioral effort to manage specific external and/or internal demands that they are appraised as taxing or exceeding the resources of the person. Coping is a process through which an individual manages the demands of the person-environment relationship that are appraised as stressful. To cope with the stressful situation an individual needs to understand his/her situation (cognitive effort) and modify his/her behavior (behavioral efforts). Therefore, coping process must refer to specific thoughts, feelings, and acts rather than what a person reports he/she might or would do. It must be examined in a specific situation or context and must be studied in different time period so that changes can be observed in what is thought, felt, and done as the requirements and appraisals of the changing encounter. In this study, coping is a process which is used to handle/manage the stressful event after the diagnosis of MI by cognitive and behavioral effort of the patients with MI.

According to Spielberger (1983) anxiety is an unpleasant emotional state or condition that is characterized by subjective feelings of tension, apprehension and worry, and by activation or arousal of the autonomic nervous system. There are two types of anxiety: state anxiety and trait anxiety. State anxiety is defined by Spielberger et al. (as cited in Spielberger & Sydeman, 1994) as a temporal cross section in the emotional stream of life of a person consisting of subjective feelings of tension, apprehension, nervousness and worry, and activation (arousal) of the autonomic nervous system. Trait anxiety is defined as relatively stable differences in anxiety proneness of each individual. Spielberger further mentioned that whether or not people who differ in trait anxiety, they will show corresponding differences in state anxiety. It depends on the extent to which each of them perceives a specific situation as psychologically dangerous or threatening and this is greatly influenced by each individual's personal trait and past experience. State anxiety would vary in intensity and fluctuate over time according to the appraisal of the situation (Spielberger & Sydeman, 1994). Therefore, state anxiety was conceptualized as outcome variable of this study and trait anxiety was considered as a confounding factor that may have impact on state anxiety of patients with MI.

In addition, QoL was defined by Ferrans (1996) as a person's sense of well-being that stems from satisfaction or dissatisfaction with the areas of life that are important to him/her. Ferrans's concept of QoL comprises of four domains: health and functioning, social and economic, psychological/spiritual, and family domains.

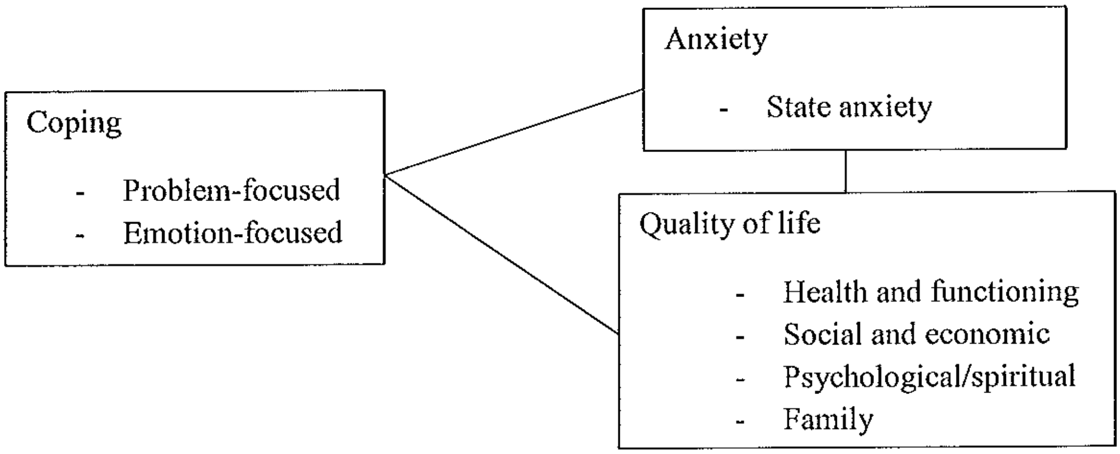

Figure 1. Conceptual Framework of the Study

Hypotheses of the Study

Hypotheses of this study were as follows:

1. There is a significant relationship between coping strategies and the level of anxiety of patients with MI.
2. There is a significant relationship between coping strategies and QoL of patients with MI.
3. There is a negative relationship between level of anxiety and QoL of patients with MI.

Definition of Terms

Coping refers to methods that patients use to deal with the stressful situation after the diagnosis of MI. Coping was measured using the Jalowiec Coping Scale (1977). There were two dimensions of coping: problem-focused coping and emotion-focused coping.

State Anxiety refers to the level of present feelings of tension, apprehension, and worry experienced by patients. It was measured using the State Anxiety Inventory (SAI) developed by Spielberger (1983).

QoL is a perceived sense of well-being by patients with MI that stems from satisfaction or dissatisfaction with the areas of life important to them. It was measured using the Quality of Life Index (cardiac version) developed by Ferrans and Powers (1985). There were four domains of QoL: health and functioning, social and economic, psychological/spiritual, and the family domain.

Significance of the Study

This study should provide the following information needed to lower anxiety and promote the QoL of patients with MI:

1. Providing appropriate coping strategies according to the patients' needs to lessen anxiety and promote QoL.

2. Offering baseline data for further research on issues related to coping, anxiety, and QoL of patients with MI.

3. Guiding future study on nursing intervention and enhancing the use of appropriate coping strategies in patients with MI.

Scope of the Study

This study was conducted in SGNHC, Bansbari, Nepal between October 2010 and January 2011. Patients attending the OPD on follow-up visits two months after their initial diagnosis of the disease were recruited for the study.

CHAPTER 2

LITERATURE REVIEW

This chapter describes theoretical concepts and research findings related to coping, anxiety, and QoL of patients with MI that include the following:

1. Overview of myocardial infarction
2. Consequences of myocardial infarction to patients' health
3. Lazarus and Folkman's stress, appraisal, and coping theory
    3.1 Concept of coping
    3.2 Dimensions of coping
    3.3 Functions of coping
4. Coping strategies used by patients with MI
    4.1 Factors influencing coping of patients with MI
    4.2 Measurement tools of coping
5. Anxiety
    5.1 Definition
    5.2 Anxiety of patients with MI
    5.3 Factors influencing anxiety of patients with MI
    5.4 Measurement tools of anxiety
6. Quality of Life
    6.1 Concept of quality of life
    6.2 Dimensions of quality of life
    6.3 Quality of life of patients with MI

6.4 Factors influencing quality of life of patients with MI

6.5 Measurement tools for quality of life

7. Relationships between coping, anxiety, and quality of life of patients with MI

    7.1 Coping strategies and anxiety of patients with MI

    7.2 Coping strategies and quality of life of patients with MI

    7.3 Anxiety and quality of life of patients with MI

8. Nepalese cultural context regarding health belief/behavior, potential to health problem/health outcome

Overview of Myocardial Infarction

In Nepal, the first definite diagnosis of MI was made in 1945 (Maskey et al., 2003). The incidence of MI in Nepal has increased eight times over the past four decades with the incidence of 20% in younger ages (< 45 years) and 2.8 times more in male population. Despite the increasing trend, only 17% of Nepalese patients with MI came to hospital within 2 hours after chest pain (Shah et al., 2003).

In the Nepalese context, patients spend their time on home remedies or traditional medicine, which is very detrimental to acute MI. Therefore, the causes of delay in health care seeking, especially in heart attack, are needed to be explored. Due to delay in health care seeking, a number of complications after MI were observed: most common being ventricular arrhythmia and complete heart block. In addition, in-hospital mortality after MI was found to be 7% - 7.5% (Shah, 2004; Shankar et al., 2007) and mortality after discharge from hospital was found to be 3.5% (Shah, 2004).

Therefore, almost 80% of patients with MI have to live with consequences after the illness.

Consequences of Myocardial Infarction to Patients' Health

To be diagnosed with MI is a traumatic and stressful situation to the patients and it may have an effect on physical, psychological, social, and spiritual well-being. The diagnosis of the disease has both immediate and late consequences.

Immediate consequences

Disturbance in the attainment of important goals of life (Boersma, Maes, & Joekes, 2005) and anxiety are immediate consequences after the diagnosis of the illness (Al-Hassan & Sagr, 2002).

Late consequences

Patients after the diagnosis of MI experienced a variety of health-related problems over a long period. These included physical symptoms such as insecurity, emotional reaction, dependency, lifestyle modification, concern over medication, side-effects of treatment, insecurity, and a feeling of overprotection (Boersma et al., 2005; Roebuck et al., 2001) that led to stressful situation and demand of coping process. Insecurity and feeling of overprotection were major problems experienced by patients with MI that provoked their anxiety level and decreased QoL (Roebuck et al.). In a systematic review, Simpson and Pilote (2003) found impaired physical capacity, work status, disease symptoms, functional status, and general health perception soon after the diagnosis of acute MI. Among those health-related quality of life (HRQoL) domains, certain domains such as physical capacity, functional status, and general health perceptions improved whereas other domains (work status and disease symptoms) worsened at follow-up. No significant effects were observed in perceived overall health or levels of bodily pain. Therefore, the authors concluded that HRQoL after MI was minimally affected and they recommended developing sensitive and accurate measurement tool to detect changes in patients' HRQoL. Interestingly, some MI patients in Norway and Iran, perceived positive effects of the illness such as appreciating life, getting better health care, making life-style changes, taking more care of themselves, and improved social/interpersonal relationships (Hassani, Afsiabifar, Khoshknb, & Yaqhmaei, 2009; Norekval et al., 2008).

Previous studies explored MI patients' experiences in both the male and female population. Hutton and Perkins (2008) explored male post-MI patients' experience in five themes: (1) Degree of expectedness: majority of the patients experienced MI as a complete shock; (2) Cognitive responses and emotional responses: majority of patients were confused about what they should be doing and worried about doing too much, some were trying to regain their lost confidence, several patients compared themselves better than other patients on the ward, some expressed anger and frustration, however some expressed feeling that they were going to be normal after MI; (3) Relationships with other: some patients perceived it as positive, however, others perceived it as excessive support, and several patients reported changes in their role; (4) Coping strategies: many patients described modification of dietary behaviors and use of cognitive coping strategies such as acceptance, religious faith and humor, avoiding thinking about the heart attack, and rumination; (5) Experiences of acute hospital services: patients were positive toward the health care services they got from hospital. Similarly, White, Hunter, and Holttum (2007) explored female post-MI patients' experience about their cardiac event. The study, while exploring women's experiences, did not intend to make direct comparisons with men. However, themes were generally consistent with the perception of men after MI, for example, expectation, uncertainty, cause of illness, fear and anxiety, anger and frustration, sadness and loss.

In summary, patients faced different health-related problems after MI, which endangered physical, psychological, social, and spiritual well-being. Both female and male patients expressed similar types of consequences after MI.

Lazarus and Folkman's Stress, Appraisal and Coping Theory

Lazarus and Folkman (1984) emphasized that stress is the relationship between person and environment, which takes into account characteristics of the person on the one hand and the nature of the environmental event on the other. The judgment that a particular person-environment relationship is stressful hinges on cognitive appraisal. Therefore, primary mediator of person-environment transaction is appraisal. There are three types of appraisal: primary appraisal, secondary appraisal, and reappraisal. Primary appraisal is a judgment about how a person perceives a situation. Specifically, a person assesses the possible effects of demands and resources on well-being. If the demand of a situation outweighs available resources then the individual may determine that the situation represents: (a) a potential for harm or loss (threat) (b) actual harm has already occurred (harm), or (c) the situation has potential for some type of gain or benefit (challenge). It is important to note, however, that the perception of challenge in the absence of perceived potential for harm is not considered a stress appraisal. Lazarus (1966) describes stress as disruption of meaning, while coping is defined as the way in which an individual deals with the disruption (as cited in Rice, 2000).

The perception of threat triggers secondary appraisal which is either the process of determining coping options, or behavior to deal with the stressful situation or a judgment concerning what might and can be done. It includes an evaluation about whether a given coping option will accomplish what it is supposed to do. One can apply a particular strategy or set of strategies effectively, and an evaluation of the consequences can be done. Often primary and secondary appraisals occur simultaneously. Reappraisal is the process of continuously evaluating changing or relabeling earlier primary or secondary appraisal as a situation evolves. A reappraisal differs from an appraisal only in that it follows an earlier appraisal. Sometimes reappraisals are the result of cognitive coping efforts and are called defensive reappraisals. The situation initially perceived as threatening may now be viewed as a challenge or as benign or irrelevant (Lazarus & Folkman, 1984). Therefore, anxiety can be viewed as reappraisal when it is continuously assessed in the longitudinal study. However, in this study state anxiety is an emotional outcome of the coping process not a reappraisal because it is a cross-sectional study. In order to assess anxiety as a reappraisal, a longitudinal study would have to be conducted.

There are many situational factors that influence an appraisal of threat, including their number, complexity, person's values, commitment and goals, availability of resources, novelty of situation, self esteem, social support, coping skills, situational constraints, degree of uncertainty, intensity, and duration of threat. What occurs during an appraisal process determines coping behavior (Lazarus & Folkman, 1984).

Additionally, Lazarus and Folkman (1984) linked stress-related variables to health-related outcomes. All of their constructs in the transactional model, when taken together, affect adaptational outcomes. In fact, coping outcome refers to the effect a coping strategy has. Lazarus and Folkman proposed three types of adaptational outcomes: (a) functioning in work and society; (b) morale or life satisfaction; and (c) somatic health. Even though Lazarus and Folkman (1984) have not explained the term "quality of life", they used the term "morale" to describe how people feel about themselves and their life condition related to happiness, satisfaction, and subjective well-being. Appraisal and coping processes affect both positive adaptational outcomes such as QoL and situation-specific emotional outcomes such as anxiety (Lazarus & Folkman). In this study, anxiety was viewed as a situation-specific emotional outcome of a coping process. When an individual makes a cognitive appraisal of a stressful situation, he/she utilizes cognition (cognitive efforts) to understand the situation and modifies his/her behavior (behavioral efforts) to solve the source of the problem or regulate the emotion based on the perceived appraisal. Outcomes of which vary from individual to individual and also from one situation to another.

Concept of coping

In 1980, Folkman and Lazarus defined coping as the cognitive and behavioral efforts made to master, tolerate or reduce external and internal demands and conflicts created by stressful situations (as cited in Lazarus & Folkman, 1984). Lazarus and Folkman (1984) made a distinction between coping as a trait and coping as a process. Coping as a trait is regarded as part of a person's character, which predisposes him or her to react in certain ways across different types of stressful situations and over time. In this study, coping was conceptualized as a process.

Dimensions of coping strategies

Different authors have categorized coping strategies in different ways. In 1966, Lazarus identified two forms of coping: direct action and palliative which were renamed as problem-focused and emotional-focused coping strategies, respectively by Lazarus and Folkman (1984).

Another dimension of coping strategies is adaptive and maladaptive. Adaptive coping strategies consist of acceptance, active coping, planning, religion/emotional support, instrumental support, positive reframe, and humor whereas, maladaptive coping strategies consist of behavioral disengagement, venting, self-distraction, substance use, self-blame, and denial (Kristiansen, Roberts, & Abrahamsen, 2008). In addition, Gutierrez, Peri, Torres, Caseras, and Valdes (2007) categorized coping in three categories namely: engagement, disengagement, and help-seeking.

Similarly, after extensive research and conceptualization, Jalowiec revised the old version of coping measurement scale Jalowiec (1977) to develop the new version with eight multidimensional coping strategies (Jalowiec, 2003). Those coping strategies were: confrontive, evasive, optimistic, fatalistic, emotive, palliative, supportant, and self-reliant. Most of them are subcategories of problem-focused and emotion-focused coping strategies.

Apparently, there are different dimensions of coping strategies such as problem-focused vs. emotion-focused, approach vs. avoidance, direct action vs. palliative, disengagement, and engagement and help-seeking, problem-oriented vs. affect-oriented. However, the basic concept of all different dimensions was similar to problem-focused and emotion-focused coping and also problem-oriented and affect-oriented coping. These can be used interchangeably with problem-focused coping and emotion-focused coping. Therefore, in this study, two dimensions namely: problem-focused and emotion-focused coping strategies were used.

Functions of coping

Lazarus and Folkman (1984) outlined the functions of coping in their book. They considered problem-focused coping strategies as cognitive and behavioral efforts for altering or managing the source of the problem and emotion-focused coping strategies as cognitive and behavioral efforts directed at reducing or managing emotional distress. Although, it can be expected that given function will have given outcomes, functions are not defined in terms of outcomes.

Coping Strategies Used by Patients with MI

Many studies have shown that patients with MI used various coping strategies when dealing with their illness and its consequences (Kristofferzon, Lofmark, & Carlsson, 2005 ; Stewart, Davidson, Meade, Hirth, & Makrides, 2000).

Most of the patients used both emotion and problem-focused coping strategies. Lazarus and Folkman (1984) also proposed that, despite the distinction between emotion-focused and problem-focused coping strategies, people use both coping strategies simultaneously. Shortly after the diagnosis of MI, patients used more optimistic coping strategy which was more helpful for them to deal with their illness (Chiou et al., 1997). In a study of Kristofferzon et al. (2005), patients with MI used more problem-focused, relationship-focused and emotion-focused coping strategies.

Factors influencing coping strategies in patients with MI

There are a number of factors that influence coping. They include: coping resources, age, sex, duration of illness, severity of illness (Lazarus & Folkman, 1984; Chiou et al., 1997; Kristofferzon et al., 2005; Kristofferzon et al., 2003; White, Hunter, & Holttum , 2007).

