Health-seeking behavior of Korean women with myocardial infarction

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Abstract

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The purpose of this study was to generate a theory of HSB among Korean women with MI with regard to their experiences of MI at the time of symptom presentation, and the process of treatment seeking. Grounded theory was chosen to explore the experiences of Korean women with MI at the time of symptom presentation to identify Korean women's health-seeking process in getting optimal treatment. Eighteen women participated for 24 interviews using a theoretical sampling from two university hospitals. Twenty-two open-ended interviews were tape-recorded and transcribed verbatim, and then constant comparative analysis was chosen to achieve saturation of theory. The core phenomenon experienced by Korean women was "finding out what's going on and relieving symptoms." The process of HSB for seeking treatment was a sequential and iterative cognitive process. The concepts of health seeking behavior of Korean women with MI were "experiencing symptoms," "attributing symptoms," "evaluating situation," "managing symptoms," "consulting others about symptoms," "getting an optimal treatment," and "maintaining optimal health." Women performed a series of actions through the process from the time of symptoms onset to receiving optimal treatment and maintaining optimal health. For some

women, the process was repeated if symptoms evolved and relapse occurred. Inner iteration loops happened among some women as women consulted symptoms to others. Women got alarmed at unusual and evolving symptoms which started from mild and non-specific symptoms ahead of MI. Attributing of symptoms was made based on previous experiences and the evaluating of situations directed the next step on how to relieve symptoms and identify the causes. After an optimal intervention, women paid attention to strategies for maintaining optimal health as an ongoing process. More systematic study of a larger sample size including women in rural areas is needed to compare HSB between two groups, women in rural areas and urban areas as a follow-up study.

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Chapter I. Introduction

Statement of the Problem

The mortality rate from coronary heart disease has recently decreased over the last ten years, but it is still a major cause of death among women in Korea aged over 65, which is followed by cancer (Korean National Statistics Office [KSO], 2014). Approximately one in 4.5 deaths of women is related to CHD (KSO, 2010). The persistent increase of prevalence of the metabolic syndrome is closely associated with increased risk of coronary heart disease, which contributes to the higher rate of disability and lower quality of life with advancing age among elderly women (Grundy et al., 2005; Hoffman, VonWald, & Hansen, 2015; Mozumdar & Liguori, 2011). Specifically, the incidence of CHD increased 2 to 3 fold in women after menopause, especially after age 69 (The Korean Society of Cardiology, 2008). According to increasing life expectancies, rapid moving toward an aged society and with growing changes in unhealthy lifestyle and diet, the prevalence and mortality rates of CHD among Korean women remains higher (Kim, Kim, Jung, Park & Park, 2007; Park, Park, Oh, & Yoo, 2008).

Mortality rates for women who suffer from myocardial infarction (MI) are much higher than for men; more women than men die within the first 24 hours after being diagnosed with heart attack (Ani, Pan, Martins, & Ovbiagele, 2010). 13.6 % of women versus 7.0% of men will die within one year after experiencing acute myocardial infarction (AMI) in Korea (Kang et al., 2012). Even though the incidence of CHD among women is almost 10 years behind than that of men, but the chance of survival is lower than those of their male counterpart (Mosca et al., 1997). Studies show significant gender disparity among women with coronary heart disease in treatment outcome and symptom to door time (Concannon et al., 2009; Greenberg et al., 2012; Meisel et al., 2010). To be more specific, research has continued to report that women and the older adults have an increased tendency to delay seeking medical treatment compared to men and younger individuals (Hwang, 2009; Nguyen, Saczynski, Gore & Goldberg, 2010). Consequently, this delay contributes to higher mortality and morbidity rates in women and older adults (Moser, McKinley, Dracup, & Chung, 2005). The reasons for the delaying of treatment are inconsistent. Some research suggests that biological and physiological differences between men and women attributed to the differences in the prognosis of CHD (Mendolsohn & Karas, 1999; Sheifer, Escarce, & Schulman, 2000). Additionally, women fail to recognize the symptoms of MI as being at risk because of nonspecific symptoms and gendered presumptions of CHD among health care professionals (Banks, 2005; Brokalaki, Giakoumidakis, Fotos, Galanis, & Patelarou, 2011; Chen, Woods, & Puntillo, 2005; Jensen & Moser, 2008; Lansky et al., 2005). On the other hand, some studies have demonstrated there are no gender differences between men and women in terms of seeking medical treatment; likely due to the small size of women in their study, for if they had more women in the studies, gender differences would indeed be found (Banks & Dracup, 2006; M. Løvlien, Schei, & Gjengedal, 2006; Meischke, Larsen, & Eisenberg, 1998).

In Korea, most studies of CHD have focused on selected patient populations such as those who have undergone cardiac catheterization (Song, Park, Kim, Ahn & Kim, 2012), diagnostic test (Chung, Lee, Chun, Lee, & Park, 2010), clinical trials on new drugs or new intervention to evaluate efficacy (Suh, Seung, Kwak, Kim, & Hong, 2011), risk factor analysis focusing on obesity, menopause, and lipoprotein level in blood and hypertension(Kim, Kim, & Nam, 2003; Ko, Kim, & Nam, 2006; Ruge & Kim, 2007; So, Ahn, Song, & Kim, 2010; Yoo, Lee, & Kim, 1998; Yu, Kim, Bang, Oh, & Jang, 2011).

Indeed, the majority of the studies included only a small number of female patients, and the findings neglected gender -related differences. A few studies have evaluated the gender-based differences of the CHD in terms of the clinical diagnosis, clinical prognosis, and treatment. These findings suggest that the current characteristics of CHD in Korea are nearly comparable to those of Western countries. For example, a recent prospective and observational study in Korea on CHD revealed that women arrived at the hospital later than men, the mean age of female patients was older than men, women had higher rates of comorbidity, women had more common atypical symptoms than men, and women had less common myocardial infarction with ST-segment elevation (Hwang, Ahn, & Jeong, 2012b; Yu et al., 2011). However, the findings did not show significant gender differences in CHD-related mortality and morbidity, owing to the relatively short follow-up period of 6 months (Yu et al., 2011) and the relatively small number of female patients in the study(Hwang, Ahn, & Jeong, 2012a). Thus, the negligence to women's needs and the lack of consideration in research findings in regard to gender related differences both contribute to the women's higher prevalence and mortality in relation to CHD (Bennett & Redberg, 2004).

The effectiveness of therapies for cardiac illness are often highly time dependent, because the treatment for MI focuses on reperfusion therapy to restore normal coronary blood flow and the maximum salvage of functional myocardium. If women are admitted to an emergency department (ED) and treated within 4 hours after the onset of cardiac symptoms, there is a good chance that the heart muscle that would otherwise be destroyed can be salvaged (Lilly, 2011; O'Keefe-McCarthy, 2008). Therefore, it is crucial that both men and women seek treatment immediately after the onset of symptoms for optimal outcomes (Banks, 2005).

Nevertheless, women do have a greater tendency to delay seeking medical treatment than men (Banks, 2005; Schoenberg, Peters, & Drew, 2003). Studies that explore the factors affecting MI and women's decisions to seek medical treatment are conducted mainly in Western countries (Banks, 2005; W Chen et al., 2005; Harralson, 2007; Higginson, 2008) (Banks, 2005; Chen et al., 2005; Harralson, 2007; Higginson, 2008). Apart from the physiological and biological differences between men and women, some studies have shown that understanding social and cultural factors are central in assessing health-seeking behavior (HSB) among women (Emslie, 2005; Fleury, Keller, & Murdaugh, 2000; Harralson, 2007). Tracking of HSB promotes a change in individual behavior by providing relevant knowledge about the causes of illness and available choices (MacKian, 2003; Rahman, 2000). The HSB of an individual is influenced by multiple factors including socio-economic variables, sex, age, the social status of an individual, the type of access to services, and perceived quality of the service (Koldjeski, Kirkpatrick, Swanson, Everett, & Brown, 2004; MacKian, 2003; Tipping & Segall, 1995). Therefore, identifying the HSB of Korean women with myocardial infarction (MI), which is the leading cause of death among Korean women (KSO, 2010), needs more study. In spite of this, no study could be found in the published literature on the social and cultural construction of MI among Korean women as it affects MI care for this population.

Purpose of the Study

The purpose of this study is to generate a theory of HSB among Korean women with MI with regard to their experiences of MI at the time of symptom presentation, and the process of treatment seeking. Grounded theory (GT), which is driven by the symbolic interactionism (SI), will be used for delineating the complex cognitive process in women's HSB from the participants' point of view. Health-seeking behavior is viewed as a social process in terms of an individual decision to take action when symptoms occur, which is influenced by the sociocultural contexts (Ahmed, 2001; Koldjeski, Kirpatrick, Everett, Brown, & Swanson, 2004), thus, GT based on SI is a pertinent method to the study of HSB among Korean women with MI. The specific aims are (1) to explore the experiences of Korean women at the onset of MI symptoms (2) to elaborate the process in seeking treatment for the symptoms of MI.

Significance of the Study

The results of this study will be expected to provide a better understanding about women's perception of MI symptoms for health care providers, to be a useful guide in the practice, to make it possible to further advance theory in the field, and guide future research. It is very important to understand Korean women's perception toward seeking treatment in order to reduce the mortality and morbidity rates of MI and improve the women's life expectancy.

Chapter II. Review of the Literature

The purpose of this chapter is to review the factors affecting women's HSB in the presence of MI symptoms. This paper is composed of three parts: a literature review of the factors affecting delayed HSB among women with MI, the associated Korean culture of HSB among women with MI, and a suggested conceptual model.

Factors Affecting Delay in HSB among Women with MI

Clinical Factors

Symptom clusters of MI Despite ischemic heart disease being the leading cause of death worldwide in older women, women take longer than men to seek medical care when acute myocardial infarction (AMI) symptoms start (Berg, Björck, Dudas, Lappas, & Rosengren, 2009; Gibler et al., 2002; Rosenfeld, 2004). One available explanation is that women do not experience the same symptoms of AMI that are known to occur in men, so it may be difficult for women to recognize that they are having an AMI; thus, they do not seek health care promptly (Berg et al., 2009; Caldwell & Miaskowski, 2000; W Chen *et al*., 2005).

Chest pain is the most prevalent symptom of AMI. However, MI presentations without chest pain are also common. Recent observational studies of Koreans and Americans have shown that as many as 33% of all patients diagnosed with AMI did not experience chest pain on admission to the hospital (Horne, James, Petrie, Weinman, & Vincent, 2000; Hwang et al., 2012b; Riegel et al., 2010). Additionally, a recent report indicates that as many as 87 % of patients experience multiple symptoms including general weakness, respiratory distress, and musculoskeletal disorder accompanied by less chest pain, which are all common in women (Banks, 2005; Brokalaki et al., 2011; Hwang et al., 2012a; Hwang, Zerwic, & Jeong, 2011;

Jensen & Moser, 2008).Atypical symptom clusters of MI result in a greater pre-hospital delay in seeking treatment because patients have attributed their discomfort to a digestive problem or their weak physical strength to the aging process (Harralson, 2007; Hwang, 2009; McSweeney, Lefler, Fischer, Naylor, & Evans, 2007). Therefore, the dependence to rely on chest pain as the unique symptom of MI causes great damage to the women's health over time.

The lower rate of chest pain and the prevalence of a cluster of symptoms in are more likely presented in elderly women with comorbid diseases such as diabetes mellitus, hypertension, congestive heart failure, stroke, cardiomyopathy, and chronic renal failure (Berg et al., 2009; Hwang, 2009; M. Løvlien et al., 2006). The possible reason for this is that women with AMI are typically older than men by 5 to 10 years at presentation with atypical symptoms and have more comorbid conditions (Heer, Gitt, Juenger, Schiele, & Wienbergen, 2006; Ruston & Clayton, 2007). Physiologically, the smaller size of a woman's heart and coronary arteries, and a higher level of estrogen is related to greater vasodilatory response and well-developed coronary circulation which could reduce the severity of pain in women (Legato, 2000; Luczak & Leinwand, 2009; Tillmanns, Waas, Voss, Grempels, & Hölschermann, 2005). Therefore, women are referred at more advanced stages of the disease and are less likely to be diagnosed as in critical condition, and thus take longer to get optimal treatment (Berg et al., 2009; W Chen et al., 2005).

Socio-demographic Factors

Gender The causes of coronary heart disease in women are multiple and interrelated. Researchers examining the factors responsible for the development and progression of the disease process have discovered many potential etiological factors. However, physiological risk factors have received the greatest amount of attention.

Myocardial infarction can be thought of as a gendered phenomenon (Frich, Malterud, & Fugelli, 2006; Higginson, 2008). For example, both men and women consider women to be free from heart attacks and assume coronary heart disease is a problem of the rich, Caucasian, and male (Collins & Lansky, 2011; Harralson, 2007; Higginson, 2008; Lefler, 2004). Such stereotyping of coronary heart disease as a man's disease may result in barriers to diagnosis and treatment for women (Frich et al., 2006). Furthermore, gender inequalities have been seen in regards to diagnosis, referral, and treatment of coronary heart disease (Frich et al., 2006; Kim, Kerr, Bernstein, & Krein, 2006; Schulman et al., 1999; Sheifer et al., 2000). For example, women were less likely to have a recommended screening test (Kim et al., 2006) and lipid lowering treatment (Frich et al., 2006; Harrold et al., 2003), and undergo catheterization than men (Schulman et al., 1999).The reasons for the less aggressive treatment for women have not been clearly understood, but one study suggests that doctors may stick to stereotype images of coronary heart disease (Frich et al., 2006).

