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**Somatic Awareness and Daily Hassles in Women with
Acute Myocardial Infarction**

A Dissertation Presented

by

Nancy E. Stone

Submitted to the Graduate School of Nursing
University of Massachusetts Worcester
In partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

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PhD Program in Nursing
Worcester

“Somatic Awareness and Daily Hassles in Women with Acute Myocardial Infarction”

A Dissertation Presented

By

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Dedication

In loving memory of my son, Christopher R. Stone, whose passion for life served as my
guiding light in the darkest of times.

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I would like to thank my committee: James A. Fain, for his excellent statistical skills and willingness to share this knowledge; Kathleen Miller, for her excellent editorial skills and knowledge of cardiac disease in women; and Jeffrey Latham MD, for his knowledge of treatment of AMI in women and support of nursing research. Without their encouragement, hard work, and dedication this would not be possible.

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Abstract

SOMATIC AWARENESS AND DAILY HASSLES IN WOMEN WITH ACUTE MYOCARDIAL INFARCTION

SEPTEMBER 2007

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Cardiovascular disease is the number one cause of death for women in the United States. Acute myocardial infarction (AMI) carries a more negative prognosis for women than men. Women with AMI have both increased mortality and disability. All researchers who have documented a difference in delay times between men and women note that women delay longer in seeking treatment. In the case of an evolving AMI, women who delay in seeking medical attention will often place themselves outside the limits of reperfusion therapies such as angioplasty and thrombolysis, thereby increasing their risk of an out-of-hospital sudden cardiac death.

Several investigators have reported that reasons for delay to treatment may include the presence or absence of “somatic awareness”, that is, how a woman perceives body activity and physiological functioning. The inability of women to disregard social roles and place primacy of caring over their own health issues may limit them from seeking formal care. Social roles and obligations in a women’s life are often influenced by everyday, ordinary happenings which may have a negative impact on decision making. These everyday, ordinary happenings have been defined as “daily hassles”.

The Leventhal self-regulatory model of illness behavior, which has been used to study treatment seeking behavior in response to symptoms, provides a coherent framework for interpreting the problem of delayed treatment of myocardial infarction. The Leventhal model proposes that the patients' belief about their health is structured in a hierarchical fashion and that these structures are based on previous illness experiences and information presented in the social environment. Utilizing a descriptive design, this study examined the relationship between somatic awareness and daily hassles and how these variables influenced a women's treatment seeking behavior in AMI.

The Modified Somatic Perception Questionnaire (MSPQ) was used to measure somatic awareness; and daily hassles were measured through the Daily Hassles and Uplift Scale (DHUS). The questionnaires were administered at least 24 hours post admission to women with AMI. Though there were no significant relationships found between somatic awareness, daily hassles and time to treatment for AMI, the study revealed other pertinent findings. A significant relationship was found between daily hassles and age; revealing that younger participants revealed a higher daily hassle score. Also, a significant relationship was found between total MSPQ and prior cardiac events; indicating infrequent occurrence of intense symptoms experienced by women with a positive cardiac history. Though it is unknown what impact this new knowledge will have on treatment of women with AMI, these findings hold promise for clarifying these areas of research. Keywords: somatic awareness, daily hassles, treatment seeking behavior, women with acute myocardial infarction (AMI).

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Somatic Awareness and Daily Hassles in Women with Acute Myocardial Infarction

Chapter 1

State of the Science

Background

Cardiovascular heart disease claims the lives of more than 240,000 women each year and is the single leading cause of death and disability in women older than 50. While the prevalence of cardiovascular heart disease among women has been decreasing, its incidence remains high, particularly in older women (Eastwood & Doering, 2005). More than half of the deaths from cardiovascular heart disease are directly attributable to acute myocardial infarction (AMI). Mortality rates for women with AMI are substantially higher than for men because 38% of women versus 25% of men will die annually after their AMI (American Heart Association, 2006). Delay in seeking treatment in both men and women strongly correlates with increased mortality and morbidity in AMI (Ottesen, Kober, Jorgensen, & Torp-Pedersen, 1996; Gibler, Armstrong & Ohman, 2002). Patients treated within 90 minutes of symptom onset experience 50-80% lower mortality rates and a 50% reduction in infarct size compared to those treated later (Zijlstra, Patel, & Jones, 2002). Though there is conflicting data regarding whether there are gender differences in delay in seeking treatment for acute cardiac symptoms, researchers have reported that women delay longer (Caldwell & Miakowski, 2000; Moser, McKinley, Dracup, & Chung, 2005; Murphy, Chen, Cannon, Antman, & Gibson, 2000).

The use of percutaneous coronary intervention (PCI) has increased over 300% from 1987 to 2003, with more than 600,000 procedures performed annually in the United States (American

Heart Association, 2006). Compared with thrombolysis , primary PCI has been established as the perfusion strategy of choice in high risk acute coronary syndromes and acute myocardial infarction and is best benefited with a positive outcome when treated in a less than 6 hour interval from beginning of symptoms (Boersma, 2006; Keeley, Boura, & Grines, 2003). Thrombolytic therapy , which also continues to be a current treatment of choice for AMI, must occur within a narrow time frame to be successful (Gibler et al., 2004; Ryan, Antman & Brooks, 1999). Results from large clinical trials demonstrate that if the patient receives care promptly, thrombolytics or other reperfusion therapies such as percutaneous coronary intervention can be utilized to reduce or eliminate damage to the myocardium (Burger, Ellis, & Holmes, 1999; Goldberg et al., 2004). Since these new advances in treatment are effective in a narrow time frame, it is essential that treatment be sought immediately after the onset of symptoms for optimal outcome. Every 30 minute of delay time increases the 1-year mortality risk by 7.5% (Deluca, Suryapranata, Ottervanger, & Antman, 2004). The process of treatment decision making for medical events is complex, socially delineated, and essential to understand in order to optimize health outcomes (Schoenberg, Amey, Stroller & Muldoon, 2003).

Psychosocial variables have been identified in the literature as influencing treatment seeking behavior in women with AMI. One such variable, somatic awareness, appears to reduce delay when present in women with AMI (Dracup, Moser, Eisenberg, Meischke, Alonzo & Braslow, 1995; Schoenberg et al., 2003; Warner, 1995). In one study involving gender differences in reasons patients delay in seeking treatment for AMI (Moser, McKinley, & Dracup et al., 2005), neither knowledge of thrombolytics nor positive history of previous AMI decreased delay time in women, while both decreased delay time in men. In fact, history of prior

AMI increased delay time in women. These data suggest that lack of awareness by women of their cardiac risk may contribute to delay.

Another variable, daily hassles, is described as having a negative effect on daily decision-making and a women's response to social obligations. Social obligations for women generally include responsibility for domestic work which cannot be relinquished to others often in addition to wage labor (Schoenberg, Peters & Drew, 2003). Several studies have documented women not wanting to trouble others contributed to delay; but was not a factor for men. Women's perception of the importance of attending to their many competing social demands to the exclusion of attention to their own health may have contributed to delay. Women in these studies described ignoring symptoms because they felt that their responsibilities in the family, including care of husbands, children, grandchildren, and aging parents, were important to the well being of the family and could not be delegated to someone else (Dempsey, Dracup & Moser, 1995; Moser, MKinley, & Dracup et al., 2005; Schoenberg, Amey, & Stoller et al., 2003).

Research has found that women traditionally put their families before their own health (Johnson & King, 1995). The implication is that subtle signs of impending AMI experienced by many women, such as mild angina or fatigue, may not be acknowledged as important enough to put aside family obligations to seek treatment. McSweeney (1996) and Neill (1993) suggested that a woman's reactions to pain and sickness might be culturally mediated and be expressed in a different manner than men. Women did not deny their symptoms in as much as they felt a stronger need to fulfill their social commitments.

Dracup and Moser (1991) reviewed 20 years of research to identify variables related to delay in treatment seeking behavior of patients with symptoms of AMI. Variables that decrease

delay were recognition that symptoms were cardiac in origin, hemodynamic instability in people with large infarcts; seeking advice from co-workers, and sometimes the severity of chest pain. The salient variables that increased delay time included prior diagnosed hypertension, diabetes, or angina; Black race; consultation with a physician or family member; symptom experience during daylight hours; and a decision to self-treat symptoms. Variables that had slight increases in delay but appeared insignificant at the time were female sex and old age (Dracup & Moser, 1991). Despite some conflicting research, clinical studies with large sample sizes correlate increasing age with increasing delay to treatment for symptoms of AMI (Scheifer, Rathone, & Gersh, 2000). The limited research on minority groups and lower socioeconomic groups suggest these groups delay longer than do white men and women (Richards, Funk, & Miller, 2000; Zerwic, Ryan, DeVon, & Drell, 2003).

Only people with somatic or emotional awareness of themselves appear to reduce delay (Dracup, Moser & Eisenberg et al., 1995). Neither knowledge of thrombolytics, PCI nor positive history of previous AMI decreased delay time in women. In fact, history of prior AMI increased delay time in women. These data suggested that lack of awareness by women of their cardiac risk may in part contribute to delay. Investigators have demonstrated that women seriously underestimate their risk of developing cardiac disease or experiencing AMI (Moser, McKinley, Dracup & Chung, 2005; Oliver-McNeil & Artinian, 2002).

Lee's research focused on delay in Black populations. Prior research indicated that Black people have longer delays than do whites (Lee, 1997). Higher socioeconomic status in Black's results in decreased delay time compared to Black's in lower socioeconomic groups who used public hospitals. Black patients with acute chest pain who were poor, uninsured or without a regular physician also had significant longer delay times.

Treatment Seeking Behavior in Women with AMI

Clinical Factors

Clinical factors found to affect delay according were as follows: (1) typical or atypical symptom presentation, (2) severity of symptoms, (3) influence of co-morbidities or chronic illnesses, and (4) history of smoking. The presentation of atypical symptoms and the severity of symptom presentation had the greatest influence on pre hospital delay time. Each was repeatedly inversely associated with pre hospital delay time. A key influence for delay is symptom presentation related to gender. Women had more atypical and nonspecific symptoms leading them to have longer delay times in treatment seeking behavior (Dracup & Moser, 1997; Lee, 1997; McKinley, Moser, & Dracup, 2000; Meischke, Larsen & Eisenberg, 1998; Rosenfield, 2004; Zerwic, Ryan, & DeVon, 2003).

Sociodemographic Factors

The sociodemographic factors that describe the candidate most likely to delay in presentation to the hospital after symptoms of AMI are as follows: women, older-aged individuals and minorities, those with a low income and a lower educational level and individuals living alone. Studies with the largest sample sizes, Canto, Schlipak & Rogers et al. (2000) (N=434, 877); Gibler, Armstrong & Ohman et al. (2002) (27, 849); and Scheifer, Rathore & Gersh et al. (2000) (N=102, 339), demonstrate that women delay longer than men.

Canto, Schlipak, & Rogers et al. (2000) investigated both the sociodemographic and clinical characteristics in their multicenter trial. The researchers found that 33% of their large sample (N=434, 877) did not have chest pain (atypical presentation), a higher proportion of these being the aged and women. Consequently, a combination of several different factors, including the atypical nature of symptoms, dealing with symptoms from chronic illnesses, and

psychosocial factors to be discussed, increase the likelihood of delay in women and older aged individuals (Canto, Schlipak & Rogers et al., 2000; Lefler & Bondy, 2004).

Upon experiencing cardiac symptoms, women's choice of lay referrals and the concerns expressed in Schoenberg's study (2003) illustrate only moderate involvement of men, even husbands. A role context approach, (Moen, 2001) suggests that when women and men experience similar circumstances (e.g., cardiac symptoms and making treatment decisions), the gendered life course will differently affect women and men's responses. Older women serving as the medical gatekeeper is consistent with lay management of health and disease across their lives, whereas for men, attending to another's symptoms may represent a departure from previous responsibilities.

Women have traditionally put their families and house obligations before their own health (Johnson & King, 1995). The implication is that subtle signs of impending AMI experienced by many women, such as mild angina or fatigue, may not be acknowledged as important enough to put aside family obligations to seek treatment (Lefler & Bondy, 2004).

Psychosocial Factors

Though gender and age are essential to consider when examining health behavior, the traditional focus on demographic attributes rather than social determinants masks complex information about the person's life and undermines our understanding of the decision processes leading to medical care (Schoenberg & Drungle, 2001).

Psychosocial factors identified in the literature according to frequency of occurrence are as follows: (1) correct attribution of symptoms of the heart, (2) perceived seriousness of symptoms, (3) contacting others for advice, (4) low self-perceived risk, (5) self-treatment strategies, (6) various coping mechanisms, (7) knowledge of symptoms or risk factors for heart

attack, (8) presenting symptoms did not match expectations, and (9) symptom uncertainty. Data supported the assumption that women do not perceive themselves at risk for heart attack as do men, contributing to a substantial risk delays with AMI (Dempsey, Dracup, & Moser, 1995, Dracup & Moser, 1991; Dracup & Moser, 1997; Lee, 1997). This erroneous interpretation of women's risk perception is further supported by surveys that indicate that women overwhelmingly (76%) identify with breast cancer as their most serious health threat (Legato, Padus, & Slaughter, 1997). In summary, women, more often than men did not interpret their symptoms as cardiac in nature, did not perceive them as serious, and engaged in more consultations with sons and daughters and other coping strategies. These actions contribute substantially to further prehospital delay.

Somatic Awareness

Somatic awareness has been defined as “the perception of body activity and physiological functioning; the degree of sensitization to physiological events or bodily sensation “(Frazure-Smith, 1987; Main, 1983; Warner, 1995). Somatic awareness and its interpretation is a multiprocess elaboration upon a perceived or real state. One can experience distress over physical sensations even when perceptual awareness of them is not particularly acute. Likewise, a specific type of somatic awareness, that which focuses on the concrete properties of the sensation, can result in acute somatic perception but little distress over the somatic information (Cioffi, 1991).

It is hypothesized that somatic awareness plays a role in the recognition of symptoms of myocardial ischemia and in the experience of chest pain with and without coronary artery disease (CAD). Individual variability in somatic awareness may affect the experience and interpretation

of chest discomfort and thus have an impact on decisions made by patients to seek health care (Frazure-Smith, 1987; Warner, 1995).

