Living and Recovering from a Heart Attack in Montana: A Phenomenological Study

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Living and Recovering from a Heart Attack in Montana:

A Phenomenological Study

Manuel G. Malabanan

Carroll College
This thesis for honors recognition has been approved for the Department of Nursing.

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I dedicate this thesis to my loving parents, Jessirina Gicos and Alex Malabanan.

I would like to thank Dr. Joni Walton for all the help.

Special thanks to Joan Stottlemyer, Kim Garrison and Tom Hamilton.

This would not be possible without their careful guidance and care.
Abstract

Myocardial infarction or heart attack claimed 221,000 lives in the United States annually. The purpose of this thesis is to gain a better understanding of the true meaning of living and recovering from a myocardial infarction. This thesis used the phenomenological approach, and explored the experiences of three individuals who had a myocardial infarction using Giorgi’s Method. Two males and one female who experienced a myocardial infarction within three to six months participated in the study. The data analysis revealed that recovery from myocardial infarction involved restructuring and adaptation in physical, social and emotional aspects of an individual's life which were dictated by society’s expectations of gender roles. Four themes of the immediate experience and recovery were identified: facing mortality, seeking normalcy, worrying about the financial burden, and seeking the female figure assurance. Nurses should recognize that males face the fears and anxiety of mortality and seek the support of a female significant other during the event of the myocardial infarction. Moreover, care of individuals who are living and recovering from a myocardial infarction should involve interventions that promote the individuals’ independence and self-reliance. Clinical nurses may use the finding of the study to further individualize care provided to those who had a myocardial infarction.
Chapter I
Overview

Cardiovascular diseases claim more lives each year than cancer, chronic lower respiratory diseases, accidents and diabetes mellitus combined. According to the American Heart Association (2004) if all forms of cardiovascular diseases were eliminated, life expectancy would rise by 7 years. In order to formulate a plan of care that is appropriate and effective, understanding and exploring the individual’s personal account of the experience should be investigated. The purpose of this thesis is to gain understanding of the true meaning of living and recovering after an experience with myocardial infarction.

Description

The heart, like every organ in the body requires oxygenated blood in order to perform its respective duties. In the case of the heart, coronary arteries supply the much needed oxygenated blood. According to Thomson Micromedex (2007), when coronary arteries become narrowed, blocked, or spasm, the cardiac tissue does not receive oxygenated blood. When organ tissues do not receive sufficient oxygenated blood for an extended period of time, the organ tissue starts undergoing necrosis or tissue death. Myocardial infarction, as a subset of acute coronary syndrome (ACS), occurs when cardiac tissue does not receive sufficient oxygenated blood. ACS may include unstable angina, myocardial infarction with abnormal EKG, and myocardial infarction with normal EKG (Thomson Micromedex, 2007). In contrast to stable angina, unstable angina may occur at rest and after light activities. Unstable angina is not relieved by medications. Myocardial infarction with abnormal EKG along with blood tests suggests
cardiac muscle damage. However, myocardial infarction with normal EKG need blood tests in order to assess cardiac muscle damage (Thomson Micromedex, 2007).

ACS is usually caused by narrowing, blockage, and spasm of the coronary arteries. Atherosclerosis or the narrowing of one or both coronary arteries due to fatty deposits or plaque is usually the common suspect of myocardial infarction (Thomson Micromedex, 2007). Blood clots may also form on the rough fatty deposits, impeding the blood flow to the heart even more. Heart valve problems, such as mitral valve prolapse, may cause atrial fibrillation (Thomson Micromedex, 2007). According to the National Heart, Lung and Blood Institute (NHLBI) (2007), atrial fibrillation may lead to blood clots because blood tends to pool in the atrium. Spasms or tightening of the coronary arteries may also affect the blood flow to the heart. Cocaine use may cause vasospasms (Thomson Micromedex, 2007).

**Epidemiology**

According to Kleinschmidt (2006), “the prevalence of risk factors for coronary artery disease ensures the high prevalence of future ACS [in the American population]” (p. 72). Other risk factors are correlated with increased age, lower levels of education, and lower levels of income (Kleinschmidt, 2006). African-Americans and Native-Americans have the highest prevalence of risk factors (Kleinschmidt, 2006). People who earn less than $10,000 a year have a higher probability of having multiple risk factors than people who earn more than $50,000 a year. People who are not able to complete high school have a higher probability of having multiple risk factors than people who have a college degree (Kleinschmidt, 2006). In addition, according to the American Heart Association (AHA) (2007), men are more predisposed to heart attack than women.
Moreover, an occurrence of an MI is likely among individuals with diabetes mellitus (AHA, 2007).

Impact on Individual and Family

Myocardial infarction brings serious repercussions on the affected person. The high cost of medications, fear, anxiety, and loss of income from death and disability are among the significant impacts on an affected person.

Medication costs. Medications that help prevent further myocardial infarctions include fibrinolytics, glycoprotein IIb/IIa inhibitors, beta blockers and aspirin (Hagan & Ignatavicius, 2006). These medications are taken on a regular basis and thus high cost of care for myocardial infarction. Moreover, Medicare spends about $10,428 per discharge for acute myocardial infarction (Hagan & Ignatavicius, 2006).

Fear and anxiety. Psychosocial impact on the individual includes anxiety, fear and anger, especially post-MI. Moreover, resumption of sexual activity after an episode of myocardial infarction has been a great concern to clients and their partners (Hagan & Ignatavicius, 2006).

Social and economical. According to Thomson Micromedex (2007), in some countries or states, a person who has suffered from a myocardial infarction may be prevented from participating in activity that puts other people's lives at risk, for example driving a car, taxi or airplane. After an episode of myocardial infarction, clients most often are unable to get back to work. According to Watson (1986), only 35 % of the subjects who were previously healthy were employed after an MI.

Ethical. Ethical decisions such as informed consent of an affected client experiencing pain and anxiety were thought by some ethicists to be a distorted decision
Living and Recovering 11

(Hagan & Ignatavicius, 2006). Health care decisions for the affected client should be made by health care providers if the client is unable to make a rational decision due to incompetence and incapacity; “if significant harm exists if decision not made for client and if client are likely to approve of the decision when and if their capacity to make rational decisions is restored” (Hagan & Ignatavicius, 2006, p. 857). Otherwise, clients are told of the risks and benefits of the therapeutic regimen they receive.

Pathophysiology

Myocardial infarction occurs whenever myocytes are deprived of oxygenated blood for an extended period of time (Thomson Micromedex, 2007). A combination of factors, modifiable and nonmodifiable, consequently leads to damage of the internal walls in the coronary arteries and promote atherosclerosis. The pathogenesis of myocardial infarction and the interconnectedness of risk factors and myocardial ischemia will be reviewed. Clinical manifestations that affected clients present will be discussed.

Etiology. According to Huether and McCance (2004), cardiac cells can only survive ischemic conditions for no more than 20 minutes; “any longer can cause cellular death or necrosis of the heart” (p. 663). Cardiac cells are exposed to ischemic conditions whenever myocardial blood supply is compromised due to a blockage or spasm of the coronary arteries. Interruption of coronary blood flow can occur due to processes like “plaque progression, disruption, and subsequent clot formation” (Huether & McCance, 2004, p. 662). However, the thrombus that is usually seen in myocardial infarction is less labile and thus impedes the coronary blood flow for an extended period of time, “enough time for ischemic conditions to cause myocyte necrosis and death” (Huether & McCance, 2004, p. 662).
According to Hagan and Ignatavicius (2006), atherosclerosis is a type of thickening or hardening of the arterial wall due to deposition of plaque and "is the leading contributor to coronary artery disease" (p. 778). The pathophysiology of atherosclerosis is not known; however it is widely accepted that it is caused by vascular damage. Hagan and Ignatavicius (2006) assert that when the vessel is subjected to inflammation, "fatty streak appears in the inner lining of the artery"; however, it does not "affect the integrity of the arterial wall" (p.778-779). After a while, a stable or unstable plaque coats the lipid core and partial occlusion of the artery occurs. According to Hagan and Ignatavicius (2006), "in the final stage, the fibrous lesions become calcified, hemorrhagic, ulcerated or thrombosed and affect all layers of the vessel (p. 779). Vessel obstruction worsens whenever the plaque ruptures, compromising myocardial tissue perfusion.

Risk factors. According to Hagan and Ignatavicius (2006), nonmodifiable risk factors for myocardial infarction include old age, the male gender in general, familial history of heart disease, and belonging to the African American or Hispanic ethnicity (p. 842). On the other hand, modifiable risk factors of myocardial infarction include affinity to diets rich in fats, cigarette smoking, sedentary lifestyle, diabetes, obesity, hypertension, and stress (Hagan & Ignatavicius, 2006). According to Jacoby and Nesto (1992), factors unique to diabetes increase atherosclerotic plaque formation and thrombosis, thereby contributing to myocardial infarction. Autonomic neuropathy may predispose to infarction and result in atypical presenting symptoms in the diabetic patient, making diagnosis difficult and delaying treatment (Jacoby & Nesto, 1992).
Development and progression. According to Huether and McCance (2004), myocardial ischemia triggers the body to release angiotensin II. The subsequent reactions from angiotensin II release include vasoconstriction, fluid retention, remodeling or structural changes in the heart, and coronary artery spasms, all of which contribute to myocardial infarction's pathogenesis (Huether & McCance, 2004).