Coping resources. The way a person copes is determined by his or her resources, which include health and energy, existential belief, e.g. about God, or general belief about control, commitments (which have motivational property that can help sustain coping), problem-solving skills, social support, and material resources (Lazarus & Folkman, 1984). Availability of coping resources greatly increases the coping options in almost any stressful situation (Lazarus & Folkman).

Age. Age was negatively associated with the use of coping strategies (Chiou et al., 1997). Older patients used hope and prayer whereas younger patients used treatment strategies as problem-focused coping (Sanders, 2010). In addition, older adults who perceived their illnesses as highly serious were less likely cope by seeking information, restricting their illness as having positive aspects, or engaging in wish fulfilling fantasies, and more likely to cope by simply minimizing the illness's threat (Felton, 1987).

Sex. Many studies examined the association between coping strategies used by male and female patients after the diagnosis of MI. It was found that female patients used more coping strategies than males did (Kristofferzon et al., 2003; Brink, Karlson, & Hallberg, 2005). In the study by Kristofferzon et al. (2005), women were shown to use more evasive coping than men after 4 months of diagnosis of illness. It was found that men used cognitive coping strategies such as acceptance, religious faith and humor, and avoidance and women tended to minimize severity of symptoms and impact of event, displaying strong optimism and hope that life would soon return to normal (White et al., 2007). In summary, men seemed to use more problem-focused coping strategies than women.

Duration of illness. Complexity of appraisal increases with the increase in duration of the illness. Brown, Brown, and Jason (2010) found that patients with long illness duration used adaptive coping strategies such as active coping, positive reframing, planning, and acceptance more often than the patients with short illness duration. In contrast, short illness duration group used more behavioral disengagement. However, after the diagnosis of MI, over a long time, patients used the same coping strategy that they used for the first time Kristofferzon et al. (2005). This stability of coping over time found by Kristofferzon et al. may reflect the habitual way of coping by patients. Some authors suggested that patients with chronic illness may develop habitual or automatic behaviors over time (as cited in

Kristofferzon et al.). Therefore, the relationship between the duration of illness and the use of coping strategies are inconsistent.

Severity of illness. Different patterns of coping strategies depending on the severity of illness have been found in literature. Cancer patients with good chance of cure used more problem-focused coping strategies whereas patients with less possibility of cure used more emotion-focused coping strategies (Vidhubala, Latha, Ravikannan, Mani, & Karthikesh, 2006).

Measurement tools of coping

Several instruments have been developed by different researchers to measure different aspects of coping. Wegmann (1997) has discussed two categories of coping including those related to family sociology research and those derived from studies of health-care outcomes.

Ways of coping check list (Revised). This is a 66-item self administered questionnaire developed based on the framework of Lazarus and Folkman's stress, appraisal, and coping theory. Respondents are required to select one number of coping method closed to them in a 4-point Likert scale (0 = does not apply and/or not used; 3 = used a great deal). In community sample, the alpha coefficient alpha was .70 for confrontive coping, .61 for distancing, .70 for self-controlling, .76 for seeking social support, .66 for accepting responsibility, .72 for escape-avoidance, .68 for planful problem-solving, and .79 for positive reappraisal (Folkman & Lazarus, 1988).

Jalowiec Coping Scale (JCS). JCS is another coping measurement tool, a 40-item self-administered questionnaire developed based on the framework of Lazarus and Folkman's stress, appraisal, and coping theory. It assesses general or situation specific coping behavior by measuring the degree of using coping strategies in a stressful situation. JCS consists of 15 problem-focused and 25 emotion-focused coping strategies. Subjects rate each item on a 5-point scale (1 = never to 5 = always). Total score ranges from 40 - 200 where, the maximum possible score for problem-focused coping is75 and the same for emotion-focused coping is 125. A higher score suggests the more often use of coping strategies in each subscale. It has been assessed for stability and homogeneity reliability (Jalowiec, Murphy & Powers, 1984). In addition, JCS has been widely used to study coping in coronary heart disease patients. It is simple to understand and easy. Therefore, the 40-item JCS was used to measure coping in patients with MI.

Concept of Anxiety

The concept of anxiety started from the period of Freud (Spielberger, 1985). There are various definitions of anxiety by different authors. Anxiety is an emotional response to stress. It is especially likely to develop when individual perceive a marked imbalance between a threat posed by a stressor and the personal resources for coping with it.

Definitions of anxiety

Freud (as cited in Spielberger, 1985) defined anxiety as "something felt"- an unpleasant affective (emotional) state or condition that was characterized by subjective feelings of irritability, chronic apprehension, and "… all that is covered by the word 'nervousness'" and by essentially the same physiological and behavioral manifestations. Anxiety is an unpleasant emotional state or condition that is characterized by subjective feelings of tension, apprehension and worry, and characterized by activation or arousal of the autonomic nervous system Spielberger (as cited in Edelmann, 1992). Spielberger, Corsuch, Lushene, Vaff, and Jacobs as cited in An et al. (2004) defined anxiety as a feeling of fear, tension, panic, or the expectation that something unpleasant is going to happen.

Aubrey Lewis (as cited in Endler, & Kocovaki, 2001) defined anxiety as an emotional state with the subjectively experienced quality of fear as a closely related emotion. He pointed out that the emotion is unpleasant, negative, out of proportion to the threat, future directed, and involves both subjective aspects and manifests bodily disturbances. Beck, as cited in Zhang (2009) defined anxiety as an unpleasant emotional reaction to imagined or real dangers, accompanied by such negative emotional discharges as fright, nervousness, or tension.

Anxiety in patients with MI

Patients with MI are 10% - 26% more anxious than psychiatric patients (Moser & Dracup, 1996). Peak anxiety occurs within the first 12 hours of diagnosis of MI and varies for different time periods (An et al., 2004). The study by Crowe and Streiner (1996) showed that anxiety level decreased to some extent after discharge from hospital but remained at the same level for the remainder of the year. De Jong et al. (2004) conducted a research in five countries including western and eastern cultures and showed that, in all countries, patients after MI reported high level of anxiety in the acute phase. The main causes of anxiety in MI patients were related to therapeutic or diagnostic procedure, the health care environment, fear of death, cost of treatment, and fear of inability to resume self-care or recreational activities (De Jong et al.).

Factors influencing anxiety in patients with MI

A certain level of anxiety is essential in human life. However, anxiety can be especially detrimental when it leads to feelings of helplessness and inadequacy, and perpetuates an expectancy of negative outcomes and an inability to cope (Edelmann, 1992).The factors that influence anxiety in patients with MI include:

Demographic factors

Demographic factors that influence anxiety include: sex, age, occupation.

Sex. Women diagnosed with MI experienced a higher level of anxiety than men. The result was consistent in both western and eastern culture including: Australia, England, Japan, South Korea, and United States (Moser et al., 2003).

Age. Younger patients with MI are more anxious than older patients. Lower anxiety among older adults was noted in the study and the authors hypothesized that older adults may have more experience with illness and health care, less surprised by a cardiac event or more confidence in the ability to treat health care problems that made them fell less anxiety Rose, Conn, and Rodeman (as cited in Steinke & Wright, 2006).

Occupation. There is a general expectation that unemployed patients may show a higher level of anxiety. However, Crowe and Streiner (1996) found no association between occupation and anxiety whereas in another study, patients, who were still employed, reported feelings of anxiety and insecurity about their return to work (Roebuck et al., 2001). They expressed difficulty in returning to their jobs as their colleagues thought they may die at any moment.

Perception. In the study of Cherrington, Moser, Lennie, and Kennedy (2004), MI patients who perceived that the illness was serious and would last for a long duration showed a relatively increased anxiety level. Illness perception was changed over time from viewing MI as an acute event to a more chronic condition and anxiety level was increased accordingly (Alsen, 2009).

Given the importance of early modification of illness perception in the spouses of patients with MI, Broadbent, Ellis, Thomas, Gamble, and Petrie (2009) conducted an experimental study in the spouses of patients with MI and found that educational intervention improved spouses' perceived understanding about MI and significantly reduced spouses' anxiety. Therefore, it can be concluded that perception of illness has a significant relationship to anxiety.

Social support. Social support is another factor associated with anxiety in MI patients. The patients who have good social support may have low anxiety level. Khul, Fauerbach, Bush, and Ziegelstein, (2009) found that living alone was associated with increased anxiety after four months of diagnosis of MI. In addition, higher level of anxiety were almost twice in the patients who were alone than the patients who were with their family. Social support, like other coping resources, can moderate negative effects of stressful conditions (Stewart et al., 1997).

Culture. Culture influences the perception of a stress-producing situation, symptoms of stress, and the expression of emotion. A cross-cultural study in five different countries showed that patients with acute MI showed similar level of anxiety when controlled for socio-demographic data (De Jong et al., 2004). Similarly, Chinese and Taiwanese patients with acute MI reported similar levels of anxiety (as cited in De Jonget al.). Therefore, it can be said that the threatening nature of acute MI produces anxiety regardless of the patients' culture. Anxiety level in the long term after MI has not been studied in a cross-cultural aspect.

Measurement tools of anxiety

Many instruments are used to measure anxiety level. Some of the tools are very old and well validated and some are recent. Below, two anxiety measurement tools are described. Both the instruments are extensively used in MI patients and have been validated.

Beck Anxiety Inventory (BAI). This is a 21-item scale anxiety measurement tool developed by Beck and Steer (1993). The BAI asks individuals to rate symptoms of anxiety on a four point scale (e.g. 'heart pounding or racing,' fear of losing control) (Beck & Steer). The BAI has shown good psychometric properties, with high internal consistency ($\alpha = .92$) and good test re-test reliability ($r = .73$). The BAI has good convergent validity with other anxiety measures (mean $r = .51$) and discriminate validity with measures of depression (mean $r = -.28$) in a large psychiatric sample Beck et al. (as cited in Bieling, Antony, & Swinson, 1998).

The BAI is very useful for rapid screening of anxiety in a cardiac population. It does not overlap with depressive symptoms. The physical symptoms which are associated with primary cardiac events such as: inability to relax, fear of the worst happening terrified or afraid, nervous, and fear of losing control over death etc are measured by this instrument.

Even though the BAI measures anxiety without overlapping the depression symptoms, it does not measure the anxiety of the present situation. This instrument can not measure the level of anxiety the patients are currently facing. It measures the anxiety in general not focusing on the present situation.

Spielberger's State and Trait Anxiety Inventory (STAI). According to Spielberger (1983), anxiety has been described as the most common psychological reaction experienced by persons. It has two scales; state and trait scale. State anxiety inventory is designed to measure anxiety in a particular/specific time period. The trait anxiety inventory is designed to measure general level of arousal and predict anxiety proneness.

Both state and trait scales consist of 20/20 statements which take 5 - 10 minutes to complete. The scale is widely used in different populations such as elderly, medical/surgical populations including patients with MI (De Jong, An, McKinley, Garvin, & Moser, 2005). Coefficient alpha values for internal consistency ranged from .83 to .92 on the state anxiety scale and .86 to .92 on the trait anxiety scale. Test- retest reliability for the trait anxiety scale is high ranging from .73 - .86 for college students and .65 - .75 for high school students (Spielberger & Sydeman, 1994). The median stability coefficients for a number of different samples of college and high school students were .77 and .70, respectively. In contrast, the stability coefficients for the state anxiety scale were relatively low, with a me However, this lack of stability was expected, because a valid measure of state anxi should reflect the influence of unique situational factors that exist at the time testing (Spielberger & Sydeman).

The State Anxiety Inventory scale is a 4-point Likert scal with score 1 = (not at all), 2 = (somewhat), 3 = (moderately), and 4 = (very much sc Similarly, Trait Anxiety Inventory scale is also a 4-point Likert-scale, with score 1 (almost never), 2 = (sometimes), 3 = (often), and 4 = (almost always). The scale h both anxiety-present items and anxiety-absent items. In the state anxiety scale the are 10 anxiety-absent items and in the trait anxiety scale there are 9 anxiety-abse items. The scoring weights for the anxiety-present items are the same as the rati scores of the test form. However, the anxiety-absent items must be reversed from 1, 3, 4 to 4, 3, 2, 1, respectively.

The raw score can be grouped into three categories in a attempt to provide a clinical meaning of the scores. The total score ranges from 20 80. Higher scores reflect higher anxiety whereas a score of 20 - 39 indicates lo anxiety, scores of 40 - 59 indicate moderate anxiety, and scores of 60 - 80 indica high anxiety. In this study, both the state anxiety and trait anxiety inventories we used. The patients who have a high trait anxiety score are expected to present a hig state anxiety score.

Quality of Life

Concept of quality of life

The concept of QoL is dynamic and is viewed as multidimensional Cimete et al., 2003; Efficace & Marrone, 2002; Ferrans & Powers, 1992; Foreman & Kleinpell, 1990; Hacker, 2003; Jalowiec, 1990; Kaasa & Loge, 2003; Wilson et al., 2001; WHOQOL Group (as cited in Mandzuk & McMillan, 2005).

Hass (1999) proposed the definition of QoL as a multidimensional evaluation of an individual's current life circumstances in the context of the culture and value systems in which they live and the values they hold. The author further added that QoL is primarily a subjective sense of well-being encompassing physical, psychological, social, and spiritual dimensions. In the process of development of the World Health Organization quality of Life [WHOQoL] instrument, QoL is defined as an individual's perception of his/her position in life in the context of the culture and value system in which he/she lives and in relation to his/her goals, expectations, standards and concerns. It is a broad concept of person's physical health, psychological state, level of independence, social relationships, personal belief, and other relationships which are salient features of their environment (WHOQoL Group, 1994).

Dimensions of quality of life

Despite controversies regarding the dimensions of QoL, most experts agree that there are four to five generally accepted dimensions of QoL (King & Hinds, 1998). Those dimensions are as follows: (1) physical, (2) psychological, (3) social, (4) somatic/ disease and treatment related symptoms, and (5) spiritual.

According to WHOQoL group (1994), there are four dimensions of QoL which were considered the most appropriate. The four dimensions are: physical, psychological, social, and environmental (1) physical dimension includes: activities of daily living, dependence on medical substances and medical aids, energy and fatigue, mobility, pain and discomfort, sleep and rest, work capacity (2) psychological dimension includes: positive affects, spirituality, thinking, learning, memory and concentration, body image and appearance, self-esteem, and negative effects (3) social dimension includes: personal relationship, social support, and sexual activity (4) environmental dimension includes: financial resources, freedom, physical safety and security, health and social care, accessibility and quality, home environment, opportunity for acquiring new information and skills, participation in, and the opportunity for recreation/leisure activities, physical environment (pollution/ noise/ traffic/ climate) and transport.

According to Ferrans's (1996) conceptual model of QoL, there are four domains of QoL: (1) health and functioning domain, (2) psychological/spiritual domain, (3) social and economic domain, and (4) family domain. Additionally she divided QoL into three levels of taxonomy. The first level is the preview of health care, the second level is the impact of illness on QoL and the third is the QoL during illness.

Recently, Mandzuk and McMillan (2005) proposed four dimensions of QoL including physical, psychological, social and spiritual well-being. The physical dimension covers an individual's health. The psychological dimension includes; emotional well-being, spirituality, fulfillment, and personal satisfaction. The social dimension includes; social support, social roles, and friendship. Finally, the spiritual dimension includes; feelings of belonging. The individual's unique views are critical but objective measures such as housing, finances, and education may play a role in their QoL as well.

Quality of life of patients with MI

After the diagnosis of MI, patients need to change their life style, modify family relationships and perhaps their work pattern. Patients are subject to physical, psychological, social, and spiritual changes to their well-being during the recovery process. Physical and social alterations are very common Kiney and Wade (as cited in Yousefy, Keshtiaray, Yamani, Rabiei, & Baghbanian, 2009). Some of the patients delay in communication and environmental adjustment (Lane, Carroll, Ring, Beevers, & Lip, 2001). Spirituality is also one of the major components of QoL that patients with MI changed due to their illness. However, some patients with MI considered their spirituality as a source of support and felt that it affected their QoL (Groleau, Whitley, Lesperance, & Kirmayer, 2010).

Furthermore, a qualitative study was conducted by Roebuck et al. (2001) to explore and gain insights into the effects of MI on health-related quality of life (HRQoL) from 31 patients diagnosed with MI over 4 months period. Seven major categories: physical activity/symptoms, insecurity, emotional reaction, dependency, life style modification, concern over medication, and side effects of medication. Physical symptoms and activity most cited by patients included inability to perform daily activities during the day and breathlessness during the night became the most detrimental factor as it evoked a fear of drowning and impending death. Patients mentioned strained personal-relationships due to overprotection from the family.

Furthermore, recommendation and advice from health care professional all at one time overwhelmed the patients. In addition, side effects of medication were of great concern as well. In another study, QoL was negatively affected five months after MI both in men and women (Brink et al., 2002). In summary, QoL after MI is negatively affected in all dimensions of QoL.

Factors influencing quality of life of patients with MI

There are many factors that affect QoL of patients with MI. As it stands, the subjective perception of a sense of well-being varies from individual to individual.

Gender. Many studies showed that female patients had lower QoL in comparison to male patients after MI (Dixon, Lim, Power, & Fisher, 2000; Agewali et al., 2004; Emery et al., 2004; Brink et al., 2005; Garavalia et al., 2007). Despite the similarity in age, the same hemodynamic data and laboratory data, women had a significantly lower level of QoL, in all dimensions, than men (Agewali et al., 2004) and most of the women complained about physical problems after the diagnosis of MI (Dixon et al., 2000).