In the Warner study (1995) fifty-five women were admitted without previous history of heart disease were admitted to the hospital for evaluation of chest pain. The women had a wide range of ages (mean 56.58+/- 14.02) and years of education (mean 11.04+/-3.28). The sample was equally divided between white and Black women. The women were then administered both the Supplemental Rose Questionnaire (SRQ) and the Modified Somatic Perception Questionnaire (MSPQ). A small but significant inverse correlation was found between level of somatic awareness as measured by the MSPQ and degree of CAD ($r = -0.2932, p < .05$). MSPQ scores significantly differed between women with CAD (lower scores) and women without CAD (higher scores) ($p < .05$). MSPQ was the most important factor in a logistic regression model that modestly but significantly predicted presence or absence of CAD. The investigator concluded that relatively low levels of somatic awareness in women with CAD may contribute to delays in treatment and alleviation of ischemia (Warner, 1995).

Meischke, Yashi, Kuniyuki, Bowen, Andersen & Urban (1998) investigated how women label and intend to respond to common and less common somatic symptoms of AMI. Telephone interviews were conducted with 862 women older than age 50 in the state of Washington. Leventhal's self-regulatory model of health and illness was the conceptual framework. The findings suggest that many women might be in danger of "mislabeling their symptoms" and not taking appropriate action, given that labeling symptoms as a myocardial infarction was related to the likelihood of calling 911 or going to the hospital.

Schoenberg et al. (2003) utilized a phenomenological and grounded theory approach to research somatic awareness in women with CAD and AMI. The sample consisted of 40 women,

with a mean age of 69 (range 55-96 years) and mean years of education of 9 (range 3-16 years). Intercoder reliability was reported as approximately 90%. Three focus groups were conducted with different participants to verify research findings. Participants who had experienced AMI or other types of CAD noted how unfamiliarity with the sensations and “lack of awareness” might lead them to delay in formal care seeking. These unfamiliar symptoms lead many participants to erroneous self-diagnosis and to engage in lay strategies of symptom containment, which may be implicated in prolong time to treatment.

Rosenfield’s (2004) approach in examining decision trajectories and their predictors relating to treatment seeking delay among women with AMI was a mixed-methods approach. The sample consisted of 52 women ranging in age from 38-87 years and 10-15 years of education. The women were then divided into two trajectories types: knowing (defined as the women who knew almost immediately they would seek help) and managing (defined as the women who managed an alternative hypothesis or minimized their symptoms). The neuroticism subscale of the Eysenck Personality Questionnaire –Revised (EPQ-R) Short Scale was used to measure negative affect. Individuals scoring high on the neuroticism (also referred to as “emotionality” or “somaticism”) subscales were worriers preoccupied with things that could go wrong and frequently anxious. This scale demonstrated reasonably good internal reliability, Cronbach alpha .80. Neuroticism, a global measure of negative affect, scored high in the knowing group. Thus, worrying about oneself and focusing about ones symptoms may be helpful during coronary events if these lead to seek medical attention.

Daily Hassles

Daily hassles are those everyday, ordinary happenings that have a negative effect on daily decision making and functioning (Schoenberg et al., 2003). AMI patients delay seeking

treatment in part due to “failure to disregard social roles”. Women are generally held responsible for managing household activities in addition to wage labor. This serves as an area of stress and limits formal care-seeking. Thus the importance women place on the well being of others results in diminished attention to health concerns (Schoenberg et al., 2003; Moser, McKinley, Dracup et al. 2005).

According to the findings reported by Schoenberg et al. (2003) & Moser, McKinley, Dracup et al., (2005) social obligations and competing social demands proved to be problematic for rapid time to treatment. The women in these studies felt those social obligations took precedence over their own cardiac symptoms. Moser, McKinley, & Dracup et al., (2005) enrolled a total of 96 women and 98 men. Though there were no differences in delay times between men and women (median 3.08 versus 3.10 hour, respectively), not wanting to trouble others was a factor that contributed to delay in women, but not for men ($p = .05$). Schoenberg et al. (2003) recruited an ethnically and residentially diverse sample of 40 middle aged women (mean age = 55). “Competing social demands” was one major theme which evolved documenting delay in women seeking formal medical care when experiencing symptoms of coronary heart disease. Consequently, attending to illness is merely one of the many needs that confront an individual and influence symptom appraisal and treatment seeking behavior.

In seeking to define factors influencing decision to seek treatment for symptoms of AMI, Dracup & Moser (1997) identified factors other than sociodemographic data.

The sample consisted of 277 patients with a mean age of 58 ± 12 years. Patients who delayed seeking assistance reported being worried about troubling others with a request for help ($p = .001$), feared the consequences of seeking help ($p = .02$), decided to wait for symptoms to go away ($p = .001$), and failed to recognize the importance of their symptoms secondary to tasks (p

=.05). Patients at home delayed significantly longer than those who had their first symptoms elsewhere (p =.002).

Dempsey et al. (1995) attempted to describe psychosocial processes by which women make the decision to seek care for symptoms of AMI. Though a qualitative grounded theory approach, 16 women between the ages of 42 and 82 were interviewed. Though these women had a high level of “symptom awareness” they continue to delay secondary to “commitments”. Commitments refer to what is considered significant or meaningful to an individual. All women described having spoken and unspoken commitments that would not be fulfilled if symptoms were serious. This concern resulted in not wanting the symptoms to be serious, which supported the need of these women to maintain control over their symptoms.

Significance for Nursing

The literature review that reveals somatic awareness and daily hassles may influence treatment seeking behavior among women with AMI. Though “somatic awareness” was conceptually defined somewhat differently in the studies, i.e., neuroticism (Rosenfield, 2004) or symptom awareness (Dempsey et al., 1995; Schoenberg et al., 2003), it was clear that the broad concept of “awareness of bodily states” was directly related to individual response to symptoms of AMI in women. Social obligations, commitments and family responsibilities were also identified as common themes (Dempsey et al., 1995; Dracup & Moser, 1997; Schoenberg et al., 2003; Moser, McKinley, & Dracup et al., 2005). Collectively they were cited as prolonging a women’s decision in seeking treatment for AMI. The lack of association with “only” sociodemographic and clinical variables indicates the importance of including cognitive, emotional, and cultural factors to explain delay. Leventhal’s model can be useful by indicating sociodemographic, family, social, cognitive and emotional factors that contribute to mental

representations of illness (Dracup et al., 2003; Dracup, Riegel & Doering 2006). Symptoms of AMI thrust women into the role of making decisions about how to interpret and act upon the physical changes that signify an evolving AMI. Knowledge about cardiac disease and symptoms is important, but of itself is not sufficient to change behavior. Women need to be educated about the competing social demands which may influence their decision making related to time to treatment for their symptoms (Dempsey et al., 1995; Moser, McKinley, & Dracup, 2005; Dracup, Riegel, & Doering, 2006).

Women need to develop an awareness of their tendency to deny the serious nature of their symptoms; as well as their desire to want to delay a decision to seek help out of concern for others or because of social commitments. Recognition of these thoughts and feelings as normal may facilitate the identification of them when they occur during the experience of AMI symptoms. Once identified as possible “barriers” to seeking treatment for symptoms of MI, women can then recognize the need to respond in a timely manner. Prehospital delay is a critical factor for patient survival. The unparalleled focus of cardiac healthcare teams is to reduce the delay in making a decision to seek treatment for all individuals (Lefler & Bondy, 2004).

Various community campaign methods and media strategies have met with disappointing results. None of these programs specifically targeted women (Caldwell & Miakowski, 2002). The last of these was a large, community based randomized trial, the Rapid Early Action for Coronary Treatment (REACT). In this trial, a community education campaign did not affect prehospital delay times significantly, although ambulance use was increased secondary to the campaign (Luepker et al., 2000).

The literature review continues to indicate the complexity of the psychosocial processes by which women with AMI seek treatment. Possible predictors related to their decision making

process, somatic awareness and daily hassles, have been individually identified, but only sporadically linked together. One nursing intervention model to reduce prehospital delay utilizing the Leventhal self-regulatory model of illness makes reference to awareness of symptoms, but does not address the women's interpretation of "daily hassles", and how they may impact decision making (Dracup, Riegel, & Doering, 2006). Another study by Quinn (2005) found no significant differences in delay times based on whether the patient was alone or with others when symptoms began. Similarly, in this study, patient delay time did not significantly differ depending on the response of others. Hence, this reinforces the importance of the patient's own view of her symptoms and current daily happenings which surround her at the time at the time of AMI. Therefore, further research is needed to examine the impact of these variables, somatic awareness and daily hassles, in the every day lives of women as they relate to their treatment decisions involving AMI. Only then will health care professionals know "how best" to intervene through educational and support program.

Chapter 2

Conceptual Framework

The Leventhal self-regulatory model of illness behavior (Leventhal & Cameron, 1987; Leventhal, Nerenz, & Steele, 1984) is often used to characterize delay in care seeking behaviors and it has served as the a foundation for interventions in Western cultures (Dracup, 1997; Dracup & Moser, 1997; Leventhal, Safer & Panagis, 1983). According to Leventhal & Diefenbach (1992), an individual's knowledge about illness is organized and clustered in a complex memory structure or "representation" that is constantly being updated. These representations guide behaviors the individual chooses in the face of symptoms and in the appraisal that follows (Dempsey, Dracup & Moser, 1995).

The unique contribution of this model is its explanatory power in the face of a symptom or constellation of symptoms of unknown causes. For example, when a person experiences intermittent chest pain he may hypothesize an explanation (e.g. muscle pain from overexertion) and initiate behavior appropriate to the hypothesis. Failure to eradicate the symptom by resting or ingestion of muscle relaxants will cause him to reappraise. This scenario of symptom attribution in the context of a hierarchical order is described by many patients who experience symptoms of acute myocardial infarction (AMI) (Dracup et al., 1995).

According to this model, beliefs about health are hierarchical; based on previous experiences with illnesses and other information provided in the social environment. Internal and environmental factors such as sociodemographic and clinical characteristics and cultural roles and expectations affect how one responds to a health threat. Environmental stimuli such as

family and coworkers can also affect care-seeking behaviors, along with friends, health care providers, and the media. Therefore Leventhal's model can be useful by identifying those factors which contribute to mental representations of illness and subsequent responses to that illness. Education and counseling programs are more effective if social and cultural factors influencing patients' first responses to symptoms are considered (Dracup et al., 2003).

An individual's knowledge and belief about the symptoms, labels, causes and consequences, and duration of illness can have a profound effect on the use of preventative health measures. Self regulation principles in health education have been indicated essential in maintaining long-term preventative health care behavior (Leventhal et al., 1983). Without a doubt, the main tenets of this theory fall nicely into the realm of a variety of clinical areas of study interest most appropriate for nursing.

Leventhal's Theory: A Dual Process Model

Leventhal's Theory of self regulation (Appendix C) is a blend of both The Health Belief Model and The Fear Model (Appendix A & B). This "new" Dual Process Model (as first defined by Leventhal) integrates the intensive and directive components into a framework for a theory of self regulation. The Health Belief Model and Roger's (1975) more recent variation of it, the Protection Motivation Theory, emphasize the directive aspect of motivation. The variables which direct health actions in this model are (1) the individual's perception of his vulnerability to a health threat; (2) the perception of the severity of the threat; (3) the perception of benefits versus the perception of costs from taking the recommended action; and (4) cues to action, such as appearance of a threatening symptom or a reminder in the external environment (Leventhal, Safer & Panagis, 1983). In contrast, The Fear Drive Model assumes that when a health communication stimulates fear, the fear will provoke the rehearsal of thoughts and performances

of recommended actions so as to reduce the fear. Information about a health danger is by itself insufficient to motivate actual changes in behavior. A fear-induced emotional drive is essential (Higbee, 1969).

The Health Belief and Fear Drive Models stimulated the design of health communications that induced feelings of vulnerability to potentially serious threats. The expectation was that feelings of vulnerability and fear would motivate action in otherwise passive subjects. The Dual Process Model broke with this view by assuming that people actively extract information from their environments. Motivation therefore was self generated. It emerged from the person's representation of the health threat, the possibilities for coping, and the relationship between coping and threat. In practice, this approach to motivation means that one must learn how individuals extract and remember information relevant to conceptions of their body and to their method of planning and coping. As a consequence, one must also attend to the fit between health messages and the recipient's underlying beliefs. Health messages are understood, organized, and remembered in terms of these beliefs (Leventhal et al., 1984).

The Dual Process Model was a first step toward the integration of directive and intensive models such as the Health Belief Model and The Fear Drive Model. This model postulated that the individual reacts both cognitively and emotionally to health communications which arouse fear. Two separate and partially independent (or parallel) information-processing systems produce these reactions; hence, Leventhal originally called this a Parallel Response Model (Leventhal, 1970). The cognitive component has much the same function as the Health Belief Model; it is intended to predict the direction of health and illness behavior. It differs sharply from that model, however, as it formulates cognitive processes from the patient's point of view and not from the perspective of the investigator (Leventhal et al., 1984). This new model

eventually became known as Leventhal's self regulatory model of illness (Leventhal & Cameron, 1987).

Four Basic Assumptions

Active Processing

The assumption is made that behavior and experience are constructed by an underlying information processing system that integrates current stimulus information with either innate and acquired codes or memories. Our experience of the world and its objects, our emotional reactions to them, and our coping reactions are created on a moment-by-moment basis by this processing system. The processing system organizes experience and behavior, therefore, in an episodic fashion (Leventhal et al., 1984; Leventhal & Cameron, 1987).

Parallel Processing

The second assumption is that the processing system is divided into two parallel pathways. One involves the creation of an objective view or representation of an illness threat and development of a coping plan for managing the threat. A second pathway involves the creation of an emotional response to the problem and the development of a coping plan for management of the emotion. The two pathways interact as the individual adapts to each specific situation. The two pathways interact as the individual adapts to each specific situation, with the interactions occurring both consciously and preconsciously (Leventhal et al., 1984; Leventhal & Cameron, 1987).