Clinical manifestations. Acute Coronary Syndrome may cause the affected person to elicit undesirable signs and symptoms. According to Thomson Micromedex (2007), the affected client may experience the following,

- chest pain or discomfort, including squeezing, crushing, pressure, tightness or heaviness in the chest; pain or discomfort in arms, shoulders, neck, back or jaw,
- indigestion, such as heartburn and upset stomach; nausea and vomiting; pain in abdomen, shortness of breath; diaphoresis, weakness or fainting. (¶ 5)

Most of these symptoms are brought about by the ischemic conditions of the heart.
Chapter II

Review of Research

The quality of life of individuals who had lived an MI have been the interest of cardiovascular health research. The effects of myocardial infarction on the quality of life have serious repercussions on the individual for it affects not only the physiologic but also the psychological and spiritual dimensions as well. Existing collaboration between health organizations and educational institutions aims to promote client adherence and compliance through increased awareness and knowledge of the interventions, treatments, and therapies available to the individual.

Quantitative Studies

Sexual satisfaction and anxiety. Anxiety is common after MI, and decreased sexual satisfaction appears to contribute to heightened anxiety. Attention to sexual concerns of MI individuals before and after hospital discharge may improve psychosocial outcomes. Steinke and Wright (2006) investigated about the role of sexual satisfaction in reducing anxiety post-MI. The research design included recruitment of individuals with acute myocardial infarction (MI) from one U.S. medical center and asked them to complete questionnaires at baseline while hospitalized and at 1, 3, and 5 months post-MI. This analysis includes 64 individuals compared on low or high anxiety at 5 months post-MI using sexual satisfaction and selected demographic and clinical variables in the analysis (Steinke & Wright, 2006).

Individuals with high anxiety scores reported lower sexual satisfaction \( (p < 0.001) \) and a higher percentage of coronary risk factors \( (p < 0.01) \) (Steinke & Wright, 2006). The OLS regression model provided similar results with an adjusted R-square of .422,
accounting for approximately 42% of anxiety (p<.001) (Steinke & Wright, 2006). There is significant statistical evidence that the individual’s anxiety level increases as sexual satisfaction decreases (Steinke & Wright, 2006).

Nursing interventions post-MI should include appropriate assessment of client’s sexual health. Most post-MI clients are anxious and cautious regarding their sexual practices. Client education regarding resumption of sexual practices should be implemented in order to decrease client’s anxiety and promote sexual satisfaction.

Quality of life. A pessimistic view of life could have more negative consequences for postmyocardial fatigue than an optimistic view of life could have positive consequences. Brink and Grankvist (2006) investigated the relationship among life orientation (optimism-pessimism), depression, and fatigue after a first-time myocardial infarction. The research design sample included 98 individuals in total, 33 women and 65 men, who had suffered a first-time myocardial infarction 1 year before the testing. Linear and curvilinear regression analysis models were used to describe and explore the associations among the variables (Brink & Grankvist, 2006).

No definite relationship between postmyocardial fatigue and life orientation was found. The association between depression and fatigue was weak, supporting the notion that fatigue may be experienced by myocardial infarction individuals without coexisting depression (Brink & Grankvist, 2006). However, post-myocardial infarction fatigue must be investigated further and explicitly focused upon; therefore nurses should include the client’s subjective perception of fatigue during assessment. In order to effectively decrease post-MI fatigue, nurses should focus on interventions that cause the most
pessimistic individuals to feel less pessimistic which may include an assessment of the individual’s coping strategies to new experiences.

*Significant others.* Spouses often experience greater anxiety and depression and less perceived control than the affected clients themselves. Moser and Dracup (2004) investigated the relationship between the individuals’ and spouses’ level of emotional distress and psychosocial adjustment to the cardiac event. They recruited 417 client-spouse pairs after the client was hospitalized for a myocardial infarction or coronary revascularization.

Spouses had higher levels of anxiety (p < .001) and depression (p < .001) than did patients, but there were no differences in level of hostility (Moser & Dracup, 2004). Patients also expressed higher levels of perceived control than did spouses (p < .001). Spouse anxiety, depression, and perceived control remained correlated with patient psychosocial adjustment to illness, even when patient anxiety and depression were kept constant (Moser & Dracup, 2004). Clients’ psychosocial adjustment to illness was worse when spouses were more anxious or depressed than patients, and it was best when patients were more anxious or depressed than spouses, whereas psychosocial adjustment to illness was intermediate to these 2 extremes when patient and spouse anxiety and depression levels were similar (p = .001). Nursing interventions may include educating the client’s spouse regarding the anxiety and depression he or she may have related to the cardiac event. Providing contact information and referrals may encourage the client’s spouses to seek treatment. Attention to the psychological distress experienced by spouses of patients who have suffered a cardiac event may improve outcomes in clients.
Qualitative Studies

Assessment of spirituality. Spirituality affects an individual’s perception of the illness. According to Walton (2002), participants recovering from acute myocardial infarction (AMI) explained that “spirituality was part of their every moment, decision, relationship, and process from the onset of their AMI through recovery” (p. 36).

Nursing interventions post-MI should include a thorough assessment of the individual’s spirituality. Spirituality may help the individual find meaning and purpose in life post-MI and thus may help improve his or her quality of life. Spirituality provides the individual avenues to gain social support and encourage active participation which are beneficial in order to effectively cope with depression and anxiety post-MI (Walton, 2002).

Gender differences. More women than men perceived available support from grandchildren and staff of the church. Health-related quality of life increased in women and men in physical functioning, role-physical, vitality, social functioning, and role-emotional scales. Kristofferzon, Löfmark and Carlsson (2005) investigated whether there is a gender difference related to perceived coping, social support, and quality of life 1, 4, and 12 months after myocardial infarction. A longitudinal, descriptive, and comparative research design was used for the study, which included 74 women and 97 men. At 12 months, 60 women and 88 men remained. Data were collected using the Jalowiec Coping Scale, a social support questionnaire, the SF-36 Health Survey (health-related quality of life), and the Quality of Life Index-Cardiac version (quality of life). The Jalowiec Coping Scale has an alpha reliability coefficient of 0.85 (Kristofferzon, Löfmark & Carlsson, 2005).
No statistically significant changes over time in coping assessments emerged in the study group, except for fatalistic coping, which diminished over time in men (Kristofferzon, Löfmark & Carlsson, 2005). Women used more evasive coping than men at 4 and 12 months (Kristofferzon, Löfmark and & Carlsson, 2005). The perceived efficiency in coping with physical aspects of the heart disease increased. Moreover, an improvement in the mental health scale was evident in women and a reduction in pain in men (Kristofferzon, Löfmark & Carlsson, 2005). No statistically significant gender differences were found for quality of life at any point in time. The findings can be used to inform caregivers that optimistic, self-reliant and confrontational coping were the most frequently used by both women and men over the first year after myocardial infarction, and that confrontational coping has been shown to have positive outcomes in the longer term (Kristofferzon, Löfmark & Carlsson, 2005).

Nurses should tell women about the importance of seeking prompt treatment and discuss health problems with caregivers and significant others. Care planning should include family members and significant others so that they can support and encourage individuals to cope with problems in daily life.

*The validity of a 0-10 anxiety scale.* People with acute myocardial infarction (AMI) often experience anxiety, an emotion that predicts adverse physiologic outcomes. De Jong et al. (2005) investigated whether a 0-10 anxiety scale or the single-item anxiety assessment instrument, the Anxiety Level Index (ALI) could be a valid substitute to the State Anxiety Index (SAI) or the anxiety subscale of the Brief Symptom Inventory (BSI) for assessing state anxiety for individuals with AMI. In a prospective multicenter research study, 243 people with AMI rated their anxiety using the SAI, the anxiety
subscale of the BSI, and the ALI. Anxiety Level Index scores were compared to SAI and BSI anxiety subscale scores (De Jong et al., 2005).

There were moderate, positive correlations between the SAI and the ALI ($r[s] = 0.52, P < .001$), and between the ALI and the anxiety subscale of the BSI ($r[s] = 0.45, P < .001$) (De Jong et al., 2005). Although ALI scores were moderately and significantly correlated with scores on the SAI and the BSI anxiety subscales, the results of the Bland-Altman method indicate a lack of construct validity of the single-item measure (De Jong et al., 2005). The quest continues to construct a simple self-report measure of anxiety that is appropriate for critically ill individuals with AMI (De Jong et al., 2005).

A simple 0-10 anxiety scale is not enough to accurately assess a person’s anxiety level. Nursing assessment regarding post-MI anxiety should include the utilization of the State Anxiety Index (SAI) or the anxiety subscale of the Brief Symptom Inventory (BSI), both of which have been found out to be statistically valid, for assessing the state of anxiety for individuals with AMI. Moreover, assessment should include the person’s past experiences and coping skills related to stress and anxiety.

People's perspectives. Difficulties people encounter following acute myocardial infarction could be attributed to the implementation of too many lifestyle changes at once as well as the lack of professional help in the community to support participants in their endeavors to make lifestyle changes. Condon and McCarthy (2006) reported that diagnosis of AMI has major implications for individuals in terms of health and social gain, health related quality of life and living and adapting to a chronic illness. The diagnosis requires lifestyle changes such as changes in diet, smoking habits, physical activity, and stress management. Condon and McCarthy (2006) aimed to explore
individuals' perspectives of making lifestyle changes following AMI. The research study used a descriptive qualitative approach; ten participants were interviewed 6 weeks following discharge about their experiences. Data was collected using in-depth interviews and analyzed using thematic analysis (Condon & McCarthy, 2006).