Age. Young patients had poorer QoL in the emotional and social dimension than older patients (Bengtsson, Hagman, Wahrgorg, & Wahrgorg, 2004; Beck, Joseph, Belisle, & Pilote, 2001) as well as lower health-related QoL (Boersma et al., 2005).

Illness perception. Negative illness perception is associated with lower level of QoL. Persistent negative illness perception plays a vital role in developing new episodes of depression following MI, thereby decreasing QoL (Dickens et al., 2008). Similarly, negative illness perception of heart disease causes a slower return to work and higher anxiety 3 months later (Broadbent et al., 2009) and it was predictive of more complications in the acute recovery phase (Cherrington et al., 2004). Misconceived belief that heart diseases are deleterious to health affected the patient's QoL. Additionally, cultural context influences a person's response to illness (Lin, Furze, Lpilsbury, & Lewin, 2008).

Physical symptoms. Physical symptoms influence the QoL of patients with MI. A study by Roebuck et al. (2001) showed that breathlessness, pain, fatigue, and anxiety were the most detrimental symptoms affecting QoL. Breathlessness was reported as having the most negative effect because it evoked fears of drowning and impending to death as well as disturbed sleep then developed a fragile physical and emotional state next morning. Additionally, dyspnea and angina were strongly associated with impaired QoL (Arnold, Spertus, Xiao, & Cohen, 2009).

Overprotection. Overprotection is another factor that patients experienced in their life after the diagnosis of MI. Patients received overprotection by their partner/family member in the early recovery period that gave them feelings of frustration and anxiety with a lower QoL and decreased sense of well-being (Condon & McCarthy, 2006; Joekes, Van Elderen, & Schreurs, 2007). So, overprotection from the family is another cause of low QoL of patients with MI.

Measurement tools for quality of life

QoL is multidimensional concept which provides comprehensive and sensitive information on the burden of disease and the effectiveness of treatment.

Health researchers have not yet reached an agreement on a gold standard or the best method of measuring QoL Cella and Tulsky (as cited in Haberman & Bush, 1998). Generally, measurement of QoL is portrayed in two ways; qualitative measurement and qualitative measurement and there are generic and disease-specific instruments to measure QoL in health science. Nowadays, either generic or disease-specific instruments are being used in nursing research.

Generic instruments

SF-36 is a generic QoL measurement questionnaire developed by Ware. It was constructed to survey the health status of medical outcome. The SF-36 was designed to be used in clinical practice and research, health policy evaluation, and general population surveys. SF-36 includes a multi-item scale that assesses eight health concepts: (1) limitation in physical activities because of health problems; (2) limitation in usual role activities because of physical or emotional problems; (3) limitations in usual role activities because of physical health problems; (4) bodily pain; (5) general mental health (psychological distress and well-being); (6) limitation in usual role activities because of physical emotional problems; (7) vitality (energy and fatigue); and (8) general health perception (Ware & Sherbourne, 1992). SF-36 can be presented as a profile or by the summary measures. A numerically higher score indicates a better QoL Ware (as cited in Bengtsson et al., 2004). This instrument asks the individual to rate their QoL during the past month. The reliability coefficient for each of the eight scales is more than .80 and the scales are sufficiently sensitive to detect changes in health-related QoL in patients with coronary heart disease (Tung, Hunter, & Wei, 2008).

Although there are generally satisfactory ways of measuring the frequency and severity of diseases, this is not the case in the measurement of well-being and QoL. Therefore, WHO, with the aid of 15 collaborating centers around the world, has developed two instruments for measuring QoL (the WHOQOL-100 and WHOQOL-BRIEF), that can be used in a variety of cultural settings whilst allowing the results from different populations and countries to be compared. However, the items of subscale it may overlap the anxiety symptoms in psychological subscale with STAI scale therefore; in this study this instrument was not used.

Disease specific instruments

In order to assess the small change in QoL after coronary heart disease, a disease-specific QoL instrument with high levels of sensitivity can be used. The disease-specific instrument measures the effects of disease and the impact of health care which includes not only an indication of changes in disease frequency and severity but also an estimate of patients' perception of health status before and after treatment.

Quality of Life after Myocardial Infarction (QLMI) questionnaire. QLMI is a self-administered disease-specific QoL measurement tool that examines three health domains: physical, emotional, and social. The original QLMI items were generated through interviews with physician, nurses, and allied health professionals, patients with MI, as well as by reviewing literature. The items of this instrument were conceptually assigned to five domains: symptoms, restriction, confidence, self-esteem, and emotion (Hofer, Benzer, Schubler, Steinbuchel, & Oldridger, 2003). As slightly modified version, the QLMI2 Valenti et al. (as cited in

Roebuck et al., 2001) has been used to assess the QoL of patients with MI. However, this instrument is not sensitive enough to measure the changes in QoL of patients with MI.

MacNew Health-related Quality of Life [MacNew] Questionaire. This is another disease-specific QoL measurement instrument that was designed to evaluate how daily activities, physical, emotional, and social functioning are affected by coronary heart disease and its treatment (Hofer et al., 2003). The MacNew consists of 27 items and has three domains: (1) physical function domain-13 items; (2) emotional function domain-14 items; and (3) social functional domain-13 items. There are 5 items that inquire about symptoms: angina/chest pain, shortness of breath, fatigue, dizziness, and aching legs. The timeframe for the MacNew is only previous two weeks. So, it can not measure the QoL in the previous days more than two weeks.

Quality of Life Index (QLI). QLI is another disease-specific QoL measurement instrument developed by Ferrans and Powers (1985). The QLI measures both satisfaction and importance in health and functioning, psychological/spiritual, social and economic, and the family domains. Importance ratings are used to weigh the satisfaction responses, so that scores reflect the respondents' satisfaction with the aspects of life they value. Items rated as more important have a greater impact on the score than those rated as less importance. The instrument consists of two parts: the first measures satisfaction with various aspects of life and the second measures importance of those same aspects. The score is calculated for overall QoL and for four domains: health and functioning, psychological/spiritual, social and economic, and the family domain. This instrument has been used to measure QoL of healthy people as well as those who are experiencing a chronic illness. QLI is also available in a cardiac version. It has an acceptable reliability with the alpha value of .93 for overall QoL.

To score both the items of satisfaction and importance part, satisfaction responses is weighted by their paired importance rating by multiplication. Paired multiplicative satisfaction-importance item score are then used to calculate total and domain score that range between 0 - 30 (30 = high QoL) (Ferrans & Powers, 1985). Scoring procedure is quite different from others. The description of scoring procedure is described in Table 1.

Table 1

Steps of Scoring of Quality of Life Index

Steps	Description
Overall quality of life score (overall quality of life)	
1. Recode satisfaction score	To center the scale on zero, subtract 3.5 from satisfaction response for each item. (This will produce responses of –2.5, -1.5, -.5, +.5, +1.5, +2.5)
2. Weight satisfaction responses with the paired importance responses.	Multiply the recoded satisfaction response by the raw importance response for each pair of satisfaction and importance items.

Table 1 *(Continued)*

Steps	Description
3. Obtain preliminary sum for the overall (total) score.	Add together the weighted responses obtained in step 2 for all of the items.
4. Obtain final overall (total) QLI score.	To prevent bias due to missing data, divide each sum obtained in step 3 by the number of items answered by that individual. (At this point the possible range for scores is −15 to +15) Next, to eliminate negative numbers for the final score, add 15 to every score. This will produce the final overall (total) QLI score. (Possible range for the final scores = 0 to 30).

The same steps are used to calculate subscale scores as overall QoL. The only difference is that the calculations are performed using subsets of items, rather than on all of the items. In the case of missing data we can substitute "0" for missing data. The score of zero will not interfere with the scoring (Ferrans & Power, 1985).

As QLI has four domains, each domain has a subscale as follows: (1) the health and functioning domain has 15 sub-items such as health, health care, chest pain (angina), shortness of breath, energy (fatigue), ability to take care of self without help, control over life, chances for living as long as one would like, sex life, ability to take care of family responsibilities, usefulness to others, worries, things for fun, chances for a happy future, lifestyle changes (2) the social and economic domain includes seven sub-items; friends, emotional support from people other than family, neighborhood, home, job/not having a job, education, financial needs (3) the psychological/spiritual domain includes seven sub-items; peace of mind, faith in God, achievement of personal goals, happiness in general, life satisfaction in general, personal appearance, and self (4) the family domain includes six sub-items; family health, children, family happiness, spouse, lover, or partner, and emotional support from family. All of the items are used to calculate the total score, which reflects overall QoL (Ferrans & Power, 1985).

In summary, this study covers 3 variables namely; coping, anxiety, and QoL. Some of the QoL measurement instruments might overlap with the items of anxiety in the psychological domain. Therefore, QoL instrument should be used cautiously. To minimize such bias, in this study, the QLI cardiac version, which was developed by Ferrans and Powers (1985), was used where QoL was defined as a perceived sense of well-being.

Relationships among Coping, Anxiety, and QoL of Patients with MI

The diagnosis of MI poses a significant threat to life and well-being. The initial hospitalization period is the most intensely anxious period for MI patients. However, once patients are diagnosed with MI, they have to face many stressful situations not only for short periods but also for long term periods. They have to change their normal life style and must adhere to medication for the rest of their lives.

Therefore, the use of effective coping strategies remains important in their lives in order to as normally as they can. In other words, simply taking medicine regularly and visiting a physician is not sufficient to maintain a good or high QoL. It also depends on the patients' strategies for coping with their disease and its consequences.

Coping strategies and anxiety of patients with MI

Some coping strategies are associated with a decreased anxiety level and known to be effective. Chiou et al. (1997) conducted a study to examine the relationship between anxiety, depression, and coping methods in post-MI patients using a revised version of the Jalowiec Coping Scale. The most often used coping strategies were positively correlated with its effectiveness. The optimistic coping strategy was most often used and considered the most effective one. However, in the patients with heart failure, the patients who used a more avoidance coping strategy showed significant higher anxiety, anger, depression, confusion, and fatigue when demographic and clinical variables were taken into account (Doering et al., 2004). In the prospective study of Elderen, Maes, and Dusseldorp (1999), approach-coping predicted high level of anxiety and depression which diminished within a year for most participants, while avoidance was favorable in initial period but caused increasing mental symptoms throughout the same period and denial was significantly associated with high anxiety (Ketterer et al., 2003). On the other hand, evasive-coping strategies such as venting emotions, use of alcohol and drugs, or disengagement were positively associated with anxiety, depression, and physical limitation (Kristofferzon et al., 2003). In summary, patients used various coping strategies after MI. Some coping strategies were helpful in the initial period of illness and some were useful for a longer period after MI. In the initial phase after MI, avoidance as emotion-focused coping seemed helpful to lessen anxiety and problem-focused coping seemed useful when the duration of illness increased gradually.

Coping strategies and QoL of patients with MI

After a diagnosis of MI, patients used diverse coping strategies to cope with the stressful situation. A longitudinal study was conducted by Brink et al. (2002) to explore the coping strategies and QoL (N = 137). General coping questionnaire and the Short Form (SF-36) questionnaire were used to measure coping strategies and QoL, respectively. The strongest correlation between coping and health related QoL was found among four coping strategies namely; social trust, fatalism, protest, and minimization. Fatalism and protest were negatively associated with QoL on its physical component summary and mental component summary. Social trust was positively associated with QoL. The strategy minimization was also positively related to both dimension but only significant for MCS. Additionally, in a study of Kristofferzon et al. (2005) patients used more optimistic coping strategies over time for one, four and twelve months after MI and showed increased QoL over time and emotive coping was used least often and reported the least effective.

Tung et al. (2008) found that patients after coronary artery bypass graft surgery used more problem-focused coping strategies and showed better QoL. Furthermore, a pilot study on health related QoL and coping in chronic illness revealed that the more the use of problem-focused coping strategies the higher the HRQoL of heart failure and renal dialysis patients (Wallis et al., 2006). However, Lazarus and Folkman (1984) mentioned that no strategy is good or bad, it depends on the outcome of the strategies used and also coping strategies vary from individual to individual.

Anxiety and QoL of patients with MI

Anxiety negatively affects recovery and the prognosis of patients with MI. Anxiety is associated with increased risk of recurrent cardiac events and cardiac morbidity (Shibeshi et al., 2007), increased in-hospital complications, re-infarction, lethal dysrythmias, frequent readmission (Moser & Dracup, 1996), difficulty in maintaining life-style modification (Khul et al., 2009), delayed return to work, and eventually poor prognosis (An et al., 2004). All of these factors are associated with poor QoL for patients with MI. In the study of Nekouei, Yousefy, Nekouei, and Sadeqhi (2009) anxiety had strong negative (r = -.77, p = <.00) correlation with QoL of coronary artery disease patients. Therefore, the higher the anxiety the poorer the QoL can be assumed. In addition, base line anxiety at the initial phase of an acute attack predicted poor QoL12 months later (Lane et al., 2001). Therefore, patients with MI should intervene to reduce anxiety from the initial phase of the diagnosis to enhance QoL.

Nepalese Cultural Context Regarding Health Belief/Behavior, Potential for Health Problems/Health Outcome

Nepal is a multicultural and multiethnic society with over one hundred ethnic and caste groups (Dahal, 2003). Culture can play a vital role in establishing the practices, values, and attitudes towards health care. In Nepal, the most widely popular medical system is faith healing. The fatalistic nature of people plays a distinct role in Nepali society, especially when someone in the family suffers from chronic illness. Moreover, treatment-seeking behavior is largely determined by types of illness and popular belief regarding them. In Nepal, illness is believed to be caused by a supernatural attack and in many cases, demons or witches (as cited in Wasti, Randall, Simkhada, & Teijlingen, 2011). The cultural diversity brought about by caste and ethnicmix has led to have common health-seeking behaviors but some can be particular to different ethnic groups. In most ethnic groups, illness is thought to be both physical and spiritual. For illness, deriving from relations with the supernatural, modern medicine is considered ineffective. Going to the faith healer is the ritual for seeking treatment, but if the illness persists even after two or three visits to a healer, the people seek modern medicine. Many people also use self-medication; some try herbal medication they have tried before. However, treatment-seeking behavior is changing with the availability of the modern health care facility in the area. Brahman and Chhetri use most of the health facility. Similarly, educated people use more health facility (Niraula, 1994).

In addition, smoking is very common among the Nepalese population. In a previous study, 89.9% smokers were reported among the known cases of MI (as cited in Maskey et al., 2003). In a rural community of Kathmandu valley, 68.7% were found to be smokers, among them 78.3% were male and 58.9% were female (as cited in Maskey et al.). Based on this result, we can assume that the rate of smoking rate in Nepal is quite high and might have affected people's health. In addition, in the study of Limbu et al. (2006) it is reported that almost 73% of people had heard of heart attack and among those 22% could not name any symptoms of heart attack. The most named symptoms were fainting or collapsing (48%) followed by chest pain (23%). Almost 78% preferred to refer to doctor or hospital after a heart attack. However, 11% of respondents could not give any solution although they name at least one of the heart attack symptoms. Interestingly, 10% of subjects responded with advice other than hospital referral for the treatment such as giving cold water, reviving the patient after fainting or collapse, providing fresh air, massage, and rest and almost 10% reported operation and resuscitation and some reported that there is no treatment of heart attack. Lack of knowledge caused a delay in seeking health services or hospitalization. A delay in treatment can lead to a permanently reduced function of the heart due to more extensive damage to the heart muscle.

In summary, MI is a traumatic and stressful event. Patients after MI appraised this stressful situation differently. Some appraised it as a challenge and some appraised as threat. Most of the threats were related to uncertainty, fear of death, cost, of treatment alteration to family and social relationships etc. To deal with these threats, patients use various coping strategies. Some study results showed problem-focused coping strategies improved QoL and decreased anxiety levels. However, the results of those studies are not consistent enough. It is important to know the physical, psychological, social, and spiritual aspect of the Nepalese patients with MI. On the other hand, QoL is a sense of well-being which is a purely subjective experience that only patients can judge accurately after the diagnosis of their illness. There is a lot of qualitative and quantitative research in relation to anxiety and coping, coping and QoL and anxiety and QoL in MI populations in western culture. In line with the theory of Lazarus and Folkman (1984), patients' appraisal is different from individual to individual. Patients use their coping strategies based on their appraisal and the outcome varies between coping for the short term and the long term. In addition, use of coping strategies differs from individual to individual and culture to culture. No study in a Nepalese context has been conducted. Therefore, there is a need to conduct research in this sector in a Nepalese context to explore coping strategies used by patients with MI and their relationship to anxiety and QoL.

CHAPTER 3

RESEARCH METHODOLOGY

Research Design

This was a descriptive correlational study. The purposes of this study were to identify coping strategies frequently used by patients with MI, level of anxiety and level of QoL and to examine the relationships between coping, anxiety, and QoL of patients with MI.

Population and Setting

The target population of this study were patients with MI who visited the OPD of SGNHC, Bansbari, Nepal between the 4th week of October 2010 and mid of January 2011. On weekdays, an average of 6 to 8 post-MI patients (at least 2 months after the initial diagnosis) visited the OPD of SGNHC during data collection period. This hospital was purposively selected for this study because it was a tertiary referral cardiac center (with 150 beds) in Nepal. Many cardiac patients from almost all parts of the country visit this hospital due to its credible nature in the treatment. Patients visited their physician directly in the OPD and there was no additional health care service provided by nursing personnel. It was the physician who was responsible for the care of patients in the OPD; and each appointment was determined jointly by the patient and the physician.