Stages in Processing

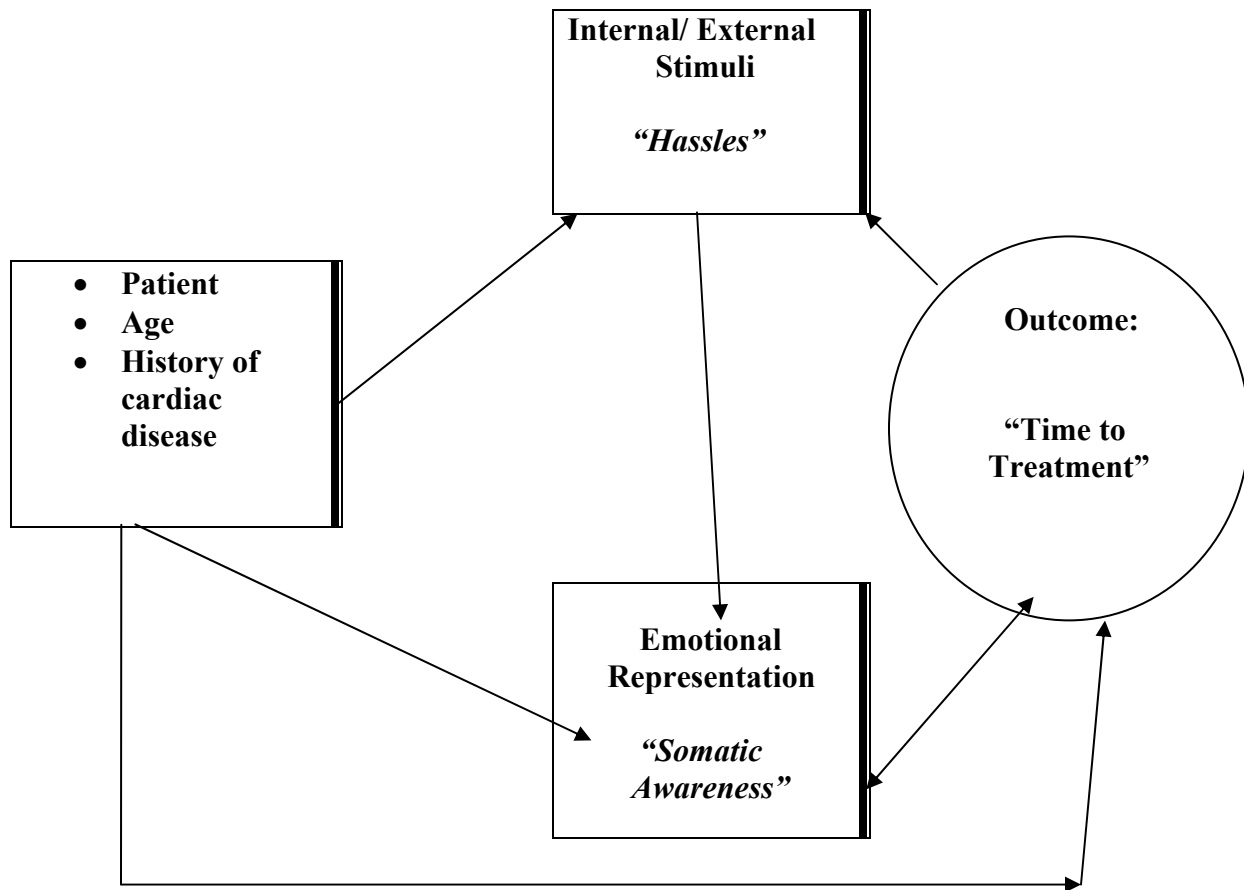
The processing system operates in stages. The first stage is created by the *representation* of the problem and the emotion accompanying it. The second stage involves the development and execution of response plans for coping with both the problem and the emotion. This *coping*

stage is steered by the representation; i.e., the definition of the problem sets goals for coping. The third stage is one of *appraisal* to determine whether the coping response has moved the individual closer to or further from the goals specified by the representation. Information from the appraisal stage feeds back into the prior stages and can alter the individual's coping strategies and/or the way the problem is defined or represented. The system is recursive. Each adaptive episode alters the underlying memory structures and thereby changes subsequent adaptive episodes (Leventhal et al., 1984; Leventhal & Cameron, 1987).

Hierarchical Processing

The fourth and final assumption is that the processing system is hierarchically organized. It operates at both the concrete and abstract level. Thus behavioral episodes (e.g., coping with a headache) involve both concrete features (the head pains) and abstract features (the idea that one has had a stroke) in the representation, coping, and appraisal stages. The hierarchical aspect of the system creates the possibility of consistency and/or inconsistency between concrete and abstract levels. For example, a patient may adopt a medical treatment, be told it has made a significant improvement in his condition (e.g., thrombolytic therapy for AMI) and yet feel worse. Post AMI a patient may feel nauseated, tired, and distressed during and after the treatment began. In this instance, the abstract conceptual information that he is getting better would be inconsistent with his concrete experience. Many of the discrepancies that arise between problem-based representations are likely to be heavily influenced by abstract information. Emotional response, on the other hand, seems more dependent on concrete processing or the automatic (nonconscious) combination of stimuli with perceptual memories.

Figure 1: Leventhal’s Theory : Women with AMI



Antecedents

Leventhal’s Theory has been “re-tooled” many times since first appearing in the literature in the early 1980’s. One interesting development has been the change in what Leventhal first identified as an “antecedent”, which later transformed to be included within the actual framework of the model itself. Originally Leventhal identified a “preattentive stage” experienced by the person in which perceptions (of the illness) and integration of perceptions with memory was experienced *prior to* the **representation** stage of the problem. Over time this has changed to a new “concept” within the model, namely, “internal and external environment stimuli”. Interpretation of symptoms could then be more inclusive of a variety of potential

influences; neither of which neither the Health Belief Model nor the Fear Dive Model could offer an explanation (Leventhal et al., 1984; Leventhal & Cameron, 1987). Internal and environmental factors such as sociodemographic and clinical characteristics and cultural roles and expectations affect how one responds to a health threat. Environmental stimuli such as family and coworkers can also affect care-seeking behavior, along with friends, health care providers, and the media. Researchers have identified this concept of internal and external environment stimuli as a “strong point” for utilization of this model when attempting to explain treatment seeking behavior. From a nursing perspective this theory allowed for cultural influences, as well as social and family influences which contribute to the mental representations of illness and subsequent responses to that illness. (Dracup et al., 2003; Dracup & Moser 1997).

Theory Overview

To provide a clearer understanding of the individual concepts within this model, a general overview of the interconnections within the framework itself is presented. Though mentioned previously, the following explanation of the model will place emphasis on the complexity of the intricate feedback loop system and is therefore worth highlighting for the reader.

The self-regulatory model proposes that 3 stages regulate behavior seen in response to the health threat, potential causes, and possible consequences of the threat. The second stage is the action plan or coping stage in which a plan of action is formulated and initiated. The motivation to engage in coping actions is self-generated in response to the individual’s representation of the health threat, the possibilities for coping, and the relationship between coping and threat. In the third stage the individual appraises the success of his or her coping actions, and if it is perceived that there is not enough progress, the representation of the problem (objective and perceptual) and the plans to cope with are reassessed and may be changed. All three stages are influenced by

the individual's abstract knowledge and previous relevant experiences. Leventhal calls the former *semantic memory* and the latter *episodic memory*. (Leventhal & Mosbach, 1983; Leventhal & Cameron, 1987).

Coping plans are also generated to control the emotional experiences provoked at any stage of the response to the illness threat. Thus, there is a "*danger control process*" for the objectively represented health threat and an "*emotion control process*" for the subjectively represented emotional response to the health threat. The processes of coping with emotional reactions may be parallel to, but partially independent of the cognitive processes of coping with the health threat. At the cognitive level, the representation of the health threat lies on objective knowledge, such as labels for illness, and the coping action is primarily one that is controlled. Perception of health threat relies on subjective knowledge acquired through past experiences, such as prior illnesses, and the coping response is primarily automatic. The controlled and automatic coping processes may interact in ways that are mutually facilitating or mutually interfering (Leventhal & Mosbach, 1983; Leventhal & Cameron, 1987).

The construction of the mental representation of the health threat, the generation of a coping plan to deal with it, the activation of criteria for appraising outcomes reflect the constant interaction of these environmental and perceptual stimuli with the individual's memory system. Thus, different people will construct different mental representations of the same illness threat and may see different action plans as appropriate for the containment of the threat. Indeed, the same person may perceive the same type of illness in different ways at different times, and therefore choose alternate ways of coping with it and use different criteria for appraising the adequacy of the representation and coping plans during these episodes (Leventhal & Cameron, 1987).

Concepts

Each concept within this model is identified on both a perceptual and cognitive level (Leventhal, Safer, Panagis, 1983). Though extensive attempts are made at clear definition of concepts, attempts to *operationalize* these concepts, as Leventhal and colleagues intended, are difficult. Leventhal and colleagues agree that a “deficiency” in the model itself is the absence of operations to assess specific constructs; and the lack of standardized “instruments” is a barrier to the utilization (Leventhal & Mosbach, 1983). Yet when used in a nursing context, there a proponent number of studies in the area of “time to treatment for symptoms of acute myocardial infarction” that are able to find adequate instruments in which to measure these concepts. (Dracup et al., 2003; McKinley et al., 2000; Dempsey et al., 1995).

Stimulus

On a perceptual level, it is the symptoms which the individual experiences.

On a cognitive level, it is the health messages which the individual receives for a variety of sources (Leventhal & Cameron, 1987).

Representation

Identity, cause(s), consequences and duration (time line) are attributes of illness representation. They are a loosely organized set that defines the “objective” problem or danger. They define goals or targets for coping, and coping is appraised or evaluated against these targets (Leventhal, Safer & Panagis, 1983).

An individual considers several possible labels for his symptoms as he tries to determine the *identity* of his problem. He also considers several *causes*; different ones to different identities. Also, the individual experiences images and thoughts about *consequences* of his condition. If symptoms are ignored and the individual proceeds along usual activities, he clearly

will be acting as though he expected their *duration* to be short (Leventhal, Safer & Panagis, 1983).

Sources of information for illness representation can be from the generalized pool of illness information in our culture, social communication or information obtained in direct contact with other people (particularly practitioners), and third is the individual's personal illness experience (Leventhal, Safer & Panagis, 1983).

Coping

On a perceptual level, skills or behaviors which are primarily automatic in occurrence. On a cognitive level, skills or behaviors which are primarily controlled by final interpretation of the health messages received (Leventhal, Safer & Panagis, 1983).

Appraisal

On the perceptual level, evaluation of emotion in response to a particular health threat. On the cognitive level, evaluation of the individual's response to environmental messages (Leventhal, Safer & Panagis, 1983).

Episodic Memory

They are defined as autobiographical memories of the individual's past experiences. Episodic memories of prior illness may lead to expectations about the current health problem that reflect attributes of one's prior illness episodes (Leventhal, Safer & Panagis, 1983). For example, a woman who has experienced symptoms of AMI in the past may behave differently than one who has not experienced such symptoms.

Semantic Memory

They are defined as memories which reflect one's general, abstract, or conceptual knowledge about concepts (Leventhal, Safer & Panagis., 1983).

Research Pertinent to Theory

There have been numerous studies using the framework of Leventhal's Theory dealing with delay in treatment for symptoms of AMI (Dempsey et al., 1995; Dracup et al., 1995; Dracup et al., 2003; Dracup, Riegel, & Doering, 2006). Meischke, Eisenberg, Schaffer, Damon, Larsen & Henwood, (1995) used the self regulation model of illness to explain their findings about patients' decision to call the emergency medical system (EMS) in a sample of 2,105 patients admitted to the hospital with symptoms of AMI. They found that the model provided a plausible framework for understanding the processes involved in the decision to use the EMS. Most patients (76%) engaged in less deliberative coping strategies initially, such as resting or ignoring symptoms in hope that they would go away. When these strategies did not work, their appraisal led them to update their representation and consider the possibility of a cardiac cause. Patients were more likely to use the EMS if their representation of the threat included a sense of vulnerability to experiencing AMI symptoms as determined by semantic and episodic memories (McKinley, Moser & Dracup, 2000).

Researchers who have documented a difference in delay times between men and women note that women delay longer (Caldwell & Miakowski, 2000; Murphy et al., 2000). Several studies have identified that "not wanting to trouble others" contributed to delay for women, but was not a factor for men. Women's perception of the importance of attending to their many competing social demand to the exclusion attention to their own health may have contributed to the decision to delay (Dempsey, et al., 1995; Moser et al., 2005; Schoenberg, Amey, Stoller & Muldoon, 2003).

Research into patients' responses to MI symptoms can be better understood in the context of Leventhal's self regulatory of illness behavior. For example, cognitive representation of the

problem as a possible AMI may be delayed when symptoms are intermittent, not considered serious, or not attributed to the heart. Even when there is cognitive representation of the symptoms as a serious health threat related to the heart, the emotional concern about troubling others, embarrassment, or fear of the consequences of seeking help may lead to an initial decision not to seek medical attention, which is subsequently appraised as an unsuccessful action plan. The plan is revised and treatment is sought (McKinley et al., 2000).

This framework also works well in further examination of the variable: “somatic awareness”. Leventhal and colleagues posited that many potentially uncomfortable events can be processed for both their concrete, sensory-informational meaning and for their emotional or threatening value (Leventhal & Mosbach, 1983).

Theoretical Utility for Guiding Research

The Leventhal self-regulatory model of illness behavior, which has been used to study treatment seeking behavior in response to symptoms, provides a coherent framework for interpreting the problem of time to treatment for symptoms of AMI (Dempsey et al., 1995; Dracup et al., 1995; McKinley et al., 2000). Three stages are delineated in the model. First, the health threat is assessed and labeled. Thus, the first stage is triggered by a stimulus (such as chest pain or shortness of breath), and is affected by a patient’s subjective experience, a sense of vulnerability to illness and general knowledge of the disease and illness. This is the representation stage (Dempsey et al., 1995; Dracup et al., 1995). The second stage is the coping stage in which a plan is initiated. The action plan may include a decision to wait and see what happens or a decision to seek immediate help by calling the emergency medical system or driving to the hospital. The third stage is the evaluation phase in which the individual reassesses the representation and success of the coping plan. All three stages are influenced by the

individual's abstract knowledge (for example, about heart disease and its risk factors) and previous relevant experiences. Leventhal calls the former semantic memory and the latter episodic memory (Dempsey et al., 1995; McKinley et al., 2000).

The broad concept of "awareness of bodily states" appears to be directly related to individual response to symptoms of AMI in women (Dempsey et al., 1995; Rosenfield, 2004; Schoenberg et al., 2003). Social obligations, commitments, family responsibilities were also identified as common themes (Dempsey et al., 1995; Moser, McKinley, Dracup, & Chung 2005; Schoenberg et al., 2003). Collectively they are cited as prolonging a women's decision in seeking treatment for AMI. The lack of association with "only" socio-demographic and clinical variables indicates the importance of including cognitive, emotional, cultural factors to explain delay. Leventhal's model can be useful by indicating socio-demographic, family, cognitive and emotional factors that contribute to mental representations of illness (Dracup et al., 2003) (Appendix D). Symptoms of AMI thrust women into the role of making decisions about how to interpret and act upon the physical changes that signify an evolving AMI. Knowledge about cardiac disease is important, but of itself is not sufficient enough to change behavior (Dempsey et al., 1995).