Four themes emerged: lifestyle warning signs, taking responsibility for lifestyle changes, professional support, and looking forward to the future. The findings offer insight into the everyday realities, which individuals experience regarding lifestyle changes particularly in relation to smoking cessation and stress management. Moreover, Condon and McCarthy (2006) asserted that overprotection by family members was a source of frustration and aggravation for participants.

The study highlights the need for the development of primary care services and cardiac rehabilitation programs to support individuals. Nursing interventions that could be extracted from this study would include client teaching to reduce anxiety and fear related to these services and programs. Assessment of the individual’s tolerance to these lifestyle changes should also be included.

*Incentives for lifestyle changes.* Intentions to perform behaviors and to experience control over facilitators and constraints are important determinants of behavior. Kärner, Tingström, Abrandt-Dahlgren and Bergdahl’s (2005) phenomenological research study explored how individuals in the rehabilitation phase of coronary heart disease experience facilitating and constraining factors related to lifestyle changes of importance for wellbeing and prognosis. A total of 113 individuals below 70 years of age (84 men and 29 women) were interviewed within 6 weeks of a cardiac event and again after 1 year. Interview transcriptions and notes taken by hand were qualitatively analysed using the
phenomenographic framework. The distribution of statements among the categories identified was quantitatively analysed (Kärner et al., 2005).

Four main categories portrayed individuals' experiences of facilitating or constraining incentives for lifestyle changes. 'Somatic incentives' featured bodily signals indicating improvements/illness. 'Social/practical incentives' involved shared concerns, changed conditions including support/demand from social network, and work/social security issues. Practical incentives concerned external environmental factors in the individuals' concrete context. 'Cognitive incentives' were characterized by active decisions and appropriated knowledge, passive compliance with limited insights, and routines/habits. 'Affective incentives' comprised fear of and reluctance in the face of lifestyle changes/disease, lessened self-esteem, and inability to resist temptations.

Cognitive incentives mostly facilitated physical exercise and drug treatment. Social/practical incentives facilitated physical exercise and diet change. Physical exercise and diet changes were mainly constrained by somatic, social, and affective incentives (Kärner et al., 2005).

The results illustrate important incentives that should be considered in contacts with individuals and their families to improve the prospects of positively affecting co-operation with suggested treatment and lifestyle changes. Nurses should routinely inform the client regarding his or her somatic, affective and cognitive state following acute myocardial infarction. Increasing the individual’s knowledge regarding his or her current state of mind and body could facilitate the individual’s performance and adherence to the treatments or lifestyle changes.
Interdisciplinary Research

Impact of chronic obstructive pulmonary disease. Individuals with COPD have greater mortality, higher rehospitalization rates, and poorer health status 1 year after a myocardial infarction. According to Salisbury, Reid and Spertus (2007), although chronic obstructive pulmonary disease (COPD) is common in individuals with myocardial infarction (MI), its association with long-term mortality after MI is controversial and little is known about its influence on individuals' health status (symptoms, function, and quality of life). The quantitative research study prospectively enrolled 2,481 individuals presenting with MI at 19 United States centers to examine the relations between COPD and individuals' long-term mortality, rehospitalization rates, and health status after MI. Individuals were administered the disease-specific Seattle Angina Questionnaire and the generic Short Form 12 at baseline and 1 year later (Salisbury et al., 2007).

COPD was common and was associated with a substantially greater risk of 1-year mortality (15.8% vs 5.7%, p < 0.001) and rehospitalization (48.7% vs 38.6%, p < 0.001) (Salisbury et al., 2007). Similarly, adjusted 1-year health status was worse in individuals with COPD, with lower 1-year Seattle Angina Questionnaire quality-of-life score (-2.53 points, 95% CI -0.25 to -4.81) and Short Form 12 physical component score (-1.83 points, 95% CI -0.43 to -3.24) (Salisbury et al., 2007). In addition, COPD was associated with a trend toward a greater prevalence of angina at 1 year (risk ratio 1.12, 95% CI 0.89 to 1.41) (Salisbury et al., 2007).

Although additional research is needed, clinicians should recognize that individuals with COPD are at high risk for poor outcomes after MI. Nurses should monitor these individuals more rigorously and seriously. Nurses should make sure that
individuals with COPD post-MI demonstrate and verbalize understanding of the proper administration of medications and that adherence to these treatments may decrease the prevalence of angina and death.

*Clinical predictor of ACS.* Although troponin is considered a specific marker for the diagnosis of acute coronary syndrome (ACS), recent studies have shown troponin elevation in a variety of nonischemic conditions. Alcalai et al. (2007) investigated whether abnormal troponin T levels is a definite predictor of acute coronary syndrome through a quantitative research study. Individuals with abnormal troponin T levels were analyzed. Demographic and clinical data were collected and death was recorded. The study group was divided into 2 subgroups: ACS vs nonthrombotic troponin elevation. A multivariate logistic regression analysis was performed to define variables that predict the diagnosis of ACS. The positive predictive value (PPV) for ACS diagnosis was calculated, and a survival analysis was performed (Alcalai et al., 2007).

During the study period, 615 individuals had elevated troponin T levels. Only 326 individuals (53%) received a main diagnosis of ACS, while 254 (41%) had nonthrombotic troponin elevation; for 35 individuals (6%), the diagnosis was not conclusive (Alcalai et al., 2007). Positive predictors for the diagnosis of ACS were age between 40 and 70 years, history of hypertension or ischemic heart disease, normal renal function, and a troponin T level higher than 1.0 ng/mL. The overall PPV of troponin T for ACS diagnosis was only 56% (95% CI, 52%-60%) (Alcalai et al., 2007). The PPV of troponin T level higher than 1.0 ng/mL in the presence of normal renal function was 90% but was as low as 27% for values of 0.1 to 1.0 ng/mL for elderly individuals with renal failure (Alcalai et al., 2007).
Nonspecific troponin elevation is a common finding among hospitalized individuals and correlates with poorer prognosis. However, diagnosis of myocardial infarction should still mostly be based on the clinical presentation. Nurses should gather information regarding the individual’s renal function, and familial or personal history of hypertension or ischemic heart disease. Elevated troponin levels should not be treated as an independent predictor of ACS.

*Trends in mortality.* There was no significant change in mortality at 18 months in individuals with diabetes mellitus (DM) when comparing 1995 and 2003. Cubbon et al. (2007) investigated whether individuals with diabetes mellitus (DM) have derived similar benefits as individuals without DM from advances in treatment. The quantitative study compared characteristics, management, and survival of individuals with and without DM who sustained an AMI in 1995 (n = 1762) with a second group of individuals who sustained an AMI in 2003 (n = 1642). All individuals were followed up for 18 months or until death (Cubbon et al., 2007).

Between 1995 and 2003 the prevalence of DM in AMI individuals increased from 12.5 to 16.6% (P < 0.001) (Cubbon et al., 2007). Involvement of cardiologists, provision of secondary prevention agents, and early revascularization rates improved in both groups. Thirty-day mortality improved significantly in individuals with and without DM [40% (P = 0.006) and 30% (P < 0.001) relative reductions, respectively] (Cubbon et al., 2007). Despite this, there was no significant change in mortality at 18 months in individuals with DM when comparing 1995 and 2003 (absolute mortality 38.0 vs. 36.4%, P = 0.71) (Cubbon et al., 2007).
Although early post-AMI mortality has fallen in individuals with and without DM, these improvements were only maintained in the longer term in those without DM. Nurses should focus on more effective diabetes-related management strategies for individuals with diabetes suffering from acute coronary infarction. Nurses should advocate the use of longer acting insulin for individuals with diabetes post-MI to facilitate glycemic control and protect the individual from the adverse effects of hyperglycemia that may contribute to post-MI mortality.

Effects of temperature. The occurrence of acute myocardial infarction was associated with low temperatures, especially daily average temperature lower than 10 degrees C. Wang, Kakehashi, Matsumura and Eboshida (2007) investigated the association between the occurrence of acute myocardial infarction and meteorological factors in five cities of the Chugoku area in Japan. This quantitative study used the emergency admission data for acute myocardial infarction in Yamaguchi, Matsue, Tottori, Okayama (from April 2000 to March 2005), and Hiroshima (from January 1993 to December 2002). Daily meteorological data was obtained from The Japan Meteorological Agency. The Poisson regression model was utilized to examine the association between myocardial infarction and daily average temperature (Wang et al., 2007).

In Hiroshima, Okayama, Yamaguchi, and Matsue City, daily average events of acute myocardial infarction were 30%, 30%, 33% and 40% higher in winter than those in summer (p < 0.05) (Wang et al., 2007). Daily average events increased as atmospheric temperature decreased. In Hiroshima, Okayama and Yamaguchi City, daily average events in the low temperature group (T < 10 degrees C) were significantly higher than
those in the high temperature group (T > or =20 degrees C) (p < 0.05) (Wang et al., 2007). In Hiroshima City, a significant interaction was found between temperature and pressure. Daily events in the low temperature and low pressure group (1.38/day) was significant and 37% larger than in the high temperature and moderate pressure group (0.94/day; risk ratio = 1.37, 95% confidence interval 1.01-1.86, p < 0.05) (Wang et al., 2007). Days with low temperature and low pressure were characterized by rain and/or snow. The study was limited to Japanese territory (Wang et al., 2007).

Prolonged exposure to cold temperatures should be avoided by individuals with familial or personal history of coronary artery disease. Discharge planning should include client teaching related to the importance of proper clothing during cold weather. During hospitalization, nurses should make sure that the temperature of the room is comfortably warm and should provide more blankets even if the individual does not request it.

*Risk factors of depression.* Depression post-MI does not have the same risk factors as that which precedes myocardial infarction. Dickens et al. (2004) investigated whether the causes of depression occurring before and after an MI were similar to those who have depression in the general population.