The evidence of gender differences in cardiac care are continuously observed but the reasons are not fully understood because of confounding variables such as age, and combined chronic disease (Collins & Lansky, 2011; Lansky et al., 2005; Rogers et al., 2006). A majority of studies have found that women more often delay in seeking medical treatment because they had difficulties in interpreting, understanding and linking symptoms to CHD (Banks, 2005; Jensen & Moser, 2008; Lansky et al., 2005). They tried to handle the chest pain as it went away. They had often asked laypeople for advice and were not often advised to seek medical care, which led to a delay in seeking treatment (Berg et al., 2009; Ruston & Clayton, 2007; Zerwic, Ryan, DeVon, & Drell, 2003). Women are often discriminated against economically, politically, and socially, and this discrimination may adversely affect their efforts at CHD health promotion and treatment (Fleury et al., 2000). Moreover, multiple role responsibilities within the family may lead to delay in seeking medical treatment (Fleury et al., 2000).

Age It is well known that the incidence rate of CHD before 60 is higher among men, but the incidence rate is overtaken by postmenopausal women after 65 (Korean Institute for Health and Social Affairs, 2005). Age-related physiological risk factors, identified as a higher prevalence of hypertension, dyslipidemia, diabetes mellitus, sedentary lifestyle, obesity, and poor nutrition might be related to the major risk factors for CHD in postmenopausal women and men (Antonicelli, Olivieri, Morichi, Urbani, & Mais, 2008; Chang et al., 2000). Along with entering old age, elderly women are more likely to be poor, to live alone, and to suffer from comorbid disease than man (Bener & Ghuloum, 2011; Fleury et al., 2000). Such differences contributed to elderly women with symptoms of AMI being less likely than men to utilize the available health care (Bjarnason-Wehrens, Grande, Loewel, Völler, & Mittag, 2007; Fleury et al., 2000; Kristofferzon, Löfmark, & Carlsson, 2003).

Income level Hwang and Jeong (2010) report that low SES is closely associated with large increases in CVD risk in men and women (Hwang, 2009; Hwang & Jeong, 2010; Hwang et al., 2011). In their mixed methodological research, both a low SES and education level were found to be the predicting factors in delaying the decision to seek treatment (Hwang & Jeong, 2010; Hwang et al., 2011). Likewise, in high-income Western countries, people of low SES are more likely than people of high SES to have modifiable and behavioral risk factors for CHD

(Brokalaki et al., 2011). Through lifestyle and health practices, a low SES and education level have been independently associated with an increased risk of all CHD (Brokalaki et al., 2011; Fleury et al., 2000), including tobacco use, hypertension, body mass, cholesterol levels, and physical activity (Fleury et al., 2000). Women, more often than men, have greater financial limitations, less education, and are more often living alone (King & Arthur, 2003). All these characteristics have an impact on choices available to women and ultimately affect their healthcare decisions and behaviors. Meanwhile, higher education, higher income levels, and medical insurance have been described as enabling factors for access to health care (Hwang et al., 2011; Wee & Koh, 2011; Wee et al., 2012)

Ethnicity Previous research reveals the interactive effect of ethnicity on treatment-seeking behavior. Asians, African-Americans, and Hispanics have different pain perception and show a longer delay for treatment when sick than Caucasians in the US (Brown, Haldeman, Croft, Giles, & Mensah, 2005; Evangelista, Dracup, & doering, 2002; Finnegan, Meischke, Zapka, Leviton, & Meshack, 2000; Sundaram, Ayala, Greenlund, & Keenan, 2005). In particular, Asian-Americans and Koreans may be less likely than Caucasians to seek treatment promptly when experiencing the symptoms of AMI and other diseases, such as urinary incontinence, depression, as well as cancer screening and are usually diagnosed at a later stage of those diseases (Hwang et al., 2011; McSweeney, Cleves, Zhao, Lefler, & Yang, 2010; Shin, 2002). McSweeney et al. (2007) and Lee, Bahler, Kim, Lee, & Kim (2000) conducted a structured interview of MI patients involving Caucasians and non-Caucasians. The findings showed that African-Americans and Asians have a tendency to delay seeking treatment within the first hour after the onset of symptoms. Accordingly, in regard to determining health-seeking behavior, the influence of psychosocial, economic, and cultural factors need to be considered, because the severity and type of health problem interactively affect the decision to seek treatment.

Psychological Factors

Knowledge and attribution The most significant psychosocial reason for seeking professional treatment at the time of AMI is the correct interpretation and attribution of presenting symptoms, more often concluding in treatment-seeking actions by the patient (Cao, Davidson, DiGiacom, & Yang, 2010; Higginson, 2008; Lefler, 2004). The failure to have prompt professional treatment increases risks for a poor clinical prognosis (Chism, 2001; Khan, Albarran, Lopez, & Chair, 2010; J. Zerwic, Young Hwang, & Tucco, 2007). For instance, the stereotypical idea held by women that risk factors for acute myocardial infarction include being a smoker or being obese, while those held by men include that women are not the "type of people" who have a heart attacks hinder the female's interpretation of their symptoms as cardiac in nature, underestimate the seriousness of their risk, and result in engaging in more consultations with kin, which can then cause a delay in help-seeking (Emslie, 2005; Finnegan et al., 2000; Frich et al., 2006). In addition, both men and women may fail to recognize that their symptoms represent a significant medical problem requiring immediate attention. That is, the symptoms they experience may differ from those they expect to have (Chism, 2001; Emslie, 2005). Many researchers demonstrate that lack of knowledge in the labeling of symptoms prevent women from receiving timely optimal medical treatment and increase the delay, added to already present feelings of uncertainty, fearing embarrassment, and fearing consequences of action (Higginson, 2008; Moser et al., 2005; Schoenberg et al., 2003). In spite of gradually increasing public campaigns to increase awareness of the risk of CHD in women, the perception that the heart attack is the exclusive disease of males is fostered by the media, and might still play a major inhibiting role in raising awareness (Finnegan et al., 2000; Higginson, 2008; Nguyen et al., 2010). The findings from focus group reflected gender and ethnic distribution within the five U.S. regions revealed that both men and women expected the MI might present as sharp and crushing pain and by sudden emotional shock rather than the more common onset and gradually increasing discomfort (Finnegan et al., 2000).

A majority of studies reported that patients who attribute their symptoms to their hearts have decreased prehospital delay (Finnegan et al., 2000; Leslie, Urie, Hopper, & Morrison, 2000; Lozzi, Carstensen, Rasmussen, & Nelson, 2005; Marie Thuresson et al., 2007). Similarly, researchers examined the perceived seriousness of presenting symptoms and reported that if the symptoms were not perceived by the individuals as serious in nature, then substantial delays occurred (Sjorstrom-Strand & Fridlund, 2008; Thuresson, Jarlöv, Lindahl, Svensson, & Zedigh, 2008). Hwang et al. (2011), in their study of the impact of prodromal symptoms on prehospital delay in patients with AMI in Korea, reported that only 23% of patients visited a local clinic or hospital to see a physician, but nearly 64% of patients who experienced fatigue or general weakness recognized that something was wrong but either did not view the situation as being serious or attributed their symptoms to their advanced age or comorbidities.

The interpretation of symptoms seemed to be related to gender differences. Both typical and atypical symptoms can result in such misinterpretation among women. Although pain located in both the chest and left arm were present, many women assessed the symptoms as non-cardiac in origin. On the other hand, men experiencing typical symptoms were more likely to attribute their symptoms as cardiac origin (Banks, 2005; Turris & Finamore, 2008). In the case of fatigue or weakness, half of the female patients thought that the symptoms might be caused by the natural process of aging or were exacerbated symptoms of their comorbid chronic diseases (Banks, 2005; Banks & Dracup, 2006; Finnegan et al., 2000). Furthermore, women's symptoms may be misinterpreted among patients as well as health care provider; atypical symptoms with comorbid disease and lower incidence rates of heart attack among women may offer the possible explanation (Berg et al, 2009; Løvlien et al., 2006). On that account, women tend to engage in consultation with family members or maintain control through self-medication rather than professional advices for the symptom management. These actions contribute to greater prehospital delay (M. Løvlien et al., 2006; Lefler, 2004).

Health Service Factors

Health care system presumption For years, medical practitioners treated women's heart disease far less aggressively than men's, and most researches of coronary heart disease has exclusively used male subjects (Frich et al., 2006), Thus male-oriented medical knowledge, male –dominated culture, and the priorities of the health service became influencing factors in a health provider's clinical performance (Frich et al., 2006). Existing gender disparity in symptom interpretation, diagnosis, treatment, and referral of CHD exerts unfavorable influence upon the physician's management of risk factors and perception for the symptoms of CHD in women (Carroll, Majeed, Firth, & Gray, 2002; Frich et al., 2006; Raine, Black, Bowker, & Wood, 2002; Tonstad, Rosvold, Furu, & Skurtveit, 2004; Moser et atl. 2005).

Despite the high awareness of CHD guidelines, physicians' attitudes and their utilizations of guidelines does not reflect higher adherence (Christian, Mills, Simpson, & Mosca, 2006; Mosca et al., 2005). Specifically, women are received less lipid lowering medication and a coronary revascularization procedure than men when diagnosed with CHD (Bowling et al., 2001;

Tonstad et al., 2004). Barriers to the successful adoption of coronary vascular disease (CVD) guidelines were found in an online study of 500 physicians conducted for assessing awareness of, adoption of, and barriers to national CVD guidelines (Christian et al., 2006; Mosca et al., 2005). Physicians had difficulty in assigning risk level particularly among women patients, and they rated themselves that they were not confident in helping patients prevent CVD (Mosca et al., 2005). Amazingly, fewer than 1 in 5 physicians knew that more women than men die each year from CVD. Additionally, a proportion of doctors perceived women to be at lower risk of CHD, thus health care professionals act with less urgency toward women who complain of symptoms that may reflect a cardiac origin, which contributes to complacency and reduced feelings of serious risk for AMI (Frich et al., 2006; Getz, Kirkengen, Hetlevik, Romundstad, & Sigurdsson, 2004). Accordingly, gender disparities in clinical practice and perceptions result in higher morbidity and mortality from CVD for women (Berg et al., 2009; Mona Løvlien, Schei, & Hole, 2008; Mosca et al., 2005).

Access to care Previous research with regard to the distance between a patient's residence and the nearest hospital is scant. The influence of area of residence strengthens the association between socioeconomic status and cardiovascular disease risk and increase in its mortality (Clark, DesMeules, Luo, Duncan, & Wielgosz, 2009). For instance, patients who were more than 10 km away from a hospital were also found to arrive later than the patients who were less than 10 km away from the hospital. In addition, the non- use of an ambulance could explain the time delay (M Thuresson et al., 2008; Turris & Finamore, 2008). According to an international comparison study of associated factors in delay of AMI treatment, delay times were notably short when the patient arrived at the hospital by ambulance and resulted in reperfusion therapy within 2 hours in England and the USA (Dracup et al., 2003). In contrast, using transportation other than ambulance has taken more than 2 hours and led to missing a golden chance of salvaging cardiac muscle (Dracup et al., 2003; McKinley et al., 2004). However, the majority of both older and younger patients with AMI did not use EMS, which was strongly associated with longer delays in treatment (Canto et al., 2002; Johansson, Strömberg, & Swahn, 2004). Most patients of AMI only considered an ambulance as transportation if they were seriously sick (Johansson et al., 2004). Some patients believe personal transportation would be faster than an ambulance to get to the hospital, or they were just reluctant to use Emergency Medical Service (EMS) because of potential embarrassment if their symptoms turned out to be a false alarm (Canto et al., 2002; Johansson et al., 2004).

Cultural Constructions

The cultural construction of a disease indicates the way of how members are perceiving, experiencing, and coping with a disease based on their perceptions of sickness, and explanations specific to the social and moral conditions members occupy such as MI (Hahn, 1996). The roots of meanings of illness are embedded with personal, interpersonal, and cultural reactions to disease or discomfort, and are constructed by cultural factors governing perception, labeling, explanation, and valuation of the discomforting experience, processes embedded in a complex family, social and cultural context not given by the nature of disease (Conrad & Barker, 2010; Hahn, 1996).

The HSB for illness is shaped by socio-cultural norms of collectivism and patriarchy of Korean culture (Kang, 2007; Chun, Doyal, Payne, Cho & Kim, 2006). Collectivism puts stress on the priority of family or group goals rather than individual health needs, and also on gender inequality in the socio-cultural system associated with Confucian culture impacts on Korean women's health disparity (Chun, Doyal, Payne, Il-Cho, & Kim, 2006). Only few studies have investigated the association among these cultural values and Korean women's HSB with regards to stereotypical gender role, fatalism, ageism, and certain culture-bound syndromes. However, a cultural construction of MI in Korea has not been found; one which would be significantly important in understanding unique pathways in seeking treatment and the quality of care for CHD in this country.