Research Questions

1. Is there a relationship between somatic awareness and daily hassles as they relate to time to seek treatment in women with AMI?
2. What is the influence of age and prior cardiac events on scores of the Daily Hassle and Uplift Scale (DHUS) and Modified Somatic Perception Questionnaire (MSPQ) as they relate to time to treatment?

3. Is there a difference in scores on the DHUS and MSPQ in women with AMI who present for treatment < 6 hours and > 6 hours?

Research Hypotheses

1. Women with increased somatic awareness will have a decreased delay time to treatment for symptoms of AMI.

2. Women with increased daily hassles will have increased delay time to treatment for symptoms of AMI.

3. Daily hassles are a moderating factor in women with increased somatic awareness (resultant increased delay time to treatment for symptoms of AMI).

4. Women with increased somatic awareness and increased daily hassles will have an increased delay time to treatment for symptoms of AMI.

Specific Aims

1. Examine the relationship of somatic awareness and daily hassles as they relate to time to seek treatment in women with AMI. The relationship between somatic awareness, daily hassles, and time to treatment in women with AMI will be explored using correlation statistics (Pearson Product Moment Correlation).

(2) Examine the influence of age and prior cardiac events on scores of the Revised Daily Hassles & Uplift Scale (DHUS) and Modified Somatic Perception Questionnaire (MSPQ) as they relate to time to treatment. Multiple Regression will be employed to explain and predict time to treatment.

(3) Compare the differences in the scores on the DHUS and MSPQ in women with AMI who present for treatment < 6 hours and > 6 hours. Two independent t tests will be calculated to detect differences on scores of DHS and MSPQ in women with AMI.

Operational Definitions

Somatic Awareness

Somatic Awareness is the perception of bodily activity and psychological functioning; the degree of sensitization to physiological events or bodily sensations (Main, 1983). It is hypothesized that somatic awareness plays a role in the recognition of symptoms of myocardial ischemia. Individual variability in levels of somatic awareness may affect the experience and interpretation of chest discomfort and thus have an impact on decisions made by patients to seek health care. Patient's descriptions of their symptoms also affect the decisions made by health professionals about diagnostic treatment and testing (Cioffi, 1991; Warner, 1995).

Somatic Awareness will be measured by the Modified Somatic Perception Questionnaire (MSPQ) (Appendix I). The MSPQ is a 13 item instrument originally developed for use with the patients with chronic back problems. The scale is intended as a measure of heightened body awareness and sensitization to all physiological events. The questionnaire has been shown to have an internal consistency of 0.77tau (Main, 1983). The scale has been used successfully to examine somatic awareness in women with coronary artery disease who experience chest pain (Warner, 1995) as well as showing direct correlation between somatic awareness and angiographic findings in women with CAD (Frazure-Smith, 1987). Lower scores on the MSPQ indicating lower somatic awareness scores on the MSPQ have been significantly correlated with longer delays in seeking health care after onset of myocardial symptoms (Kenyon et al., 1991).

For each of the 13 items the patient indicates how she felt during the week prior to hospitalization; selecting one of four likert-type choices: "Not at all", "A little/slightly", "A great deal/quite a bit", "Extremely/could not have been worse". Score range from 0-3. Higher scores

on the MSPQ indicate higher levels of somatic awareness (Warner, 1985). The instrument measures presence/absence, frequency and intensity.

Daily Hassles

Daily Hassles are irritants that can range from minor annoyances to fairly major pressures, problems or difficulties. They can occur rarely or many times per day. An example of a daily hassle is “misplacing or losing things”(Kanner et al., 1981). Patients with AMI delay in seeking treatment in part due to the failure to disregard their “social roles”. Women are generally responsible for domestic work which they cannot relinquish to others. This serves as an area of stress and often limits formal care seeking. The well being of others hence takes precedence over ones own health concerns (Huddleston, 1996, Rankin, 1997; Schoenberg et al., 2003).

Daily hassles will be measured by a thoroughly revised version of the Daily Hassles and Uplifts Scale used in prior research (DeLongis, Coyne, Dakrof, Folkman & Lazarus, 1982; Kanner, Coyne, Schaefer, & Lazarus, 1981). In the revised version, redundant items and items and words that suggested psychological and somatic symptoms were eliminated. Further, the format was changed so that subjects could rate each item on how much of a hassle and/or uplift it was for them that day on a 4-point scale ranging from 0 (none or not applicable) to 3 (a great deal). The revised scale consists of 53 items (DeLongis, Folkman, & Lazarus, 1988). Evidence of validity is noted in multiple published studies demonstrating a relationship between daily hassles and coping mechanism to illness (Nyklicek, Vingerhoets, Van Heck & VanLimpt, 1998; Twisk, Snel, Kemper & van Mechelen, 1999; Twisk, Snel, de Vente, Kemper, van, Mechelen, 2000). In the Twisk study (1999) decreased daily hassles were shown to have a positive effect on lipoprotein levels.

Time to Treatment

Time to treatment will be defined as the amount of time between the first awareness of symptoms and the arrival of the individual to the hospital emergency room. The question will be phrased open ended. Blocks of time will be identified in the data analysis phase of presentation.

There are three phases in the delay to presentation. First is the patient/bystander recognition and action phase which encompasses the interval from symptom onset to accessing the emergency response system (EMS) or independent travel to the hospital. There is also a prehospital phase (accessing EMS or independent arrival at the hospital) or the hospital phase (patient's arrival to definitive treatment). Studies have shown that delays in the prehospital phase and hospital phase compose only a small fraction of total delay time (Dracup et al., 1995; McKinley et al., 2000). Therefore this study will focus on the patient/bystander recognition phase. A threat to the study relating to recording time will be the reliability of the women to remember "exact minutes" from the start of symptom perception to arrival at the hospital. This will also be a threat to the validity of the study. Attempts to lessen this threat will be made by measuring time in "blocks", therefore eliminating the need for the women to try and recall "exact minutes".

Chapter 3

Research Methods

Introduction

This descriptive study was employed to examine the relationship of somatic awareness and daily hassles as they relate to time to seek treatment in women with AMI. The independent variables somatic awareness and daily hassles were examined as they related to the dependent variable, time to treatment for women with AMI. The predictive value of the independent variable daily hassles was examined as a moderating factor in relationship to somatic awareness through path analysis.

Sample

The target population consisted of women hospitalized with AMI. Quota sampling was employed. Quota sampling uses a convenience sampling technique with an added feature, a strategy to ensure the inclusion of subject types that are likely to be underrepresented in the convenience sample (Burns & Grove, 2001). The researcher secured a quota sample whereby 50% of the women were greater than 65 years old and 50% were less than 65 years old.

The sample was obtained randomly; thereby lessening opportunity for systematic bias to occur by chance. Previous studies dealing with women with coronary artery disease (CAD) and behavior related to treatment for symptoms of AMI indicated there was a difference in response for older women (versus younger women) with response times (Dempsey et al., 1995; Caldwell & Miakowski, 2000).

Eligibility Criteria

Participants were eligible for participation in this study if they met the following criteria: a physician confirmed diagnosis of AMI, ability to speak, read and understand English, hemodynamic stability as determined by an ischemic pain free status for at least 24 hours, and approval of the cardiologist taking care of the patient. A form letter was sent out to all cardiologists who admit patients to the facility cited in the study seeking written approval of inclusion of their patients. Exclusion criteria specified situations in which a patient was already admitted to hospital when AMI occurred, terminal prognosis, major psychiatric illness (as determined by DSM IV) or significant cognitive impairment (as indicated by diminished level of consciousness, such as determined through the Mini Mental Status Examination or documented psychiatric evaluation).

Diagnosis of AMI was established by using the Consensus Document of the American Cardiology Committee of Redefinition of MI, including acute coronary syndrome, non ST elevation myocardial infarction, and ST elevation myocardial infarction (Alpert, Thygesen, Antman & Bassand, 2000). These criteria required the typical rise and fall of biochemical markers (troponin and or CPK/MB) associated with myocardial necrosis, with at least one of the following indications: ischemic symptoms, development of pathological Q waves on electrocardiogram, electrographic changes indicative of ischemia,(ST depression or elevation) or coronary artery intervention.

Power

The effect size will be medium. Several studies examining these psychosocial variables have had either small or medium effect sizes (Frazure-Smith, 1987; Warner, 1995). In the Warner (1995) study, a sample of 60 women was calculated as necessary to have 90% power to detect

the conservatively estimated effect size (25% from Frazure-Smith) of the independent variable of somatic awareness in the logistic regression. Statistical significance was found before obtaining 60 subjects, and enrollment was stopped.

This study will have a desired power of 0.8 and level of significance of .05. According to Cohen (1992) the number of participants required to detect a medium effect size at power = .80, for alpha .05 at multiple regression level with 3 independent variables was 76.

Setting

The primary setting for this study was The Miriam Hospital (TMH) in Providence, R.I. The Miriam Hospital is a private 247 bed not-for profit, tertiary acute care general hospital located in Providence, Rhode Island. The hospital provides a full range of cardiac services and cares for 10,000 cardiac patients on a yearly basis. In fiscal year 2005 1,369 patients were admitted to THM with diagnosis of AMI. The hospital also has a “Women’s Cardiac Center” which offers complete diagnostic and clinical cardiology services to women. The center receives referrals from primary care physicians and cardiologists within Rhode Island and south eastern Massachusetts.

Data Collection Protocol

The nursing staff and nurse managers of the cardiac step-down units at THM were oriented regarding the purpose of the study and packet distribution to the participants. Women were initially approached by the nursing staff regarding their level of interest in participation in the study. If they agreed to participate they were either approached by the researcher or given a packet to complete by the nurse. Each packet contained two copies of the informed consent, the demographic collection form, the Revised Daily Hassle and Uplift Scale (DHUS) and Modified Somatic Perception Questionnaire (MSPQ), and a self sealing envelope. Women were told to

keep a copy of the informed consent for themselves. The researcher's contact information was provided in the packet, i.e., telephone and beeper number, so as to answer any questions the women may have regarding the study in the researcher's absence. Once the women completed the demographic form, DHUS and MSPQ, they placed the forms into the provided self sealing envelope. The nurse or researcher then placed the envelope into a lock box located on the unit.

All women with AMI, who met the criteria, were invited to participate. Attempts were made to approach the participant within a 72 hour time frame post admission with AMI. Administration of the instruments was given at a time when the participant was least fatigued. Participant burden was always the main consideration. Data was collected on both weekdays and weekends, including evening hours. The variation in collection hours allowed for more timely data collection. AMI patients frequently engage in various tests during the weekdays (echocardiograms or electrocardiograms, etc.) that would prohibit them from completing the instruments in one sitting.

The demographic collection tool was completed by the participant (Appendix E). Information collected included: age, education, employment status, household income, marital status, race, caregiver status, prior heart history (if yes, treatment), diabetes (if yes, treatment), smoking history, family history, cholesterol status, and wait time for treatment of symptoms.

Study Variables & Measurements

Somatic Awareness

Somatic Awareness is the perception of bodily activity and psychological functioning; the degree of sensitization to physiological events or bodily sensations (Main, 1983). It was hypothesized that somatic awareness plays a role in the recognition of symptoms of myocardial ischemia.

Somatic Awareness was measured by the Modified Somatic Perception Questionnaire (MSPQ). The MSPQ is a 13 item instrument originally developed for use with patients who had chronic back problems. The scale is intended as a measure of heightened body awareness and sensitization to all physiological events. The instrument has been shown to have an internal consistency of 0.77 tau (Main, 1983). The alpha coefficient was 0.80 in previous studies (Frazure-Smith, 1987; Warner, 1995). The scale has been used successfully to examine somatic awareness in women with coronary artery disease who experience chest pain (Warner, 1995) as well as showing direct correlation between somatic awareness and angiographic findings in women with CAD (Frazure-Smith, 1987). Lower scores on the MSPQ indicating lower somatic awareness also have been significantly correlated with longer delays in seeking health care after onset of myocardial symptoms (Kenyon et al., 1991).

For each of the 13 items, patients indicated how they felt during the week prior to hospitalization; selecting one of four likert-type choices: “Not at all”, “A little/slightly”, “A great deal/quite a bit”, “Extremely/could not have been worse”. Score range from 0-3. A total MSPQ score was calculated by adding individual scores on each of the 13 items and dividing by 13. Higher scores on the MSPQ indicate higher levels of somatic awareness (Warner, 1985).

Daily Hassles

Daily Hassles are irritants that can range from minor annoyances to fairly major pressures, problems or difficulties. Daily hassles can occur rarely or many times. An example of a daily hassle is “misplacing or losing things”(Kanner et al., 1981).

Daily hassles was measured by the thoroughly revised version of the Daily Hassles and Uplifts Scale which has been used in prior research (DeLongis, Coyne, Dakof, Folkman & Lazarus, 1982; Kanner, Coyne, Schafer, & Lazarus, 1981). In the revised version, redundant

items and words that suggested psychological and somatic symptoms were eliminated. Further, the format was changed so that subjects could rate each item on how much of a hassle and/or uplift it was for them that day on a 4-point scale ranging from 0 (none or not applicable) to 3 (a great deal). The revised scale consists of 53 items (DeLongis, Folkman, & Lazarus, 1988).

Evidence of validity is noted in multiple published studies as well as demonstrating a relationship between daily hassles and coping mechanism to illness (Nyklicek, Vingerhoets, Van Heck & Van Limpt, 1998; Twisk, Snel, Kemper & van Mechelen, 1999; Twisk, Snel, de Vente, Kemper, & van Mechelen, 2000). In the Twisk study (1999) decreased daily hassles were shown to have a positive effect on lipoprotein levels.

Since hassles scores reflect states, which are changeable psychological stress responses, the item *stability* may be more appropriate than the traditional psychometric term *reliability*. To determine the stability of the hassles scores, scores from each successive pair of time periods in the Kanner, Coyne, Schaefer & Lazarus (1981) study were correlated and then averaged ($r = .79$), suggesting that hassles scores have been both trait and state characteristics, each reflecting empirically and theoretically a different side of the same coin. The average of the correlations between monthly frequency scores ($r = .79$) was significantly higher than the average between monthly severity scores ($r = .48$). This difference may have resulted from the fact that, although overall hassles frequency showed considerable stability over time, participants may not have endorsed the same hassle month to month.

A total hassles score was calculated by adding individual scores on each of the 53 item hassles and dividing by 53. Higher scores on the total hassle scale indicate a higher experiential level of hassles in daily life.

Time to Treatment

Time to treatment was defined as the amount of time (measured either as less than 1 hour or in successive 3 hour blocks of time) between the first awareness of symptoms and the arrival of the individual to the hospital emergency room, as defined by self-report.