Individuals admitted to the hospital following their first myocardial infarction were interviewed with the Schedule for Clinical Assessment in Neuropsychiatry to detect psychiatric disorders and the Life Events and Difficulties Schedule to assess recent stress. Participants completed the Hospital Anxiety and Depression Scale (HADS) at entry to the study and 1 year later and the risk factors associated with a high score at both times were assessed. Of 314 (88% of eligible) patients who were recruited, 199 (63%) were male and 63 (20%) had depressive disorders (Dickens et al., 2004). Logistic regression identified
the following as independently associated with depressive disorder that had been present for at least 1 month before the myocardial infarction: younger age, female sex, past psychiatric history, social isolation, having marked non-health difficulties, and lack of a close confidant. At follow-up 269/298 (90%) responded; of 189 participants not depressed at first assessment, 39 (21%) became depressed by the 1 year follow-up (Dickens et al., 2004). Logistic regression identified frequent angina as the only significant predictor of raised HADS scores at 12 months (Dickens et al., 2004).

Further clarification of the mechanisms linking depression to poor outcome may require separate consideration of pre- and post-myocardial infarction depression, and its risk factors. The treatment of depression after an MI should be specific and individualized for every client.

*Nursing Interventions*

Post-myocardial infarction (MI) survivors are often faced with serious repercussions that affect the physiological, psychological, and spiritual dimensions of the individual. Holistic care provided by nurses has been an integral part of post-MI survivors’ health care. Evidence-based nursing interventions that may improve the individual’s condition will be discussed. According to Condon and McCarthy (2006), post-MI mortality rate is higher among non-adherent individuals. Adherence and compliance to the traditional nursing interventions discussed may decrease the individual’s risk for post-MI mortality.

*Diagnosis.* Assessment of the individual’s heart rate, rhythm and blood pressure is crucial in providing more information about the extent of the damage. According to Hagan and Ignatavicius (2006), sinus tachycardia accompanied with premature
ventricular contractions most often occurs in the first few hours after an MI. Moreover, “auscultation for an S3 gallop may indicate heart failure, a serious and common complication of MI” (Hagan & Ignatavicius, 2006, p. 845).

Laboratory assessment involves cardiac markers. Cardiac markers include cardiac troponin (the most sensitive and specific test for myocardial damage), creatine kinase (CK, also known as phosphocreatine kinase or creatine phosphokinase), and aspartate transaminase (AST, also called Glutamic Oxaloacetic Transaminase (GOT/SGOT) or aspartate aminotransferase (ASAT)) lactate dehydrogenase (LDH). These markers are released whenever myocardial cell damage occurs and are usually specific for myocardial infarction. Thus, increased values for these markers are usually diagnostic of myocardial infarction (Hagan & Ignatavicius, 2006). Moreover, a lipid profile should be acquired or obtained from past medical records within 24 hours especially on individuals exhibiting ST-elevation MI. Stress testing is recommended among individuals who exhibit unstable angina for the past 8 to 12 hours and have not present active ischemic signs and symptoms (Thomson Micromedex, 2007).

According to Thomson Micromedex (2007), recommended diagnostic procedures include immediately establishing a 12-lead electrocardiogram on individuals who experience ongoing chest pain related to myocardial infarction. Electrocardiograms give health care providers an image of the heart from varying perspectives. Twelve-lead electrocardiograms examine the heart and may be able to detect the “occurrence and the location of ischemia (angina) or necrosis (infarction)” (Hagan & Ignatavicius, 2006, p. 845). Three ECG deviations that are usually observed during an infarct include ST-segment elevation, T-wave inversion, and an abnormal Q wave “(wider than 0.04 seconds
or more than one third the height of the QRS complex)” (Hagan & Ignatavicius, 2006, p. 846). However, myocardial infarction in women does not necessarily register an ST-segment elevation (Hagan & Ignatavicius, 2006).

**Drug therapies.** According to Thomson Micromedex (2007), the recommended drug therapy for myocardial infarction consist of nitroglycerin, aspirin, clopidogrel, unfractionated heparin, beta-blockers, angiotensin converting enzyme (ACE) inhibitors, angiotensin receptor blockers, calcium channel blockers and fibrinolytic therapies. Medications that decrease lipid levels may prevent recurrence of episodes of myocardial infarctions (Thomson Micromedex, 2007).

**Procedural therapies.** According to Thomson Micromedex (2007), sodium restriction to less than 2000 mg is recommended among individuals who have comorbid hypertension with myocardial infarction. Moreover, client education related to smoking cessation is highly recommended among individuals who have myocardial infarction. In addition, administration of oxygen is recommended among individuals who have arterial oxygen saturation of less than 90%.

**Discharge.** Cardiac rehabilitation programs are recommended among high-risk individuals in order to improve quality of life. In addition, client education related to adverse effects of the medications is incorporated into the standard care. Individuals are recommended to join support groups and learn CPR from accredited organizations such as the American Heart Association (AHA) and the American Red Cross (Thomson Micromedex, 2007).
Medications

Myocardial infarction results from prolonged ischemic conditions of the myocardium. According to Thomson Micromedix (2007), ischemic conditions of the heart occur due to the blockage of the coronary arteries which then causes necrosis of the myocytes. Treatments and medications that promote oxygenation of the myocardium will be discussed. Moreover, lifestyle modifications such as restriction in diet and activity as well as methods of rehabilitation are discussed in this paper. Furthermore, tests, procedures and standard diagnostic workup regarding myocardial infarction will be discussed.

General care post-myocardial infarction includes pain control and restoration of perfusion to the injured area through administration of prescribed medications. According to Hagan and Ignatavicius (2006), the recommended drug therapy for pain control includes nitroglycerin, morphine sulfate, and oxygen. Interruption of coronary blood flow can occur due to processes like “plaque progression, disruption, and subsequent clot formation” (Huether & McCance, 2004, p. 662). Medications that help prevent further occurrence of myocardial infarctions, congestive heart failure or cerebrovascular accident (CVA) include fibrinolytics, glycoprotein IIb/IIa inhibitors, beta blockers, and aspirin (Hagan & Ignatavicius, 2006).

Nitroglycerin. Nitroglycerin alleviates chest pain associated with coronary artery disease through vasodilation of the coronary arteries which results in increased blood supply to the myocardium. According to Thomson Micromedex (2007), when organic nitrates are converted into nitric oxide in the organic nitrate receptors of the smooth muscle cells, they increase cyclic guanosine monophosphate concentrations (cGMP) in
the body and thus result in the vasodilation of the blood vessels. According to Wilson, Shannon, Shields, and Stang (2007), nitroglycerin may elicit adverse reactions such as headache, dizziness, postural hypotension, tachycardia, nausea, vomiting, dry mouth and diaphoresis.

*Morphine sulfate.* Morphine sulfate has been known to be a potent pain reliever. Moreover, morphine sulfate does not have a ceiling effect. According to Thomson Micromedex (2007), morphine sulfate “promotes analgesia and respiratory depression by decreasing brain stem respiratory centers response to carbon dioxide tension and electrical stimulation” (¶10). Morphine sulfate is indicated by the FDA for pain related to acute myocardial infarction (Thomson Micromedex, 2007). Adverse effects from morphine sulfate may include insomnia, drowsiness, dizziness, constipation, nausea, vomiting, and respiratory depression (Wilson et al., 2007).

*Metoprolol (beta-blocker).* Cardioselective beta-blockers such as metoprolol compete with and antagonize the effects of epinephrine and norepinephrine at the beta-1 receptors. According to Lilley, Harrington, and Snider (2005), this results in decreased heart rate and contractility due to the decreased myocardial stimulation which decreases myocardial oxygen demand. Metoprolol is indicated by the FDA for the early and late treatment of acute myocardial infarction (Thomson Micromedex, 2007). Metoprolol use may induce some adverse side effects such as dizziness, insomnia, bradycardia, hypotension, heartburn, and shortness of breath (Wilson et al., 2007).

*Aspirin.* Acetylsalicylic acid is the chemical name of aspirin. Aspirin has antithrombotic effects which are the result of its “ability to inhibit platelet aggregation by blocking platelet COX” (Lilley et al., 2005, p. 734). Moreover, this effect reduces
“formation by the platelets of TXA₂, a substance that normally promotes platelet aggregation” (Lilley et al., 2005, p. 734). Due to its antithrombotic effects, FDA labeled indications of aspirin includes prophylactic treatment of myocardial infarction, stable and unstable angina (Thomson Micromedex, 2007). Common adverse effects of aspirin include dyspepsia, nausea and vomiting. On the other hand, serious adverse effects of aspirin may include gastrointestinal ulcer, increased risk for bleeding, tinnitus, bronchospasm and angioedema (Thomson Micromedex, 2007).

**Clopidogrel.** Clopidogrel is an ADP-induced aggregation inhibitor that helps inhibit platelet aggregation (Thomson Micromedex, 2007). Clopidogrel is “indicated for the reduction of myocardial infarction, stroke or vascular death in patients with atherosclerosis documented by recent stroke, established peripheral arterial disease, or acute coronary syndrome” (Lilley et al., 2005, p. 464). Adverse effects of clopidogrel include fatigue, pain, chest pain, hypertension, diarrhea, nausea, headache, dizziness, depression, dyspnea, and increased risk for bleeding (Wilson et al., 2007).