Familism/ Collectivism and Confucianism

While there is no literature to be found on the cultural construction of MI in Korea, it is nevertheless clear that a woman with MI has clearly been influenced by the perspective of collectivism. In many Asian cultures, the concept of family or group – oriented Confucianism emphasizes the value of collective goals rather than the individual concerns; that is to say, the goals of family, society, and nation are paramount to those of the individual in the collectivistic culture. Therefore, Koreans make a decision based on the good of whole family, not just the individuals. (Chen & Fan, 2010; Clark & Wang, 2004; Markus & Kitayama, 1994; Tung, 2010). Within the collectivistic culture, the expression of the Korean woman's health needs may be considered as lacking role fulfillment in maintaining or improving an integration of family, because women are expected to be on duty to take care of their family and not to uncover hardships for being called a virtuous wife.

Gender Stereotype and Confucianism

Confucianism profoundly influences the role of women in modern Korean society. The Korean women are expected to satisfy the traditional Confucian gender roles for the entirety of their marital lives. The internalized gender stereotypes in Confucian society may contribute to women's passive role in health-seeking behavior as well as their decision making process which are under the influence of patriarchal beliefs and social hierarchy (Tung, 2010).

The gendered expectations for women are represented as "four virtues" and "three obediences." Women are educated to have morality, careful speech, proper manner in keeping clean and tidy, and being diligent at work,. Consequently, all of this means that a wife should be meek and submissive to her husband as well as thoroughly prepared for housekeeping (Boretti, 2006; Clark & Wang, 2004). Those required virtues come from a hierarchy of power shaped by Confucianism. Women are placed at the bottom of the societal power structure and men are in the superior social position than women. Hence, women should follow a decision made by a father, a husband, or grown-up son because women have no authority to decide the matter. In addition, women are completely dependent economically, because their social and economic activities are limited and their housekeeping duties are not financially rewarded (Janelli & Janelli, 1992). On the basis of strong Confucian value, women are expected to be patient with their own health needs rather ask for help. Many studies report that gendered stereotypes of Confucianism are associated with delays in cancer screening and seeking help. As a specific example, the utilization rates of breast cancer and cervical cancer screenings among Asian women still remains low in comparing with non-Asian women, and shows poorer survival rates (Bates, Hofer, & Parikh-Patel, 2008; Gomez et al., 2013; McCracken et al., 2007) . These researches reveal that the gender roles constructed by Confucianism are indicated as inhibiting factors for Asian women to get prompt medical treatment (S.-Y. Park & Bernstein, 2008; S. Park, 2000).

Culture bound syndrome/ Hwa-byung

The hwa-byung (HB), Korean anger syndrome, is categorized as a culture- bound syndrome that refers to clusters of symptoms and attributions that are prone to occur in particular cultural groups or contexts in DSM-IV (American Psychology Association, 1994). Higher prevalence rate is reported among older rural women than middle aged women in urban area, but the prevalence of comorbid mental disorders is highly reported in middle-aged Korean women those who internalize emotional distress with expressing physical symptoms (Kim, Hogge, Ji, Shim, & Lothspeich, 2014; H. J. Park, 2014; Y. J. Park, Kim, Kang, & Kim, 2001). Long standing unresolved anger feeling caused by social conflicts or family conflicts is related with numerous emotional, cognitive, and somatic symptoms such as insomnia, fatigue, panic, palpitations, dyspnea, pushing-up sensation in the chest, feeling of heaviness of the head, and chest tightness and constriction along with frequent comorbidity with anger disorders and depression (Lin, 1983; Min & Suh, 2010), which are similar to non-specific symptoms of an AMI. The interventions of HB include psychosocial interventions for emotional symptoms, traditional and pharmacological intervention for somatic symptoms on the basis of similar clinical profiles with anger related disorder.

Lin et al. (1992) reported the strong association between HB and the occurrence of major depression among Korean women, but the depression remains largely undiagnosed in this population (Kwak, 2011). Yet no studies exists that addressing HB as a risk factor of CHD, only a few studies show that depression is associated with the occurrence of CHD (Ariyo et al., 2000; Nabi et al., 2010). Given the study results, further investigation about the association of HB related symptoms and conditions between CHD is required for this underutilized population who are at risk of CHD.

Health Care System in Korea

It is well known in health sociology and anthropology that the health care system is a cultural system, just like other social systems such as politics, language, religion or kinship (Chrisman & Klienman, 1983; Igun, 1979). Therefore understanding of one's own health care system is important in order to integrate a comprehensive outline for examining an individual's HSB.

Korea achieved a National Health Insurance Program (NHIP) for the entire population in 1989 with the purpose of health maximization equal opportunities to access health care and a fair allocation of resources (Lim, Bae, Choi, Lee, & Lee, 2012). All citizen in South Korea and overseas citizen are eligible for coverage under the National Health Insurance Program, and can freely choose any health care resources(Song, 2009). There are two arms in the insured group: employee insured and self-employed insured. The employee insured group covers the insured person's family such as a spouse, descendants, brothers or sisters, and direct ascendants. The amount of medical insurance premium of self-employed insured group is assigned by their business income and property. The Medical Aid Program is provided for low-income household by the Korean government (Song, 2009).

A unique feature of the South Korean healthcare system is the large scale of the private sector. The private sector covers clinics at the district level as well as secondary and tertiary hospitals at the local level for the entire population in the competitive market on health care delivery (Lim et al., 2012; Yang, 2015). Only 18% of the total percentage of medical institutions including general hospitals and community health centers is led by public sector (Lim et al., 2012).

South Korea's referral arrangement system is basically composed of two steps. Patients can freely choose any health care provider and primary clinics including Korean traditional medicine. The referral slips should be turned in if a patient needs further medical treatment. The most common facilities used by the insured are pharmacies and public health clinics in a way of low economic expenses. Korean traditional medicine clinics exist for a long time and take an exceptional role as an essential component in Korean health care system along with western medicine. Korean traditional medicine is typically popular among older adults and women regardless of income level (Peabody, Robalino, & Kim, 2002).

The regional disparity of health care service resources and the consequential health inequity are the challenges of the health system in Korea (Kwon, 2009; Song, 2009). Approximately 91% of health care professionals and facilities are concentrated in metropolitan area, while underserved population is in rural areas. Korean government makes consistent efforts to ensure the equity of accessibility through expanding services (Song, 2009; Korea Ministry of Health and Welfare, 2012).

Treatment of MI in Korea

The treatment standard of MI in Korea has been developed based on Western researchers' guidelines. Early recognition of MI symptom with prompt initiation of resuscitative measures is emphasized along with continuous electrocardiogram monitoring, reperfusion therapy, and revascularization (Song, Hahn, & Gwon, 2008; Lee, 2007). In Korea, generally speaking, patient with MI would be hospitalized for at least 14 days and be discharged if he/she has no complications with a future follow- up plan presented to the patient. The research about public awareness of high mortality and morbidity of CHD is rare. Only the lay literature, such as monthly women’s magazines, has covered the importance of weight control and a low salt diet to reduce CHD risks among postmenopausal women and ways to cope with hypercholesterolemia in menopause (Choi, 2012; Lee, 2011).\

Conceptual Model

Several studies reported that women, particularly with MI, hesitated to seek professional health care possibly due not only to health beliefs and attitudes about MI but also social and cultural constraints in the U.S., Canada, and Europe (Finnegan et al., 2000; Goldberg et al., 2009; McSweeney et al., 2007; Saczynski et al., 2008). However, specific factors that influence HSB among Korean women with MI have not been reported nor has a conceptual model been proposed.

CHD, including coronary vascular disease (CVD), which involves any blood vessels and the heart, then brings about blockage that inhibit blood flow from the heart to the body. Many more women died from CVD than from all types of cancer (Korean Center for Disease Control [KCDC], 2011, 2012, 2013). The CHD mortality rate exceeds that of breast cancer, which is the most common gender specific cancer in Korea (KCDC, 2005). Moreover, socio-cultural factors are influencing MI, thereby making it difficult for Korean women to seek help (Boo, 2011).

Two conceptual approaches, both Western in origin, were adopted for structuring the study of health-seeking behavior of Korean women with MI because they include a holistic approach in which demographic features as well as an individual's perception and response to illness in the investigation of HSB are taken into account (Chrisman, 1977; Kroeger, 1983).

Theories of Health-Seeking Behavior

According to Chrisman (1977), HSB is defined as the steps taken by an individual who perceives a need for help and attempts to find the solution to their health problem. Two frameworks have been integrated in the conceptual model below in an attempt to look at HSB further with comprehensive schemes. Anthropologist Chrisman (1977) identifies five steps of that health-seeking behavior as a process that includes: symptom definition, illness-related shift in role behavior, lay consultation and referral, treatment actions, and adherence. Each element is influenced by the cultural and social factors. Chrisman believes that the scope from symptoms recognition to the degree of adherence has all been culturally constructed. With the strength of clear process and useful construct in relation to the significance of social and cultural aspects of health seeking behavior, the Chrisman model would guide the investigation into the Korean women's HSB at the MI symptom presentations to have professional medical care with individual's perspective. This model would be of use in a society in which every member is strongly tied into the society. However, his model is not able to be use for chronically ill persons (Chrisman, 1977), and quantitative contents such as demographic variables are not considered for the determinants of HSB. To have a more comprehensive conceptual model for examining and interpreting HSB of Korean women with MI, Kroeger's notion of health -seeking behavior is incorporated.

Kroeger's (1983) describes well the pathways and determinants of the use or non-use of traditional and/or modern health services among developing countries. He identifies three categories of variables to explain the individuals' choices of health care resources: characteristics of the subject (predisposing factors), characteristics of the disorder and their perception, characteristics of the service (enabling factors). These three factors are interrelated with each other, and affect an individual's choice of health care resources. The interplays among factors practically describe how socio-cultural factors shape an each HSB under different conditions. Kroeger's model has a more evolved framework than Chrisman's when taking into account the explanations of important background variables. However, Kroeger's socio-behavioral model omits the specification of need factors, which are critical in understanding an individual's HSB (Weller, Ruebush, & Klein, 1997). Thus the use of an integration of these two models would provide a consolidated conceptual model concerning all the variables that intervene in the use of health care among Korean women with MI.

Conceptual Model of Health-seeking Behaviors

Health–seeking behavior is a decision made by women whose livings remain in a certain society who are faced specific social and cultural norms. Socio-cultural norms impinge on women's decisions toward seeking health care services in general (Schoenberg *et al*., 2003). The following conceptual model of HSB among Korean women with MI will be a good framework to discover the facilitating or impeding factors to seeking healthcare.

Socio-demographic factors in the model cover age, gender, race, education and income level, and family size. These are frequently reported as factors in outlining the delay in seeking treatment upon the presentation of symptoms. Specifically, if a candidate is a female, over 65 years old, poor, from an ethnic minority group, has a lower education level, and lives alone, she would be at risk for delays in seeking treatment (Banks, 2005; Chen, Woods, & Puntillo, 2005; Chism, 2001; Clark, Des Meules, Luo, Duncan, & Wielgosz, 2009; Finnegan *et al*., 2000; Harralson, 2007). Clinical factors are comprised of the symptom cluster of MI symptom attributions and other combined chronic diseases. The misinterpretation of symptoms has been shown to result in the delay in timely medical treatment, which is observed among women rather than men (Finnegan et al., 2000; Fukuoka, 2003; Mona Løvlien, Schei, & Hole, 2006; McSweeney et al., 2007). The association of atypical symptoms of MI and chronic disease are more often reported as contributing factors of women in studies of delays in seeking treatment for MI (Banks, 2005; Hwang, Zerwic, & Jeong, 2011). Cultural factors comprise familism, gender role stereotypes, fatalism, and the culture- bound syndrome (Chen et al., 2005; Cho, 2004; Emslie, 2005; Fleury, Keller, & Murdaugh, 2000; Kim, 1990). In Korea, a head of household has the authority over the all decision-making in terms of family members. Korean women are subordinate to the head of household, and thus they cannot make up their own mind about seeking medical treatment, even though they might require immediate emergency care (Cho, 2004; Kang, 2007). As for the health service sector, physically-long distances in combination with limited transportation sources have a hampering effect on timely treatment (Brokalaki et al., 2011; Hwang et al., 2011b; Turris & Finamore, 2008). In the context of medical pluralism in Korea, Western originated biomedicine and indigenous Korean traditional medicine coexist but these two different medical traditions are not compatible with each other. Different standards in treatment these two medical traditions result in a mistrust of traditional medicine. Thus it may contribute to confusion in women's decision making with regards to choosing optimal treatments for certain symptoms (Hong, 2001). Gendered presumptions about MI held by health care providers and patients that "MI is a male disease" make women believe they are protected from MI (Emslie, 2005; Higginson, 2008). Furthermore, failure to recognize and interpret symptoms as cardiac in origin by the patients is applicable to psychological factors.

Summary

A single factor cannot explain the reasons for delay among women with MI and the decisions about seeking treatment are influenced by the multiple factors in the sociocultural contexts. Significant aspects regarding the majority of researches about the attributing factors on delay in seeking treatment include: they have been done by Western researchers, more than half of the participants in the previous studies were male, most were the large population-based surveys, reliance upon the medical records as major information source, and no or very few Asian participant s were incorporated in the studies. Fewer interpretive studies of sociocultural factors in seeking treatment were done by the Western researchers, yet the studies in relation to gender and ethnicity were mainly focused on the African-American women. Therefore, considering the high mortality and morbidity rate of CHD in Korean women, the study of HSB in Korean women in sociocultural context is necessary to expand the knowledge in nursing science.