There are two phases in what is considered to be this “delay to presentation”. First, patient/bystander recognition and action phase which encompasses the interval from symptom onset to accessing the emergency response system (EMS) or independent travel to the hospital. Second, a prehospital phase (accessing EMS or independent arrival at the hospital) or the hospital phase (patient’s arrival to definitive treatment). Studies have shown that delays in the prehospital phase and hospital phase compose only a small fraction of total delay time (Dracup et al., 1995; McKinley et al., 2000). Therefore this study will focus on the patient/bystander recognition phase. A threat to the study relating to recording time will be the reliability of the women to remember “exact minutes” from the start of symptom perception to arrival at the hospital. This will also be a threat to the validity of the study, therefore, the demographic tool will measure time in “blocks of time”, versus “exact minutes”.

Data Management

Each participant was assigned a unique study number for identification throughout the study. A record of participants and their identification numbers were maintained in a log book until completion of data collection. Data was kept in a locked cabinet at the researcher’s office. The researcher obtained informed consent, demographic data, completed MSPQ and DHUS.

Data was reviewed for completeness and accuracy and entered into Statistical Package for the Social Sciences (SPSS), version 14.0.

Data Analysis Plans

Descriptive statistics were completed for all study variables. Multiple regression analysis will be the statistical test used to examine the study hypotheses. The power of the proposed study is .80 for all research hypotheses. A medium effect size was used in power calculations to ensure clinical significance. Scatter plots and histograms were used to detect outliers and to see if data meet the assumptions of the statistical tests. Particular interest is the proximity between the independent variables of daily hassles and somatic awareness and the dependent variable of treatment seeking behavior among women with AMI. The researcher also examined the relationship of age with the other main independent variables. Prior research has shown that women with CAD who are older than 65 years have a number of co-morbidities that adversely affect their response behavior to symptoms of AMI (Dempsey et al., 1995). Data sheets were examined for missing data and patterns which might indicate entry of false data entry on the part of the participant or the researcher. Outliers were identified by examining the mean scores and scatter plots.

Research Questions

1. Is there a relationship between somatic awareness and daily hassles as they relate to time to seek treatment in women with AMI.

The relationship between somatic awareness, daily hassles and time to treatment in women with AMI were explored using correlation statistics (Pearson Product Moment Correlation).

2. What is the influence of age and prior cardiac events on scores of the Revised Daily Hassle & Uplift Scale (DHUS) and Modified Somatic Perception Questionnaire (MSPQ) as they relate to time to treatment.

Multiple Regression was employed to explain and predict time to treatment.

3. Is there a difference in scores on the DHUS and MSPQ in women with AMI who present for treatment < 6 hours and > 6 hours.

Two independent T tests were calculated to detect differences on scores of the DHS & MSPQ in women.

Correlations between somatic awareness, daily hassles, age and time to treatment were calculated. Mean scores and standard deviation for each of the individual items as well as the overall score for each of the variables were summarized and reported in table format. The mean scores for the overall variables were reported within the study. A correlation matrix will be shown to identify relationships among the variables.

Research Hypotheses

1. Women with increased somatic awareness will have a decreased delay time to treatment for symptoms of AMI.

2. Women with increased daily hassles will have increased delay time to treatment for symptoms of AMI.

3. Daily Hassles are a moderating factor in women with increased somatic awareness (resultant increased delay time to treatment for symptoms of AMI).

4. Women with increased somatic awareness and increased daily hassles will have an increased delay time to treatment for symptoms of AMI.

Multiple regression analysis was employed to test the study hypotheses.

Plan for Description of each Variable & Level of Measurement

The independent variable somatic awareness was measured by the Modified Somatic Perception Questionnaire (MSPQ). The independent variable daily hassles were measured by

The Daily Hassles Scale. The independent variable of age was measured in number of years. The measurement of *time* to treatment of AMI is interval in nature.

Limitations of Study

A major limitation of the study was administration of the instruments in an acute care environment. Post admission for AMI it is routine for patients to undergo multiple test tests, (i.e., electrocardiograms, echocardiogram, and cardiac catheterization. These tests can easily be quite exhausting to undergo. Discussion of this limitation with the nursing staff of the cardiac step down units occurred at the time of the nurse's orientation to the study.

Another limitation is the possibility of a threat to the internal validity of the study. To limit potential occurrences secondary to maturation, there was a strong attempt to administer the instruments within the 72 hour time frame post admission.

Human Subject Review

A total of 76 women admitted to The Miriam Hospital with AMI were enrolled in the study. All subjects meeting the eligibility criteria were asked to participate in this study. Subjects were excluded on basis of gender; as this study is specifically designed to explore the treatment seeking behavior in women to symptoms of AMI.

The researcher oriented the nurse manager and nursing staff of the cardiac step down units regarding the study and packet distribution to the participants. Each packet contained two consent forms, demographic collection form, the DHUS and MSPQ. The women were first approached by the nursing staff regarding their interest in participating in the study. The packet was then given to them by either the researcher or the nurse. If the participant had further questions regarding risks and benefits of the study, contact numbers of the researcher were included in the packet as well as given to the nursing staff. The participants were provided

copies of the informed consent. Participants were informed that participation is voluntary and did not affect either the quality or quantity of medical and nursing care that they receive during hospitalization.

Sources of Material

Patient's medical records, demographic collection tool, and responses to the DHUS and MSPQ constituted the sources of information to be used in this study. The researcher alone had access to the subject identities. Data collected was kept confidential and stored in a secure area (locked box) within the confines of the researcher's office.

Potential Risks

There are no anticipated physical risks to the subjects. Any psychological risk associated with the study would be related to completion of the two instruments. One major risk issue being fatigue, the researcher chose a variety of times in which to approach the subject so as to minimize this risk. Another risk may be stress related to having to "rethink" about the issues at hand in their personal life prior to the presentation to the hospital. The staff and participant had available to them contact numbers of the researcher. The participant was informed that at any time they may stop the completion of the instrument if they find the experience to be causing or promoting their level of anxiety.

Clinical stability of the subject always took precedence over completion of the instruments. On occasion, the instruments were administered at two different time intervals to assist in minimizing fatigue.

Potential Benefits

This was the first quantitative study to explore a predictive relationship between the independent variables of somatic awareness, daily hassles and age in treatment seeking behavior

in women with symptoms of AMI. Previously these predictors of behavior had been identified in qualitative studies independently but not in correlation with each other. Identification of predictors will assist health care professionals in understanding of the decision trajectory of a women's treatment seeking behavior in AMI. Interventions to assist women in decision making related to their symptoms associated with AMI will then be focused on those issues most significant to them.

Summary

The purpose of this study was to examine the relationship between somatic awareness and daily hassles and how they influence a women's treatment seeking behavior in acute myocardial infarction (AMI). Because mortality and morbidity are unduly high when treatment is delayed, many researchers have attempted to explain why women delay longer than men before seeking treatment for symptoms of AMI; however, to date, consensus does not exist (Lefler & Bondy, 2004). Two psychosocial variables, somatic awareness and daily hassles have been identified as possible predictors of treatment seeking behavior.

Though "somatic awareness" is conceptually defined somewhat differently in various studies, i.e., neuroticism (Rosenfield, 2004) or symptom awareness (Dempsey, Dracup, & Moser, 1995; Meischke et al., 1999; Schoenberg, Peters & Drew, 2003), it is clear that the broad concept of "awareness of bodily states" is directly related to individual response to symptoms of AMI in women. Other common themes identified as influencing a women's decision to seek treatment for symptoms of AMI were social obligations, commitments and family responsibilities (Dempsey et al., 1995; Dracup & Moser, 1997; Schoenberg et al., 2003). Collectively these themes are referred to as "daily hassles", and have been cited as prolonging a

women's decision in seeking treatment for AMI (Dracup, Moser, Eisenberg, Meischke, Alonzo & Braslow, 2003).

The Leventhal self-regulatory model of illness behavior, which has been used to study treatment seeking behavior in response to symptoms, provided a coherent framework for interpreting the problem of delayed treatment of myocardial infarction. The Leventhal model proposed that the patient's belief about their health is structured in a hierarchical fashion and that these structures are based on previous illness experiences and information presented in the social environment. Moser et al. (2005) study of 98 women and 96 men post AMI revealed that women with a history of AMI delayed longer than women who had never experienced an AMI, while the pattern was reversed for men. Previous investigators (Dracup et al., 1995; Dracup & Moser, 1997; Goff, Feldman & McGovern, 1999) have demonstrated that a history of AMI does not appear to alter delay times, a fact that can be interpreted as counter intuitive. The Leventhal model assisted in determining the effect of previous clinical history of AMI in the face of present social circumstances of each participant in the study.

The study outcome is an increased understanding of how the independent variables, somatic awareness and daily hassles, relate to treatment seeking behavior in women with AMI. Interventions to assist women in decisions related to treatment seeking behavior will then be based on those issues most pertinent to their day to day function and concern.

Chapter 4

Study Findings

The purpose of this study was to examine the relationship between somatic awareness and daily hassles and how these variables influence a women's treatment seeking behavior in AMI. Quota sampling was used. Random sampling was obtained; thereby lessening the opportunity for systematic bias to occur by chance. Techniques were employed to obtain a sample consisting of 50% women greater than 65 years old and 50% less than 65 years old. Data were entered into the SPSS statistical program. The results of this study are reported below. First, demographic characteristics of the sample population are presented, followed by frequencies of DHS and MSPQ. Finally, the hypothesis, research questions were answered and research hypotheses tested.

Demographic Characteristics of the Sample

The sample had comprised of were a total of 78 women with AMI, ranging in age from 38 to 88 years (\underline{M} = 64, \underline{SD} = 12.74). Thirty-seven women were 65 years or younger; while 41 women were older than 65 years. All subjects who met the inclusion criteria were asked to participate in the study and agreed to complete the questionnaires. A return rate of 100% was achieved and there were minimal missing data.

Questions within the demographic tool included current highest level of education, employment status, total household income, companion status, race, caregiver status, prior heart history, prior heart treatment, diabetes, diabetes treatment (if diabetes present), currently

smoking, smoking history, high cholesterol, family history heart disease, and consult with others prior to decision making.

The highest level of education for most women (59%) was a high school education; though some women graduated from college (23.1%) or GED/ technical high school (11.5%). A total of 5 women (6.4%) were not high school graduates. Women were equally distributed on the variable employment status. Thirty one percent of women were employed full-time and part-time, with thirty six percent being retired and two women unemployed (2.6%). Also, there was close distribution between those women who reported a total household income of \$26,000 to \$50,000 (34.6%), total household income of \$51,000 to \$75,000 (30.8%), and total household income of \$25,000 (25.6%). A total of 7 women reported a total household income of \$75,000 or greater (9 %). By far the majority of the women were married (53.8%); though women also identified themselves as either widow (23.1%), single (12.8%), living with someone (5.1%), or separated/ divorced (5.1%). The majority of the women were white (74.4%) with a small percentage of the sample being Black (17.9%), Hispanics (6.4%), or Native Americans (1%).

Most women listed themselves as a caregiver for someone else (60.3%). The majority of the women had no prior heart history (47.4%), with a little more than a third having experienced angina (37.2%). A total of 5 women had prior MI (6.4%) and 7 women had MI and angina (9%). Most women (44.9%) had no prior heart treatment. There was close distribution between those who had medication (28.2%) and angioplasty (balloon) or stent(s) (20.5%). There were 5 women with history of coronary bypass surgery (6.4%).

Several other co-morbidities and demographics are reported in Table 1.

Table 1. Sample Characteristics

<u>Demographic Variables</u>	<u>n</u>	<u>%</u>
Highest level of education		
Not a high school graduate	5	6.4
GED/ technical high school	9	11.5
High school graduate	46	59
College graduate	18	23.1
Employment status		
Full time	24	30.8
Part time	24	30.8
Retired	28	35.9
Unemployed	2	2.6
Total household income		
\$25,999 or less/yr	20	25.6
\$26,000 - \$50,000/yr	27	34.6
\$50,001 - \$75,000/yr	24	30.8
\$75,001 +/yr	7	9

Table 1. Sample Characteristics (cont.)

<u>Demographic Variables</u>	<u>n</u>	<u>%</u>
Companion Status		
Single	10	12.8
Married	42	53.8
Widow	18	23.1
Living with someone	4	5.1
Separated or divorce	4	5.1
Race		
White	58	74.4
Black	14	17.9
Hispanic	5	6.4
Native American	1	1.3
Caregiver status		
Yes	47	60.3
No	31	39.7
Prior heart history		
None	37	47.4
Angina	29	37.2
Myocardial infarction	5	6.4
Myocardial infarction & angina	7	9

Table 1 Sample Characteristics (cont.)

<u>Demographic Variables</u>	<u>n</u>	<u>%</u>
Diabetes		
Yes	43	55.1
No	35	44.9
Diabetes treatment		
Insulin	9	11.5
Oral medication	31	39.7
Insulin & medication	4	5.1
Currently smoking		
Yes	14	17.9
No	64	82.1
Smoking history		
Yes	57	73.1
No	21	26.9
High cholesterol		
Yes	62	79.5
No	16	20.5
Family history heart disease		
Yes	70	89.7
No	6	7.7

Table 1. Sample Characteristics (cont.)

<u>Demographic Variables</u>	<u>n</u>	<u>%</u>
Consult with others		
Yes	56	71.8
No	22	28.2
Time to seek medical care		
>0 - <= 6 hrs	32	41
>6 - <= 12 hrs	35	44.9
>12 - <=24 hrs	7	9
> 7 days	4	5.1

Research Questions

1. Is there a relationship between somatic awareness and daily hassles as relate to time to seek treatment in women with AMI.

There were no significant relationships among somatic awareness, daily hassles and time to treatment (See Table 2).

2. What is the influence of age and prior cardiac events on scores of the Daily Hassle and Uplift Scale (DHUS) and Modified Somatic Perception Questionnaire (MSPQ) as they relate to time to treatment.

There was a significant negative correlation between daily hassles and age ($r = -.32, p < .01$), along with, a significant negative correlation between total MSPQ and prior cardiac events ($r = -.39, p < .01$).

3. Is there a difference in scores on the DHUS and MSPQ in women with AMI who present for treatment < 6 hours and > 6 hours.

Independent t tests were calculated to detect differences on scores of the DHUS and MSPQ in women with AMI. The assumption of equal variances was met (non-significant Levene's Test), thus the t statistic for equal variances assumed was interpreted. There was no significant difference between women who presented for treatment < 6 hours versus women who present for treatment > 6 hours on the variables of MSPQ or DHUS.