**Medical Treatment**

Invasive procedures are used whenever clients do not respond to medications. Intra-aortic balloon pump, percutaneous transluminal coronary angioplasty, coronary artery bypass graft surgery, minimally invasive direct coronary artery bypass, transmyocardial laser revascularization, off-pump coronary artery bypass, and robotic heart surgery are invasive procedures that are currently available for clients that have acute coronary syndromes (Hagan & Ignatavicius, 2006). Most of these procedures aim to restore perfusion to the myocardium through mechanical dilation of the coronary arteries specifically in the location of the lesion, plaque aggregation and clot formation.
Lifestyle Modifications

Cardiac rehabilitation. Activity intolerance is usually reduced through cardiac rehabilitation programs which the nurse and physical therapist collaboratively implement. According to Ignatavicius and Workman (2006), cardiac rehabilitation is the “process of actively assisting the client with cardiac disease in achieving and maintaining a vital and productive life while remaining within the limits of the heart’s ability to respond to increases in activity and stress” (p. 851).

Diet and exercise. According to Thomson Micromedex (2007), ways to prevent recurrence of myocardial infarction include losing weight through regular exercise and low-fat dietary intake. Other nursing interventions may also include client teaching related to smoking cessation and administering prescribed antilipemic agents to prevent further aggravation of the ischemic conditions (Thomson Micromedex, 2007).

Alternative Therapy

Most complementary and alternative therapies for myocardial infarction may prevent development of precipitating events, such as arterial wall lesions and plaque aggregation. However, individuals should consult their primary health care providers before engaging in complementary and alternative therapies in order to prevent adverse outcomes. Some therapies are not recommended due to insufficient clinical data. Therefore, individuals should fully understand the benefit-risk aspect of the therapy before integrating it to his therapeutic regimen.

Antioxidants. Some research studies show that use of antioxidants “counteracts the adverse effects of oxygen free radicals on blood vessels and protects arteries” (Hagan & Ignatavicius, 2006, p. 863). However, individuals should be taught that excessive use
of Vitamin E, an antioxidant was reported to increase the risk for liver damage (Hagan & Ignatavicius, 2006, p. 863).

*Chelation therapy.* Chelation therapy helps prevent further damage to the vascular smooth muscle tissues through excretion of excessive metals or minerals in the body which allows the body to repair prior damage to body tissues. According to Thomson Micromedex (2007), EDTA binds to the metallic ions in the body which facilitates the excretion of these substances through the kidney and then passed through the urine. Metallic ions in the body, in excess, are toxic and could potentially damage the vascular system, especially the arteries, and other body tissues through the process of oxidation. (Thomson Micromedex, 2007).

According to Lin, Nahin, Gershwin, Longhurst and Wu (2001), metals, such as iron, contribute to the “proliferation of the vascular smooth muscle cells which is characteristic of restenosis after angioplasty” (¶ 14). In addition, myocardial infarction appears to be correlated with excessive iron stores (Lin et al., 2001). Iron chelators, such as deferoxamine, have been shown to have an antiproliferative effect. Lawrence Horwitz discovered a novel chelator, exochelin, which was isolated from mycobacterium tuberculosis bacteria. Because of its solubility in lipids, exochelin is 10 times more effective than deferoxamine in arresting the growth of vascular smooth muscle cells (Lin, Nahin, Gershwin, Longhurst and Wu, 2001).

*Client/Family Resources*

The impact of an occurrence of a myocardial infarction to the individual brought about by the uncertainty of the disease process elicits fear and anxiety. Fear and anxiety influence the individual’s perception of him or herself. Repercussions of myocardial
infarction adversely affect the individual’s satisfaction in life which may contribute to the increased risk of a recurrence of an infarct, and ultimately, death. Client education regarding the disease process and the resources made available by government institutions facilitate in reversing the knowledge deficit amongst the affected individuals. Avenues for learning such as books, videos, web resources, and pamphlets will be discussed. Professional organizations that are geared to helping the individuals fully understand myocardial infarction and its treatments will be identified.

_American Heart Association._ The American Heart Association (AHA) (2007) was established to promote cardiovascular health and decrease annual disability and mortality rate from all forms of cardiovascular diseases. Moreover, the AHA developed the first cardiopulmonary resuscitation guidelines in 1966 and periodically amends it every 6 years. The organization has trained professionals and volunteers basic life support and has developed a national network prepared to perform CPR in case of an emergency. Moreover, the AHA periodically publishes clinically-proven recommendations regarding administration of medications and treatment of cardiovascular diseases (AHA, 2007). The AHA website provides information regarding warning signs of heart attack or stroke, facts and demographics about the different types of cardiovascular diseases (CVD), lifestyles that may help prevent the occurrence of CVDs and how to contact the organization (AHA, 2007). This information is also available in Spanish. The AHA website is user-friendly, easy to navigate, and very organized. The AHA website also lists other websites that promote cardiovascular health. The websites in the list are grouped according to whether they are government-owned, scholastic/educational, or a non-profit organization.
National Heart, Lung, and Blood Institute. The National Heart, Lung, and Blood Institute (NHLBI) (2001) is a branch of the federally funded National Institutes of Health that fosters leadership in the form of a national program that deals with heart, lung, and blood disorders. NHLBI supports basic research, clinical investigations and trials, observational studies, demonstration and education projects leading to prevention and treatment of heart, lung and blood disorders (NHLBI, 2001). Moreover, for health professionals and the public, “the NHLBI conducts educational activities, including development and dissemination of materials in the above areas, with an emphasis on prevention” (NHLBI, 2001, ¶ 14). The NHLBI website provides health assessment tools such as a body-mass index (BMI) calculator as well as a 10-year heart attack risk calculator. In addition, it also features a menu planner which may help the individual plan a healthy meal in order to prevent CVDs.

World Heart Federation. The World Heart Federation (WHF) (2007) aims to provide services to low and middle income countries in order to prevent and control heart diseases which leads to the improvement of their quality of life. The WHF website features facts regarding cardiovascular diseases such as the risk factors that predispose the individual to the heart diseases and their economic impact on third-world countries. The website also features some articles about the demographics of cardiovascular disease across age groups and socioeconomic status (WHF, 2007).

Montana Department of Public Health and Human Services (DPHHS). The Montana Cardiovascular Health Program, under the supervision of DPHHS, aims to increase the awareness of Montanans regarding cardiovascular diseases, their socioeconomic effects, and the government programs and services made available to the
public. The website features an executive summary of the Montana Heart Disease and Stroke State Plan for 2006-2010, demographics of CVD in Montana (mortality rate, vulnerable populations such as old individuals, and Native Americans), a list of risk factors that may contribute to the development of CVD and a comprehensive account of the Montana government goals, objectives, and strategies for cardiovascular disease prevention and control. The website also features information on the National Institutes of Health guidelines regarding ranges of values for optimal and high levels of cholesterol in the body. Published formats of the content of the website will be provided by the Montana Disability and Health Program at The University of Montana Rural Institute upon request.

_Montana Association of Cardiovascular and Pulmonary Rehabilitation_ (MACVPR). MACVPR (2007) is an organization that creates opportunities such as health programs that promote cardiovascular and pulmonary rehabilitation in Montana. One of the program highlights of MACVPR includes the Cardiovascular Health (CVH) Program in Helena, MT. CVH is a federally funded program which aims to reduce the adverse socioeconomic effects of cardiovascular diseases in Montana. The CVH program is also involved with media campaigns focusing on stroke and heart attack signs and symptoms, risk factors and the importance to activate 911. On the other hand, the Heart and Lung Wellness (HLW) Program in Billings, MT encourages individuals to engage in healthy lifestyles such as regular exercise and smoking cessation. Moreover, the HLW program conducts community teaching and education regarding healthy diet and risk factors that predispose an individual into developing cardiovascular diseases.
*Educational Materials.* Thomson Micromedex (2007) health care series is a product of the Thomson Corporation that offers a wide array of clinical databases that provides unbiased information regarding specific standard or alternative medications, toxicology and diseases. The interface is user-friendly and easy to navigate. However, the material from this database is not accessible to non-healthcare providers. The Thomson Micromedex care notes section provides information such as overview, inpatient care, discharge instructions, and aftercare instructions for the specific disease. These instructions are available in English and Spanish. Micromedex presents the material without using jargon excessively and makes it easy to understand for a non-healthcare professional.

The MyOnlineWellness (2007) website provides disease overview of myocardial infarction. The website deals specifically with myocardial infarction (MI) and includes the following: an introduction, risk factors, information on when an MI would likely to occur, signs and symptoms, immediate actions during an attack, treatment, and strategies to prevent MI. The information presented on MyOnlineWellness was taken from reputable sources such as the AHA, NHLBI, and the American Medical Association. Moreover, the grade-level material is discernible to most individuals.

*Literature.* The American Heart Association (2007) has educational materials that discuss strategies that may prevent occurrence of myocardial infarction through healthy lifestyles. “Know the Facts, Get the Stats” provides an overview of the disease process, warning signs and statistics on the epidemiology of myocardial infarction. “To Your Health! A Guide to Heart-Smart Living” contains a step-by-step plan that promotes healthy living such as proper diet, exercise and smoking cessation. Moreover, the website
has a list of brochures that promote understanding of procedures such as heart transplants, cardiac angioplasty, and catheterization. These brochures could be requested by filling out their request form, up to 10 brochures free of charge (AHA, 2007).

*Myocardial Infarction: An Incredibly Easy! Miniguide* is a concise, portable reference which contains information such as understanding an MI, preventing an MI, how to assess individuals with MI, treating individuals with MI, and MI complications. The book also discusses risk factors, pathophysiology, prevention, physical examination, diagnostic tests, drug therapy, complications, recovery, and patient education. *Myocardial Infarction: An Incredibly Easy! Miniguide* includes key concepts, quizzes, memory joggers, and color illustrations of pathophysiology. The book was published by Lippincott Williams & Wilkins (Amazon, 2007).