Sample of the Study

The sample size of this study was estimated by using power analysis (Polit & Beck, 2008). The estimated sample size was calculated using the level of significance alpha of .05, expected power of .80 (1-β), and an effect size of .30 (*y*) as the medium effect size used in most nursing studies. Similarly, in the study of Chiou et al. (1997), there was a relationship between coping and anxiety in post-MI patients (r = .32). Therefore, in this study, the researcher used the effect size of .30 to find out the relationship between coping, anxiety, and QoL. The sample size needed was 88 patients with MI.

The sample was selected by a purposive sampling method from OPD of SGNHC. To maintain the homogeneity of the sample for the study, the following inclusion criteria were used:

1. Being diagnosed with MI for at least 2 months
2. Age > 18 years old
3. Attending the OPD for follow up
4. Able to communicate in Nepali language

Instrumentation

Instruments

Instruments used in this study were (1) Demographic Data and Disease-Related Form, (2) State-Trait Anxiety Inventory (STAI), (Spielberger, 1983) (3) Jalowiec Coping Scale (JCS), (Jalowiec, 1977) and Quality of Life Index cardiac version (QLI), (Ferrans & Powers, 1985). As all the instruments were existing and well-established, permission to use them was granted from the corresponding authors (Appendix) before translation and use.

Demographic information

Information about demographic data including age, sex, marital status, religion, living status, education level, job status, and income were collected after obtaining verbal consent from patients. In addition, disease related data such as time since diagnosis, history of re-infarction, need of revascularization, and presenting symptoms (chest pain, shortness of breath, and fatigue) was collected.

State-Trait Anxiety Inventory (STAI)

The STAI, a self reporting questionnaire consisting of 20-items in each of two parts (State anxiety scale and Trait anxiety scale) developed by Spielberger (1983) was used to measure anxiety. State anxiety is a transitory emotional response including such feelings as tension, apprehension, nervousness, and worry. The state anxiety scale assesses the intensity of anxiety, or how an individual feels at the time of measurement. Alternatively, trait anxiety is a relatively stable characteristic of anxiety proneness; the scale assesses how an individual generally feels.

The STAI is a well established instrument and has been used extensively in clinical practice and experimental investigation with different populations in the medical and nursing field. In Cardiac Sample, Philip (as cited in Yarcheski, Proctor, & Oriscello, 1998) reported coefficient alphas of .94 for the state anxiety scale. Schuster and Waldron (as cited in Yarcheski et al.) reported a coefficient alpha of .90 for the trait anxiety scale.

In responding to S-Anxiety scale, subjects reported the intensity of their feelings of anxiety at a particular time by rating themselves on the following 4-point Likert scale: (1) not at all; (2) somewhat; (3) moderately; (4) very much so. Similarly, in responding to T-Anxiety scale, subjects reported how they generally feel by rating themselves on the following 4-point Likert scale: (1) almost never; (2) sometimes; (3) often; (4) almost always. Anxiety absent and anxiety present items were scored in the opposite direction from 1, 2, 3, and 4 to 4, 3, 2, and 1, respectively. The ten anxiety absent items on S-Anxiety Scale and nine anxiety items on T-Anxiety Scale were; 1, 2, 5, 8, 10, 11, 15, 16, and 19, and 20 followed by 21, 23, 26, 27, 30, 33, 34, 36, and 39, respectively. The two scales, each has 20 items and score ranges from 20 - 80 for each. Of the total score, 20 - 39 = low anxiety, 40 - 59 = moderate anxiety, and 60 - 80 = high anxiety was interpreted.

Jalowiec Coping Scale

The Jalowiec Coping Scale (JCS) was developed by Jalowiec (1977) which is based on Lazarus and Folkman's theory of stress, appraisal, and coping. It is an appropriate tool for adults of all ages, including adolescents, with a variety of health and illness state ranging from relatively minor to life-threatening and it has been used in several studies of MI patients. The foundation of the original JCS was the bi-dimensional representation of problem-focused versus emotion-focused coping methods developed by Lazarus. Therefore, in this study, the original version of the Jalowiec Coping Scale (JCS) was used to assess coping strategies, which consists of 40 items (Jalowiec et al., 1984). The 40 items are divided into two types: problem-focused coping, comprising of 15 items (scores ranging from 15 - 75), and emotion-focused coping, comprising of 25 items (scores ranging from 25 - 125). Problem-focused coping aims to make direct changes in a stressful situation, whereas emotion-focused coping seeks to ameliorate emotions associated with the problem (Lazarus & Folkman, 1984). Respondents were asked to estimate how often they used the listed ways to cope with stressful situation regarding their illness after MI, by selecting one number for each coping method. All responses were rated using 5-point Likert scale ranging from 1 = never to 5 = always.

The JCS is also a well established instrument. Its content validity was tested by the systematic manner of tool development, by the use of a large number of items including diverse coping behaviors (Jalowiec et al., 1984). The reliability coefficient was .79, .85, and .86 for total coping score, problem-focused and emotion focused coping, respectively. However, factor analysis of this original version of JCS revealed some non significant items with lowest agreement and authors suggested for at least one more additional factor for those items which was named as evasive coping (Jalowiec et al.). In this study, the researcher used only two types of coping namely problem-focused coping and emotion-focused coping.

Before using this instrument in the Nepalese context, it was translated into Nepali by the use of the back translation technique Sperber (2004) with the help of three experts. When analyzing each item, item no. 31 "meditate or use yoga or bio-feedback or mind over matter" was changed to meditate or use yoga only to suit Nepalese people. A higher score denoted more often use of coping strategies. Since problem-focused coping strategies and emotion-focused coping strategies had a different number of items it could not be used to compare problem-focused coping and emotion-focused coping strategies. Therefore, to score this instrument, the following steps were carried out according to Jalowiec's method (Jalowiec, 1977).

(1) Add up the person's rating for the 15 problem-focused coping items

(2) Add up the person's rating for the 25 emotion-focused coping items

(3) Divide the sum for the problem-focused coping items by the total possible score for that subscale of 75.

(4) Divide the sum for emotion-focused coping items by the total possible score for that sub scale of 125.

(5) To convert the decimal score to a percentage score (%) for problem-focused coping and emotion-focused coping, multiply the answer by 100.

Percentage (%) scores are more easily understandable and should be used to compare problem-focused coping to emotion-focused coping strategies because each subscale has a different number of items. Therefore, raw score for problem-focused coping cannot be directly compared to raw score for emotion-focused coping. The higher the score the more often the use of coping strategies was interpreted (Jalowiec, 1977).

Quality of Life Index cardiac version

The Quality of Life Index cardiac version (QLI) developed by Ferrans and Powers (1985) was used to assess the QoL. This instrument measures both satisfaction and importance of various aspects of life. Importance ratings were used to weight the satisfaction responses, so that scores reflect the respondents' satisfaction with the aspects of life they value. This self reporting questionnaire consists of the same 35 items in each two parts where respondents were required to rate their satisfaction level in part I and their feeling of importance in part II (Ferrans & Power, 1985). The 35 items were divided into four subscales: health and functioning, social and economic, psychological and spiritual, and family. Subjects rated their satisfaction level and importance level using a 6-point Likert scale. Score for overall score and each subscale were transformed to a scale of 0 - 30 by combining part I and part II according to the method of Ferrans and Power (1985). Higher score represented higher satisfaction and importance.

The cardiac version of QLI is also a well established instrument. The reliability of the overall QoL (alpha = .93) and the four domains such as health and functioning, social and economic, psychological and spiritual, and family (alphas = .87, .82, .90, and .77), respectively (Ferrans & Powers, 1992). Additionally, this instrument demonstrated an adequate criterion validity compared to SF-36 and satisfactory internal consistency and test-retest reliability Ferrans (as cited in Thompsosn & Roebuck, 2001). For the ease of participants, part I and part II of this instrument was made available in one paper so that patients could answer consecutively. This was done with the permission of the main author (Ferrans) (Appendix B5). Additionally, for the missing data/unanswered questions it was computed by using zero which does not affect the result of the study. For the satisfaction / importance, item no. 13 "your spouse, lover, or partner" was changed to your spouse or lover only because "partner" was not common in the Nepalese context. To compute the score in the range of 0 - 30 the following steps were followed:

(1) First, recode satisfaction score to center scale on zero, subtract 3.5 from satisfaction response for each item which yields the score of -2.5, -1.5, -.5, +.5, +1.5, and +2.5.

(2) Second, weight satisfaction responses with the paired importance responses by multiplying the recoded satisfaction response by the raw importance response for each pair of satisfaction and importance items.

(3) Third, obtain a preliminary sum for the overall (total) score by adding together the weighted responses obtained in step 2 for all of the items.

(4) Finally, obtain final overall QLI score. To prevent bias due to missing data, we can divide each sum obtained in step 3 by the number of items answered by that individual. At this point the possible ranges for score are -15 to +15. To eliminate negative numbers for the final score, add 15 to each score. This produces the final overall (total) QLI score. Possible range for the final score = 0 - 30. The same steps can be used to calculate the dimension score (Ferrans & Powers, 1985). The higher the score indicated a higher QoL where a total score more than 25 indicated higher QoL, 20 - 25 indicated moderate QoL, and < 20 indicated low QoL.

Reliability of the instruments

All the instruments used in this study were well established. Content validity of the instruments was assumed. Moreover, back-translation of those instruments was performed. Some words were made simple to understand based on the experts' suggestions. For the reliability of the instruments, Cronbach coefficient alpha was used. This method is widely used for testing the internal consistency or homogeneity of the instruments (Polit & Beck, 2008). Data was collected from 20 similar subjects during the pilot study. The reliability of the instruments in this study population was confirmed by Cronbach coefficient alpha >.8 (Polit & Beck). In this study, the coefficient alphas were .87, .93, .85, .89, .89, and .92 for problem-focused coping, emotion-focused coping, trait anxiety, state anxiety, QoL satisfaction part, and QoL importance part, respectively.

Translation of the instruments

The original English version of the instrument was translated into the Nepali language using the translation- back translation technique (Sperber, 2004) as follows:

1. The first bilingual translator translated the original English version instruments into the Nepali language.
2. The second bilingual translator back-translated those instruments from the Nepali version to English.
3. The third bilingual translator then compared the original English version and translated English version of them. After that, the major advisor and co-advisor were consulted to see if any additional information was needed. The instruction of JCS was made clear to focus on the situation after the diagnosis of MI as advice by advisor.

Ethical Consideration

Ethical approval before conducting the research was obtained from Prince of Songkla University, Institutional Review Board / Ethical Committee, and from SGNHC in Nepal. The human right of all subjects was maintained. The subjects were informed about the objectives of the study and their right to refuse/participate at any time during the study. The anonymity of the subjects was maintained by coding the questionnaire sheet. Confidentiality was maintained throughout the study period. During the data collection phase some items of QLI might stimulate emotion and might influence state anxiety. To overcome this problem STAI was asked first and then followed by other instruments. In addition, before administration of each instrument the researcher explained in detail about the instruments such as, what kind of instruments they were and what theme it was expected to answer. Some patients cried when answering the question. At that time the researcher gave them time to calm down by diverting attention to a general situation and talking about other matters. No serious psychological problems occurred during data collection process.

Data Collection Procedure

Data were collected after the research proposal was approved by the thesis committee of the Faculty of Nursing, Prince of Songkla University, and after the approval of SGNHC's academic committee. An electronic version of the proposal was sent to the director of SGNHC before data collection. The proposal was accepted by the academic committee of this hospital. The researcher met the director of SGNHC and the chief of the academic committee of the hospital and explained the process of data collection verbally. The researcher also met the OPD in-charge and explained the purpose of the study. Subjects were selected by the use of inclusion criteria. After the verbal consent and willingness of subjects to participate in the study each subject was called on for interview in a separate room. All subjects were interviewed after check-up with their physician. Each interviewee took about 15 - 20 minutes to complete the questionnaire. During data collection, some of the subjects left during the interview saying that the questionnaire was too long and they had to go to catch their bus to go home. Some of them who continued to participate in the study also expressed discontent with the length of the questionnaire by frequently asking how it would take to be completed.

Data Analysis

The analysis included descriptive statistics and inferential statistics. Descriptive analysis was performed to obtain mean, standard deviation (SD), percentage (%), and range for presenting demographic characteristics, disease related data, coping strategies, level of anxiety and level of QoL of subjects. For inferential statistics, Pearson's Product Moment Correlation *(r)* was used to test hypothesis. The assumptions of Pearson's Product Moment Correlation (*r*) were tested prior to running the correlation analysis which included normal distribution and linearity. The assumptions were met. The sub-score of the coping strategies; problem-focused coping strategies and emotion-focused coping strategies and total score of state anxiety and overall score of QoL was used to examine the relationships between coping, anxiety, and QoL. Additionally, trait anxiety was used as a controlled variable to correlate state anxiety with QoL and coping strategies as partial a correlation.

CHAPTER 4

RESULTS AND DISCUSSION

Descriptive correlation design was used to identify frequently used coping strategies of patients with MI, level of anxiety, and level of QoL and to examine the relationships between coping strategies, anxiety and QoL of patients with MI. Eighty-eight patients diagnosed with MI who visited the OPD for follow up after two months of initial diagnosis at SGNHC, Nepal were recruited for the study. The results of this study are presented as follows:

1. Subjects' characteristics
2. Coping strategies frequently used by patients with MI
3. Anxiety of patients with MI
4. Quality of life of patients with MI
5. The relationships between coping strategies, anxiety, and quality of life of patients with MI

1. Subjects' Characteristics

Eighty-eight subjects with MI were recruited after two months of initial diagnosis for this study from OPD of SGNHC. Table 2 shows the frequency and percentage of the subjects' demographic characteristics. The average age of the subjects was 57.43 years (SD = 11.41), ranging from 28 to 85 years, and 45.5 % of the subjects were above the age of 65 years. Majority of subjects were male and Hindu (72.7%, and 92.0%, respectively). Most of the subjects were illiterate and had

10 years of education (81.9%). Seventy subjects (79.5%) were unemployed at the time of data collection and 33% had no income source. Mean duration of their illness was 33 months; mode was 3 months and median of 14 months. Of the total, 23.9% of subjects reported a history of re-infarction. During the data collection period 18.2% reported chest pain, 17% reported fatigue, and 12.5% reported shortness of breath.

Table 2

Frequency and Percentage of Demographic Characteristics of the Subjects (N = 88)

	Characteristics	Frequency (n)	Percentage (%)
1	Age (Years)		
	25 - 35	1	1.1
	36 - 45	5	5.7
	46 - 55	14	15.9
	56 - 65	28	31.8
	>65	40	45.5
	M = 57.43, SD = 11.41 , min - max age = 28 - 85 year		
2	Gender		
	Male	64	72.7
	Female	24	27.3
3	Marital status		
	Married	80	90.9
	Widowed	5	5.7
	Widower	3	3.4
4	Type of family		
	Nuclear family	36	40.9
	Joint family	51	58.0
	Extended family	1	1.1
5	Religion		
	Hinduism	81	92.0
	Buddhism	6	6.8
	Islam	1	1.1

Table 2 *(Continued)*

	Characteristics	Frequency (n)	Percentage (%)
6	Level of education (years)		
	Illiterate	29	33.0
	<10	35	39.7
	10	8	9.1
	11 – 15	14	15.9
	>16	2	2.3
7	Job holder		
	Yes	18	20.5
	No	70	79.5
	If No		
	Retired	9	10.2
	Abandoned due to disease	9	10.2
	No job at all	52	59.1
8	Income per-month (NRS*)		
	No income	29	33.0
	<10000	42	47.7
	10000 - 15000	11	12.5
	>15000	6	6.8
9	Duration of illness (months)		
	2 - 6	25	28.4
	7 - 12	19	21.6
	13 - 48	29	33.0
	>48	15	17.0
	M = 33, SD = 47.23, Min-Max = 3 - 252 months		
10	History of re-infarction		
	Yes	21	23.9
	No	67	76.1
11	Revascularization		
	Yes	8	9.1
	No	80	90.9

* NRS = Nepali Rupees

2. *Coping Strategies Used by Patients with MI*

Table 3 shows the mean, standard deviation, minimum and maximum scores of coping strategies used by patients with MI. The mean score of problem-focused coping strategies was 51.15 (SD = 15.29), and it ranged from 24 - 88, whereas the mean score of emotion-focused coping strategies was 41.92 (SD = 7.37), and it ranged from 25 - 64. Therefore, it can be seen as a result of this study that problem-focused coping strategies were used more often than emotion-focused coping strategies.

Table 3

Mean, Standard Deviation, and Min-Max of Total Score of Patients' Coping Strategies (N = 88)

Coping strategies	Mean	SD	Min-Max
Problem-focused	51.15	15.29	24 - 88
Emotion-focused	41.92	7.37	25 - 64

Top Five Most Often Used Problem-Focused Coping Strategies

To label the most often used coping strategies, the 5 highest mean scores among the items were used. Table 4 presents the top five most often used problem-focused coping strategies such as accepting the things as they are, trying to maintain some control over the situation, trying to find purpose or meaning in the situation (Table 4).

Table 4

Mean Score and SD of the Most Often Used Problem-Focused Coping Strategies

(N = 88)

Coping strategies	Mean	SD
Accept the things as it is	3.78	1.09
Try to maintain some control over the situation	3.17	1.48
Try to find purpose or meaning in the situation	2.89	1.60
Try to look at the problem objectively and see all sides	2.88	1.50
Talk about the problem with someone who has been in similar situation	2.87	1.29

The Five Least Often Used Problem-Focused Coping Strategies

Table 5 presents the least often used problem-focused coping strategies based on the lower mean score among the items on the problem-focused coping scale. The least used problem-focused coping strategies were as follows: Try to do something even if you are not sure if it will work, followed by try to change the situation, let someone else solve the problem or handle the situation (Table 5).