Table 2. Correlation matrix of major study variables (N=78)

Variables	1	2	3	4	5
1. Age	1.0	- 0.08	- 0.03	- 0.32*	- 0.03
2. Time		1.0	- 0.17	0.20	- 0.06
3. TOTMSPQ			1.0	- 0.57	- 0.12
4. TOT Hass				1.0	0.11
5. TOTUPLIFTS					1.0

* p< .05

TOTMSPQ - Total Modified Somatic Perception Questionnaire Score

TOT Hass - Total Hassles Score

TOTUPLIFTS - Total Uplifts Score

Research Hypotheses

1. Women with increased somatic awareness will have a decreased delay time to treatment for symptoms of AMI.

2. Women with increased daily hassles will have increased delay time to treatment for symptoms of AMI.

3. Daily hassles are a moderating factor in women with increased somatic awareness (resultant increased delay time to treatment for symptoms of AMI).

4. Women with increased somatic awareness and increased daily hassles will have an increased delay time to treatment for symptoms of AMI.

Multiple regression analysis was intended to be performed with time to treatment as the dependent variable and modified somatic perception, total hassles, and total uplifts as

independent variables. Inspection of the correlation matrix in Table 2 indicated no significant relationship between time to treatment (dependent variable) and several independent variables. Thus, data do not support the testing of each hypothesis.

Daily Hassle and Uplift Scale

The hypothesis tested was concerned with only daily hassles; therefore, only the daily hassle score will be reported. The most frequent hassles which the women with AMI reported the intensity to be “a great deal” were the following: “enough money for extra’s” (29.5%), “enough money for emergencies” (25.6%), “enough money for necessities” (23.1%), “taking care of paperwork” (23.1%), “your physical abilities” (20.5%), “your job security” (20.5%), and “your neighborhood” (17.9%). The reliability (Cronbach’s alpha) of the DHUS in the current study of 78 women with AMI is $r = 0.79$.

Modified Somatic Perception Questionnaire

The most frequent symptoms which women with AMI reported the intensity to be “extremely/ could not have been worse” are the following: “feeling hot all over” (15.4%) and “nausea” (5.1%). Also, the women identified an intensity of “a little/ slightly” with symptoms of “feeling faint” (52.6%) and “dizziness” (50%). “Blurring of vision” (65.4%) was the most frequently identified symptom as occurring “not at all”. The reliability (Cronbach’s alpha) of the MSPQ in the current study of 78 women with AMI is $r = 0.62$.

Chapter 5

Discussion

The purpose of this study was to examine the relationship between somatic awareness and daily hassles and how they influence a women's treatment seeking behavior in AMI. These findings will now be discussed in relation to the study hypotheses and research questions and the pertinent literature, along with implications for theory development, instrument development, nursing practice and future research.

Sample Characteristics

In regard to sample characteristics, there were significant similarities found among the demographic characteristics compared to previous studies involving women with AMI. The women ranged in age from 38 to 88 years, with a total of 37 women 65 years or younger and a total of 41 woman older than 65 years. A majority of the women (82.1%) either high school or college graduates as well as being white (74.4%). These sample characteristics mirror the demographics in other studies involving women with AMI (Canto, Schilpak & Rogers et al. (2000), Gibler, Armstrong, & Ohman et al. (2002), and Scheifer, Rathore, & Gersh et al. (2000).

The women in the sample reported themselves as having high cholesterol (62%), a positive family history (70%), and a history of smoking (57%). These demographics are recognized by the American Heart Association and American College of Cardiology as being significant risk factors in the development of coronary artery disease (2006). Clinical factors found to affect delay in treatment seeking behavior include both the influence of co-morbidities or chronic illness and a history of smoking (Dracup & Moser, 1997; Lee, 1997; McKinley,

Moser, & Dracup, 2000; Meischke, Larsen, & Eisenberg, 1998; Rosenfield, 2004; Zerwic, Ryan, & DeVon, 2003). There were a significant number of women who listed themselves as having either a history of smoking (57%) or diabetes mellitus (55.1%).

Social roles and responsibilities of women have been cited as negative deterrents affecting delay in treatment seeking behavior in women with AMI (Schoenberg, 2003; Moen, 2001; Johnson & King, 1995; Lefler & Bondy, 2004). Though 41% of the women reported themselves as not being in a relationship with another individual (i.e., single, widowed, divorced or separated); 46% defined themselves as being “caregivers”. The psychosocial factor, “contacting others for advice”, has been frequently identified as contributing to substantial risk delays with AMI (Dempsey, Dracup, & Moser, 1995; Dracup & Moser, 1991; Lee, 1997). The majority of women (71%) did seek consultation with others prior to seeking treatment; yet only 14.1% of the women waited 12 hours or longer to seek treatment for their symptoms.

Research Hypotheses

The hypotheses stated that women with increased somatic awareness will have a decreased delay time to treatment for symptoms of AMI; and that women with increased daily hassles will have increased delay time to treatment for symptoms of AMI. The findings did not support either of these hypotheses. Additionally, it was expected that daily hassles were a moderating factor in women with increased somatic awareness (resultant increasing delay time to treatment for symptoms of AMI). The findings partially supported this hypothesis.

The final hypothesis proposed that women with increased somatic awareness and increased daily hassles will have increased delay time to treatment for symptoms of AMI. This hypothesis was also not supported by the findings.

Results

There was no significant relationship found between increased somatic awareness and time to treatment in women with AMI. This finding was unexpected as related studies examining the relationship of psychosocial variables found a direct influence between somatic awareness and the treatment seeking behavior in women with AMI (Dracup, Moser, Eisenberg, Meischke, Alonzo & Braslow, 1995; Meischke, Yasui, Kuniyuki, Bowen, Andersen & Urban, 1998), Schoenberg et al., 2003; Warner, 1995). The findings in these studies suggested that history of a prior AMI increased delay time in women and a “lack of awareness” by women to recognize their cardiac risk may actually contribute to a delay in seeking treatment. This study did not reveal such an association though the demographic characteristics in the study group mirrored that of previous studies.

Unfortunately, as there was not a specific tool available for measurement of somatic awareness in cardiac patients; the Modified Somatic Perception Questionnaire was selected. Though psychometrically sound, only a few past studies utilized the tool with a cardiac population (Frazure-Smith, 1987; Warner, 1995). Additionally, increases in educational programs involving cardiac symptom awareness in women have surfaced in recent years (Dracup, Riegel & Doering, 2004; American Heart Association 2005). This undoubtedly has not only improved the knowledge base of women regarding their risk of heart disease, but has increased awareness of symptom interpretation and response times.

The presence of decreased daily hassles did not impact time to treatment in women with AMI. This was a surprising occurrence taken results of literature review which reported daily hassles having a negative effect on daily decision making and functioning (Schoenberg, 2003). In previous studies both social obligations and competing social demands in women with AMI

proved to problematic for rapid time to treatment. These multiple issues were found to take precedence over their own cardiac symptoms (Dracup & Moser, 1997, Moser, McKinley & Dracup et al., 2005; Schoenberg et al., 2003).

There was a significant correlation found between daily hassles and age ($r = -.32, p < .01$). The study revealed that younger aged participants revealed a higher daily hassles score. Though daily hassles did not negatively affect delay time to treatment, it was identified as a frequent occurrence in younger women with AMI. It is yet not known if this factor could negatively affect this population of women, i.e., adherence to treatment regimen. This study finding holds promise for clarifying this area of research in the treatment of women with AMI.

Research Questions

The first research question examined the relationship between somatic awareness and daily hassles as they relate to time to seek treatment in women with AMI. There was no significant relationship between somatic awareness, daily hassles, and time to treatment. This finding was unexpected as previous studies have found a relationship between the variables somatic awareness and daily hassles directly affecting the time to treatment in women with AMI (Frazure-Smith, 1987, Dracup, Moser & Eisenberg, 1995; Meischke, Yasui, & Kuniyuki, 1998; Moser, McKinley & Dracup et al., 2005, Schoenberg, Amy, Stroller & Muldoon 2003; Schoenberg, Peters & Drew, 2003, Rosenfield, 2004; Warner, 1995; Zerwic, Ryan & Devon, 2003).

The second research question examined the influence of age and prior cardiac events on the scores of the Daily Hassle and Uplift Scale (DHUS) and Modified Somatic Perception Questionnaire as they relate to time to treatment. The study revealed a significant relationship between daily hassles and age ($r = -.32, p < .01$). A higher daily hassle score was reported by

younger participants. This finding contrasted with a previous study (Schoenberg, Peters & Drew, 2003) which reported “competing social demands” as a major theme evolving in documenting treatment delay in middle aged women (mean age = 55) with symptoms of coronary heart disease. Unlike this study, the Schoenberg, Peters & Drew (2003) study utilized the phenomenological approach and consisted of a smaller sample size (n = 40).

A significant relationship was found between total MSPQ and prior cardiac events ($r = .39, p < .01$). Interpretation revealed a high MSPQ score (representative of symptom intensity), correlated to less frequent reporting of prior cardiac events (angina and/ or AMI). This finding indicates an infrequent occurrence of acute intense cardiac symptoms experienced by women with a positive cardiac history. An explanation for this could possibly be secondary to pain tolerance or current medication regimen specific to their cardiac diagnosis, atypical chest pain, or diabetes. No prior studies cite this finding. Though it is unknown what impact this new knowledge will have on treatment of women with AMI, this finding holds promise for clarifying this area of research.

The third question noted the difference in scores on the DHUS and MSPQ in women with AMI who present for treatment < 6 hours and > 6 hours. The time frame intervals selected for data measurement were comparable to intervals utilized by the American College of Cardiology in statistical data collection of those individuals undergoing interventional treatment for AMI i.e., coronary angiogram with or without percutaneous transluminal angioplasty (American College of Cardiology, 2006). An independent T test was calculated to detect the differences on scores of the DHUS and MSPQ in women with AMI. The assumption of equal variances was met (non-significant Levene’s Test), thus the t statistic for equal variances assumed was interpreted. There was no significant difference between women who presented for treatment <

6 hours versus women who presented for treatment > 6 hours on the variables of MSPQ and DHUS.

This finding was unexpected as previous studies reported that women delayed longer for treatment of AMI versus their male counterparts (Caldwell & Miakowski, 2000; Moser, McKinley, Dracup & Chung, 2005; Murphy Chen & Cannon, et al., 2000). The psychosocial variable somatic awareness appeared to also reduce delay when present in women with AMI (Dracup, Moser & Eisenberg et.al., 1995; Moser, McKinley & Dracup et al., 2005, Rosenfield, 2004; Schoenberg, Peters & Drew, 2003, Warner, 1995). Another variable, daily hassles, was described as having a negative effect on daily decision making and a woman's response to social obligation, therefore, elongating a woman's response time to treatment for AMI (Dempsey et al., 1995, Dracup & Moser, 1997, Moser, McKinley & Dracup et al., 2005; Schoenberg, Peters & Drew, 2003).

This study employed only generic instruments to assess somatic awareness and daily hassles in women who present with AMI. Though the DHUS is a generic instrument, it is accepted as being universally reflective of irritants from minor annoyances to fairly major pressures in the general population (DeLongis, et.al., 1982). On the other hand, the existence of a disease specific instrument to measure somatic awareness would be more advantageous in that the focus would be on symptoms more relevant to women with cardiac disease. Though research into the area of tool development reflective of women's cardiac symptoms has been initiated (McSweeney et al., 2004); there is currently no instrument available to nursing researchers.

Limitations

Perhaps a major limitation of this study was the administration of the instruments in an acute care environment. Post AMI it was routine for the participants to undergo multiple tests

and procedures. This scenario was not conducive to instrument and demographic tool completion in one sitting. Additionally, the participants were often fatigued, and needed the “extra time” to complete the instruments in a time interval of greater than 24 hours. Similar situations had been reported by previous researchers (Dracup & Moser, 1997, Warner, 1995; Rosenfield, 2004).

Another limitation was the potential for occurrences secondary to maturation. Therefore, a strong attempt was made to administer the instruments within a time frame of 72 hours; which was a challenge in an acute care environment. Undoubtedly, the most appropriate way to measure daily hassles and somatic awareness are through self-report measures; however, self-report measures are subject to biases, such as social desirability or faulty recollection.

This study utilized one site, a tertiary care referral hospital in Rhode Island. Future studies should look toward multi-site sampling not only to increase sampling size, but to compare women from different regions. However, because of the relatively small sample size used in this study, care must be taken in interpreting the data. It is likely these data are specific only to the site sampled, and that women in different area of the country may have different responses.

Implications for Theory Development

The Leventhal’s self-regulatory model of illness behavior (Leventhal & Cameron, 1987, Leventhal, Nerenz & Steele, 1984) is often used to characterize delay in care seeking behaviors and it has served as the foundation for interventions in Western cultures (Dracup, 1997; Dracup & Moser, 1997, Leventhal, Safer & Panagis, 1983). Additionally, the model has provided a coherent framework for interpreting the problem of time to treatment for symptoms of AMI (Dempsey et al., 1995; Dracup et al., 2003; McKinley et al., 2000).

For the current study, all aspects of the Leventhal model were examined in the relation to somatic awareness, daily hassles, and time to treatment for women with AMI. The relationships proved to be multi-directional, as the model currently indicates. For example, in this study a significant relationship was found with participant demographics DHUS and MSPQ. The Leventhal Model can continue to provide a sound framework in identifying both internal/external stimuli and emotional representation related to outcomes that otherwise might not have been recognized. For example, within this study a significant relationship was found between age and daily hassles; and with prior cardiac events and the total MSPQ score. These relationships identify potential areas of concern related to response to treatment in women with AMI. Other areas of investigational interest are also identified with this population.

Implications for Instrument Development

The broad concept of “awareness of bodily states” appears to be directly related to individual response to symptoms of AMI in women (Dempsey et al., 1995; Meischke et al., 1998; Rosenfield, 2004; Schoenberg et al., 2003; Warner, 1995). Unfortunately, there was not a disease specific instrument available to measure the concept of somatic awareness in a cardiac population; therefore, the MSPQ was the instrument chosen to measure this variable.

Researchers have begun instrument development related to symptoms associated with AMI in women (McSweeney et al., 2004). However, the McSweeney Acute and Prodromal Myocardial Infarction Symptom Survey, is still in the developmental stages. This instrument has demonstrated content validity, but however, has not been used to examine predictive validity or concurrent validity such as the relationship to severity of AMI. Further research must be conducted to determine the predictive capability of the prodromal symptoms contained in this

instrument and to assess how or if risk factors, comorbidities influence the presentation of symptoms.