Efforts have been made in order for literature related to myocardial infarction to be written in the language the individuals would understand most. A comprehensive explanation of the nature and treatment of MI may help the individual prevent future recurrence and promote compliance to the therapeutic regimen. Knowledge of the risk factors that predispose the individual into developing cardiovascular diseases and simple treatment such as prophylactic use of aspirin may help in the global campaign of decreasing the deaths associated with cardiovascular diseases specifically MI.

**Summary**

A combination of treatments and medications is necessary to effectively control and stabilize the conditions involved in a myocardial infarction. There is no single diagnostic procedure that could predict and confirm the presence of myocardial infarction in an individual. Physical assessment, electrocardiogram, and laboratory tests involving
cardiac markers provide health care providers information regarding the location and extent of the infarct in the myocardium. Anxiety and depression post-MI seem to affect the quality of life of the affected individuals. Government and private organizations have funded numerous amounts of literature in order to educate individuals who are predisposed and/or had an MI. However, more clinical studies involving complimentary therapies and intangible aspects such as spirituality and sexuality should be done in the future in order to promote ways to improve the individuals’ quality of life post-MI further.
Chapter III
Methodology

Lived experiences of individuals’ post-MI warrant a rigorous and systematic investigation regarding the true meaning of the experience to the individual. A phenomenological research design best address the purpose of this thesis. A brief description of phenomenology and its essential features will be discussed. Moreover, overview of the data collection method, such as face-to-face audio-taped interview of individuals who had an MI, will also be identified. Data analysis using Giorgi’s Method will be utilized in order to extract a general description of the meaning of myocardial infarction from these individuals. In addition, methods of maintaining confidentiality and privacy of participating individuals will be elaborated.

Phenomenology

The main interest of phenomenology is the phenomenon or the specific conscious life experience and how human beings define its meaning. According to Russell (2004), phenomenology is “both a philosophy and a research method that explore and describe everyday experiences in order to generate and enhance the understanding of what it means to be human” (p. 220). Phenomenology involves a rigorous and systematic investigation of the lived experience as well as extracting common essences or elements from these experiences that may exist among individuals (Russell, 2004). Moreover, the research designs approach is a “descriptive, retrospective and in-depth analysis” of the individual’s conscious lived experience (Russell, 2004, p. 221). The phenomenological research method involves analysis using reduction. Phenomenological reduction is a form of inductive method that essentially features bracketing and intuiting. Bracketing
involves setting aside previous knowledge of the phenomenon in order to foster impartiality. On the other hand, intuiting involves gaining understanding of the phenomena through the various descriptions generated from the individuals (Russell, 2004).

Sample and Setting

Sampling. A small purposive sample was selected from English-speaking men or women of at least 18 years, who were diagnosed with coronary artery disease and who are willing to share their experiences. This was a pilot study that involved 3 participants, all of which were from rural Montana. No exclusion was made based on gender, race, national origin, religious affiliation or age.

Recruitment. The investigator posted flyers on the college campus and throughout the Helena community such as church groups. Potential participants were contacted by the investigator through phone or electronic mail. During this time, the investigator reviewed the procedure and answer questions. Participants were allowed to withdraw anytime they wish and choose not to answer specific questions.

Setting. The setting where the data collection occurred on the mutually agreed upon place. Settings for the interview may exclude public places in order to maintain confidentiality and privacy. Data collection occurred in the privacy of the individual’s home or in the confinement of a private room such as a library conference room.

Data Collection

Bracketing and bias. Before the data collection process began, the investigator bracketed beliefs and preconceptions related to experiences post-MI (See appendix). The
purpose of bracketing is for the investigator to approach the description of the lived experience from a fresh perspective and without bias.

*Interviews.* The in-depth, face-to-face audio-taped interview was conducted by the investigator with each participant in the privacy of his or her own home. Duration of the interview ranged from 30 minutes to 1 hour. However, the interview process was terminated earlier or later depending on how much time the participant needed to provide a full description of the experience. The interview guide was composed of open-ended questions that will elicit descriptions of the full experience of living after an episode of an MI. In the event that the participant was sensitive to the use of audio-tape during the interview process, he or she had the option to provide a written description of the experience or withdraw participation from the study. If the participant chose to write the description, enough time will be provided in order to complete the task.

*Data Analysis*

Giorgi’s method was used for data analysis. The investigator listened and read the entire account of the lived experience in order to obtain an overview. Moreover, identification and establishment of redundant themes and other elements could be obtained after listening to and reading the account numerous times. According to Russell (2004), “validity is not relevant” because the “study of the lived experience is contextual and therefore no generalizations can be made” (p.232). In phenomenology, the primary study instrument is the investigator. Rigor was maintained by the investigator by recoding unmarked segments from transcripts coded earlier.
Confidentiality and Privacy

Ethical considerations should be made because the phenomenological research design deals with human subjects. The investigator should maintain confidentiality and respect the individual’s privacy. Participants will be identified through their blood relatives or people they trust to disclose confidential data. The consent forms will state the costs, risk, and benefits of individuals participating in the study and the individual’s right to withdraw anytime. Moreover, the participants’ identifiable data, such as names, email addresses, telephone numbers, and social security numbers, was not disclosed or shared to anybody. In addition, the description of the lived experience will not be identified as the participant’s. After data has been transformed into the language of science and investigator was able to formulate a consistent description of the meaning structures, the physical media (audiotapes) will be destroyed through incineration or mechanical means such as cutting the recordable part with scissors or pouring abrasive chemicals such as acetone or alcohol over the media. Any confidential electronic data will also be deleted.

The institutional review board (IRB) was notified of the research proposal. According to Russell (2004), some IRBs have an “expedited review process for qualitative research proposals because restricting access to treatment and manipulation of the interventions are not part of these study designs” (p. 227). Moreover, the IRB was also informed of the philosophical nature of phenomenological research design.

Summary

Phenomenology explores the true meaning of a life experience for the individual. The focus of phenomenology is the common and redundant descriptions of the lived
experience and how it is extrapolated to be consistent with human nature. Data analysis involves thorough and repetitive review of the written description or interview. Confidentiality is maintained and the individual’s right to privacy should be upheld in any research design involving human subjects. The IRB oversees the progress of the study and protects the participant from any unnecessary risks.
CHAPTER IV

Results

The purpose of this thesis is to gain understanding of the true meaning of recovering from myocardial infarction. During the data collection process, the investigator bracketed previous beliefs and conceptions regarding heart attack in order to approach the description of the lived experience from a fresh perspective and without bias (refer to appendix). The investigator utilized Giorgi’s Method for data analysis and extracted common themes that were evident among the participants’ accounts of their experience of heart attack. The investigator extracted overarching and redundant themes from the transcribed interview accounts. The participants had profound and lingering recollection of their experience of heart attack from months to years. The perceived immediacy of death that is closely associated with the heart attack and the yearning for a female figure emerged as prevalent among the participants’ account immediately after the experience. The feelings of powerlessness and the evident concern of the participants for their loved ones were found to be related to the immediacy of death or facing mortality. Moreover, recovering from myocardial infarction influenced participants to maintain normalcy as well as denial of the severity of their conditions. The redundant themes discussed will be supported by quotes from the participants.

Facing Mortality

The immediacy of death among participants influenced feelings of powerlessness, and experiencing anxiety related to the well-being of loved ones who will be left behind.
The element of facing mortality was found prevalent among all participants. The consternation that the participants were exposed to during the heart attack was found to be a powerful element in their account of the experience of the heart attack.

*Feeling powerless.* The feelings of powerlessness were evident in the accounts chronologically immediately after the heart attack had occurred, and notable differences were found between genders. One participant stated, “I felt out-of-control and wondered where it was going from there.” The feelings of powerlessness among male participants appeared to stem from their inability to control the situation at hand and the perceived inevitability of death. One male participant stated, “For a time I thought I am going die, but did not last very long.” Another male participant stated, “But if you had a heart attack, I mean you pretty much sit there and wait to see if you are going to die or not. Or if you are having someone help you, you are pretty much powerless.” In contrast, the female participant identified feelings of powerlessness with the uncertainty and the unexpected turn of events. The female participant stated, “I felt powerless. I was in shock when I arrived at the hospital, and I was probably in shock even at home. Because I was cold and clammy but I felt hot.” The feeling of powerlessness was found to be prevalent and evident among the participants’ accounts of the heart attack and led to worry and anxiety about family.

*Worrying about family.* The common theme that emerged from the participants’ transcribed experience of the heart attack was the perceived damage and loss that could result from their deaths to their loved ones and produced much anxiety. Male participants felt that their death could debilitate their loved ones in many ways. One male participant stated, “I was concerned about the things that my wife did not know how to do and listed
everything, how to do it. Like how to winterize the truck.” Another male participant stated, “I think what will suck the most is leaving your loved ones behind. I am a little bit less conceited; I look forward on other people and what other peoples’ feelings would be like when I leave.” The female participant’s anxiety stemmed from the emotional pain that her death could cause to their loved ones. The female participant stated, “I have three voice mails that my sisters called and they were very, very worried. But then my other sister was incredibly worried. They were really, really concerned. I felt sad about it.” Male participants appeared to focus on the tasks that they believe their loved ones were dependent on them for. Female participants on the other hand focused on the emotional impact on their family.