Health-seeking behavior includes an individual's health status, socioeconomic status, preferences of health care services, availability of health care services, and the communications between health services and health care personnel. Moreover, the socio-cultural environment exerts significant influence on people's health beliefs and value systems as well as lifestyle behaviors and their use of medical care and treatment. Korean women's HSB is more likely determined by various social, contextual, and cultural norms; more so than that of the male counterpart. Women may experience more obstacles to approaching health care services. There are unexplored factors such as socio-cultural, organizational or systems factors that explain help-seeking among women. Affecting factors in delay in seeking treatment should be identified and then the negative consequences on individual health must be minimized by the modification of factors.

Figure 1 A conceptual model of health-seeking behavior among Korean women with myocardial infarction

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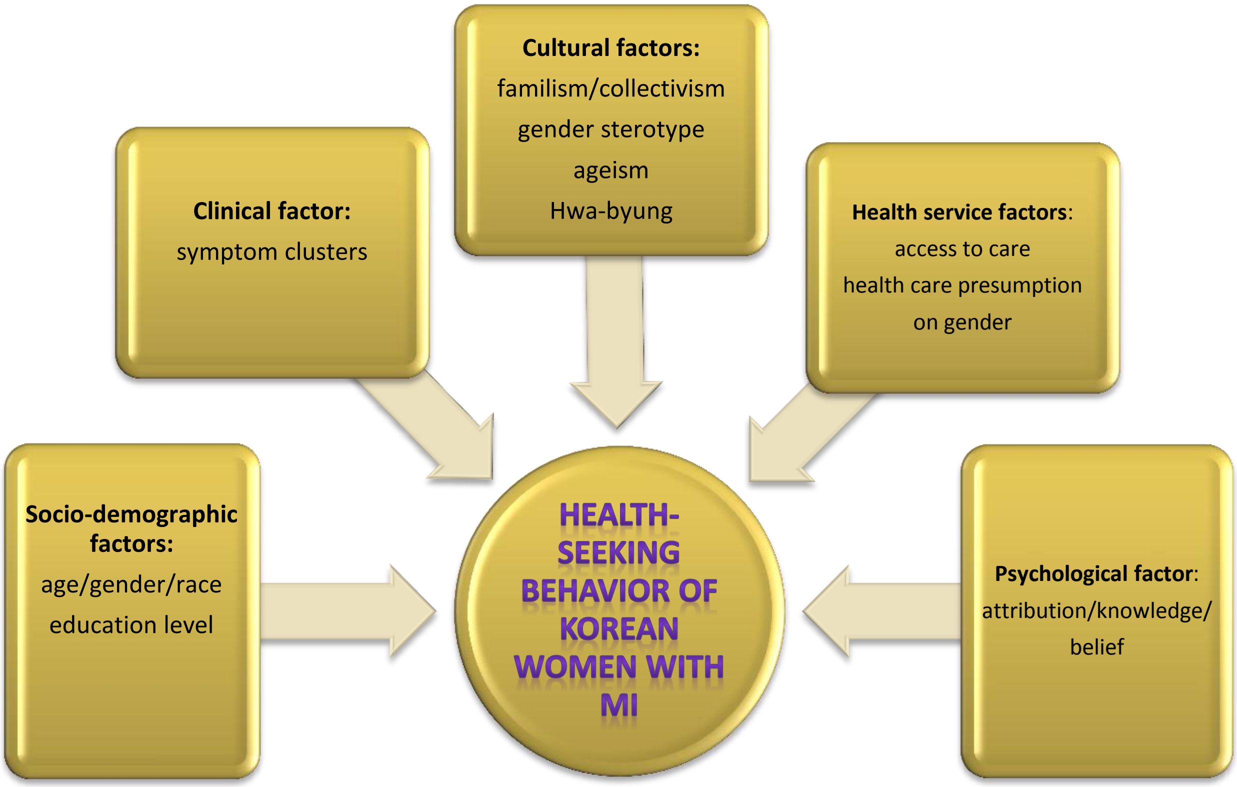

Chapter III. Methodology

This chapter describes the methodology, methods, rigor, and participant protection for this study. This chapter consists of three sections. The first section is a comprehensive discussion of the methodological perspective driving this study. The second section provides a detailed description of the study design and research participants, which includes sampling strategy and procedure of data analysis techniques. Finally, the third section focuses on the protection of human subjects.

Methodological Perspective

Grounded theory, a qualitative method, was employed for the current study because it is most appropriate for the purpose of theory generation along with the study aims of exploring and elaborating the health-seeking behavior process of Korean women with MI in a socio-cultural context.

Health-seeking behavior, as a dynamic process, occurs over time and is influenced by a variety of factors at a given time and place. There is no single truth to explain human experience as an interpretivist believes (Polit & Beck, 2008). The meanings may not seem to be consciously constructed for each woman, and in fact, may not even contribute to sensible actions in another person's opinion (Corbin & Strauss, 2008). It is more important to examine a complex human process from the participant's viewpoint and put value on holistic understanding of subjective experience as it is lived rather than maintaining objectivity (Carr, 1994; Polit & Beck, 2008; Streubert & Carpenter, 2011). To get more valid understating of HSB of Korean women with MI, women's experience should be examined from women's perspective because the meanings of an incident are highly individualized, and it is expected to be different from that in Western society.

A theoretical perspective that fits with this epistemology is that of symbolic interactionism. Congruent with this philosophy, my assumptions going into the study were that the women's actions are based on the meaning they place on the socio-contextual situations (Charmaz, 2006), that the meanings are made in relation to interaction with others, and that the meanings may be interpreted and modified by the women as they evaluate the situation (Crotty, 1998).

Symbolic interactionism as a theoretical perspective

Symbolic interactionism (SI) is the one of the major theoretical perspectives in sociology. George Herbert Mead (1863-1931), a pragmatic philosopher, was the founder of SI, and emphasized the subjective meaning of human behavior, the social process, and pragmatism. For Mead, his influential ideas were the development of the self and the objectivity of the world within the social realm, meaning that the individual mind can exist only in respect to other minds with shared meanings (Mead,1982). Three ideas of pragmatism have critical impact on symbolic interactionism: (1) the focus on the interaction between the actor and the world, (2) a view of both the actor and the world as dynamic processes and not static structures and, (3) the actor's ability to interpret the social world. Thus, the dynamic interaction between actor and the world occurs in accordance with the social interpretation of individual not with the mere response to other's actions (Blumer, 1969).

Herbert Blumer, a successor of Mead, further developed the work of Mead. SI refers to the process of interaction in the formation of meanings for the individual (Blumer, 1986). Three key concepts of SI are self, the world, and social action. These core principles lead to conclusions about the creation of a person's self and socialization into a larger realm (Blumer, 1986). Blumer described three premises of SI. First, human beings possess the meaning of things, which holds for them but are not shaped by social interaction. Second, human beings learn meanings and symbols through social interaction over time and bring about evolving meanings. As a key feature of SI, a meaning is collectively determined, and comprises the larger socially constructed meanings brought to the interaction. Lastly, human beings modify the meanings and symbols during interactions by interpreting the situations in which they are affiliated with. Therefore, the meaning of objects contextually varies depending on each interpretation. Subjective interpretation of objects through a process of self-interaction of socially determined knowledge modifies each individual's meaning of symbols, which later enable a person to make a decision on a certain issue and predict the outcome of it (Blumer, 1969; Griffin, 1997).

Objective and positivist inquiry is restricted to the true understating of social act. In contrast, interpretivist inquiry with SI allows a researcher to explain the social realities of individuals from the participant's point of view.

Furthermore, according to Blumer (1969), the methodological perspective of SI enables a researcher directly observe the empirical social world involving confrontation with the issues of empirical world by observation and analysis, the relating categories derived from the data through disciplined ways of examination, and testing of theory constructed by examination of the phenomenon under study. These methodological principles are compatible with grounded theory (Glaser, 1998; Strauss & Corbin, 1990). In fact, the SI framework puts emphasis on the importance of meanings that are derived as people interact in society. These meanings can be the foundation for taking into accounts one's own action, other people's actions, and social contexts. Such meanings may help to explore and identify the Korean women's health seeking behavior for MI treatment.

Grounded theory

Grounded theory (GT) is a research method to focus on and to discover social processes and patterns so that a theory can be generated regarding the area of interest with the full explanation about how the concerns are processed and resolved (Strauss & Corbin, 1996). GT has its roots in provisions of Symbolic Interactionism, and was developed in 1967 by two sociologists Dr. Barney Glaser and Dr. Anselm Strauss, as an adequate method of verification. The purpose of GT research is to develop a theory for deep understanding of complex behavior patterns using the inductive process. Theories that developed from GT research are derived from the data in the experiences of participants, which is systematically gathered and analyzed, and guided by SI focusing on the area of interest (Strauss & Corbin, 1996). The generated theory allows explanation about phenomena as well as prediction of a similar phenomenon in other settings. Although the development of theory is worthwhile in terms of extending and deepening a field of knowledge, Corbin and Strauss put an emphasis on keeping balance between conceptualization and description (Corbin & Strauss, 2008).

As the purpose of GT research are understanding and explanation of phenomenon especially from the viewpoint of the participant, data collection is performed in natural setting where participants are engaged, such as hospitals, schools, and the participants' home. The GT researcher begins with questions, not with hypotheses about people's experience, and actions which are needed to be examined by obtaining first hand- information such as from interviews and observations in order to get insights about human action/interaction and enhance conceptual understanding (Glaser & Strauss, 1967; Corbin & Strauss, 2008).

The distinctive features of the sampling and analysis in GT are theoretical sampling, constant comparative data analysis, and the concept of theoretical saturation (McCann & Clark, 2003). The most fundamental feature of GT is that data collection, data analysis, and sampling of participants takes place simultaneously, and the GT process including data collection and analysis is performed repetitively (Corbin & Strauss, 1996).

Grounded Theory Data Collection and Analysis Methods

GT researchers collect data from interviews, observations, documents, or from a combination of these sources (Glaser & Strauss, 1967). As concepts and categories become apparent during data analysis, the required sampling of particular data sources continues until theoretical saturation is reached. There is no limit to set on the number of participants, interviews, or data sources since it is impossible to estimate beforehand where the data will lead (Glaser, 1978).

The important features of GT are sampling and analysis, which include theoretical sampling, constant comparative data analysis, and the concept of theoretical saturation (McCann & Clark, 2003). The most fundamental feature of GT is that data collection, data analysis, and sampling of participants takes place simultaneously. The GT process is recursive. Researchers collect data, categorize, describe the emerging central phenomenon, and then recycle earlier steps.

Glaser and Strauss developed systematic criteria for judging the veracity of a GT, which included four criteria: fit, work, relevance, and modifiability (Glaser, 1967). In addition, four criteria for judging the applicability of the theory to a phenomenon are: fit, understanding, generality, and control (Strauss & Corbin, 1990). If the theory is faithful to the everyday reality of the substantive area and is carefully induced from diverse data, then it should fit that substantive area.

Theoretical sampling Theoretical sampling means that the sampling of additional incidents, events, activities, populations, and so on is directed by the evolving theoretical constructs (Draucker, Martsolf, Ross, & Rusk, 2007). Simply speaking, a researcher will determine where to go next for data as the phenomenon appears. Comparison between the explanatory adequacy of the emerging themes and these subsequent empirical indicators go on constantly until theoretical saturation is reached (Draucker et al., 2007). The purpose of theoretical sampling is to sample incidents, in which indication of concepts and themes along with discovering properties, and dimensions for conceptual interrelationships among them (Strauss & Corbin, 1990). Therefore the more a researcher comes across phenomenon at initial theoretical sampling, the more categories emerge and maximize differences along dimensions.

For theoretical sampling, a researcher keeps asking questions and comparing concepts for identifying emerging categories and then analyzing, checking, filling out categories, and getting insights concerning where to go or return to extend categories (Charmaz, 1990). It is Theoretical sampling is accumulative and flexible process during the interplay of data collection and analysis. The goal of theoretical sampling is generating as many categories as possible for a wide range of pertinent areas (Cording & Strauss, 1996).

Saturation Theoretical sampling ends when saturation is achieved. Glaser and Strauss explained that saturation “means that no additional data are being found whereby the researcher can develop properties of the category” (Glaser & Strauss, 1967, p 61). That is to say, the saturation of categories can occur when no more new or relevant data is come up with regarding categories, and categories have enough explanatory power to describe all variations (Corbin & Strauss, 2008). At that analytical point, a researcher can stop sampling assured by constant questioning and re-examination of data (Hutchinson, 1993; Streubert & Carpenter, 2011). Final sampling often includes a search for confirming and invalidating cases to test, refine, and strengthen the theory (Polit & Beck, 2008).

Constant comparison Constant comparative analysis is a unique aspect of GT methodology (Glaser & Strauss, 1967). This method of data analysis is conducted for refining theoretical relevance among categories. During the theoretical analysis, a researcher compares the properties or dimensions of a code, category, and domain within incidents through asking theoretical questions about each case (Glaser & Strauss, 1967). The process is continuously occurred until every source has been compared with the content in all sources for identifying commonalities and variations (Glaser & Strauss, 1967).