Table 5

Mean Score and SD of the Least Often Used Problem-Focused Coping Strategies

(N = 88)

Coping strategies	Mean	SD
Try to do something even if you are not sure it will work	1.34	.75
Try to change the situation	1.78	1.15
Let someone else solve the problem or handle the situation	2.02	1.26
Handle the problem piece meal	2.33	1.44
Determine the work needed to achieve the next best thing	2.51	1.43

Top Five Most Often Used Emotion-Focused Coping Strategies

Table 6 presents the top five most often used emotion-focused coping strategies by the subjects such as telling own self not to worry about followed by hope, pray/trust to god (Table 6).

Table 6

Mean Score and SD of the Most Often Used Emotion-Focused Coping Strategies

(N = 88)

Coping strategies	Mean	SD
Tell oneself not to worry about the problems because everything will probably work out fine	3.88	1.32
Hope that things will get better	3.77	1.31

Table 6 *(Continued)*

Coping strategies	Mean	SD
Pray to/trust in God	3.66	1.54
Seek support or help from family, friends, or a significant person	3.18	1.47
Go to sleep, assuming that things will look better in the morning	3.08	1.62

The Five Least Often Used Emotion-Focused Coping Strategies

Table 7 presents the least often used emotion-focused coping strategies based on the lower mean score among the items on the emotion-focused coping scale. The least used emotion-focused coping strategies were: drinking alcoholic beverages, blaming others for your problems or the situation you are in and getting prepared to expect the worst (Table 7).

Table 7

Mean Score and SD of the Least Often Used Emotion-Focused Coping Strategies

(N = 88)

Coping strategies	Mean	SD
Drink alcoholic beverage	1.25	.84
Blame others for your problems or the situation you are in	1.31	.71
Get prepared to expect the worst	1.36	.81

Table 7 *(Continued)*

Coping strategies	Mean	SD
Daydream; fantasize	1.41	.83
Impose your tensions on someone else or something else	1.44	.93

3. Anxiety of Patients with Myocardial Infarction

The State Trait Anxiety Inventory (STAI) was used to measure the level of anxiety of patients with MI. A state anxiety scale was used to measure the level of subject's state anxiety and a trait anxiety scale was used to measure the level of subjects' trait anxiety.

State anxiety. More than half of the subjects (52.3%) reported a low level of state anxiety. The mean score of state anxiety was 40.22 (SD = 12.22) and ranged from 20 - 66. Table 8 shows the frequency and percentage of levels of state anxiety of the subjects.

Table 8

Frequency, Percentage, Mean, Standard Deviation and Min-Max Score of State Anxiety (N = 88)

Level of State Anxiety	Frequency (n)	Percentage (%)
Low	46	52.3
Moderate	31	35.2
High	11	12.5
M = 40.22, SD = 12.22, Min-Max score = 20 – 66		

Trait anxiety. More than half (55.7%) of the subjects had a low level of trait anxiety. The mean trait anxiety score was 39.35 (SD = 10.17) and ranged from 20 - 61 (Table 9).

Table 9

Frequency, Percentage, Mean, Standard Deviation and Min-Max Score of Trait-Anxiety (N = 88)

Level of Trait Anxiety	Frequency (n)	Percentage (%)
Low	49	55.7
Moderate	36	40.9
High	3	3.4
M = 39.35, SD = 10.17, Min-Max score = 20 - 61		

4. Quality of Life of Patients with MI

Table 10 shows the level of overall QoL of patients with MI. Half of the subjects reported a moderate level of QoL. The mean score of overall QoL was 22.01 and SD = 3.56 and score ranged from 12.91 - 27.53 (Table 10).

Table 10

Frequency, Percentage, Mean, Standard Deviation, and Min-Max Score of Level of Quality of Life of Patients with MI (N = 88)

Level of Quality of Life	Frequency (n)	Percentage (%)
High quality of life	17	19.3
Moderate quality of life	44	50.0
Low quality of life	27	30.7
M = 22.01, SD = 3.56, Min-Max = 12.91 - 27.53		

Table 11 shows the mean, SD, and min-max score of subjects' QoL in each domain of the Quality of Life Index. Subjects reported high levels on family domain and low on the socio-economic domain.

Table 11

Mean, SD, Min-Max Score, and Level of Patients' Quality of Life in Each Domain (N = 88)

Characteristics	Mean	SD	Min-Max	Level
Health and functioning domain	21.41	4.60	9.7 - 29.6	Moderate
Social and economic domain	18.72	3.99	9.5 - 28.1	Low
Psychological and spiritual domain	24.28	4.22	12.3 - 30	Moderate
Family domain	25.85	5.50	6.5 - 30	High

5. The Relationship among Coping Strategies, Anxiety and Quality of Life of Patients with MI

Before running the correlational analysis using Pearson correlation coefficients, assumptions tests were examined. Test for normality and linearity were performed to ascertain that the assumptions were met. The skewness of subjects' data did not much deviate from zero, which indicated that normality of data could be assumed for subjects' coping, anxiety, and QoL scores. Additionally, histogram showed an approximately normal curve for all variables. The result of the correlational analysis using the Pearson correlation coefficient is presented in Table

12. State anxiety had a significant moderate negative correlation with QoL (r = -.59, p = .01), a significant moderate positive correlation with trait anxiety (r = .52, p = .01), a significant low negative correlation with problem-focused coping (r = -34, p = .01), a significant low positive correlation with emotion-focused coping (r = .38, p = .01). Likewise, problem-focused coping had a significant low positive correlation with QoL (r = .41, p = .01), a significant low negative correlation with state anxiety and trait anxiety (r = .34, p = .01, r = .32, p = .01, respectively). Emotion-focused coping had a non-significant negative correlation with QoL (r = -.17), a significant positive moderate correlation with trait anxiety (r = .52, p = .01) and a significant low positive correlation with state anxiety (r = .38, p = .01).

Table 12

The Zero-Order Correlation Coefficients among Coping Strategies, State Anxiety, Trait Anxiety and Quality of Life of Patients with MI (N = 88)

	Zero-Order Correlation Coefficients				
Variables	Problem-focused Coping	Emotion-focused Coping	Trait anxiety	State anxiety	Quality of life
Problem-focused Coping	1				
Emotion-focused coping	-.10	1			
Trait anxiety	-.32**	.50**	1		
State anxiety	-.34**	.38**	.52**	1	
Quality of life	.41 **	-.17	-.59**	-.58**	1

P **<.01

As state anxiety might be affected by trait anxiety, the trait anxiety score was then controlled. The partial correlation analysis was conducted so that the correlation coefficients were more precise and accurate to estimate the relationships between emotion-focused coping, problem-focused coping strategies, state anxiety, and QoL. After controlling for trait anxiety, the strength of correlation was decreased in all variables (Table 13). The correlation between state anxiety and QoL showed a significant negative relationship and this relationship was the strongest (r = -.40, p <.01), followed by the correlation between problem-focused coping and QoL (r = .29, p <.01). There was a small, non-significant relationship between emotion-focused coping and QoL and anxiety. In addition, the results revealed that there was a significant negative relationship between problem-focused coping and state anxiety (r = -.22, p < .05).

Table 13

The Partial Correlation Coefficient among Coping Strategies, State Anxiety, and Quality of Life of Patients with MI (N = 88)

Variables	Partial Correlations (Controlling for trait anxiety)			
	Problem-focused	Emotion-focused	State anxiety	Quality of life
Problem-focused	1			
Emotion-focused	.07	1		
State anxiety	-.22*	.17	1	
Quality of life	.29**	.18	-.40**	1

P ** < .01, * <.05

Additional Analysis

There was a significant different between presenting symptoms (fatigue, chest pain and shortness of breath) and QoL (F = 2.79, p = .04) (Table 21). Subjects who reported presence of fatigue, shortness of breath and chest pain had a significantly lower QoL than the subjects who reported no such symptoms. However, there was no significant difference between presenting symptoms and anxiety and use of coping strategies. There was no significance difference between duration of illness and coping, anxiety, and QoL (p >.05) (Table 22). There was significant difference between history of re-infarction and anxiety (t = 2.06, p = .04) (Table 23). Subjects who had a history of re-infarction had significantly higher levels of state anxiety than the subjects who did not get re-infarction. However, history of re-infarction was not associated with coping and QoL. In addition, the need for revascularization had a significant difference with problem-focused coping (t = 2.07, p = .04) strategies (Table 24). Subjects who needed revascularization used more problem focused-coping than the subjects who did not need revascularization. However, need of revascularization was not associated with anxiety, emotion-focused coping and QoL. Additionally, there was a significant difference in the use of problem-focused coping according to gender (t = 4.9, p <.01) (Table 25). Male subjects used more problem-focused coping than females. Education had played a significant role in all variables; coping, anxiety, and QoL (p <.05) (Table 26). Subjects who were literate used more problem-focused coping, reported low anxiety and had high QoL in comparison with illiterate subjects. The need for revascularization and re-infarction were not associated with each other (Table 27). Subjects who had a long duration of illness had history of re-infarction when analyzed with Chi-square test with the p value of <.05 (Table 28).

Discussion

This study aimed to identify frequently used coping strategies, anxiety levels and QoL of patients with MI and to examine the relationships between coping, anxiety and QoL of patients with MI. Eighty-eight patients with MI were purposively recruited from SGNHC, Bansbari, Nepal to participate in the study.

Subject's Characteristics

Regarding the results of this study, the age of subjects ranged from 28 - 85 years with the mean age of 57.43 years (SD = 11.41). Most of the subjects (77%) were above 55 years of age and predominantly male (72.3%). The higher percentage of subjects above the age of 55 and males, in this study group, was congruent with the literature that shows the incidence rate of MI was higher in men than in women and increases with age (British Heart Foundation [BHF], 2010).

The majority of the subjects (92%) were Hindu, which is consistent with the distribution of Hindus in Nepal as it is called the Hindu Nation. Among the subject's characteristics, the level of education was generally less than 10 years of education; the literacy rate of Nepal is 22% for female and 55% for male. There is no formal announcement from the Government regarding the mandatory level of education in Nepal. The education system in Nepal consists of 10 years of high school education followed by 2 years of higher secondary schooling. After completion of higher secondary school, students go to university for 3 - 4 years of undergraduate study, after which students can enroll in Master's degrees or graduate courses. About 60% of the study participants had no job at all and 33% had no income source. About 50% of the subjects had income less than 10000 NRS which is equal to 4, 220 Thai

Bahts per month. This shows that subjects in this study were in a low socio-economic group. Duration of illness ranged from 3 months to 21 years where 17% of subjects' duration of illness was > 4 years. Even though many subjects were suffering from MI for a long duration, 67% did not get any complications after the initial diagnosis of MI. However, 23.9% of subjects needed revascularization and 9.1% got re-infarction after the initial attack.

Coping Strategies Used by Patients with Myocardial Infarction

The first aim of this study was to identify the type of coping strategies frequently used by patients with MI. The subjects used various strategies to cope with the disease. The findings are congruent with Lazarus and Folkman's stress, appraisal, and coping theory (Lazarus & Folkman, 1984). Overall, subjects in this study used more problem-focused coping than emotion-focused coping. Different types of coping strategies (depending on the disease conditions- acute/chronic, curative/palliative) were found. For example cancer patients undergoing surgery and radiation therapy (with a high possibility of cure) used more problem-focused coping strategies while new cases (more uncertain) and terminally ill patients (less possibility of cure) used more emotion-focused coping strategies (Vidhubala et al., 2006). Therefore, the greater use of problem-focused coping by the subjects in this study can be attributed to the treatable nature of MI. In addition, the explanation might be related to the onset of illness. In this study, subjects were not newly diagnosed therefore; they used more problem-focused coping to solve their problem. However, when analyzing each item, the more often used coping strategies were: telling oneself not to worry about things (emotion-focused), acceptance (problem-focused), hope, pray/trust to god (emotion-focused), seeking support from family, friends and others(emotion-focused), and so on (Appendix C). Similarly, less often used coping strategies were taking alcohol, blaming others, doing something even if they were not sure it would work, preparing for worst, day dreaming (Appendix C).

Telling oneself not to worry about the problem because everything will probably work out fine, as emotion-focused coping, was the most often used coping strategy of the subjects with MI. In this study, almost 67% of the subjects did not get any complications after their initial diagnosis of the disease which might have helped to re-assure themselves that everything would be fine.

Acceptance, as problem-focused coping, was the second most frequently used coping strategy by the subjects of this study which is consistent with the study of Lowe, Norman, and Bennet (2000) where, acceptance-focused coping was used most frequently by patients with MI. Accepting the situation as it is, in this study, might be related to age, duration of illness, and religion. Two-third of the subjects (77%) in this study, were more than 55 years of age. The higher the age, the more experience people have to deal with the problem. In the study of Murray, Manktelow, and Clifford (2000) subjects of 68 - 84 years displayed more problem-focused coping after a cardiac event than the subjects of 38 - 59 years. The mean duration of illness of this study group was almost 3 years. The long duration of illness could help subjects to accept their situation. As Lazarus and Folkman (1984) pointed out that the duration of a stressful event is a situational factor which influences the appraisal and use of coping strategies. However, in this study duration of illness did not show any significant role in the use of coping strategies which is consistent with the study of Kristofferzon et al. (2005). Most of the subjects (92%) in this study were Hindu. Hindus hold the concept of Karma, which is described as the fate you are born with. The belief in Karma helps Hindus cope through acceptance and the understanding that some stressors are beyond personal control. Once this acknowledgement is made, they try to resolve their situation by leading a good life under the direction and consultation of others. Finally, the Hindu beliefs on reincarnation helps individuals face death and recognize that it is just a transition in the larger system of life (Gall et al., 2005).

Hope followed by prayer/trust in God, as emotion-focused coping, were the third and fourth most frequently used coping strategies, respectively. Patience and hope are frequently used during chronic illness by Nepalese people. They hope that everything will be fine because it is the wish of god. To make their hope stronger they pray to various deities for protection from disease and illness, not only at times of stress but also for comfort and future well-being. There are specific deities to whom specific offerings are made. For example, the particular purpose of a God such as Bhatbhatini is for children frightened by spirits; Santaneswar / Gyaneshwar Mahadev is for infertility; bathing in Kumbeshwar is said to cure several skin diseases including leprosy Dixit (as cited in Wasti et al., 2011). Similarly, Narayan is called on at the time of a critical/ life threatening illness. Furthermore, people of the Hindu faith have beliefs in nature, and particularly in the solar system. Within this faith, there is a belief in the influence of planetary rotation on well-being (Gall et al., 2005). They do different prays to lessen the effect of the planet on well-being. There is belief that negative effects of planet on well-being does not last forever therefore, people wait patiently for the good happenings after their suffering is over. Similarly, Nepalese patients with end stage renal disease Rai (2003) used more emotion-focused coping strategies as praying and worshipping (55%).

Seeking support from family, friends and others, as emotion-focused coping, was also a frequently used coping strategy in this study group. Consistent with this finding, more than half (60%) of the subjects had joint family. People hope care from their family. On an average, in Nepal, people try to seek support from others especially from astrologers and *jannemanchhe* (who are famous in their area to convince people) Subedi (as cited in Wasti et al., 2011). Furthermore, they seek treatment from ayurbedic healer as well.

In addition, talking about the problem with someone who has had a similar problem was also frequently used as a coping strategy. In the Nepalese context, talking about problems is a strongly held cultural belief. Disease such as HIV/AIDS are perceived as the disease resulting from moral faults, a bad persons' disease or bad karma or punishment (Wasti et al., 2011), and people do not want to share knowledge with anyone fearing that society will reject them. However, for heart disease, they do not have such negative beliefs and people do not hesitate to share their problems. Additionally, they do want to seek support from others by sharing their suffering.

Moreover, the least used problem-focused coping strategies were: trying to do something even if you are not sure it will work, trying to change the situation, letting someone else solve the problem or handle the situation, handling problem piecemeal, determining what is required to be done to achieve next best thing to what you really wanted. Similarly, the least used emotion-focused coping strategies were: drinking alcohol, blame others for your problems or the situation you are in, preparing for the worst, daydreaming; fantasizing. Some problem-focused coping strategies appear good for handling stressful situations one by one, trying to do something to distract the mind of an individual produce a better outcome, commitment towards own wish are also good to handle the problem but those strategies were used less often by the subjects in this study. It might be related to the lack of awareness of illness. As reported in the demographic information 33% of the subjects were illiterate. If those strategies are used more often, patients with MI will be able to solve their problems after the diagnosis of their illness. On the other hand, emotion-focused coping strategies, such as preparing for the worst, overeating/smoking, or staying alone have a negative impact on the patients' health but those strategies were also used by the patients. If they continue those strategies the condition of their illness might deteriorate. Therefore, nurses need to identify each coping strategy often used by patients even if they have negative outcomes or those of coping strategies which are less often used even if they are good to them.

In Nepalese culture, there are different ethnic groups such as Brahmin, Chhetri, Gurung, Newar etc. Brahmin and Chhetri are not allowed to imbibe alcohol. The population of Brahmin and Chhetri is comparatively high among all the castes. However, this explanation can not be made in this study, because, in this study a classification for ethnic groups was not made. In addition, other Castes such as Newar must use alcohol in religious activities. It could be interesting to compare the coping strategies in different ethnic groups of Nepalese patients with MI.