Implications for Nursing Practice

The literature review revealed that somatic awareness and daily hassles may influence treatment seeking behavior among women with AMI. Though “somatic awareness” was conceptually defined differently in the studies, i.e., neuroticism (Rosenfield, 2004) or symptom awareness (Dempsey et al., 1995; Schoenberg et al., 2003), it appeared that the broad concept of “awareness of bodily states” was directly related to individual responses to symptoms of AMI.

The results of this study did highlight the importance of symptom intensity experienced by those women with prior cardiac events. Because patient education after an acute cardiac event is crucial to understanding and adherence to treatment regimen; the nurse can utilize this knowledge when approaching women regarding their own symptom experience. The patient can be educated that *symptom perception* and *intensity* can change and become a *different experience* for them with repeated acute cardiac events. Understanding of the symptom experience is the first step in the patient’s comprehension of the clinical outcome of AMI as well prescribed treatment regimen.

Social obligations, commitments, and family responsibilities were identified as common themes directly related to individual response to symptoms of AMI (Dempsey et al., 1995; Dracup & Moser, 1997; Schoenberg et al., 2003; Moser, McKinley & Dracup et al., 2005). Previous research suggested that women needed to be educated about competing social demands which may influence their decision making related to time to treatment for their symptoms (Dempsey et al., 1995; Moser, McKinley & Dracup, 2005; Dracup, Riegel & Doering, 2006). The study emphasized the high amount of daily hassles associated with women of younger age.

Nurses should be mindful of this knowledge when developing plans of care for women post AMI. It can be surmised that these hassles could be possible “barriers” to treatment regimen adherence. The unparalleled focus of cardiac healthcare teams is not only to reduce delay in making a decision to seek treatment (Lefler & Bondy, 2004), but to also encourage understanding and adherence to prescribed treatments, thereby limiting repeated acute cardiac clinical events.

Implications for Nursing Research

This study contributes to the advancement of nursing knowledge of somatic awareness, daily hassles, and women’s time to treatment for symptoms of AMI. A strength of this study was the response rate resulting in sufficient power for the statistical analyses. However, this study used quota sampling, therefore, external validity is limited, so the results cannot be generalized to other women with AMI. This study should be replicated in other samples of women with AMI to determine if similar findings are obtained.

One interesting direction for further studies might be an exploration of the significant relationship found between age and daily hassles; as well as total MSPQ score and prior cardiac events. These negative correlations could possibly have an impact on the final *clinical outcomes* of women with AMI. The Leventhal self-regulatory model of illness behavior (Leventhal & Diefenbach, 1992) is an excellent framework from which to further examine these representations and “how” they could possibly guide behavior in women post AMI. In a time of limited resources for research, nurse scientists must justify what difference research-based knowledge on variables affecting women with AMI makes in terms of effectiveness and quality of life issues. These relationships hold promise for future study; perhaps possibly as *predictors* related to clinical outcomes in women with AMI.

Conclusions

This is the first quantitative study to comprehensively examine the relationship between somatic awareness, daily hassles, and time to treatment in women with AMI. To date, these variables have been addressed as separate entities, but never identified or examined within the same study. However, an understanding of the specific impact these variables may have in relation to each other is of major importance in creation of appropriate interventions through educational and support programs for women with AMI.

While the effect of somatic awareness and daily hassles in relation to time to treatment requires further investigation; the findings of this study lay the foundation for future investigations in this area. This study seeks to clarify the concepts of both somatic awareness and daily hassles by taking the perspective that complex psychosocial processes exist which influence women's treatment decision making in AMI. Attention needs to be given to further assessment of how these variables impact on women with AMI; as well as how their presence may influence clinical outcomes.

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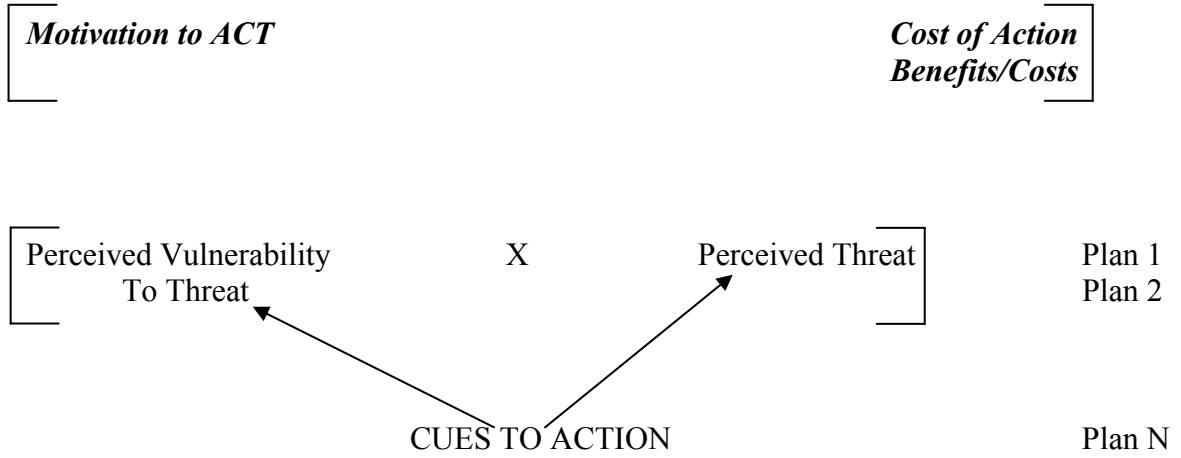
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Appendix A

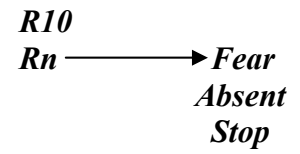
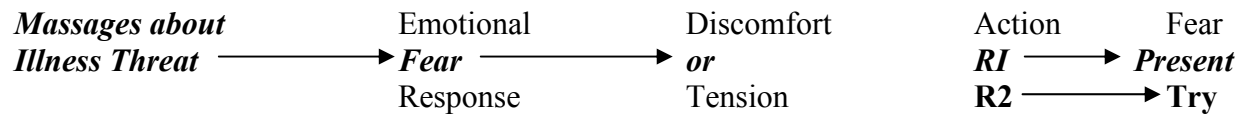
Health Belief Model



Leventhal, Safer, & Paganis, (1983)

Appendix B

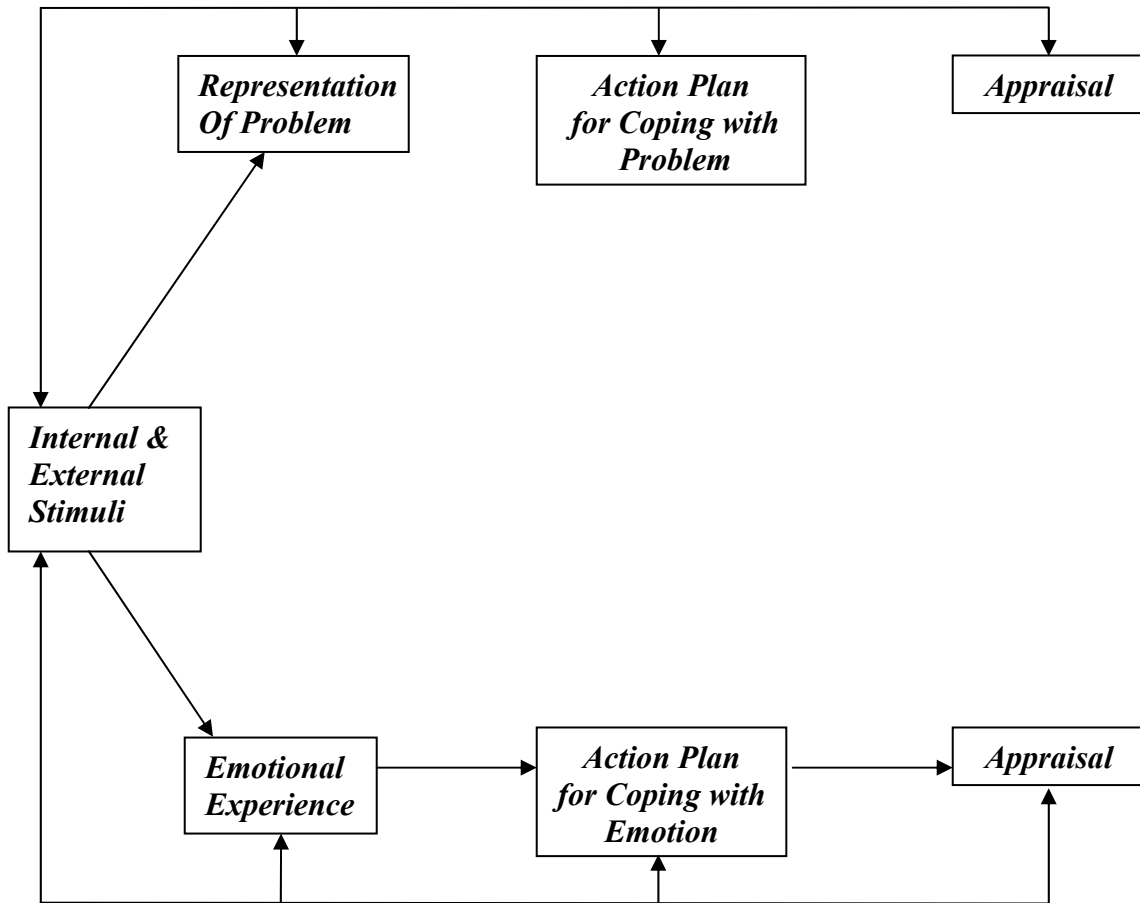
Fear Dive Model



Leventhal, Safer, & Paganis, (1983)

Appendix C

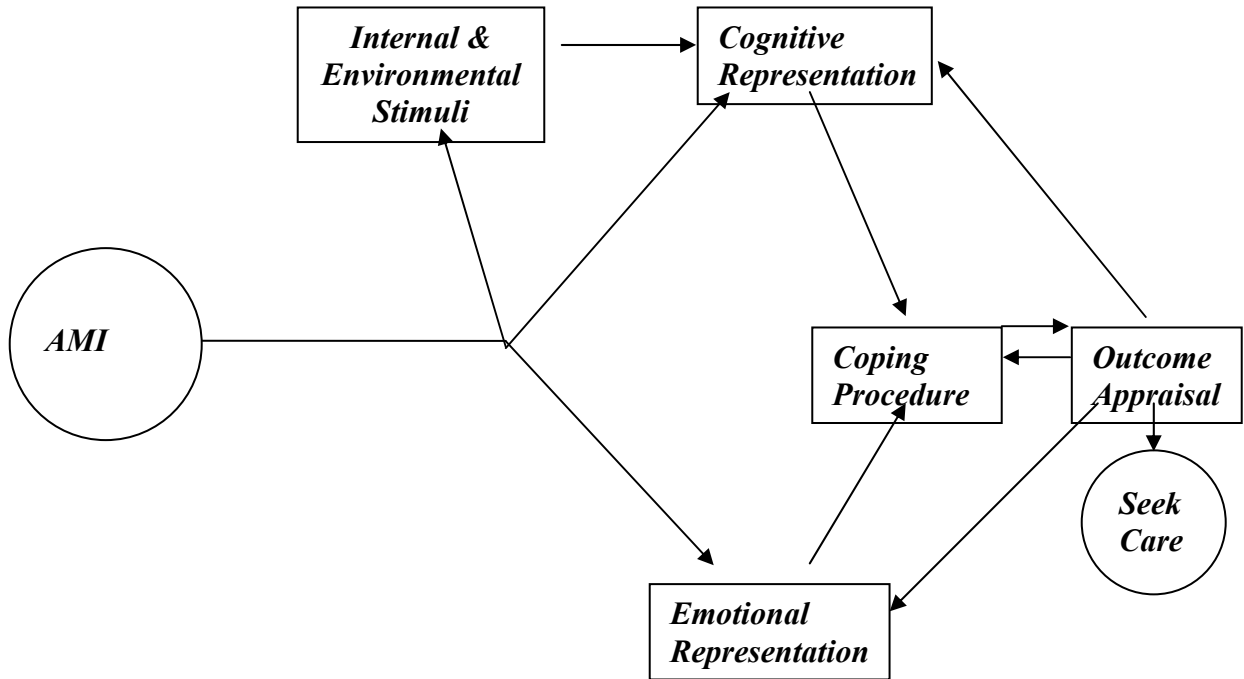
Leventhal's Self Regulation Model of Illness



Leventhal & Cameron, (1983)

Appendix D

Theoretical Framework adapted from Leventhal's self-regulatory Model of Illness Behavior (Leventhal & Cameron, 1987).



Dracup et al., 2003

Appendix E
Demographic Survey

Instructions: Please fill in the blank; or check off the appropriate answer.

1. Age _____

2. Education
 - a. Not a high school graduate
 - b. High school graduate
 - c. College graduate
 - d. Post graduate work or degree

3. Employment Status
 - a. Employed full-time
 - b. Employed part-time
 - c. Retired
 - d. Unemployed

4. Total household income per year
 - a. \$25,000 or less
 - b. \$26,00 to \$50,000
 - c. \$51,000 to 75,000
 - d. \$75,000 or greater

5. Marital Status
 - a. Married
 - b. Single or in a long term relationship
 - c. Widow
 - d. Separated or Divorced

6. What is your race?

7. Are you caregiver for anyone?

8. Prior heart history

9. Prior heart treatment
 - a. none
 - b. angina
 - c. Myocardial infarction (heart attack)
 - d. Myocardial infarction & angina

10. Diabetes
 - a. yes
 - b. no

11. If yes (have diabetes),
 - a. taking insulin
 - b. taking medication
 - c. taking both insulin and medication
 - d. on special diet only

12. Currently smoking
 - a. yes
 - b. no

13. Did you ever smoke?

14. Do you have high cholesterol?

- a. yes
- b. no

15. Do you have a family history of heart disease?

- a. yes
- b. no

16. Did you consult with others (family, friends, etc.) prior to making a decision to seek medical help?

- a. yes
- b. no

17. How **long** (days, hours or minutes) did you have the pain/discomfort before coming to seek medical care?

Appendix F

Human Subjects Approval

Lifespan



Bradley Hospital
Rhode Island
Hospital
The Miriam
Hospital
Newport Hospital

DATE: April 27, 2006

TO: Carol Lamoureux, MS, RN, CNA, BC
Department of Nursing
Division of Nursing - TMH

FROM: Patricia E. Houser, R.N., M.S.J.
Manager, Review Committees and Communications

SUBJECT: HUMAN SUBJECTS PROTECTION APPROVAL FOR CONTINUATION
FWA-00003538 IRB Registration #: 0000482

CMTT/PROJ: 2031-05

TITLE: Somatic Awareness & Daily Hassles: Treatment Seeking Behavior in
Women with Acute Myocardial Infarction

Office of Research
Administration
Communications and
Committee Review

593 Eddy Street

Your research project was reviewed on 4/25/2006 *. The protocol CFR 46.110 (7) and/or consent form(s) have been re-approved as meeting the standards for the protection of humans per 45CFR46/2 1CFR56 by The Miriam Hospital's Clinical Research Review Board (Institutional Review Board). This institution is in compliance with the ICH GCP as they correspond to the FDA/DHHS regulations. This review and approval are applicable for The Miriam Hospital. All future continuing reviews, requests for revision to protocol, and adverse event reporting will be reviewed by the TMH IRB.