Coding paradigm The process of coding leads a researcher to identify, categorize, and conceptualize the phenomena (Strauss & Corbin, 1990). Data are broken down, conceptualized, and put back together in new ways to build a theory (Strauss & Corbin, 1990). Flexibility is necessary quality that a researcher should maintain for proper coding throughout analysis (Chen & Boore, 2009; Strauss & Corbin, 1990).

Analysis in GT is made up of three types of coding. These are: (a) open coding (b) axial coding (c) selective coding.

Open Coding Open coding is the first analytical step in which data are broken down into primitive parts. To get similarities and differences between incidents, a researcher should thoroughly examine and compare phenomena. Coding is conducted at the level of line by line, sentence by sentence, and paragraph by paragraph examination of data with the way of asking questions about the phenomena (Glaser, 1978). The characteristics of categories, properties, dimensions, and the categorizing of phenomena are developed through the examination of data (Strauss & Corbin, 1990).

Axial Coding Axial coding is a set of procedures through putting back together of data in various ways after open coding in order to make connections among categories. Several analytical tools can be utilized for developing theoretical features; a coding paradigm for integrating theoretic structure and relational statements for explicating theoretical relationship among categories and subcategories such as what is the conditions, context, action/ interaction strategies and consequences regarding phenomena in a general sense (Strauss & Corbin, 1990).

Selective Coding Selective coding is the process of refining the theory, which is the main core category of the given phenomenon. During the selective coding, the relationships among categories are validated, and the theoretical gaps in categories are filled in order to achieve further integration. At this time, saturation can be attained, and theoretical scheme fulfils the internal consistency and logic. The recommended techniques for facilitating identification of the central category are writing the storyline, using diagrams, and reviewing and organizing memos (Strauss & Corbin, 1990).

Memoing Memoing is informal and private notes taken by the researcher throughout the study in order to obtain hunches about the data, emerging theoretical codes, and relationships among the codes (Glaser & Strauss, 1967). As the study proceeds, memo becomes richer in conceptualization and building theory. There are three types of memos: (1) Code memos: memos containing the actual products of the three types of coding (open, axial, selective) (2) Theoretical memos: sensitizing and summarizing memos that contain an analyst's thoughts and ideas about theoretical sampling and other issues (3) Operational memos: memos containing procedural directions and reminders.

Study Design

This is a grounded theory study to explore the experiences of Korean women with MI at the time of symptom presentation that identifies Korean women's health-seeking process for medical treatment of MI symptoms. The GT method is chosen because the GT perspective values the experience of the participant. GT's philosophical foundation, symbolic interactionism, attends to an individual and his/her interactions among people in the society. The GT method supports understanding the social process and new dimensions of the phenomenon in HSB of Korean women with MI (Denzin & Lincoln, 1994).

Participants

Sampling strategy Participants were recruited and interviewed to attain a wide range of variation on dimensions of interest concerning the experiences of MI among Korean women in relation to their health-seeking behavior. In grounded theory, sampling is sequentially conducted and analysis takes place concurrently (Glaser & Strauss, 1967). Sampling, coding and analysis were done at the same time in this study: the study began with selective sampling before data collection so that the researcher could gain the maximum amount of relevant data concerning phenomenon under study to expand categories by identifying the population and sites (Glaser, 1978; Strauss & Corbin, 1990; Richard et al., 2007), and then moved into theoretical sampling as concepts begun to appear. The shifting of sampling from the selective to the theoretical occurred after some of the data were analyzed, and the researcher sought all relevant data sources toward a theoretical construct to refine emerging ideas by the tenets of constant comparative analysis (Draucker et al., 2007; Glaser, 1998; Strauss & Corbin, 1990). Theoretical sampling was used to find further data sources regarding a varied range of dimensions, conditions along with various emerging concepts and categories for maximum relevance, and for modifying the interview guide directed by the evolving theoretical constructs (Draucker et al., 2007; Strauss & Corbin, 1990; Walker & Myrick, 2006; Corbin & Strauss, 1996). Likewise, theoretical sampling in this study was used to choose new participants in directing the researcher to data sources other than participant narratives and modify interview guides in relation to the process of health seeking behavior of Korean women with MI.

Saturation, as Glaser and Strauss explained as " no additional data are being found whereby the researcher can develop properties of the category" (Glaser & Strauss, 1967, p 61), was the criterion used for determining sample size. The researcher closed the sampling at the point of theoretical saturation, which was achieved by the generated data and analysis when additional data seemed no more informative and explanatory information and the data from the last sampling were not much different from the previous data in the analysis (Hutchinson, 1993; Streubert & Carpenter, 2011). In this study, a total of 18 women participated in this study.

Criteria for Selection

Inclusion criteria To be included in the study, women had to be diagnosed with MI. Inclusion criteria for participant in the study were as follows:

- to have MI diagnosis
- to be able to understand and speak in Korean

- to be 40 years of age or older
- to be physically and mentally stable condition to be interviewed

The first criterion was established to encompass women's reflections on their experience because HSB is not limited to first time patients, and so the sampling included newly diagnosed patients, as well as those with chronic MI. The diagnosis of MI was documented on medical records by the presence of two out of the following diagnostic criteria (Lilly, 2011): (1) definite electrocardiographic changes showing the development of a myocardial injury pattern with ST-segment depression and/or T wave inversion, or ST elevation and abnormal Q waves lasting longer than 24 hours, (2) an elevation of serum CK-MB isoenzyme levels within 24 hours of admission, (3) positive Troponin value. The second criterion was necessary for both the participant and the researcher to comprehend the informed consent and to detect nuances in the language that might not be discovered. The age range was chosen to encompass most potential ages of MI women to facilitate case findings, since Korea has a relatively low incidence rate of coronary heart disease compared to Western countries. The mean age of the first acute MI among Korean women is 65 years. The prevalence generally increased with age, especially after menopause. The mean age of menopause among Korean women is 49.7 years (Korean Statistical Office, 2010). The last criterion was chosen to ensure correct communication with participants. Potential participants were evaluated by a physician based on the medical record in outpatient department at the time of consultation time and also reconfirmed by the researcher during the first meeting before the obtaining the informed consent from the participant.

Exclusion criteria Exclusion criteria were applied to participants who partially met the inclusion criteria. The details were as follows:

- Woman has an unstable condition
- MI has developed while hospitalized for some other reason

The criterion was chosen because the HSB of such a case had multiple reasons for seeking health care other than MI.

Recruitment

Two university hospitals were the clinical site for study recruitment. The hospitals were located in a large city with considerable socioeconomic diversity. This optimized the applicability of theory testing in future practice (Streubert & Carpenter, 2011). The hospitals were contacted and permissions from the institutional review committee were obtained to conduct research. Cardiologists were contacted, and consents and supports were obtained about approaching and contacting with women diagnosed with MI for possible participation in the study. The physicians contacted the researcher as they identified potential participants who were interested in the study as soon as a woman was seen in the cardiology unit of the outpatient department. With their individual's permission, the women were invited and provided with information about the study from the researcher. Informed consent was obtained by the researcher, which included the purpose and scope of study, the types of potential benefit and risk, how the results would be used, and her anonymity would be protected (Richards & Schwartz, 2002). Upon obtaining informed consent, a mutually convenient time was arranged for the initial interview. The copy of the consent form was provided to a participant as well.

Data Collection

Data collection process Once informed consent was obtained, an initial interview was scheduled and took place in a quiet and natural place a participant preferred such as a café, or the participant's home to protect patient confidentiality and gather more meaningful data (Lincoln & Guba, 1985). Data were collected using a semi-structured interview guide (Appendix F) and a demographic questionnaire (Appendix G). The researcher kept memos (field notes, code memos, theoretical memos, operational memos).

Interview The interview guide was used to facilitate receptive atmosphere in initiating interrelationship between interviewer and interviewee and solicit expected women's experiences. Some of interview questions in interview guide were adopted from prior research (McSweeney et al. 2000; Dempsey et al. 1995). Interviews were conducted with audio-taped recording with a participant's permission. The first interview took place as soon after consent was obtained from a participant. A subsequent interview conducted in person or by phone as the participant wanted if it was needed depending on the emerging categories for further data, or for clarification of participant's response. The range of interview time was 30 minutes to 70 minutes. Interviews began with opening statement such as, 'I would like to learn about what happens when you experience symptoms and what you did when symptoms occur in terms of seeking treatment', and probing questions were asked as follows, 'Tell me about your story from the time you first noticed your symptoms in terms of seeking care', 'Tell me about your feeling and thoughts on what was happening to you?', 'Tell me about what you did for alleviation or seeking help at the time of symptom presentation?'. As the interview progresses, more questions were added to explore the process and the contexts and educe more information of phenomenon (Corbin & Strauss, 2008). Examples of subsequent question for exploring emerging concepts on health-seeking behavior were: 'You said you were not sure initially what was happening, tell me more about that', 'You told me you thought it was a heart attack. Please tell me what made you think like that? During the interview, the researcher asked participants clarifying questions and interpreting questions in order to ascertain the researcher's understating about the participant's response (Kvale & Brinkmann, 2009). Example questions of clarifying and interpreting were as follows: 'You said the pain was not that serious enough to see a doctor, tell me how intense it was with 0 to 10 scale', 'You told me it was because of Hwa-byeong from your hard married life. Tell me how Hwa-byeong contributed to your heart health?' In closing interview, the researcher provided interpretation of what a participant said to ascertain interview findings, and then closed with a question about whether there was anything they wanted to tell the researcher more.

Memos Field notes and memos were written in informal form throughout the research process. Field notes included variable data about social interactions such as interview settings and women's attitude entailing emotional gestures in the context of the interviews for a richer account of women's subjective view. Memos were freely taken and organized by dates with headings of denotation including reference data during the coding and data analysis, as Glaser (1998) claimed, to include any idea of conceptualization and educe among concepts. It also played a role as an audit trail in tracking of all the categories, properties, hypotheses, and generative questions that evolve from the analytical process (Corbin & Strauss, 1990).

Field notes Field notes were hand written by the researcher during and following interviews, and chronologically filed with the participants' pseudonym. Field notes encompassed any observation and interpretation of the participants' response related with the experience of HSB during the data collection. It served as an individualized portrayal description of participant's presence in being interviewed and an accelerating agent which increased the sense of conceptualizing ideas.

Code memos   Code memos were done immediately after every initial reading of a transcript. Memos were dated with heading denotation and reference of documents, which were placed on the margin of a qualitative study computer program, Atlas ti. Initially, a few conceptual labels created about whatever the researcher thought relevant and meaningful in conceptualizing. Later on, conceptual labels became richer and more accurate, and grow theoretically as research went on. It provided the researcher a reminder for abstract ideations and a theoretical inspiration to find more concepts and categories which were in need of further developments.

Theoretical memos   Theoretical memos were taken throughout the research about what to look for, what incidents were needed, and what questions must be asked to densify or refine a theory. Memos also allowed the researcher relate concepts and categories by comparing its properties and dimensions. Memos were hand written and organized by concepts. Diagrams were frequently used as a tool in visually illustrating the relationships among concepts and categories during constant comparison analysis for encouraging further theoretical ideation. If a new concept emerged, the researcher compared the concept to concept and category to category for uncovering similarities and differences toward forming a theoretical framework. Theoretical memos were sorted out according to categories and concepts so that the researcher could easily retrieve data at various points of analysis for elaborating a theory.

Operational memos   Operational memos were made after the analysis of each transcript and followed on contents of theoretical memos. The memos played a role as a reminder for the researcher about what to do in next steps not to miss the focus in terms of filling gaps in analysis.

These were freely written and placed on assorted places like a scheduler or memo function pads on transcripts.

Data Analysis

Each interview was voice-recorded and transcribed verbatim by the researcher right after the interview. It took 4 to 5 hours in transcribing one hour long interview. After a typed interview transcript was completed, the researcher compared the typed transcripts to audio-recording to ascertain the accuracy of data. In verifying the data between an audio-recording and a typed transcript for 1 hour long interview took 2 hours in average. To enhance peer debriefing and get assistance in data analysis, most transcripts were translated by a bilingual translator who had much experience in Korean into English translation. Once a Korean transcript was made, a translator translated the transcript Korean into English. The researcher checked each translation to verify the contents. Analysis was supported by data management software, Atlas ti, to store and organize data. Field notes and memos were freely written during data collection and analysis. As the data collection progressed throughout the interviews, field notes and memos were gradually generated. Code lists were created from the very first interview including identified key codes entailing memos. The lists of codes grew as the research progressed, then codes were grouped into a category included those with similar features. Seven major categories were frequently appeared in each interview in terms of seeking a treatment. Each category linked with each other at the level of properties and dimensions toward the central category, “finding an optimal solution for symptoms.” To refine the emerged theory, the researcher used diagrams and memos in terms of verifying internal consistency and flawless logic.

Open coding The analytic process started right after the completion of transcription. The researcher aimed at identifying as many codes and categories as possible from the participant viewpoint. Coding started from line by line with gerunds coding (-ing words, e.g. finding and relieving). It was placed on the right margin of the transcripts, the code lists were created and the categories were generated according to the features of concepts such as time, place, and type of symptoms. Memos were linked to direct quotes, codes, and categories with headings of title and dates in order to track the details of code definition and condition, which a concept occurred. The researcher sorted memos out by the features of concepts and categories. Memos were reorganized or set aside until the relationships among concepts and categories became clear. These processes were repeated throughout the analysis. Seven main categories emerged at the point of first seventh interview: experiencing symptoms; attributing symptoms; evaluating situations; self-managing symptoms; consulting about symptoms; getting an ideal treatment; and maintaining optimal health. The interview guide was modified based on the emerging concepts and categories.