Seeking Normalcy

The maintenance of normalcy among the participants was precipitated by the concerns of their social circle regarding their physical and emotional competency to perform activities of daily living and occupational roles. The participants’ yearning for normalcy emerged often among the participants’ accounts of their recovery from heart attack. The sub themes that were found related to the participants’ desire for normalcy were expressing denial and proving oneself.

Expressing denial. The participants’ denial of the seriousness of the event was evident and prevalent on their transcribed account of the experience with heart attack. The expression of denial among participants appears to reflect their desire to seek and maintain normalcy. One male participant stated, “[T]here is always stress. But no stress directly related to heart attack. For one thing, I am not fearful of dying. No chest pain lately. No stress related to the heart attack.” Another male participant stated, “You know
I don’t think the heart attack affected much, I am one of those people I have never been afraid of death because I have seen so much death in my lifetime.” The female participant stated, “I do think that nothing has changed much after the heart attack, especially at the workplace. And no, I don’t think the treatment that my co-workers give me changed and will change.” The participants appeared to minimize the severity of the impact that the heart attack has caused in their lives.

*Proving oneself*. The yearning to prove oneself to other people, most especially to colleagues and co-workers was found was evident in male participants. The belief that the participants are able to perform activities of daily living and manifest proficiency at the workplace was evident among the participants’ accounts of their recovery from heart attack. Male participants appeared to have stronger opinions in relation to their performance at work and home in contrast to the female participant. One male participant stated,

Matter of fact, the people around me, was saying -- take it easy, than I was. Cause I wanted to get right back to the scene of things. Like most men, if you had a heart attack you probably wanted to be right back into what you were doing before to show people you could still do it.

Another male participant stated,

The one thing that started to drive me crazy, I have gone back to work, and then like everybody thought that I will keel over or die in front of them. They keep saying don’t do too much and don’t jump into this too much.

On the other hand the female participant stated,
I try to do my job like how I did it before I had a heart attack. Like before when I was diagnosed with the c-word I thought I was going to die. After I conquered cancer I think there is a lot of hope. I am hoping for the better, too, as far as heart attack is concerned. I think there is a little bit more respect after surviving a heart attack.

The male participants strongly sought normalcy at the workplace. One participant wanted to return to work before physician recommendations. Moreover, male participants perceived no physical limitations.

_Worrying the Financial Burden_

The financial burden incurred by the cost of surgeries, medications, and physician consults appeared to have been a major stressor among participants. One male participant stated, “If my illness had put us in financial jeopardy that will stress me out beyond belief. I mean we had great insurance, if we did not have the insurance; I might as well die.” Another male participant stated, “I’d say the stress of the finances is more than the stress of the heart attack. It’s pretty pathetic”. The female participant on the other hand stated, “I think it will be expensive. We have good insurance. We are senior citizens. We have Blue Cross and Blue Shield. But I think the financial burden will be a greater source of stress than the heart attack itself.” Male participants appeared to have stronger opinions in relation to this financial burden in contrast to the female participant.

_Seeking a Female Figure’s Reassurance_

Male participants’ accounts of the immediate events following a heart attack involved longing for a significant female figure in their lives. The male participants cited either their wife or mother as the first person they wanted to see immediately after the
heart attack. One male participant accounted, “The first person I wanted to see when I first woke up was my wife. I felt weepy if I don’t see her pretty soon in the morning because I feel so uncomfortable. Seeing her made it feel so much better.” Another male participant stated, “Probably my mother was the first person I wanted to see. I never saw her. She was in Florida. The first person I saw was my wife which was a relief”. The female participant stated that she felt the need to see her older sister immediately after the infarct. The female participant stated, “I kind of wanted to see my older sisters who passed away. I was very close to my sisters”. The participants’ account of the immediate events related to their heart attack as well as their accounts of their recovery has potential for ground work for evidence-based interventions that nurses could use in the clinical setting.
CHAPTER V

Discussion

The participants' profound and lingering recollections of the heart attack were described by the following themes: the reality of facing mortality, seeking normalcy, worrying about financial burden, and seeking the female figure. Feelings of powerlessness and worrying about family seem to be associated with the reality of facing mortality. On the other hand, themes such as expressing denial and proving oneself were found to be linked to the desire of the participants to seek and maintain normalcy after their experiences with heart attack. Gender differences noted among these themes were found to be mostly tied to the gender roles of each participant in their respective domestic and social framework. Exceptions to the patterns and themes discussed will be elaborated. Nursing interventions that could be derived and integrated in the clinical setting from the results of the study will be discussed.

Facing Mortality

The participants' account of the immediate events that followed the heart attack were marked by fear and anxiety related to the perceived impending doom in their lives. According Selman, Harding and Beynon (2007), clients and caregivers live with fear and anxiety, and are uninformed about the implications of their diagnosis. Moreover, cardiac staff confirmed that they rarely raise such issues related to dying with clients (Selman, Harding & Harding, 2007). The feelings of powerlessness among male participants were due to the physical incapacitation they have sustained following the heart attack. On the other hand, the female participant's feelings of powerlessness stem from the emotional incapacity, and lack of knowledge of key words such as "shocked" were used during the
account of the heart attack. Another prevalent theme that was found under facing mortality is the concern for one’s family. Male participants’ concern for their loved ones immediately after the heart attack could be attributed to the financial and functional disadvantagement that could arise from their deaths. Male individuals, especially husbands, have predetermined roles that society expects them to assume in the context of familial and professional spheres. However, the female participant was concerned with the fact that her death could deal an enormous emotional toll on her loved ones.

According to Philips (2005), socially defined traits often stereotype men and women as having fixed and opposite characteristics such as active (male)/passive (female), rational (male)/emotional (female). The underlying cause for these gender differences related to the feelings of powerlessness and concern for the family could be attributed to the pressure that society places upon the individual to behave within the accepted norms and stereotypes.

**Seeking Normalcy**

The participants’ accounts of their recovery from heart attack were marked by struggles to maintain one’s integrity and self-esteem related to personal and professional performance. The participants’ loved ones’ excessive concern over their condition made the recovery process complicated. People who belong within the individual’s social circle have less perceived control over the circumstances that could follow the individual’s heart attack (Moser & Dracup, 2004). Male participants have stronger opinions against their perceived weakened state after the infarct. The expectations that society placed upon the males, such as being physically able and independent, could provide explanation for the findings. The expression of denial that the participants manifested could be a defense
mechanism for the depression and anxiety that the heart attack has brought to their lives. In addition, the denial of severity of the heart attack was evident among male participants who ultimately claimed that their own mortality did not cause much fear, stress, and anxiety personally. The female participant’s expression of denial was centered on the impact of the heart attack on her interpersonal relationships. This shows that interpersonal needs are more pronounced in women. According to Keyes and Goodman (2006) men are “in fact as dependent as women, and that differences obtained with self-report inventories and semi-structured interviews is due largely to a greater willingness of women to acknowledge their feelings of dependency” (p. 180). Women are more likely to share their feelings and more likely to acknowledge the importance of their relationships in their lives. Another theme that was found prevalent among participants was the yearning to prove to other people that one could perform tasks at the same level as before the heart attack. Gender differences were noted as males were more eager to prove themselves to the public than female participant. The male participants’ eagerness to prove themselves to the public appeared to be related to the fact that men’s functional status in society determines their value. On the other hand, the female participant manifested denial instead; she claims that the heart attack did not change the way people perceive her ability to perform. Women were more likely to expose their feelings related to the heart attack as opposed to men. Male participants may be at risk for relapse and recurrence of heart attack due to the additional stress of assuming the masculine role. Moreover, male participants have a difficult time expressing the emotions incorporated in the experience of the heart attack.
Worrying About Financial Burden

Changes brought about by the social and political aspects involved in healthcare have driven health care costs significantly higher than what they have been in the past. According to the American Heart Association (AHA) (2006), the average cost involved for every discharge related to acute myocardial infarction in 2001 is $11,201. Gender differences were noted in relation to the perceived effect of the financial burden on their lives. Male participants appeared to have stronger opinions which were believed to be tied to their head of the family status. Being the head of the family, the male participants were tasked with providing their respective family’s everyday needs. According to the US Bureau of Economic Analysis (2006), the per capita income of Montana is $30,886 which ranks 41st in the nation, about 84% of the national average. All of the participants recruited in the study lived and worked in the state of Montana at the time of the interview. The below average income in Montana coupled with the rising medical bills related to MI may have contributed to the heightened anxiety that the participants, especially the males, experienced during recovery. On the contrary, Wrosch, Heckhausen and Lachman (2000) asserted that women reported more health and financial stress than men. However, the female participant reported to have a doctorate degree while the male participants claimed to have completed baccalaureate degrees. The previous information seem to agree with Wrosch, Heckhausen and Lachman’s (2000) findings that less educated participants reported more health and financial problems than more educated participants. The anxiety and perceived effect of the financial burden on the participants’ lives appears to have a strong relationship to the socioeconomic status of the participants.
The anxiety and stress related to the financial burden also negatively affected the quality of life of the participants during the recovery process.

*Seeking the Female Figure’s Reassurance*

A common theme found in the recollection of the participants’ experience immediately after the heart attack was the yearning for an important female figure in their lives. The male participants stated that they would like to see their wives or mother immediately after the heart attack. On the other hand, the female participant wanted to see her sisters, who already passed away, immediately after the heart attack. According to Shah and Ogden (2004), female healthcare providers were judged to have a better personal manner, better technical skills, and better explanation skills, to be more likely to explore emotional aspects of health and empower the individual than male counterparts.