In addition, you will be responsible for reporting to the Institutional Review Board any proposed changes in research activities and for insuring that changes in approval research may not be initiated without Institutional Review Board review and approval, except when necessary to eliminate apparent immediate hazards to the subject(s).

You are required by Federal regulations and Hospital policy to immediately report any untoward effects or reactions, serious side effects and/or deaths of subjects involved in this project to the Clinical Research Review Board through the Office of Research Administration (444-7668).

Re-approval of this project is scheduled for one year from the above approval date*. An annual report of activity in the project will be requested approximately 45 days before this date.

Patricia E. Houser, R.N., M.S.J.
Manager, Review Committees and Communications

Appendix G

Consent Form

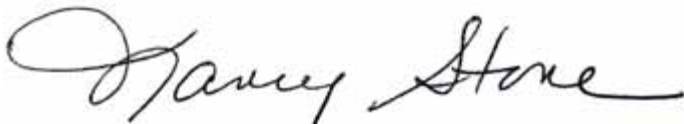
Dear Participant:

I am a doctoral student at the University of Massachusetts Graduate School of Nursing. My research project involves examining why woman sometimes delay in seeking treatment for their heart symptoms.

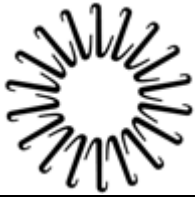
Enclosed you will find two consent forms, the Hassle and Uplift Scale, The Modified Somatic Perception Questionnaire, and the demographic survey. I ask that you fill them out and place them in the self enclosed envelope. You should keep one of the signed consents for yourself. Please notice that the investigator named on the consent form is Carol Lamoureux MS RN CNA, Director of Nursing at The Miriam Hospital. As I am not an employee of this institution, she has kindly consented to be named as the principal investigator for my research project.

If you should have any questions, the nursing staff will be able to provide you assistance in contacting me.

Thank you ahead of time for your participation in my study.

A handwritten signature in black ink that reads "Nancy Stone". The signature is written in a cursive, flowing style.

Nancy Stone MS ACNP ANP



Lifespan

Affiliate	<input type="checkbox"/> Rhode Island Hospital	<input checked="" type="checkbox"/> The Miriam Hospital
	<input type="checkbox"/> Bradley Hospital	<input type="checkbox"/> Newport Hospital

RESEARCH AUTHORIZATION

Committee #

Name of Study Volunteer

Carol A. Lamoureux _____

Name of Principal Investigator

Somatic Awareness and Daily Hassles in Women with Acute Myocardial Infarction

You have agreed to participate in a research study. A researcher has already explained the purpose of the study to you. The purpose of this form is to provide you with some more information about how the information learned about you during the study will be used and shared.

We understand that your medical information is very personal and we will work hard to keep it private. However, as part of the research process has already been explained a little bit in the research study consent form, some of this information will need to be used and shared. We want you to understand and feel comfortable with this process. Please read this form very carefully and ask questions about anything you do not understand. **IF YOU SIGN THIS FORM YOU ARE GIVING US PERMISSION TO USE AND SHARE YOUR PERSONAL HEALTH INFORMATION IN THE WAYS DESCRIBED IN THIS FORM.**

A representative of The Miriam Hospital must fill in this form completely before providing it to you. DO NOT SIGN A BLANK FORM. You or your authorized representative should read the descriptions below before signing this form.

You will be given a copy of this form to keep. Please put it in a safe place so you can re-read it if you want.

UNDERSTANDINGS AND NOTIFICATIONS

We are asking you to give permission to use and/or release the information described below in connection with the research study called: Somatic Awareness and Daily Hassles in Women with Acute Myocardial Infarction. The Study was explained to you during the informed consent process and is described in the research consent form that you already signed. Very briefly, the general purpose of the Study is: To have an increased understanding by which somatic awareness and daily hassles can be predictors of treatment seeking behavior related to Acute Myocardial Infarction. The main purpose of permitting the use and release of your information is to allow the research project to be conducted and to ensure that the information relating to that research is available to all parties who may need it for research purposes. Your information may also be used as necessary for your research-related treatment, to collect payment for your research-related treatment (when applicable), and to run the business operations of the hospital.

All health care providers are required to protect the privacy of your information. However, most persons or entities (i.e., businesses, organizations) that are not health care providers are not bound by law to protect the privacy of your information. You understand that if the person or entity that receives your information is not a health care provider bound to protect your privacy, such person or entity might re-release your health information.

You have the right to refuse to sign this form. If you do not sign this form, none of your healthcare outside the study, nor the payment for your health care, nor your health care benefits will be affected. However, if you do not sign this form, you will not be able to enroll in the research study described in this form, and you will not receive treatment as a study participant.

If you sign this permission form, you may cancel it in writing at any time. If you cancel your permission, you will stop taking part in the study and no new information will be collected about you. However, if you cancel your permission, it will not apply to actions already taken or information already collected about you by the hospital or the researchers before you canceled your permission. This information or action, may be needed to complete analysis and reports of this research. This permission will never expire unless you cancel it. To cancel this permission, please write to Carol A. Lamoureux, The Miriam Hospital.

Optional Statement: You will not be allowed to see or copy the information described on this form as long as the research is in progress. You may see and copy the information upon completion of the research in accordance with Lifespan policies.

You have a right to receive a copy of this form after you have signed it. If after you have signed this form you have any questions relating to your rights, please contact: Carol A. Lamoureux, *The Miriam Hospital or, Nancy E. Stone, Graduate School of Nursing, Worcester, Mass.*

USES AND RELEASES COVERED BY THIS AUTHORIZATION (PERMISSION)

Who will release, receive, and/or use your information? This form will allow the following person(s), class(es) of persons, and/or organization(s)* to release, use, and receive the information listed below in connection with this Study, or as required by law:

- Every research site for this study, including this hospital, and including each site's research staff and medical staff
- Health care providers who provide services to you in connection with this study

- Laboratories and, other individuals, and organizations that analyze your health information in connection with this study, in accordance with the study's protocol
- The following research sponsors and the people and companies that they use to oversee, administer, or conduct the research: _____
- The United States Food and Drug Administration, Department of Health and Human Services, Office of Inspector General, Office of Civil Rights.
- The members and staff of the Institutional Review Board(s) or Ethics Committee(s) that approves this study
- Principal Investigator and other Investigators
- Study Coordinator
- Additional members of the Research Team
- The Patient Advocate or Research Volunteer Protector: _____
- Members of the hospital's administrative staff responsible for administering clinical trials and other research activities
- Contract Research Organization (A contract research organization is an independent organization that agrees to oversee and make possible, various aspects of the clinical research process for the research sponsor.)
- Data and Safety Monitoring Boards and others that monitor the conduct of the Study, for example a Clinical Events Committee
- The members and staff of the hospital's affiliated Privacy Board (if such a board is used)
- Others (as described below) _____

* If, during the course of the research, one of the companies or institutions listed above merges with or is purchased by another company or institution, this permission to use or release protected health information in the research will extend to the new company or institution.

What personal health information will be used or released? The appropriate boxes should be checked below and the descriptions should be in enough detail so that you (or any organization that must release information to carry out this authorization) can understand what information may be used or released.

- The entire research record and any medical records held by the hospital may be used and released.
- The following information:
The current medical record only: demographic data and information related to medical diagnosis at time of admission.

SIGNATURE

I have read this form and all of my questions about this form have been answered. By signing below, I give my permission for the described uses and releases of information.

Adult Auth 11/04

Signature of Study Volunteer or Authorized Representative

Date

Print Name of Study Volunteer or Authorized Representative

Description of Authorized Representative's Authority

I also confirm that I have been now or previously given a copy of the Lifespan Privacy notice

Signature of Study Volunteer or Authorized Representative

THE STUDY VOLUNTEER OR HIS OR HER AUTHORIZED REPRESENTATIVE MUST BE PROVIDED WITH A COPY OF THIS FORM AFTER IT HAS BEEN SIGNED.

Privacy Officer/Designee Approval: By signing below, I certify that this Research Authorization complies with the hospital's policy *Use and Disclosure of Protected Health Information for Research Purposes* and with the Health Insurance Portability and Accountability Act of 1996 and implementing regulations.

Print Name of Privacy Officer or Designee,

Signature of Privacy Officer or Designee

Date

Appendix H

The Hassles and Uplifts Scale

HASSLES are irritants-things that annoy or bother you; they can make you upset or angry. UPLIFTS are events that make you feel good; they can make you joyful, glad, or satisfied. Some hassles and uplifts occur on a fairly regular basis and others are relatively rare. Some have only a slight effect, others have a strong effect.

This questionnaire lists things that can be hassles and uplifts in day-to-day-life. You will find that during the course of a day some of these things have been only a hassle for you and some will have been only an uplift. Others will have been both a hassle and an uplift.

Directions: Please think about how much of a hassle and how much of an uplift each item was for you today. Please indicated on the left-hand side of the page (under “HASSLES”) the right-hand side of the page (under “UPLIFTS”) how much of an uplift it was for you by circling the appropriate number.

Remember, circle one number on the left-hand side of the page and one number on the right-hand side of the page for each item.

PLEASE FILL OUT THIS QUESTIONNAIRE JUST BEFORE YOU GO TO BED.

HASSLES AND UPLIFTS SCALE

How much of a hassle was
this item for you today?

HASSLES

0=None or not applicable
1=Somewhat
2=Quite a bit
3=A great deal

How much of an uplift was
this item for you today?

UPLIFTS

0=None or not applicable
1=Somewhat
2=Quite a bit
3=A great deal

Directions: Please circle one number on the left-hand side and one number on the right-hand side for each item.

0 1 2 3	1. Your child(ren)	0 1 2 3
0 1 2 3	2. Your parents or parents-in-law	0 1 2 3
0 1 2 3	3. Other relative(s)	0 1 2 3
0 1 2 3	4. Your spouse	0 1 2 3
0 1 2 3	5. Time spent with family	0 1 2 3
0 1 2 3	6. Health or well-being of a family member	0 1 2 3
0 1 2 3	7. Sex	0 1 2 3
0 1 2 3	8. Intimacy	0 1 2 3
0 1 2 3	9. Family-related obligations	0 1 2 3
0 1 2 3	10. Your friend(s)	0 1 2 3
0 1 2 3	11. Fellow workers	0 1 2 3

Continued:

Hassles and Uplifts Scale

Page 2:

0 1 2 3	12. Clients, customers, patients, etc.	0 1 2 3
0 1 2 3	13. Your supervisor or employer	0 1 2 3
0 1 2 3	14. The nature of your work	0 1 2 3
0 1 2 3	15. Your work load	0 1 2 3
0 1 2 3	16. Your job security	0 1 2 3
0 1 2 3	17. Meeting deadlines or goals on the job	0 1 2 3
0 1 2 3	18. Enough money for necessities (e.g. food, clothing, housing, health care, taxes, insurance)	0 1 2 3
0 1 2 3	19. Enough money for education	0 1 2 3
0 1 2 3	20. Enough money for emergencies	0 1 2 3
0 1 2 3	21. Enough money for extras (e.g., entertainment, recreation, vacations)	0 1 2 3
0 1 2 3	22. Financial care for someone who doesn't live with you	0 1 2 3
0 1 2 3	23. Investments	0 1 2 3
0 1 2 3	24. Your smoking	0 1 2 3
0 1 2 3	25. Your drinking	0 1 2 3
0 1 2 3	26. Mood-altering drugs	0 1 2 3
0 1 2 3	27. Your physical appearance	0 1 2 3
0 1 2 3	28. Contraception	0 1 2 3
0 1 2 3	29. Exercise(s)	0 1 2 3
0 1 2 3	30. Your medical care	0 1 2 3
0 1 2 3	31. Your health	0 1 2 3
0 1 2 3	32. Your physical abilities	0 1 2 3
0 1 2 3	33. The weather	0 1 2 3
0 1 2 3	34. News events	0 1 2 3
0 1 2 3	35. Your environment (e.g., quality of air, noise level, greenery)	0 1 2 3
0 1 2 3	36. Political or social issues	0 1 2 3
0 1 2 3	37. Your neighborhood (e.g. neighbors, setting)	0 1 2 3
0 1 2 3	38. Conserving (gas, electricity, water, gasoline, etc.)	0 1 2 3
0 1 2 3	39. Pets	0 1 2 3
0 1 2 3	40. Cooking	0 1 2 3
0 1 2 3	41. Housework	0 1 2 3
0 1 2 3	42. Home repairs	0 1 2 3
0 1 2 3	43. Yard work	0 1 2 3
0 1 2 3	44. Car maintenance	0 1 2 3
0 1 2 3	45. Taking care of paperwork (e.g. paying bills, filling out forms)	0 1 2 3
0 1 2 3	46. Home entertainment (e.g. TV, music, reading)	0 1 2 3
0 1 2 3	47. Amount of free time	0 1 2 3
0 1 2 3	48. Recreation and entertainment outside the home (e.g. movies, sports, eating out, walking)	0 1 2 3

Continued

Hassles and Uplifts Scale

Page 3:

0 1 2 3	49. Eating (at home)	0 1 2 3
0 1 2 3	50. Church or community organizations	0 1 2 3
0 1 2 3	51. Legal matters	0 1 2 3
0 1 2 3	52. Being organized	0 1 2 3
0 1 2 3	53. Social commitments	0 1 2 3

Appendix I

The Modified Somatic Perception Questionnaire

	Not at all	A little slightly	A great deal/ quite a bit	Extremely/ could not have been worse.
Feeling hot all over				
Sweating all over				
Dizziness				
Blurring of vision				
Feeling faint				
Nausea				
Pain in stomach				
Churning in stomach				
Mouth becoming dry				
Neck muscles aching				
Legs feeling weak				
Muscles twitching and jumping				
Tense feeling across forehead				