Axial coding Constant comparative analysis, which means concurrent data collection and analysis, came to play concerning saturation of category, meaning, no new information appeared, i.e. no new features of category were seen (Corbin & Strauss, 1996). Subsequent interviews were conducted with the purposes of full elaboration of the contents of concepts and development of the relationships among concepts and categories. The researcher continued data collection throughout additional interviews until the theoretical saturation was achieved. During the process the existing data were compared to new data in terms of women's health seeking behavior such as how women's responses were similar or dissimilar with each other's and what conditions contributed to the participants' HSB. Several analytic tools including a paradigm, a framework, and a diagram were used to find out gaps in emerging theory. Memos directed the researcher how the interview questions were modified to fill the gaps: what conditions of a phenomenon that led a participant to behave like that comparing to previous participants; how it made a participant able to continue the behavior; how could it be applied in this theory; and how it fit in this theory. Over a series of analysis, the relationships among categories became denser and the researcher gained clearer insight about the emerging theory.

Selective coding Choosing a core category was the aim of the process. 'Finding an optimal solution for symptoms' was determined as a core category with constant comparative analysis. The category was interrelated with other categories and centered among categories. It had an explanatory power for almost all cases so that the theory explained about what was going on when a woman experienced the symptoms. For further theoretical integration, the researcher wrote a storyline, memo, and diagram. A storyline was descriptively written with a general sense to facilitate integration of concepts started with the question "what's going on here?" More abstract memos were sorted to systematically integrate the theory for looking at dimensional differences in types of health seeking behavior. As a complementary process, the researcher wrote a theoretical scheme to decide whether it actually explain and fit in most cases with abstraction. A diagram was helpful for the researcher in focusing on working with concepts during the recursive analysis.

Trustworthiness

Trustworthiness in a naturalistic paradigm is enhanced by the concepts of Lincoln and Guba (1985). These are similar concepts of a positivist paradigm such as reliability and validity. However, the concepts from a positivist paradigm do not fit for evaluating the trustworthiness of

GT because of the subjectivity and biases that qualitative researcher brings to the study, key distinctive assumptions of a naturalistic paradigm cannot be judged by the positivist's perspective. Four constructs to be considered trustworthy in qualitative research are (Lincoln & Guba, 1985): (1) credibility (2) transferability (3) dependability and (4) conformability.

Credibility Credibility refers to true value of the data and how much the data collected accurately reflects the multiple realities of a phenomenon (Lincoln & Guba, 1985). Credibility in this study was maintained by member checks. Member checks, also known as respondent validation, were performed by sharing the verbatim transcript with the several participants with subsequent interview. The emerging concepts and categories of the theory were confirmed through the member checks.

Transferability Transferability refers to theoretical applicability, which means the degree to which the findings can be generalized to other settings (Lincoln & Guba, 1985). As Guba & Strauss suggested, developing thick description is a researcher's responsibility in order to assure the applicability of the data to other contexts. Thus, sufficient descriptive data together with field notes and memos were done by the researcher to fulfill this criterion.

Dependability Dependability refers to reliability, which ensures the stability of data over changing conditions. Dependability was verified by the question, "Would the findings of inquiry be repeated in a similar situation?" For this criterion to be achieved, the researcher invited peer debriefers who have a lot of experience in GT for verification in the process of the conducted grounded theory method.

Confirmability Confirmability refers to objectivity of the research. Another researcher can confirm the study is completely dependent on the data. To achieve this criterion, an audit trail was made by entailing all the raw data such as verbatim transcripts, field notes, and memos.

Protection of Human Subjects

Permission obtained to conduct this study from the University of Washington Human Subject Committee and the appropriate research committee from the target hospitals. The consent forms were written in both Korean and English. A Korean version of the consent form was used for participants. Written informed consent contains the study procedure, risks, and benefits to the participants and it was obtained at the time of inclusion of participants. The voluntary nature of this study was fully elaborated at the time of recruitment and consent including withdrawal from the study, decline to answer about any objectionable questions, or termination of an interview at any time. Information about no penalty or loss of treatment benefits to which the patient was entitled was given. A token honorarium in the form of a $ 25 gift certificate for the first interview and a $ 20 gift card for additional interview was offered to respondents in appreciation of their time.

Participants' safety There was no adverse effect as a result of participating in the interviews. However, the researcher frequently asked the participants about their physical and emotional distress during the interview to make the participant's condition certain.

Confidentiality Confidentiality was ensured to the greatest extent possible. Upon obtaining the informed consent, the participant had a pseudonym instead of using her real name so that she is not identifiable in reports or publications resulting from the study. Any identifiable characteristics of participant in the transcript, such as physician's name, nurses' name, and a residential district were deleted.

The taped interviews were numbered. Participants knew that quotes might be used if findings are published. The transcripts were password protected and any identifying data was removed. Only the researcher, dissertation committee member, and translator were able to access to the transcripts.

Confidentiality of all written and recorded materials were assured by the assignment of code numbers to written materials, destruction of taped records after transcription, and storage of transcribed and analyzed data in a locked cabinet in the researcher's office.

Potential benefits Throughout the interview, participants felt their contribution in developing nursing knowledge, and got a sense of emotional release as they share their experience with the researcher.

Chapter IV. Findings

A total of 24 interviews were done for this study from 18 participants. In this chapter, demographic characteristics of participants findings of this study are described with the purpose of this study, generating a theory of HSB among Korean women with MI in terms of their experiences of MI at the time of symptoms presentation, and the process of treatment seeking, along with the specific aims: exploring of the experiences of Korean women at the onset of MI symptoms and elaborating of the process in seeking treatment for the symptoms of MI. With grounded theory, a theory of HSB among Korean women with MI emerged from the analysis of interview data. Quotes from the participants are included to explain each concept, and diagrams are used to help readers understand how the categories are related with each other.

Demographic Characteristics of Participants

Eighteen Korean women with myocardial infarction participated in the study. Demographic characteristics of the participants are in Table 1. The age of the participants ranged from 53 years to 87 years, with the average being 71.5 years (SD=8.75, median=71). Seven of the participants were diagnosed with ST segment elevation MI (STEMI); the other eleven were diagnosed with non-ST segment elevation MI (NSTEMI) including diagnosed with angina prior to NSTEMI. The mean age of the participants at the time of diagnosis was 67.8 years (SD=11.4, median= 68.5). Eight of the participants experienced recurrent MI. Two of the participants were a current smoker with a 10 pack-year of smoking history. Four of the participants had Type II diabetes. All the participants were diagnosed with hypertension. Eight of the participants had lipidemia. Two of the participants knew about the family history of cardiovascular disease; nine of the participants denied the family history; seven of the participants were ignorant of it. Ten of the participants were married. Four of them became single because of divorce, and the other four women became single due to separation by death. Three of the participants lived alone; the other fifteen of the participants lived with husband, relation, and/or grown up children. Seven of the participants had more than a high school degree; five of the participants were graduated from middle school, five of the participants of the participants were graduated from elementary school, and one of the participants never educated among the other eleven of the participants. 66.6 % of participants completed higher than a middle school, which proportion was higher than average Korean education attainment among over 65 of 32.8%, but similar to OECD average of 64% (Choi, 2014). One of the other participants lived in suburbs of Korea, and the other lived in province. Eight of the participants were Protestant; three were Catholic; one was Buddhist; and six did not have a religion. Only two of the participants were working for a living. Average monthly income for women was about $1699 (SD=1360), which was lower than average GNI (Gross National Income), $2,160/month (The World Bank, 2013), but higher than average monthly income of Korean age of over 65, $977.27/month (Choi, 2014). The resource of income was mostly from family members or public pension. All participants were insured by the National Health Service (NHS). Nine of the participants had supplemental private health insurance with special agreement regarding chronic diseases according to interview.

Table 1 Demographic characteristics of participants

		Mean (SD)	Median	Frequency
Age	Age at the time of study participation	71.5 (SD=8.75)	71	
	Age at the time of diagnosis	67.8 (SD=11.4)	68.5	
Types of diagnosis	ST segment elevation MI	7		
	Non-ST segment elevation MI	11 (Previously diagnosed with angina followed by NSTEMI:1)		
Number of times of recurrence	Second time			6
	Third time			2
Health behavior	Smoking			2
Health history	Diabetes			4
	Hypertension			18
	Hyper-lipidemia			8
	Thyroid disease			1
	Renal disease			0
	Other			0
Family history of cardio vascular disease	Yes			2
	No			9
	Unknown			7

Table 1. Demographic characteristics of participants (continued)

		Mean (SD)	Median	Frequency
Marital status	Married			10
	Divorced			4
	Widowed			4
Number of person who lives with	Single family			3
	1			8
	4			6
	6			1
Education levels	Uneducated			1
	Elementary school			5
	Middle school			5
	High school			4
	Bachelor's degree			3
Residence area	Seoul			16
	Suburbs of Seoul			1
	Province			1
Religious Practice	Protestant			8
	Catholic			3
	Buddhist			1
	None			6
Currently working	Employed			1
	Self-employed			1
	Not employed			16

		Mean (SD)	Median	Frequency
Family's monthly income	Average	$1699(SD=1360)	1364	
	< $999			6
	1,000-1,999			4
	2,000-2,999			3
	3,000-3,999			4
	4,000-4,999			0
	5,000-5,999			0
	> $6,00			1

Health Seeking Behavior Process

The core process experienced by Korean women with myocardial infarction was "Finding out optimal solution for the symptoms" The model of HSB of Korean women with myocardial infarction is described in Figure 1. The processes of health seeking behavior of Korean women with MI were "Experiencing symptoms," "Attributing symptoms," "Evaluating situation," "Managing symptoms," "Consulting about symptoms," "Getting an ideal treatment," "Maintaining optimal health." These processes and their own themes are described in Table 2. The process of seeking a treatment was both sequential and iterative cognitive process for symptom relief and identification of the causes. Women performed the series of actions through the process from the time onset of symptoms to seeking a professional treatment. For some women, the process was repeated if symptoms evolved and relapse occurred. Inner iteration loops happened among some women as women consulted about their symptoms with others such as friends, family, or a family doctor. Each step in the sequential process will be explored in detail below.

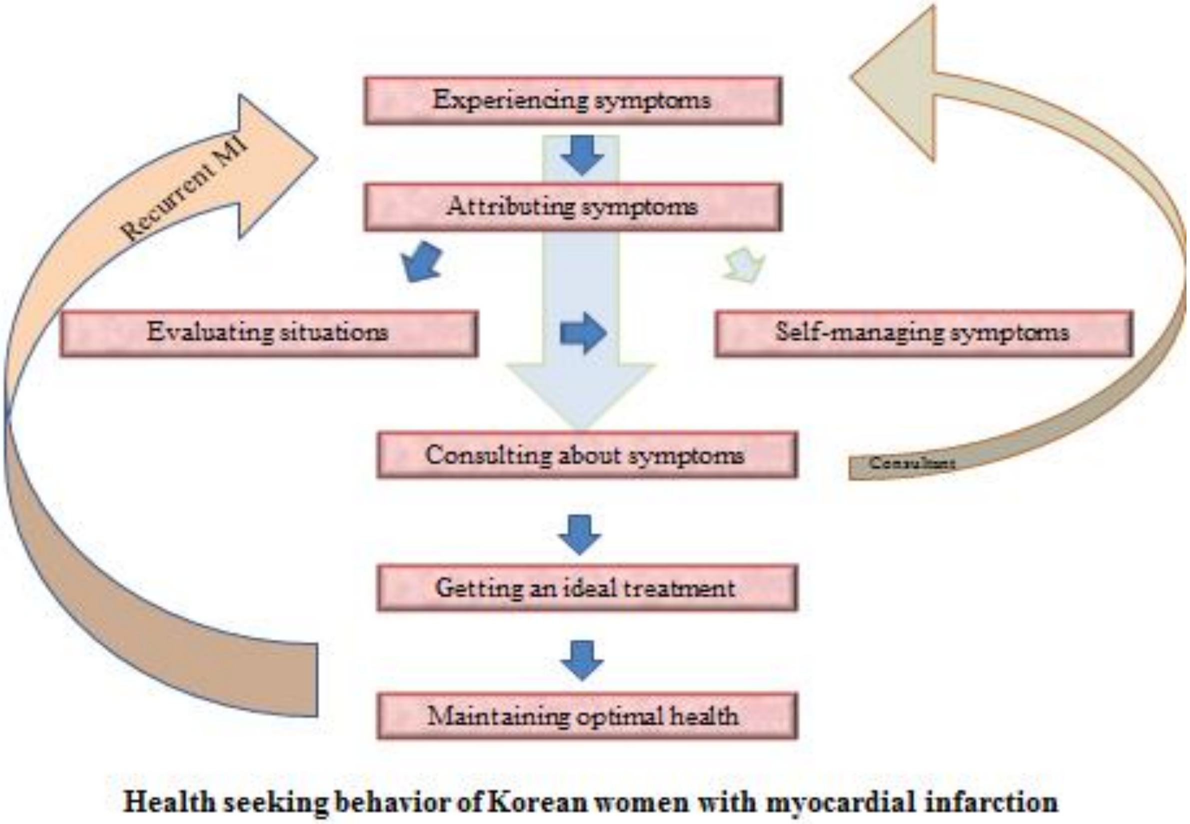

Figure 2 Process of "Finding out optimal solution for symptoms"

Table 2 Themes of "Finding out optimal solution for symptoms"

Category	Subcategory
Experiencing symptoms	Perceiving symptoms
	Assessing symptoms
	Getting alarmed
Attributing symptoms	Getting started explanation
	Looking for causes
	Pooling together
	Assuming one’s condition
Evaluating situations	Considering all the matters
	Recalling experience of hospitalization
Self-Managing symptoms	Doing self-management
Consulting about symptoms	Asking help
	Delegating authority
Getting an ideal treatment	Transporting to a hospital
	Getting an intervention
Maintaining optimal health	Increasing medical compliances
	Improving self-care
	Strengthening connection
	Extending knowledge

Experiencing symptoms

Experiencing symptoms was a starting and a repeating point/part of the process of seeking treatment among those who had an attack or recurrent MI. Once a woman had recurrent symptoms or worsening symptoms, she reactivated the cognitive process to obtain symptom relief and look for other causes. It was also operated by others after the failure of efforts conducted by women or others. Experiencing symptoms occurred at various time frames with varying situations, however the symptoms grew more and more severe and then most women couldn’t bear them. Almost half of participants experienced symptoms in day time, 22 % (N=4) of participants experienced symptoms during the night, 11% (N=2) of participants experienced the symptoms in the morning hours and dinner time respectively. About 72 % (N=13) of participants were involved with physical or emotional distress and were at home during the symptoms presentation. Included concepts of the category were as follows: perceiving symptoms, assessing symptoms, and getting alarmed. These concepts were interrelated and logically processed in an instant.