The yearning for the female figure could be seen as a preference for the feminine qualities to be manifested in the caring process which may help participants survive and recover from the heart attack. According to Dindia and Canary (2006), sex-typed social roles underlie gender roles which are consensually shared expectations about men and women. For women, qualities such as kindness, compassion, unselfishness, nurturance and devotion to others are expected (Dindia & Canary, 2006). The participants’ experiences of heart attack appear to be stressful, scary, and taxing which involves one’s mortality. Female caregivers were seen to be more likely to listen to their problems and likely to be empathetic towards them. A genuine and non-judgmental approach to caring was seen beneficial by the participants during the recovery process.
Nursing Interventions

Appropriate nursing interventions related to feelings of powerlessness and yearning to prove oneself immediately after and recovering from the heart attack may focus on giving clients more control over their activities and health seeking behaviors as well as educating them about the details of their disease and its process. Giving information about rehabilitation as soon as the client is ready to learn could reduce the anxiety involved in his or her acute incapacitation. According to Lacey, Musgrave, and Freeman (2004), a home-based self-help rehabilitation package is an effective tool alongside hospital-based rehabilitation classes and can be given to all age groups. Their study showed significant improvement in anxiety and depression scores after 3 months and nonsignificant improvement in general health status among participants who used the self-help rehabilitation package (Lacey et al., 2004). Moreover, client’s anxiety from the perceived effects of their debilitation to their family’s welfare could be reduced by allowing an open visitation policy among heart attack clients. According to Davidson, Powers, and Hedayat (2007), recommendations related to family visitations and involvement include endorsement of a shared decision-making model, early and repeated care conferencing to reduce family stress and improve consistency in communication, honoring culturally appropriate requests for truth-telling and informed refusal, spiritual support, staff education and debriefing to minimize the impact of family interactions on staff health, family presence at both rounds and resuscitation, open flexible visitation, way-finding and family-friendly signage, and family support before, during, and after a death (Davidson et al., 2007). In addition, involving family members in the recovery process may give the client adequate support especially after hospital discharge.
Denial of the severity of the heart attack could pose risks for client mortality. The experience of an MI, its potential meaning and consequences arouse a high level of emotional responsiveness in the individual. Researchers to date have argued that implementing adaptive coping strategies is necessary for emotional adjustment. According to Hogg, Garratt, Shaw and Tagney (2007), participants seemed to share difficulties in reflecting on their coping strategies and the concept of coping generally, but were keen to talk about specific events in relation to the MI. The findings suggest that cardiac rehabilitation needs to focus on individual priorities for recovery. Providing opportunities for patients to talk through their experiences individually may be an important aspect of such care (Hogg et al., 2007). Nursing intervention should include encouragement of client verbalization of the experience in order to gather information that may be useful on the development of their individualized care plans.

The stress and anxiety generated by the financial burden on the client could increase the risks for mortality from heart attack during recovery. Nurses could initiate cost-effective interventions that could reduce the costs involved in the client’s care. Client education encouraging compliance to the medication regimen could reduce the healthcare cost through prevention of recurrence of a heart attack (AHA, 2006). Moreover, nurses should take into consideration that incremental increase in cost could arise from waste in supplies and medications. Care in handling supplies and medications should be observed among healthcare personnel in order to avoid unnecessary waste. Nurses should also advocate for the client by working with the primary provider in determining cost-effective medical interventions and medications. According to Suaya, Shepard and Normand (2007), cardiac rehabilitation use is relatively low among
Medicare beneficiaries despite convincing evidence of its benefits and recommendations for its use by professional organizations. Nurses should initiate actions during the legislative process advocating cardiac rehabilitation as being a standard intervention among Medicare beneficiaries. Cardiac rehabilitation has been shown to be effective in prolonging survival and reducing disability in clients with coronary heart disease and MI (Suaya et al., 2007). Reducing disability among clients could reduce the number of medical interventions being implemented and thus reducing financial costs in the long run.

Expectations on the female gender include qualities such as caring, nurturing, and being empathetic. Empathy in the medical setting is appreciation of the client’s emotions and expression of that awareness to the client. Show of empathy among staff nurses immediately after the heart attack could promote well-being and motivation for recovery among clients. Appropriate nursing interventions focusing on generating a clinical setting conducive for recovery could include education of staff regarding empathy. According to Stepien and Baernstein (2006), communication skills workshops addressing the behavioral dimension of empathy show greatest quantitative impact on participants of their study. Nurse Managers should include communication skills workshops as part of their staff education to foster empathy in the clinical setting. Allowing enough time for clients, especially males, to verbalize their respective experiences of the heart attack should be included in order to manifest the caring and nurturing nature of the nursing profession (Hogg et al., 2007). In addition, allowing open visitation policies among female significant others could provide relief to the clients’ heightened anxiety immediately after the heart attack.
Limitations and Recommendations

The study was limited to recruiting Caucasian participants and thus failed to account for ethnic and cultural differences in the experience of a heart attack. All participants were from the sub-urban and rural Montana and thus failed to elicit individual experiences of living with a heart attack in metropolitan and urban areas. Educational backgrounds of the participants were limited to baccalaureate and doctorate degrees and failed to investigate experiences of individuals with lower educational attainment. The study involved one female participant and thus failed to produce any comparable prevalences among females.

A similar study in the future should be conducted which involves a well represented sample of participants in order to further investigate differences and common themes across gender, sociocultural, and economic subgroups. Future studies should investigate the relationship of socioeconomic status such as educational attainment or individual’s salary to the feelings of powerlessness. In addition, studies should be conducted in order to elucidate the underlying causes of the evident yearning for a female figure immediately after a heart attack among male participants. The importance of further investigation could lead to improved individualization of client care.
Conclusion

The fear and anxiety that enveloped the immediate events of the individual’s heart attack was a terrifying experience that demands articulation and exposition. Most individuals, especially males, had difficulty expressing emotions related to their respective experiences with heart attack. A caring, empathetic and non-judgmental approach would serve as an avenue for the unearthing of the true essence of the heart attack for these individuals. An individualized plan of care could be formulated from the vital information gathered through therapeutic communication. In addition, individuals who have survived heart attack may have difficulty coping with the event because they do not have a strong grasp of the experience. Feelings of powerlessness could arise due to the ineffective coping that individuals face during recovery. A rehabilitation program which allows the individual to have a major and active role in recovery process may facilitate in returning the locus of control to the individual. Nurses at the bedside should explore the client’s feelings in order to facilitate optimal recovery and quality of life among individuals who suffered from heart attack.
Appendix A

Bracketing

The bracketed beliefs and bias of the investigator related to the nature of myocardial infarction will be discussed. Previous knowledge of the investigator of myocardial infarction was primarily due to lifelong paternal family’s experience with heart attack mortality. Investigator believed that an individual who survived a heart attack would not be able to perform close to pre-infarct functioning. Moreover, the investigator believed that no individual would be able to survive a recurrence of a heart attack. The investigator also believed that resuming sexual activity was contraindicated due to risks of recurrence and mortality. The investigator’s bias that heart attacks only occur among the elderly was bracketed. The belief that individuals fear heart attack due to the high mortality associated with it was withheld from the study and data gathering process. In addition, knowledge gained from the investigator’s review of literature was bracketed in order to prevent introducing themes to the participants. Bracketing of investigator’s belief was performed to ensure the validity and fidelity of the data gathered in the study.
Appendix B

Interview Questions

a. Tell me about your experience with heart attack?

b. How do you rate your pain during the incidence of attack? How would you describe the experience?

c. Tell me about your lifestyle?

c. Tell me about your physical activities?

d. How would you describe your current level of stress? What has been the most painful experience you ever had?

e. Tell me about your time to leisure? What kind of hobbies do you usually engage?

f. Have you met individuals who have experienced a heart attack in the past? How did they cope with the disease?

g. How would you describe your social life? (with friends during your leisure time)

h. How do you describe your religious or spiritual life? Are you currently active with your religion or faith? How do you devote time to praying etc.?

i. How do you deal with anxiety or depression? Do you take any medications for anxiety?

j. How do you see your condition? Do you see it as temporary or terminal?

k. How would you describe your sex life prior to and after the attack? Are you satisfied or do you think it is lacking?

l. Who was the first person you wanted to see immediately after the attack?

   Describe how you felt when you saw this person?
Appendix C

Consent to Participate in Research Study: Quality of Life Post-Myocardial Infarction

I have been invited by Manuel Malabanan, a Carroll College student completing an undergraduate honors thesis, to be a participant in a voluntary research study. The purpose of this study is to help obtain a greater understanding of the true meaning of myocardial infarction to the affected individual.

If I agree to participate in this study, my participation will consist of an audiotape-recorded interview with Manuel Malabanan lasting about 30 to 60 minutes. In this interview, I will be asked to discuss my experiences and feelings related to life after having an acute myocardial infarction. Everything I say will be strictly confidential.

There is no potential direct benefit associated to my participation. However, there are risks such as triggering an emotional response from the participant. On the other hand, providing information may help nurses or be therapeutic in nature. There are no other costs for me. I reserve the right to withdraw from this study at any time.

Confidentiality will be maintained throughout the study; no names or identifying factors will be used. The information acquired from this interview will be used as material in an undergraduate honors thesis and therefore there may presentations and publications associated with this study.

If I have any questions at any time during this study I may call Manuel Malabanan at (406)459-8369 or email him at mmalaban@carroll.edu.

I agree to participate in this study:

_____________________________               ____________
Printed Name and Signature of Participant               Date

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Printed Name and Signature of Witness

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Printed Name and Signature of Witness

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Date
Reference


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