In conclusion, subjects with MI, in this study, used both problem-focused and emotion-focused coping to deal with their condition after MI. However, overall, problem-focused coping was used more often. Similar results have been reported in previous research with Swedish and Taiwanese post-MI patients (Kristofferzon et al., 2005; Chiou et al., 1997) where, frequently used coping methods were, self-reliant confrontational, and optimistic. Similarly, Taiwanese heart surgery patients also used more problem-focused coping than emotion-focused coping (Tung et al., 2008). In contrast, Rai (2003) showed that in the end-stage of renal failure, Nepalese patients used more emotion-focused coping than problem-focused coping. It might be because patients with end-stage symptoms might appraise that they can not do anything to change their situation so they used more emotion-focused coping.

In this study, males used more problem-focused coping with the mean score of 55.5 (SD = 14.4) than females with the mean score of 39 (SD = 10.7) which was significantly different (t = 4.9, p <.01). This is consistent with previous study result (Kristofferzon et al., 2005). Education might play a role for male subjects to use more problem-focused coping. In this study, literate subjects used more problem-focused coping where literate male patients were comparatively high.

Anxiety of Patients with MI

The second aim of this study was to identify the level of anxiety of patients with MI in Nepal. This study measured both state anxiety and trait anxiety. State and trait anxiety tend to correlate quite highly with each other (Edelman, 1992). In this study group, state and trait anxiety had a significant moderate positive correlation ($r = .52$, p <.01).

In this study, subjects rated both state and trait anxiety at a moderate level. However, more than half of the subjects reported low levels of state anxiety (52.3%) and trait anxiety (55.7%). These findings may be related to older age or culture. Based on Westbrook and Viney (as cited in Chiou et al., 1997), elderly patients expressed significantly less anxiety than middle-aged groups and the young-age. In this study group, 77% of subjects were >55 years of age. Moreover, Zheng et al. (as cited in Chiou et al., 1997) described that emotional experience of anxiety differs according to culture. In the Nepalese culture, people believe in reincarnation, therefore, they accept their suffering and make sense of illness which may help lessen the anxiety.

In this study, there was no gender difference in anxiety level which is similar to the study of Crowe et al. (1997) but different from the study of Moser et al. (2003) who found that females were more anxious than males. No significant gender difference was found in this study which might be because of the distribution of male female ratio. Of the 88 subjects, there were 64 male subjects and 24 females.

Quality of Life of Patients with MI

The third aim of this study was to identify the level of QoL of patients with MI. Half of the subjects in this study rated their overall QoL at a moderate level. Analyzing each domain of QoL, subjects rated the lowest on the socio-economic domain, mean = 18.72 (SD = 3.99) and the highest on family domain, mean = 25.85 (SD = 5.50). In Nepal, most people live together in a joint family. Almost 60% of the subjects in this study had joint family. They have common property and responsibility to each other. When any member of the family becomes sick, the rest of the family members have to take care of the sick one. Society is also judging every member of a family on how they are taking care of their sick members at home/hospital. Neighbors also frequently visit sick people and talk about their problems. Therefore, in this study, subjects were more satisfied with the family domain. A similar result was found in the study of Kristofferzon et al. (2005) where patients with MI rated high on the family domain.

Both the health and physical functioning, and psychological and spiritual domains in this study, were rated at a moderate level. However, in the study of Kristofferzon et al. (2005) subjects rated low in the health and functioning domain. Moderate level in the health and functioning domain can be explained by the age of this study's population. Elderly people, in Nepal, think that a decrease in ability for daily activities is due to their age not only due to the illness but normal physiological phenomenon. Therefore, they can accept their condition more easily. Subjects, in this study, rated low on the socioeconomic domain. In this study group 33% of the subjects did not have any income source. Even though there is any income source, it is not easy to allocate spending on health services. Nepal does not have any health insurance or social security. People have to pay for themselves and they have to spend a lot, not only for an initial hospital visit, but also for follow up visits. Distance to hospital is often great and expenditure for medicine is also high.

Therefore, overall QoL of Nepalese patients with MI was assessed at a moderate level. One explanation of rating the overall QoL at moderate level might be due to the long questionnaire. During the data collection period, subjects expressed discontent with the length of the questionnaire by frequently asking how it would take to be completed that might led them to choose the best answer for them to finish the questionnaire without going through in detail. The result of this study for QoL at moderate level is similar to the study of Kristofferzon et al. (2005) who found overall QoL after MI at a moderate level in Swedish population. Interestingly, in a study by Wiklund, Herlitz, and Hjalmarson (1989) 5 years after MI most patients seemed well-adjusted and reported a high QoL compared to the normal population, a decrease was only noted in energy levels, sleep and mobility, sex life and hobbies or holiday activity. Family support might be contributing factor in the satisfaction of life. Previous research in the patients with cirrhosis of liver showed that there was a significant positive correlation (r = .58, p = .00) between perceived family support and QoL. However, perceived family support and received family support are different from each other. In the Nepalese context, received social support was more strongly related to symptoms than perceived social support (Emmelkamp, Komproe, Ommeren, & Schagen, 2002). This result urges us to conduct similar research in the patients with MI to examine the effect of both received social support and perceived social support on coping, anxiety and QoL.

In addition, subjects who complained of shortness of breath, chest pain, and fatigue and who had history of re-infarction had low QoL ($F = 3.8$, $p <.05$). A similar result was noted in the study of Dickens et al., 2008; Brink et al., 2005. Nepal is a mountainous country and people who are living in village have to walk long up and down for their daily activities. Even though in this study many subjects did not have any job they need to walk up and down for their basic needs as well. Moreover, the main occupation of the Nepalese people is an agriculture which is directly associated with the energy of the people. Nepal is not such a well-equipped for the agricultural activities. Most of works are dependent on people themselves. If individual suffers from chest pain, fatigue and shortness of breath, it directly affects their normal daily activities.

It must be noted that, many studies showed that female patients had lower QoL in comparison to male patients after MI (Agewali et al., 2004; Brink et al., 2005; Dixon et al., 2000; Garavalia et al., 2007). Despite that, the result of this study is congruent with the study of Kristofferzon et al. (2005) who found no statistically significant gender differences for QoL in patients with MI.

The Relationship between Coping Strategies and Anxiety in Patients with MI

The fourth aim of this study was to examine the relationship between coping strategies and anxiety in patients with MI. Each coping strategy (problem-focused and emotion-focused coping) has different implications for anxiety, not only with respect to how well the encounter is being dealt with from a problem-focused standpoint, but also with respect to the direct regulation of emotion. Therefore, both coping strategies (problem-focused coping and emotion-focused coping) have a significant role in its outcome. In this study, there was a significant negative correlation between problem-focused coping and anxiety (r = -.22, p <.05). Thus, evidence was consistent with the idea that the more the use of problem-focused coping the less anxiety. A similar result was found in the study of Tung et al. (2008) in patients after a coronary artery bypass graft (r = -.33, p = .01). However, in this study, emotion-focused coping had a small non significant correlation with anxiety. This can be explained in the following way. When patients had higher anxiety, they needed to control their emotion or decrease their anxiety level to mild or moderate so that they can do problem-solving. In addition, MI is a treatable illness which responds to medication and life style modification. Therefore, in this study, patients were able to manage their problem because most of them did not get any complications and they did not need to use their emotion-focused coping to lessen their anxiety. This finding was consistent with the study of Tung et al. (2008) where, $r = .18$, $p > .05$ with emotion-focused coping and anxiety. However, in heart failure patients, avoidance and evasive coping were significantly associated with higher anxiety (Doering et al., 2004; Kristofferzon et al., 2003).The reason for the significance of emotion-focused coping in heart failure patients might be that emotion-focused coping is used when the situation cannot be changed. In heart failure patients, they might determine that the situation is not possible to be changed and they present higher anxiety.

The Relationship between Coping Strategies and Quality of Life of Patients with MI

The fifth aim of this study was to examine the relationship between types of coping strategies and QoL of patients with MI. Different styles of coping are related to specific health outcomes. Both problem-focused and emotion-focused coping can impede and facilitate to the adaptational outcome. Coping facilitates its outcome by decreasing the frequency, intensity, and duration of the stressful situation (Lazarus & Folkman, 1984). In this study, there was a significant positive correlation between problem-focused coping and overall QoL ($r = .29$, $p < .05$). This result reveals that the higher the use of problem-focused coping the higher the QoL. By the use of problem-focused coping subjects managed their problem constructively and improved their QoL. This result is also congruent with previous studies in post MI patients, coronary artery bypass graft surgery patients, and chronic illness such as heart failure and renal dialysis patients (Brink et al., 2002; Kristofferzon, 2006; Tung et al., 2008; Wallis et al., 2006), respectively. However, emotion-focused coping, in this study, had a non-significant relationship to QoL. The average duration of illness of the subjects was about 3 years. During this period subjects might have started to solve their problem by using their problem-focused coping strategies. Also they already might have regulated their emotion by the use of emotion-focused coping in the initial phase of the illness. Therefore, in this study emotion-focused coping did not have a significant role in the QoL of this group.

The Relationship between Anxiety and Quality of Life of Patients with MI

The sixth aim of this study was to examine the relationship between anxiety and QoL of patients with MI. Anxiety increases the activation of the sympathetic nervous system and the hypothalamic pituitary adrenal axis. An increased heart rate, alterations in coagulation, reduced immune response, delayed wound healing, and augmented centrality with significantly increased myocardial workload and myocardial oxygen consumption are some results of anxiety. These physiological alterations are dangerous after MI and have a negative influence on patients' outcomes (Frazier et al., 2002). In this study, there was a significant negative correlation between anxiety and QoL ($r = -.4$, $p < .05$).This result is also congruent with a previous study (Lane et al., 2001) in post MI patients. Tung et al. (2008) found a similar result where anxiety was significantly negatively correlated with both the physical component and mental component summary of QoL. State anxiety is characterized by subjective feelings of tension, apprehension, nervousness, and worry (Spielberger, 1983). It was assumed further that state anxiety would vary in intensity and fluctuate over time as a function of perceived threat.

Lazarus and Folkman (1984) posited that no coping strategies are good or bad. Both can impede or facilitate each other. This study revealed that, in the Nepalese context, problem-focused coping seemed more appropriate than emotion-focused coping strategies and had a positive role. Based on the results of this study, no matter how often subjects used emotion-focused coping, it did not affect their anxiety level and QoL. However, there is the rational direction even it was non-significant, meaning that, emotion-focused coping had a positive correlation to anxiety but positive correlation to QoL. It shows that the higher the emotion-focused coping the higher the anxiety. In this study emotion-focused coping also played positive role to the outcome of QoL of patients with MI but it was not significant. The reason is that emotion-focused coping might be good when it is used in the initial phase of encountering a stressful situation. But in this study subjects were not newly diagnosed, therefore the use of emotion-focused coping did not play a significant role in its outcome. State and trait anxiety had a positive correlation which is in line with the theory of Spielberger (1983) where, the stronger the trait anxiety, the more probable that a person will experience an intense state anxiety in a stressful situation.

In the Nepalese context, people assume that they have fulfilled their responsibility well if they see their children well established. Even if they become sick they feel self-satisfied with the job they did in life. If their children are married and established it is the greatest satisfaction for them. It does not matter to them if anything bad happens to them. Moreover, they know their situation or accept their situation which helps them to be satisfied with their condition. Most of them live in remote areas of the country and their living standard is different from urban people. It might be interesting for future research to conduct the research and compare patients who are living in urban and rural areas. Patients in this study group were mostly above 55 years of age. It is almost the age of retirement according to the law of the Nepalese Government. Furthermore, people think that anxiety is the main cause of heart attack and they know that it should be minimized after an attack. In every follow-up visit physicians advise them not to overly worry about improving their health condition. It might also be one of the causes of low level of anxiety in more than 50% of patients. However, the mean anxiety score was at a moderate level. It suggests that Nepalese patients with MI need some additional intervention in the OPD setting to lower their anxiety level.

The present study results provide basic valuable information regarding coping, anxiety and QoL of Nepalese MI patients. These results may also become a guideline for future research as this research is the first of its kind in this group in Nepal. The study results also raise many questions in this sector and need to explore more information. In addition, as a cross-sectional study, which focused on coping strategies, anxiety and QoL at one moment in time has certain weaknesses. Due to the dynamic process of coping, state anxiety and QoL, it would be useful and worthwhile to undertake a longitudinal study to investigate which patterns of disease-related coping are related to different disease stages and its outcomes on anxiety and QoL.

CHAPTER 5

CONCLUSION AND RECOMMENDATIONS

A descriptive correlational study was conducted to identify frequently used coping strategies, anxiety levels and levels of QoL, and to examine the relationships between coping strategies, anxiety and the QoL of patients with MI. Eighty-eight subjects were recruited in the study by purposive sampling from OPD of SGNHC. Subjects were interviewed to complete demographic data and a diseases-related form, State Trait Anxiety Inventory (STAI), Jalowiec Coping Scale (JCS), and Quality of Life Index cardiac version (QLI). Data was collected from October 2010 to January 2011. The data gathered in this study was subsequently analyzed by using descriptive statistics and inferential statistics, and Pearson's Product Moment Correlation Coefficients. Summary of the study results, strengths, limitations, implications and recommendations are presented in this chapter.

Summary of the Study Results

The majority of the subjects were over the age of 55 years with a mean age of 57.43, predominantly Hindu and male. Problem-focused coping was used more often than emotion-focused coping. More than half of the subjects rated anxiety at a low level and QoL at a moderate level. A Significant negative correlation between problem-focused coping and state anxiety and a significant positive correlation between problem-focused coping and QoL was found. However, emotion-focused coping was not significantly correlated with either state anxiety or QoL. Furthermore, state anxiety was significantly negatively correlated with QoL.

Strengths and Limitations of the Study

The strengths of this study are identified as follows: First, the study was conducted at the highest referral cardiac center in Nepal. The findings of this study can be representative in understanding concepts of anxiety, coping and QoL of MI patients in Nepal where most of the patients are Hindu. Second, the statistical analysis used in this study used correlational coefficients controlling for trait anxiety that provided more valid and precise estimation of the correlation coefficients.

However, this study also had some limitations. First, the male sample was more than twice the size of the female sample. The generalization of the findings may be biased toward male MI patients. Second, this study used a purposive sampling to recruit the subjects who visited to the OPD of SGNHC until the desired sample was reached using inclusion criteria made before data collection. This study included subjects after two months of their initial diagnosis so it can not be generalized to acute MI patients. Third, it was a cross-sectional study. Coping, anxiety, and QoL are dynamic. Therefore, a cross-sectional study cannot capture the dynamic process of coping, anxiety and QoL. Finally, this was a quantitative study and only objective answers were analyzed. It did not consider any subjective feelings from the patients' perspective.

Implications and Recommendations

This research study is the first research in Nepalese patients with MI. The result of this study can be used as a baseline in nursing practice, nursing education, and nursing research.

Nursing practice. The findings of this study provide strong evidence for a clinical recommendation that patients with MI use diverse coping strategies. Problem-focused coping strategies were useful to reduce anxiety and for better QoL in Nepalese patients with MI. However, when analyzing each item some items which are good in problem-solving were used less often by Nepalese patients such as handling a problem piece meal, trying to do something. Therefore, to enhance better QoL of post MI patients, nursing intervention should focus on promoting those problem-focused coping strategies that were less often used. In addition, some emotion-focused coping strategies such as staying alone, over eating or smoking, or doing nothing were also used by the patients that might have a detrimental effect if used more often. Therefore, when providing or preparing the nursing intervention, each coping strategy should be taken into consideration to promote the use of those items that are good and the reduction of those items which are not good for the patients' health. Therefore, these results will help nurses develop appropriate nursing intervention and also a better understanding of coping which will lead to an enhancement of problem-focused coping strategies of patients with MI especially for accepting the situation and facilitate patients to talk to the patients who have similar problems along with supporting emotion-focused coping.

Nursing education. This study found that most patients used both coping strategies but comparatively more problem-focused coping. Knowledge gained from this study would be beneficial for developing knowledge, especially in coping strategies that are frequently used by patients with MI. The better understanding of frequently used coping strategies will help the nurses and nurse-students facilitate patients in using problem-focused coping strategies to reduce the level of anxiety and improve QoL. Provision of training to the nursing staff, help refresh the knowledge and gain insight of the patients. In addition, training program can be conducted to the nursing administrative staff.

Nursing research. This study has contributed to a better understanding of the theoretical links between coping, anxiety, and QoL of patients with MI. The research findings of this study can be used as baseline data for further research related to patients with MI to extend research in large population. An interventional study can be conducted to determine if problem-focused coping is really helpful to the patients with MI in Nepal or not. However, the present study utilized a correlational design that has certain weakness, so that it is difficult to determine whether the use of different coping strategies are a direct cause of increased anxiety level and decreased QoL or vice versa. Based on the findings, some recommendations are offered as follows:

1. A qualitative study is needed to gain more information from the different cultural perspectives and ethnicity in better understanding MI related coping strategies, anxiety, and QoL. This will be useful information as baseline data to develop nursing interventions in caring for patients with MI over the long term.

2. A longitudinal study is suggested to examine the relationships among coping, anxiety, and QoL in different time frames because state anxiety might be both situation-specific emotional outcome and reappraisal. Appraisal as the threat, harm/loss can be changed to challenge in any timeframe and coping strategies also vary according to the appraisal. To measure state anxiety as reappraisal longitudinal study is needed. In addition, coping and QoL are dynamic and change according to the situation. Therefore, a longitudinal study would be useful to grasp the dynamic nature of coping process, state anxiety, and QoL.