Perceiving symptoms Any symptoms were regarded as MI symptoms if women believed (as far as woman denoted) they were related to MI regardless of how long ago the symptoms developed, how serious the symptoms were, and which parts of the body were involved. Most women experienced symptoms ahead of an MI attack. The time of occurrence was widely identified by women to be as long as ten years and as short as several hours in advance of an attack, whereas some women experienced severe pain all of sudden. Although the nature of most symptoms had been different between prodromal symptoms and acute symptoms, women consciously identified them all as a series of MI symptoms. Some identified relations among prodromal symptoms, acute symptoms, and MI retrospectively when the symptoms were relieved after an optimal intervention for the MI.

> “I used to get a fever and soreness in my ears often times before so the neighbors called 911 for me to get to the hospital, because I usually blacked out when ear pain occurred. Nothing was found despite of an ear, nose and throat test. I’m 79 years old and I had that even before I reached 70, it was 68 or so….. I had that once or twice a month ever since I was 67 or 68. But now I don’t have a fever in my ears and soreness any more after getting the treatment. Nobody told about the stubborn ear pain is related with MI, but I believe it has something to do with MI. Anyhow the burning pain in my chest on that day was all of sudden. I felt almost dying that day”

Assessing symptoms Women assessed the symptoms when they sensed unusual feelings or discomfort in their bodies and evaluated their seriousness as a basis for considering their next step. The assessment was also done by surrounding people such as family, friends, a neighbor, or a health care provider upon the women’s plea for help or for a recheck by a health professional for unsuccessful symptom management. Women thoroughly scrutinized symptoms, followed their progress, and then became aware of the magnitude of the problem. Often the initial symptoms began with moderate and non-specific respiratory, digestive, musculoskeletal, neurologic discomforts, or general weakness. Some women experienced a single symptom. On the other hand, other women had clusters of symptoms. Symptoms mostly progressed slowly, but in some cases, they brought sudden and severe pain.

> "I had pain in both arms starting 2-3 days ago. They were throbbing and hurt so bad but tolerable. On that morning I went to the hospital, I had the worst stomachache. I never had any gastrointestinal disease but I used to have digestive problem before and I threw up and had diarrhea for several times that day. Around 10 am on that same day I had kimchi fried rice for an early lunch and then when I was about to clean afterwards I began to have the pain in my stomach and I started to have vomiting and diarrhea. I thought it's going to be serious because I felt pain in my limbs. I had a burning feeling in my stomach and I started to feel my limbs numb as well… just needed somebody to help me. It was hard to think rationally at that time. It was like losing my mind."

Symptoms varied between alleviation and exacerbation, but the discomfort ultimately evolved both in intensity and frequency. Some women experienced a sore throat or great thirst followed by a black out. The pain or discomfort moved around and mostly started from a part of the upper body such as the abdomen, arms, shoulder, neck, or head, and then got localized into the abdomen and a chest. The gradual worsening symptoms aroused the women's attention.

> "I had trouble breathing even when I was walking on a flat land. It had been about 2 months. It wasn't that serious though. I could hold it. But as time goes by its intensity got worse gradually. It was on Thursday and I had the worst symptoms ever. I was on the subway train to go to church but I felt stuffy at the end of my solar plexus. But, when I sat down the pain went away. But strangely enough when I took one step forward I started to get that again. I was suffering from it for about 5 minutes and then I got better."

Some women who had subsequent MI with somewhat similar symptoms to a previous attack instantly related the symptoms to MI, while, other women who had different symptoms of subsequent attack from the previous one could not associate the symptoms with MI.

Getting alarmed Women became aware of the seriousness of situation because they had the unusual and worsening symptoms. They became apprehensive upon the realization that what they were experiencing was more than just common symptoms; even a warning sign was sent to someone who with the woman was with at that time of symptoms occurrence. When woman or her companion sought others to help, whether they were health professionals or non-health professionals, others became alert and more attentive to the worsening symptoms.

> “After I had cerebral hemorrhage, there was a time when my heart stopped beating. I was extremely tired when I woke up in the morning. I felt numb in my hands and feet and stuffy in my chest. It was very strange symptoms and I was scary. If a painful heartburn that had bothered me since my 30’s is a yellow card, I thought it must be a more than a yellow card now I told my husband “Honey, I think I have to go to ER.” (A yellow card is a warning card of penalty shown in a sports game.)

Several things prompted women to get alarmed. Their direct and indirect experiences with the similar symptoms through different avenues such as family members, friends, etc. encouraged them and others to seek help.

> “Probably it was 1989 when I felt something’s wrong in my heart while I was preparing for the dinner. I was suffocating. Just that day I felt so clogged and stuffy all of sudden although it wasn’t that serious. Right after that I just fell down. Thinking what’s going

> on with me. Heart attack popped up in my head, you know what I mean, yes… in TV show man fells down with grabbing his shirts. So I took a car and headed to K Hospital."

When the acquired experiences were dissimilar from her present symptoms women couldn't relate those symptoms with MI. However, women tended to get quickly alarmed when they were with someone as the symptoms presented.

> "But I never thought about MI. I knew someone he has MI but his symptoms like an upset stomach. And he said that his hands and feet were very cold and he used to have upset stomach. Also he had a cold. He came to me and asked me to prick his fingers because he had digestive problem so I pricked his fingers. He didn't try to hold the pain for 2-3 months like me but he had pain for about 10 days. He was moving his furniture because he was about to move out. You know.., mine were totally different from his……I told my daughter about the breathing difficulty on the following day. My daughter was worried and persuaded me all day long. "Mom, you should see a doctor right now." (Pricking finger is one of home remedies for indigestion by blood draw from fingers with pinpricking in order to promote qi.)

Attributing symptoms

Women used an inferential reasoning about what caused the symptoms and to employ appropriate measures, which provided a basis for determining a satisfactory decision to deal with symptoms. This cognitive process took place whenever symptoms occurred irrespective of the number of times and whoever was present when the symptoms occurred. Their attributions were modified over and over by actors, timing of presenting symptoms, how the nature of symptoms changed, or any measures that turned out to be failures through an iterative process. With some women, inferential process evolved to find out the causes of the disease. Prior extensive information about women themselves and various situational variables were examined for reasonable explanations of their symptoms. Experiential knowledge had significant influence on women's thinking about a correct attribution.

Developing an explanation Women started to be conscious and active in reasoning the symptoms out when they perceived symptoms and whatever symptoms they had. Sometimes others like lay people or health professionals took the roles when they were present during women's episodes or upon women's request for a consultation to initiate understanding of happenings.

> "so I had this burning pain in my chest. I didn't know that was myocardial infarction. One day I told my oldest son, "Hey, it feels something strange in my chest" Then my son said "Mom, do you feel something burning in your chest?" so I said "Yes. I feel something's burning inside and it's really painful. But it gets okay after a moment." Then my son said "Mom, don't be hesitant to go to the hospital, it could be a serious illness." I had started to think my heart had some problem since then."

After getting an optimal intervention for MI, some women continued to develop their inferences throughout the disease management process to figure out not only the cause of symptoms but also the fundamental cause of the disease.

> "My doctor said I should quit smoking to prevent exacerbation. And I noticed that about 70% of the patients are female. Just out of curiosity I even asked female patients if they smoke or not and no one was smoking. So I thought smoking is not the reason to get myocardial infarction. I think smoking could be one of the possible reasons but mainly it

> has to do with getting a lot of stress and going through sadness that you cannot emotionally control. Male or female, especially introverted people, are the ones who can easily get this disease when they can't release their stress and try to hold it to themselves and can't go out with people. Also those couples who have unhappy marriages or relationship can get it easily. So, it starts with depression, emotionally going up and down, and eventually you feel some changes to your body."

Looking for causes Most women did not think about MI or any kind of heart disease at the moment of symptom presentation. Women started to look into what they were doing at the time of symptom experience and dated backwards to find out relevant causes, which were about an everyday life event such as eating brunch too fast, drinking alcohol at a get-together dinner, having a deep emotional immersion during watching TV shows, and becoming tired from traveling. Meanwhile when women had a sudden and severe pain or an even worse pain, they redirected their attention to look into more serious diseases.

> "On the day before, there wasn't any problem when I got excited while watching a drama but that day I got really excited watching the same drama, and then I felt a strange sensation of something's squeezing in my chest that day, I was thinking it was weird"

> "It was a few days after I finished the Bible study. My friends and I decided to have our year end class party and then I was in charge of the food. So I bought some chicken and pizza for the party. And my doctor told me that I could eat a little bit of greasy food just for that day. So I tried and thought it was okay to eat just a little bit. I knew that greasy food is not good for my heart so I just had three pieces of chicken, not the greasy parts and I also had only one slice of pizza. But my pain started in that night. I could feel

> the pain in my chest but when I had hot water it felt much better. It wasn't an ordinary indigestion; I realized the situation was quite serious. I shouldn't have eaten food the food I rarely enjoy."

Women's initial experience of MI influenced their reaction to subsequent attacks regardless of the severity of symptoms. When women re-experienced symptoms similar to the first attack, they were more likely to recognize them as MI.

> "In September to October in 2002. I was fighting with my husband and suddenly I felt something's wrong with my heart again. My heart was starting to feel tight and creaky but it wasn't that I couldn't breathe at all, so I went to K Hospital because I had been diagnosed there before. It was nearly same symptoms that I had 10years ago…"

However, if the symptoms were different from a prior attack, they didn't recognize them as those of MI.

> "I felt nausea and after having lunch. I didn't' even know what happened and then I went to the restroom. Looking at my face, I looked like a ghost. Oh my gosh! I blacked out while I was eating. I sometimes feel dizzy in the swimming pool so I got out of the pool. I blacked out again in my locker room. Again, I didn't even know what was happening…. I was fainting like that. It happened about three times in two months. So I went to the hospital and said my symptoms to the doctor once or twice a month I had no idea about what the episode were about."

Some women made efforts to understand the disease process throughout experiencing subsequent MIs. Finding out the causes of symptoms was limited to short term time frame. On the other hand, finding out the cause of disease was extended into their past life regarding how they went through mental and emotional bitterness like “got stressed out” or “finally got Hwa-byeong,” which were pointed out as the main cause of MI.

> “For my case I think I got ‘Hwa-byeong’ from having problems with money and people. I still go to the department of neuropsychiatry and get the headache pills and sleeping pills. It has been more than 10 years. Now I become better but still am vexed by creditor sometimes. And on that day the creditors came to my store and messed up the place. I felt a rock pressing in my chest when I think about how much I have to pay back and how much I’ve suffered from the creditors. I lived with this almost for 10 years. There’s no one I can share this. It was all my faults that I borrowed money from them so I just hold on to myself. It’s a stress, stress disease.”

Their perceptions about ‘Hwa-byeong’ were socially and culturally constructed. In specific, women talked about experiencing financial hardship, tolerating their husband’s affair, and leading a hard married life at their parents-in-laws' in illustrating ‘Hwa-byeong.” Dealing with the hard times left them with a lot of resentments, and subsequently made them predisposed to MI.

> “I had so many hardships before. I had to live with my parents-in-law, sister and brother-in-law and I raised them until they became independent. ..There was a time when I had 15 family members living in our house but I was the only one who did all the housework. I lived my life weeping most of the time… And then after serving rice in a bowl for my father-in-law, mother-in-law, my husband, my sister-in-law and the kids, I could only get the left overs which was very small that I could even count the grain of

> rice. I had been living with the pressure all those years so it’s reasonable that I got a heart problem. I couldn’t tell anyone about it.. which naturally caused Hwa-byeong.”