3. This study can be replicated by comparing different ethnic groups, living areas (urban and rural). Factors associated with poor QoL such as smoking, comorbidity, severity of illness can be explored and causes of complications after MI can be explored as well.

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APPENDICES

APPENDIX A

INFORMED CONSENT FORM

Dear Patients,

My name is Bimala Panthee. I am a master student in Faculty of Nursing, Prince of Songkla University, Hat Yai Thailand. I am conducting research on "coping, anxiety and quality of life of patients with myocardial infarction". The objectives of this study are to identify coping strategies frequently used by patients with MI, anxiety level and quality of life and to examine relationship between coping strategies and anxiety and coping strategies and quality of life and anxiety and quality of life of patients with MI. Information from this study will be valuable to improve the quality of life of patients with MI. If you agree to participate voluntarily, you will be asked to complete the questionnaire which takes about 45 minutes. Your personal identity and all of your answer will be kept confidential and all the information will be used only for the purpose of this research study. This study has been approved by the Institutional Review Board of Faculty of Nursing, Prince of Songkla University, Thailand and is also from the Sahid Gangalal National Heart Center.You may withdraw from this study at any time without any plenty and hesitation. There are no risks or disadvantages anticipated with participating in the study. However, if this study causes any injury or when asking some questions it hurt you and feel not good, in such a case please do not hesitate to let know the researcher. Otherwise, there is no such harm to participate in this study. Additionally, there is no cost and no financial reward to participate in this study.

Thank you for your participation in the study

APPENDIX A (Continued)

Any kind of queries and any further information regarding this research can be asked to the researcher in the following address.

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Master of Nursing Science (International Program)

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....	....	....
Name of the participant	Signiture of the participants	Date
Bimala Panthee	....	....
Name of the researcher	signature of the researcher	Date

APPENDIX B

INSTRUMENTS

APPENDIX B1

Code ………………

Please answer the following questions by tick or cross with a dark pen. Record your best answer. You do not need to fear about this as the result of this study will be anonymous and confidential. Your honest answers are requested. Please do not put your name in the questionnaire.

Part I: Demographic and Disease Related Data

1. Age…………….years
2. Gender: 1 ( ) Male 2 ( ) Female
3. Marital status 1 ( ) Married 2 ( ) Unmarried
   3 ( ) Widowed 4 ( ) Widower
4. Type of family 1 ( ) Nuclear 2 ( ) Joint
   3 ( ) Extended 4 ( ) Alone
5. Religion 1 ( ) Hinduism 2 ( ) Buddhism
   3 ( ) Islam 4 ( ) Christian 5 ( ) others, please specify
   ……………………………………
6. Education 1 ( ) Illiterate 2 ( ) < 10 class
   3 ( ) 10 class passed 4 ( ) 11 - 15 class
   5 ( ) >16 class
7. Job Holder 1 ( ) Yes 2 ( ) No
   If yes, 1 ( ) Still working
   2 ( ) on sick leave
   If no, (1) Retired (2) Abandoned due to disease
   (3) No job at all
8. Income/month (NRS) (1) No income source (2) <10000 (3) 10000-15000
   (4) >15000
9. How long have you been suffering from myocardial infarction?
   ………………………
10. Heart events after MI 1 ( ) Re-infarction 2 ( ) Revascularization 3 ( ) None
11. Presenting symptoms 1 ( ) Fatigue 2 ( ) Shortness of breath 3 ( ) Chest pain
    4 ( ) No heart symptoms

APPENDIX B2

Direction: Number statements which people have used to describe themselves are given below. Read each statements and then circle in the appropriate number to the right of the statement to indicate how you *generally feel.* There is no right or wrong answer. Do not spend too much time on any one statement but give answer, which seems to describe you generally feel.

Part II: State- Trait Inventory (STAI) (STAI Form A - trait)

No.	Items	Not at all 1	Sometimes 2	Moderately 3	Very much 4
1	I feel pleasant				
2	I feel nervous and restless				
3	I am satisfied with myself				
4	I wish I could be as happy as others seem to be				
5	I feel like failure				
6	I feel rested				
7	I am calm, cool, and collected				
8	I feel pilling up so that I cannot overcome them				
9	I worry too much over something that really does not matter				
10	I am happy				
11	I have disturbing thoughts				
12	I lack self- confidence				
13	I feel secure				
14	I make decision easily				
15	I feel inadequate				
16	I am comfortable				
17	Some unimportant thought runs through my mind and bothers me				
18	I take frustration so intensely that I cannot put them out of my mind				
19	I am stable person				
20	I get in a state of tension or confusion as I think over my recent concerns and interests				

APPENDIX B 3

Instruction: Please circle a number from 1 (Never) to 5(Almost always) to show how often you use the following ways to cope with stressful situation regarding to your illness after myocardial infarction. Then cross (X) in the column that most closely to you.

Part III: Jalowiec Coping Scale

Coping methods	Never	Occasionally	Sometimes	Often	Always
1. Worry about problems related to disease and treatment					
2. Cry					
3. Relieve from tension by doing physical activity or going to somewhere else					
4. Hope that things will get better					
5. Figuring that things could be worse					
6. Think in different ways to solve the problem or handle the situation					
7. Over eat; smoke					
8. Drink alcoholic beverage					
9. Take drugs to reduce your tension, such as sedative					
10. Put problems aside					
11. Let someone else solve the problem or handle the situation					
12. Daydream; fantasize					
13. Try to do anything even if you are not sure it will work					
14. Talk about the problem with someone who has been in same type of situation					
15. Get prepared to expect the worst					
16. Get mad; irritated; swear					
17. Accept the situation as it is					
18. Try to look at the problem objectively and see all sides					
19. Try to maintain some control over the situation					
20. Try to find purpose or meaning in the situation					

APPENDIX B 3 (continued)

Coping methods	Never	Occasionally	Sometimes	Often	Always
21. Pray/trust to God					
22. Get nervous					
23. Withdraw from the situation					
24. Blame others for your problems or the situation you are in					
25. Try to change the situation					
26. Impose your tensions on someone else or something else					
27. Stay alone					
28. Leave yourself to the situation because things look hopeless					
29. Do nothing in the hope that the situation will improve or will take care of itself					
30. Seek support or help from family, friends, or significant others					
31. Meditate/ use yoga					
32. Try to find out more information about the situation so you can handle it better					
33. Try different ways to solve the problem to see which one works the best					
34. Leave yourself to the situation because it's your fate and there is no sense of trying to do anything					
35. Try to draw on past experience to help you handle the situation					
36. Handle problem piecemeal					
37. Go to sleep, assuming that things will look better in the morning					
38. Set specific goals to help you solve the problem					
39. Tell yourself not to worry about the problem because everything will be okay					
40. Determine the work for the next best thing you really wanted					

APPENDIX B 4

Direction: Read each statement and then circle in the appropriate number to the right statement to indicate how you feel *right now*, that is, at this moment. There is no right and wrong answer. Do not spend too much time on any one statement but give answer, which seems to describe your present feeling best.

Part IV: State- Trait Anxiety Inventory (STAI) STAI Form (A- state)

No.	Items	Not at all 1	Somewhat 2	Moderately 3	Very much so 4
1	I feel calm				
2	I feel secure				
3	I am tense				
4	I feel strained				
5	I feel ease				
6	I feel upset				
7	I am presently worrying over possible misfortunes				
8	I feel satisfied				
9	I feel frightened				
10	I feel comfortable				
11	I feel self- confidence				
12	I feel nervous				
13	I am jittery				
14	I feel indecisive				
15	I am relaxed				
16	I feel content				
17	I am worried				
18	I am confused				
19	I feel steady				
20	I feel pleasant				

APPENDIX B 5

For each of the following, please choose the answer that best describes how satisfied are you in your life and how important those are of your life to you. Please mark your answer by circling the number. There is no right and wrong answer

Direction: 1 = very dissatisfied, 2 = moderately dissatisfied, 3 = slightly dissatisfied, 4 = slightly satisfied, 5 = moderately satisfied, 6 = very satisfied

1 = very unimportant, 2 = moderately unimportant, 3 = slightly unimportant, 4 = slightly important, 5 = moderately important, 6 = very important

Part V: Quality of life index cardiac version

	How satisfied are you with						How important to you is					
	1	2	3	4	5	6	1	2	3	4	5	6
1. Your health												
2. Your health care												
3. Having no chest pain (angina)												
4. Having shortness of breathe												
5. Having enough energy everyday activities												
6. Taking care of yourself without help												
7. Having control over your life												
8. Living as long as you would like												
9. Your familly's health												
10. Your children												
11. Your family's happiness												
12. Your sex life												
13. Your spouse, lover												
14. Your friends												
15. The emotional support you get from your family												

16. The emotional support you get from people other than your family												
17. Taking care of family responsibilities												
18. Being useful to others												
19. Having no worries												
20. Your neighborhood												
21. Your home, apartment, or place where you live												
22. Your job (if employed)												
23. Having a job (if unemployed, retired, or disabled)												
24. Your education												
25. Being able to take care of your financial needs												
26. Doing things for fun?												
27. Having a happy future												
28. Peace of mind?												
29. Your faith in god												
30. Achieving your personal goals												
31. Your happiness in general?												
32. Being satisfied with life												
33. Your personal appearance												
34. Are you to yourself?												
35. The changes in your life that you have had to make because of your heart problem (for example, changes diet, physical activity, and/or smoking)												

APPENDIX C

TABLES

Table 14

Distribution of Frequency and Percentage of State Anxiety (N = 88)

S.N	Items	Not at all	Somewhat	Moderately	Very much so
1	I feel calm	-	19 (21.6%)	39 (44.3%)	30 (34.1%)
2	I feel secure	6 (6.8%)	24 (27.3%)	34 (38.6%)	24 (27.3%)
3	I feel tense	43 (48.9%)	26 (29.5%)	12 (13.6%)	7 (8.0%)
4	I feel strained	46 (52.3%)	20 (22.7%)	13 (14.8%)	9 (10.2%)
5	I feel ease	7 (8.0%)	26 (29.5%)	44 (50.0%)	11 (12.5%)
6	I feel upset	50 (56.8%)	22 (25.0%)	10 (11.4%)	6 (6.8%)
7	I am worrying over possible misfortune	39 (44.3%)	17 (19.3%)	15 (17.0%)	17 (19.3%)
8	I feel satisfied	12 (13.6%)	16 (18.2%)	41 (46.6%)	19 (21.6%)
9	I feel frightened	43 (48.9%)	23 (26.1%)	13 (14.8%)	9 (10.2%)
10	I feel comfortable	5 (5.7%)	23 (26.1%)	43 (48.9%)	17 (19.3%)
11	I feel self confident	10 (11.4%)	17 (19.3%)	36 (40.9%)	25 (28.4%)
12	I feel nervous	44 (50%)	35 (39.8%)	7 (8.0%)	2 (2.3%)
13	I am anxious	48 (54.5%)	24 (27.3%)	12 (13.6%)	4 (4.5%)
14	I feel indecisive	41 (46.6%)	24 (27.3%)	14 (15.9%)	9 (10.2%)
15	I feel relaxed	22 (25%)	21 (23.9%)	29 (33%)	16 (18.2%)
16	I feel comfort	12 (13.6%)	17 (19.3%)	43 (48.9%)	16 (18.2%)
17	I am worried	39 (44.3%)	27 (30.7%)	16 (18.2%)	6 (6.8%)
18	I am confused	40 (45.5%)	28 (31.8%)	15 (17.0%)	5 (5.7%)
19	I feel steady	6 (6.8%)	21 (23.9%)	42 (47.7%)	19 (21.6%)
20	I feel pleasant	3 (3.4%)	21 (23.9%)	48 (54.5%)	16 (18.2%)

Table 15

Mean and Standard Deviation (SD) of Each Item of State Anxiety Scale of Patients with MI (N = 88)

Item of state anxiety scale	Mean	SD
1. I feel calm	3.13	.74
2. I feel secure	2.86	.89
3. I feel tense	1.81	.95
4. I feel strained	1.83	1.03
5. I feel ease	2.67	.79
6. I feel upset	1.68	.92
7. I am presently worrying over possible misfortune	2.11	1.17
8. I feel satisfied	2.76	.94
9. I feel frightened	1.86	1.01
10. I feel comfortable	2.82	.81
11. I feel self confident	2.86	.96
12. I feel nervous	1.62	.73
13. I am anxious	1.68	.87
14. I feel indecisive	1.90	1.01
15. I feel relaxed	2.44	1.06
16. I feel comfort	2.72	.92
17. I am worried	1.88	.94
18. I am confused	1.83	.91
19. I feel steady	2.84	.84
20. I feel pleasant	2.88	.74

Table 16

Distribution of Frequency and Percentage of Trait Anxiety (N = 88)

S.N	Items	Almost never	Sometimes	Often	Almost always
21	I feel pleasant	6 (6.8%)	22 (25.0%)	37 (42.0%)	23 (26.1%)
22	I feel nervous and restless	43 (48.9%)	23 (26.1%)	17 (19.3%)	5 (5.7%)
23	I am self satisfied	4 (4.5%)	17 (19.3%)	31 (35.2%)	36 (40.9%)
24	I wish I could be as happy as others	14 (15.9%)	9 (10.2%)	19 (21.6%)	46 (52.3%)
25	I feel like failure	51 (58.0%)	21 (23.9%)	9 (10.2%)	7 (8%)
26	I feel rested	7 (8.0%)	19 (21.6%)	42 (47.7%)	20 (22.7%)
27	I am calm, cool, and collected	12 (13.6%)	11 (12.5%)	30 (34.1%)	35 (39.8%)
28	I feel pilling up so that I cannot overcome them	45 (51.1%)	17 (19.3%)	18 (20.5%)	8 (9.1%)
29	I worry too much on unnecessary issues	44 (50.0%)	26 (29.5%)	10 (11.4%)	8 (9.1%)
30	I am happy	4 (4.5%)	19 (21.6%)	37 (42.0%)	28 (31.8%)
31	I have disturbing thoughts	52 (59.1%)	24 (27.3%)	8 (9.1%)	4 (4.5%)
32	I don't have self-confidence	52 (59.1%)	18 (20.55)	12 (13.6%)	6 (6.8%)
33	I feel secure	6 (6.8%0	14 (15.9%)	47 (53.4%)	21 (23.9%)
34	I make decision easily	9 (10.2%)	23 (26.1%)	25 (28.4%)	31 (35.2%)
35	I feel inadequate	53 (60.2%)	19 (21.6%)	13 (14.8%)	3 (3.4%)
36	I feel comfortable	8 (9.1%	17 (19.3%)	47 (53.4%)	16 (18.2%)
37	I am bothered by unnecessary thoughts	50 (56.8%)	23 (26.1%)	10 (11.4)	5 (5.7%)
38	I cannot overcome frustration	56 (63.6%)	20 (22.7%)	8 (9.1 %)	4 (4.5%)
39	I am stable person	10 (11.4%)	9 (10.2%)	43 (48.9%)	26 (29.5%)
40	I feel tensed or confused over my current situation				

Table 17

Mean and Standard Deviation of Each Item of Trait Anxiety scale of Patients with MI (N = 88)

Item of trait anxiety scale	Mean	SD
1. I feel pleasant	2.87	.88
2. I feel nervous and restless	1.82	.94
3. I am self satisfied	3.12	.88
4. I wish I could be as happy as others	3.10	1.15
5. I feel like failure	1.68	.95
6. I feel rested	2.85	.86
7. I am calm, cool, and collected	3.00	1.03
8. I feel pilling up so that I cannot overcome them	1.88	1.03
9. I worry too much on unnecessary issues	1.80	.97
10. I am happy	3.01	.85
11. I have disturbing thoughts	1.59	.83
12. I don't have self-confidence	1.68	.95
13. I feel secure	2.94	.82
14. I make decision easily	2.89	1.01
15. I feel inadequate	1.61	.86
16. I feel comfortable	2.81	.84
17. I am bothered by unnecessary thoughts	1.66	.89
18. I cannot overcome frustration	1.55	.84
19. I am stable person	2.97	.92
20. I feel tensed or confused over my current situation	2.45	1.24

Table 18

Distribution of Percentage of Patients' Coping Strategies (N = 88)

S. N	Coping strategies	Percentage				
		Never	Occasionally	Sometime	Often	Always
1.	Worry about the problems related to disease and treatment	50.0	4.5	25.0	11.4	9.1
2.	Cry	57.0	8.0	10.0	5.0	8.0
3.	Relieve from tension by doing physical activity or going to somewhere else	40.9	6.8	18.2	19.3	14.8
4.	Hope that things will get better	9.1	8.0	21.6	19.3	42.0
5.	Figuring that things could be worse	67.0	6.8	11.4	13.6	1.1
6.	Think through different ways to solve the problem or handle the situation	35.2	5.7	14.8	26.1	18.2
7.	Over eat; smoke	71.6	1.1	12.5	6.8	8.0
8.	Drink alcoholic beverage	90.9	1.1	2.3	3.4	2.3
9.	Take drugs to reduce your tension, such as sedative	77.3	6.8	9.1	4.5	2.3
10.	Put problems aside	56.8	9.1	22.7	9.1	2.3
11.	Let someone else solve the problem or handle the situation	53.4	10.2	22.7	8.0	5.7
12.	Daydream; fantasize	78.4	5.7	12.5	3.4	-
13.	Try anything to do even if you are not sure it will work	79.5	10.2	6.8	3.4	-
14.	Talk the problem over with someone who has similar type of situation	26.1	3.4	35.2	27.3	8.0
15.	Get prepared to expect the worst	81.8	3.4	11.4	3.4	-
16.	Get mad; irritated; swear	70.5	5.7	14.8	2.3	6.8
17.	Accept the situation as it is	5.7	4.5	25.0	35.2	29.5
18.	Try to look at the problem objectively and see all sides	31.8	8.0	15.9	29.5	14.8
19.	Try to maintain some control over the situation	26.1	3.4	17.0	34.1	19.3
20.	Try to find purpose or meaning in the situation	36.4	3.4	15.9	23.9	20.5
21.	Pray/trust to God	17.0	9.1	11.4	15.9	46.6

Table 18 *(Continued)*

S. N.	Coping strategies	Percentage				
		Never	Occasionally	Sometime	Often	Always
22.	Get nervous	56.8	14.8	18.2	4.5	5.7
23.	Withdraw from the situation	70.5	13.6	10.2	3.4	2.3
24.	Blame others for your problems or the situation you are in	81.8	8.0	8.0	2.3	-
25.	Try to change the situation	60.2	14.8	17.0	2.3	5.7
26.	Impose your tensions on someone else or something else	76.1	11.4	6.8	3.4	2.3
27.	Stay alone	56.8	5.7	10.2	14.8	12.5
28.	Leave yourself to the situation because things look hopeless	69.3	10.2	14.8	2.3	3.4
29.	Do nothing in the hope that the situation will improve or that the problem will take care of itself	76.1	10.2	8.0	3.4	2.3
30.	Seek support or help from family, friends, or significant person	23.9	6.8	18.2	29.5	21.6
31.	Meditate/ use yoga	48.9	6.8	17.0	21.6	5.7
32.	Try to find out more information about the situation so you can handle it better	40.9	3.4	18.2	20.5	17.0
33.	Try out different ways of solving the problem to see which works the best	42.0	6.8	11.4	22.7	17.0
34.	Leave yourself to the situation because it's your fate, so there is no sense trying to do anything about it	54.5	9.1	14.8	11.4	10.2
35.	Try to draw on past experience to help you handle the situation	51.1	12.5	17.0	11.4	8.0
36.	Handle problem piecemeal	45.5	11.4	19.3	12.5	11.4
37.	Go to sleep, assuming that things will look better in the morning	29.5	9.1	13.6	19.3	28.4
38.	Set specific goals to help you solve the problem	42.0	8.0	13.6	18.2	18.2
39.	Tell yourself not to worry about it everything will probably work out fine	11.4	3.4	15.9	25.0	44.3
40.	Determine the work for the next best thing to what you really wanted	39.8	5.7	30.7	11.4	12.5

Table 19

Mean and Standard Deviation (SD) of Each Problem-Focused Coping Strategies of Patients with MI (N = 88)

Coping strategies	Mean	SD
1. Think in different ways to solve the problem or handle the situation	2.86	1.57
2. Let someone else solve the problem or handle the situation	2.02	1.26
3. Try to do anything even if you are not sure it will work	1.34	.75
4. Talk about the problem with someone who has been in similar situation	2.87	1.29
5. Accept the things as it is	3.78	1.09
6. Try to look at the problem objectively and see all sides	2.88	1.50
7. Try to maintain some control over the situation	3.17	1.48
8. Try to find purpose or meaning in the situation	2.89	1.60
9. Try to change the situation	1.78	1.15
10. Try to find out more information about the situation so you can handle it better	2.69	1.57
11. Try different ways to solve the problem to see which one works best	2.66	1.60
12. Try to draw on past experience to help you handle the situation	2.13	1.36
13. Handle problem piecemeal	2.33	1.44
14. Set specific goals to help you solve the problem	2.63	1.60
15. Determine the work for the next best thing to what you really wanted	2.51	1.43

Table 20

Mean and Standard Deviation (SD) of Each Emotion-Focused Coping Strategies of Patients with MI (N = 88)

Coping Strategies	Mean	SD
1. Worry about the problem related to disease and treatment	2.25	1.40
2. Cry	1.85	1.34
3. Relieve from tension by doing physical activity or going to somewhere	2.60	1.53
4. Hope that things will get better	3.77	1.31
5. Figuring that things could be worse	1.75	1.17
6. Over eat, smoke	1.78	1.34
7. Drink alcoholic beverage	1.25	.84
8. Take drugs to reduce your tension such as sedative	1.48	.99
9. Put problems aside	1.91	1.17
10. Daydream; fantasize	1.41	.83
11. Get prepared to expect the worst	1.36	.81
12. Get mad; irritated; swear	1.69	1.21
13. Pray/trust to god	3.66	1.54
14. Get nervous	1.88	1.20
15. Withdraw from the situation	1.53	.97
16. Blame others for your problems or the situation you are in	1.31	.71
17. Impose your tensions on someone else or something else	1.44	.93
18. Stay alone	2.20	1.54

Table 20 *(Continued)*

Coping Strategies	Mean	SD
19. Leave yourself to the situation because things look hopeless	1.60	1.04
20. Do nothing in the hope that the situation will improve or will take care of itself	1.45	.94
21. Seek support or help from family, friends, or significant person	3.18	1.47
22. Meditate/ use yoga	2.28	1.40
23. Leave yourself to the situation because it's your fate and there is no sense of trying to do anything	2.14	1.44
24. Go to sleep, assuming that things will look better in the morning	3.08	1.62
25. Tell yourself not to worry about the problems because everything will probably work out fine	3.88	1.32

Table 21

ANOVA Test for Examining the Differences of the Means of the Problem-Focused Coping, Emotion-Focused Coping, Anxiety and Quality of Life Score among Presenting Symptoms of Patients (N = 88)

Variables	Fatigue M (SD)	Shortness of breath M (SD)	Chest pain M (SD)	No heart symptoms M (SD)	F	p
Problem-focused coping	47.82 (15.99)	48.84 (19.89)	52.33 (13.46)	52.37 (14.88)	.44	.72
Emotion-focused	42.08 (6.85)	41.81 (5.65)	42.70 (7.58)	41.63 (7.99)	.08	.96

Table 21 *(Continued)*

Variables	Fatigue M (SD)	Shortness of breath M (SD)	Chest pain M (SD)	No heart symptoms M (SD)	F	p
State anxiety	43.13 (12.60)	43.09 (10.94)	42.12 (12.87)	37.93 (12.09)	1.15	.33
Quality of life	20.90(3.81)	20.70(3.57)	21.01(3.52)	23.02(3.29)	2.79	.04

Table 22

ANOVA Test for Examining the Differences of the Mean of Problem-focused Coping, Emotion-Focused Coping, Anxiety and Quality of Life score among the Duration of Illness of Patients (N = 88)

Variables	Duration of illness (months) (M SD)				F	p
	2 - 6	7 - 12	13 - 48	> 48		
Problem-focused coping	49.54 (15.25)	48.49 (17.47)	48.49 (15.24)	51.55 (12.88)	.63	.59
Emotion-focused coping	43.7 (17.88)	43.87 (7.74)	40.57 (6.672)	39.09 (6.47)	.2.06	.11
State anxiety	40.72 (10.15)	44.78 (12.47)	36.17 (10.73)	41.46 (16.04)	2.08	.10
Quality of life	22.37 (3.13)	21.58 (3.20)	22.32 (3.83)	21.31 (4.28)	.43	.72

Table 23

T-test for Examining the Differences of the Mean of Problem-Focused Coping, Emotion-Focused Coping, Anxiety and Quality of Life Score between Patients Who Have History of Re-infarction and Who Do Not Have History of Re-infarction

(N = 88)

	History of re-infarction M (SD)		t	p
	Yes	No		
Problem-focused coping	49.77 (14.78)	51.58 (15.54)	-.46	.64
Emotion-focused coping	41.98 (8.04)	41.91 (7.21)	.03	.97
State anxiety	44.95 (12.89)	38.74 (11.72)	2.06	.04
Quality of life	21.21 (4.10)	22.25 (3.37)	-1.17	.24

Table 24

T-test for Testing the Mean Differences of the Mean of Problem-Focused Coping, Emotion-Focused Coping, Anxiety and Quality of Life Score between Patients who Needed Revascularization and Who Did Not Need It (N = 88)

	Need of revascularization M (SD)		t	p
	Yes	No		
Problem-focused coping	61.66 (15.31)	50.10 (14.98)	2.07	.04
Emotion-focused coping	42.20 (7.17)	41.90 (7.43)	.10	.91
State anxiety	36.25 (13.45)	40.62 (12.12)	-.96	.33
Quality of life	22.20 (3.34)	21.99 (3.60)	.15	.87

Table 25

T-test for Testing the Differences of the Mean of Problem-Focused Coping, Emotion-Focused Coping, Anxiety and Quality of Life Score between Male and Female Patients (N = 88)

	Gender M (SD)		t	p
	Male	Female		
Problem-focused coping	55.54 (14.46)	39.44 (10.73)	4.95	.00
Emotion-focused coping	41.28 (7.82)	43.63 (5.80)	-1.33	.18
State anxiety	39.26 (12.10)	42.79 (12.43)	-1.20	.23
Quality of life	22.35 (3.60)	21.09 (3.36)	1.48	.14

Table 26

T-test for Testing the Differences of the Mean of Problem-Focused Coping, Emotion-Focused Coping, Anxiety and Quality of Life Score between Illiterate and Literate Patients (N = 88)

	Education M (SD)		t	p
	Illiterate	Literate		
Problem-focused coping	38.29 (9.05)	57.46 (13.72)	-6.81	.00
Emotion-focused coping	44.3 (57.53)	40.73 (7.05)	2.21	.02
State anxiety	44.24 (13.15)	38.25 (11.34)	2.20	.03
Quality of life	20.48 (3.56)	22.75 (3.35)	-2.92	.00

Table 27

Chi-square Test for Examining the Differences between Need of Revascularization and History of Re-infarction (N = 88)

		Need of revascularization		Total	χ^2	p
		Yes	No			
History of re-infarction	Yes	0	21	21	2.75	.09
	No	8	59	67		
Total		8	80	88		

Table 28

Chi-square Test for Examining the Differences between Duration of Illness and History of Re-infarction (N = 88)

		Duration of illness (months)				Total	χ^2	p
		2-6	7-12	13-48	>48			
History of re-infarction	Yes	4	1	11	5	21	8.36	.03
	No	21	18	18	10	67		
Total		25	19	29	15	88		

APPENDIX D

Permission Letter to Use the Instruments

2010

Mr./Ms. Brimala Panthee, Nursing Science Student
Prince of Songkla University
Faculty of Nursing,
Graduate Unit 3rd Floor, 1st Building
Hai Yak, 90112 Thailand

Dear Mr./Ms. Brimala Panthee:

In response to your recent request, I am very pleased to give you permission to reproduce and use the State-Trait Anxiety Inventory (STAI) in your Masters Thesis research, entitled:

Coping, anxiety and quality of life of patients with myocardial infarction.

It is my understanding that your research will be carried out in:

Sahid Gangalal National Heart Center, Nepal.

This permission is contingent on your agreement to share your findings with us when your research is completed. I look forward to receiving further information about your procedures and the results of your study as this information becomes available.

Best wishes on your research project.

Sincerely,

Charles D. Spielberger, Ph.D., ABPP
Distinguished Research Professor of Psychology
Director, Center for Research in Behavioral
Medicine and Health Psychology
Phone (813) 974-2342; E-mail: spielber@cas.usf.edu

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Some question regarding quality of life index cardiac version

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Bimala Panthee to cferrans show details 9/24/10 Reply

Dear Professor,

I am Bimala Panthee from Nepal and doing my master degree from Prince of Songkla University, Thailand. due to the course requirement of my degree I am doing my thesis entitled " Coping, Anxiety, and Quality of Life in Patient with Myocardial Infarction". I am using Quality of Life Index Cardiac Version IV to measure quality of life. I have some questions regarding this instrument. I have planned to ask those questions in the same part satisfaction and importance.
I have attached the sample that I made. I thought that it might be time saving and patient might n get bored. I want to know your suggestions regarding this issue.

modified version of quality of life index.docx
17K View Download

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Carol Ferrans to me show details 9/25/10 Reply

Dear Bimala Panthee,
Thank you for your email and interest in the Quality of Life Index. You may use this format if you wish. We did test this format originally, but found that it was cognitively easier for the participants answer if they used one uniform response choice set at a time. It was more difficult for them to switch between the two. But if you would like to use the format you propose, I will allow it. It is actually not a revision, however, because all the wording and response choices are the same as original.

Good luck with your study.

Sincerely,
Carol Ferrans
Carol Estwing Ferrans, PhD, RN, FAAN
Professor and Associate Dean for Research
Co-Director, Center for Excellence in Eliminating Health Disparities
Co-Director, Community Engagement and Outreach Core, CCTS
College of Nursing (M/C 802), Room 606
845 S. Damen Avenue
Chicago, IL 60612
phone 312-996-8445
fax 312-996-4979
email cferrans@uic.edu<mailto:cferrans@uic.edu>
QLI website www.uic.edu/orgs/qli<http://www.uic.edu/orgs/qli>

From: Bimala Panthee [blpanthee@gmail.com]
Sent: Thursday, September 23, 2010 8:23 PM
To: Carol Ferrans
Subject: Some question regarding quality of life index cardiac version
- Show quoted text -

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nala **Panthee** to Carol show details 9/25/10 Reply

›rofessor,

you very much. I am very much grateful towards your kind response. Yes, It is not a revision.
my fault that I wrote modified version. Actually I am going to use the original one but just
d to make it in one part. Even though all the information are available in website regarding the
this instrument, if I am confused at any matter I will be in contact with you.

ing you

ely yours
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1

Visit settings to save time with **keyboard shortcuts!**

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Request for the permission to use Jalowiec Coping Scale old version

Inbo

Bimala Panthee to ajalowiec — show details 8/23/10 — Reply

I am a master of nursing science student from Nepal. I am doing my masters degree from Prince Songkla University, Thailand.
For the requirement of my degree I am doing my thesis on **Coping, Anxiety and Quality of life i Nepalese Patients with MI**. I am willing to use your coping scale old version; 40 items. I am goi to defend my proposal soon and I need to have your permission to use and translate the instrum Additionally, if you have any consideration for such students who are unable to pay I would like t request you as I am studying here with paying tuition fee by myself I will be grateful towards your support.

Hoping to hear from you

Sincerely yours'
Bimala Panthee

Reply Forward

Anne Jalowiec to me — show details 8/24/10 — Reply

Dear Ms Panthee:

Thank you for your interest in the Jalowiec Coping Scale (JCS) (40-item version). The usual fee for permission to use the JCS and to obtain the JCS packet is $75 (in US dollars). However, for students with financial problems, I can reduce the fee to $25. The JCS packet contains a copy o the scale, coding and scoring directions, and a JCS bibliography.

Therefore, if you would like to use the JCS in your master's project, please send a check for $25 US dollars) made out to my name (Anne Jalowiec) to the following address:

Dr Anne Jalowiec
346 North Deer Mountain Road
Florissant, Colorado 80816
USA

As soon as I receive your check, I will email the JCS packet to you.

What language/dialect will you be translating the JCS into?

If you have any questions, please email me at: ajalowiec@yahoo.com.

Sincerely,
Dr Anne Jalowiec, RN, PhD
Professor Emeritus, Loyola University of Chicago

--- On **Mon, 8/23/10, Bimala Panthee <*blpanthee@gmail.com*>** wrote:

> From: Bimala Panthee <blpanthee@gmail.com>
> Subject: Request for the permission to use Jalowiec Coping Scale old version
> To: ajalowiec@yahoo.com
> Date: Monday, August 23, 2010, 4:54 AM
> - Show quoted text -

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nala Panthee to Anne   show details 9/26/10   Reply

'rofessor,

am done with my proposal defence and I am confirmed to use Jalowiec Coping Scale (JCS)
m version). I am planning to send check via my friend in US. He will send you the check in
ddress.
mean time I want to know about the analysis of this instrument. whether I can use total score
ng to use the correlation analysis or not? and how to analyze the coping score and other
es? I am hoping to hear from you soon.
ely yours

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ne Jalowiec to me   show details 9/27/10   Reply

ls Panthee:

t you know when the check arrives.

ou will be using the 40-item JCS, you should use the 2 scores on problem-oriented coping
ective-oriented coping. The scale will indicate which items belong to which of thiese 2
ies.

wiec

un, 9/26/10, Bimala Panthee <*blpanthee@gmail.com*> wrote:

: Bimala Panthee <blpanthee@gmail.com>
ect: Re: Request for the permission to use Jalowiec Coping Scale old version
Anne Jalowiec" <ajalowiec@yahoo.com>
Sunday, September 26, 2010, 7:12 AM
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VITAE

Name: Ms. Bimala Panthee

Student ID: 5210420048

Educational Attainment

Degree	Name of Institute	Year of Graduation
Bachelor in Nursing Science	Tribuvan University, Nepal	2006

Scholarship Award during Enrollment

Partial support (50%) in tuition fee from faculty of nursing prince of Songkla University, Hat Yai, Thailand in condition to work as teaching assistant or research assistant

List of Publications and Proceedings

Panthee, B., & Kritpracha, C. (2011). Review: Anxiety and quality of life in patients with myocardial infarction. *Nurse Media Journal of Nursing, 1*(1), 105- 115.

Panthee, B., Kripracha, C., & Chinnawong, T. (2011). Correlation between coping strategies and quality of life among myocardial infarction patients. *Nurse Media Journal of Nursing,* In press.