Pulling together Women used a systematic approach to root out the cause of symptoms. Women utilized all their empirical knowledge which was acquired in direct or indirect ways whether it was relevant or not to the MI, and inquired about the causes by employing all knowledge they had. However, in most cases, women had no insight about heart disease and never even imagined they would got MI when they first encountered the symptoms, so their ignorance of MI led them to naught in making the causal relationship with MI for all their trouble.

> “And then I didn’t know what to do because I felt fine when I was at the restaurant or swimming pool. But when I had Korean iced noddle I heard something and gush from the solar plexus…. But I didn’t know about MI at that time. I never thought of that. I used to have indigestion so I thought it was indigestion this time again, I had nothing to know beyond that…. And then they said they will buy a digestive medicine for me. But while hey were pricking my fingering with a needle, I said “Ouch, it’s killing me, killing me.”, sweating to death”

In some cases, women depicted about what they know about MI, but their knowledge from their experiences of what they saw and heard throughout life consisted of fragmentary information, so their choices were limited within their knowledge.

> “Yes, but I never thought about MI. I knew someone he has MI but his symptoms like an upset stomach. And he said that his hands and feet were very cold and he used to have upset stomach. Also he had a cold. He came to me and asked me to prick his fingers

> because he had digestive problem so I pricked his fingers. He didn't try to hold the pain for 2-3 months like me but he had pain for about 10 days. He was moving his furniture because he was about to move out. You know.., mine were totally different from his…. I had trouble breathing even when I was walking on a flat land. It had been about 2 months. It wasn't that serious though. I could hold it. But as time goes by the intensity got worse gradually. … After I got home I took a painkiller and digestive pills but I could still feel the pain repetitively. I didn't know about myocardial infarction but since I had stuffy feeling in my chest I thought it has to do with my heart."

But when women had exactly the same symptoms as in the information they had heard, seen, or experienced they did not hesitate to confirm a heart related disease.

> "I had been experiencing with this heart palpitation for 3-4 years and after my husband passed away I happened to get more throbbing symptoms and upset stomach. …But the medicine didn't really work. The throbbing chest pain got worse and worse and I suddenly thought about my husband who died of heart attack. I was thinking what if I also had a heart problem like him so I went to the S hospital."

Attributing one's condition Attributing one's condition was a provisional product of women's systematic and cognitive processes based on the use of their experiences and knowledge. It was not a definite conclusion, it sometimes changed later by women or others when symptoms got worse, and then it served as an important guidance role in how to resolve the symptoms and cope with the situations. Most attributions were incorrectly made by women, other lay people, or health professionals, which contributed to going in the wrong direction and spending a lot of unnecessary time, and as a result of that the symptoms got aggravated.

> "But I felt like my throat got really dried and felt like chalky, and I got heartburn, it was so weird. So I thought I had a cold, but my friends said "oh~ you must have an upset stomach from that Cal kook soo, musn't you? That's what they said. I said I don't think I had an upset stomach."

> "It was immediately after alcohol drinking, I had continuous vomit overnight so I thought it must be stomach upset. My physician that I have seen him for 10years for my diabetes, he agreed with me."

On the other hand, when the correct attribution was made, women headed straight for an emergency room and got an optimal intervention without wasting time.

> "While I went into the subway station, but then I suddenly felt dizzy, my heart started beating fast and sweating so I went to the pharmacy and bought a few of the nervousness release medicines and kept taking them but the symptoms didn't go way. So I thought this is a heat problem, it can't get better so I got on the taxi to get to the S University Hospital. I felt like almost dying with no energy."

Evaluating a situation

Evaluating a situation was a multilateral assessment to ascertain any acceptable actions women could take in given situations. The swift assessment took place regarding availabilities of women themselves or others prior to asking for help or going to see a doctor by women or others upon the women's request. Women tended to put more efforts into estimating a general availability in looking for somebody to come and help or their economic circumstances when they had relatively moderate symptoms; meanwhile, when women had severe and sudden symptoms they rushed straight to ER, because all that mattered to women at that time was their condition. Previous hospitalization experience affected the women's evaluation if women had a bad memory of that experience. Even though they were reluctant to be hospitalized again, they finally decided on re-hospitalization.

Considering all the matters Women carefully looked at their surroundings before they decided what they could do when faced with these symptoms; Is there anyone can take care of family or replace me at work? Am I financially capable of getting admitted to a hospital? Is it a perfect time to ask my children to take me to the hospital? However, the major consideration was the distress level caused by the symptoms. Women who felt severe pain they could only pay attention to their body and pain, so they rushed to the ER to resolve the symptoms.

> "I wanted to go to the hospital but then I felt like such a burden on my children. It was midnight, my daughter and son-in-law already fell asleep. How could I rose them from their sleep, they were tired and should go to work the next day. I couldn't. I thought I should go only when I feel like I can't hold the pain anymore. So I just decided not to go like I did 5 years ago."

> "It wasn't that bad. But only I had a headache and my chest felt throbbing and I was sweating so badly so I was really worried. It didn't hurt actually. But it was the first time experiencing like that in my life so I was kind of scared. …so I decided to go to the hospital as quickly as possible."

Eventually most women put a priority on family, working group, and company rather than themselves, but they left their interests behind when they had moderate symptoms. They avoided the decisions if their actions brought about any inconvenience to the group or others such as family and friends. In these cases, they decided to bear the symptoms.

> "Trouble breathing wasn't that serious, it recovered quickly after some rest. Although I doubted about an illness, I couldn't receive a hospital treatment. Because my husband was sick a bed, and my children were not in Seoul. Older son were in America, and younger one was in an island. Nobody could take care of my husband other than me."

Some women who had dependent children did not hesitate to seek immediate professional advice despite the fact that the symptoms were tolerable, because women wanted to continue their role as a mother.

> "It was really bad at first and all of sudden right here…I could feel it again, but not that serious. It disappeared minutes later and back again.…But then I was like a head of my family even though my husband had a job but he is like, how can I say, he didn't do any house work and my children were going to Middle and High school at that time so everything was like a heavy burden to me. I was only person to take care of my children. So when I felt sick even the small problem to my body, I went to the ER in H. hospital."

Recalling experience of hospitalization Some women recalled the memories of a previous hospitalization when they experienced the symptoms of MI recurrence. The experience of prior hospitalization provided women with either positive or negative reinforcement; it allowed them to get ready for inpatient treatment or have a strong resistance to rehospitalization. The informational role of acquired empirical knowledge about inpatient treatment contributed to a successful hospitalization with some women arranging for proper logistics. Meanwhile, women with terrible memories of being inpatient described a sense of fear at living in ICU, and felt anxious about being hospitalized again although they eventually got the inpatient care for recurrent MI.

> “I was in ICU for about 4 days but from that day people in that room started to die I was really scared….. My children live in same part of town with me. And they come to my house to help my housework, and they even know what kind of work should be done during my hospitalization. They brought an admission kit for me the day before an admission for recurrent MI. Comparing with the first admission, my second experience of hospitalization was not that much scared. Perhaps I got used to the hospital environment.”

Self-managing symptoms

Self-managing symptoms was the first step of full- scales strategy that women took action for symptom relief. Women started symptom management depending on the types and severities of symptoms, and employed large amount of various OTC medications with traditional medicine including taking herbal medicine and carrying out skills in order to relieve the symptoms, though they had no special knowledge about heart disease. The practices were less professional and the most accessible ways in everyday life, even required less effort from other people at the same time. They were intended to prevent causing other people trouble in considering a choice of managing symptoms; a thorough examination of symptoms and situational factors such as financial status and sustainability of work were performed by them to minimize being a nuisance to others. Every effort concerning symptoms was followed by appraisal of self-managing symptoms.

Doing self-management Specific measures taken by women to relieve symptoms were determined by the nature of symptoms and women’s sociocultural experiences. The measures women took first were comprised of traditional herbal medicine and skills. They used these because of their familiarity, beliefs in the remedial effects, and availability for the sake of relieving symptoms; they grew up with these remedies and practices and frequently had seen the effects in similar situations, for example, pricking fingers with a needle and drawing a drop of blood eases indigestion and facilitates circulation by correcting imbalances, so they believed these would work in treating symptoms. These employed methods were inexpensive and easy to use when symptoms occurred in a place where a health professional was not readily available. The attempts were combined with other measures or changed into different things followed by appraisal of each trial.

> "I had worked with drinking cold water for stuffy feeling in the chest. I had to have herbal medicine for trouble breathing on my way home, and then it became better. It was weird because I never had such symptoms. A few hours later, I felt nauseous and dizzy, and my head ached. Drinking cold water did not do much. I thought it must be upset stomach for lunch so did finger pricking by myself, but it didn't work….Everyone did such tries at that time. My grandma squeezed my all limbs and drew a drop of blood from all ten fingers and toes by pricking my fingers with a needle whenever I had upset stomach. And people did that with feeding herbal medicine when somebody lost consciousness. It was effective in most cases. So I tried."

Women who had moderate symptoms were more likely to spend much more time in attempting self-management before seeking a formal treatment than those of other women who had sudden and acute symptoms. In some cases, women tolerated the symptoms doing self-management for up to several years. While women had acute pain sought a professional treatment right away as soon as they realized the self –management didn't work.

> "Well, I had breathing difficulty for about a half year or three months as long as I remember…. I never thought about MI or heart disease. Just breathing difficulty, that's it. In fact my house locates on the top of hill so I was hard to climb in hot weather. The only thing I did was taking rest in the shade under eaves. I could move if the symptom went down. I did it almost half a year."

> "It was unspeakably painful when it hurt. I had a breaking pain on my back around 11 p.m. at night. It was like something pressing down so bad. I took nervousness release pills, but didn't work at all… It didn't happen gradually. I went directly to the hospital. There was no way but other than going to the hospital.

In case of recurrent MI, women first took the prescribed nitroglycerin and then attempted traditional medicine if the nitroglycerin did not work to relieve pain when they related the symptoms with MI. When a woman did not think symptoms were related to MI, she tried first self-management.

> "My doctor gave me something like nitroglycerin. He said to me take the medicine whenever I feel pain… I never had it before but only recently it happened when I had that chicken and pizza. So I took that a little bit twice like taking the second dose 5 minutes after putting first one as my doctor recommended. But I think it didn't work. So I tried everything that I could do for pain such as drinking warm water, taking several kinds of painkillers, and nervousness release pills at that time."

> "Almost for two years after the intervention, I sometimes feel dizzy in the swimming pool so I got out of the pool to have a break. I blacked out several times in my locker

room. I didn’t even know what’s happening. I didn’t realize it was about recurrent of MI until my doctor told me.”

Consulting about symptoms

Consulting about symptoms was the endeavors of women, family or lay people who were with women in the presence of symptoms, or a health care professional in seeking a second and a third opinion on relieving symptoms and establishing the cause of symptoms as well as in acting on advice. It happened during the self-management to combine extra measures for prompt symptom relief or after failure of self-management. Women entrusted responsibility to another person during the time of getting a consult. About 33% (N=6) of participants were only with a husband, 22% (N=4) of participants were with family including a husband and children, about 17% (N=3) of participants were with friends or alone respectively, and 11% (N=2) of participants were with colleagues at work at the onset of symptoms.

Asking help Asking help was an action of women or others on seeking help from either a non-health professional or a health-professional to figure out the cause and resolution of symptoms. When the attempted measures didn’t seem effective for relieving symptoms, women or lay people including family, friends, and neighbors wanted to find a better way from other people. Some women were more likely to tend to seek the family’s and a friend’s opinion first rather than that of a health care professional. One reason was that women thought they were approachable at the moment when symptoms were aggravated. The other reason of asking family first was socio-cultural effect; as women were under the authority of a male head of household or grown-up children, they asked them about what they should do for the symptoms, and then women followed what they were told to do.

> "I was sweating like rain but never felt hot. And my friends told me "you're sweating like couldn't move at all. So I asked them to phone home. My apartment is right in front here and my children live nearby."

> "You know he is a doctor even though heart is not his specialty. He takes cares of me even my health. He has played a role as a male head of our family although he is not my son but a son-in-law because I have no son and my husband died along ago. So he is the actual head of my family instead of my husband now. I ask him every time if something happen and needs decision to solve it. People who have a son would ask and discuss with grown-up son, but a son-in-law is like a major pillar for a woman like me."

Women received great help from lay people. The examples of help women got included: Symptom management, making urgent contact with family, taking a woman to the hospital, co-signing an admission documents, and being with a woman in the hospital. They provided these things at women's request or voluntarily.

> "I felt almost dying so I asked the lady who sells fruit and vegetables in front of my house to prick my fingers. I said "I feel something strange. I feel cold and stinging pain like something's cutting my chest with a knife." But she didn't prick my fingers and took me to the medicine shop. And the lady who works at the medicine shop didn't give me the medicine but recommended me to call 911 to go to hospital right away. I think she knew something well…The lady, a shopkeeper was with me in the ambulance and ER, and she phoned my niece and let them know my condition, even co-signed on the admission documents. She was so good."

The opinions of lay people on women made a great impact on women's decisions because they felt a sense of trust and a feeling of more confidence in that situation. For example, some women eventually went to the ER because of the consultant's persistent recommendation even though the women didn't take the symptoms seriously. In contrast, a woman refused a further medical examination which was recommend by her physician because of the dissuasion from her family, and then not long after that she got an MI attack.

> "It was my daughter. I told my daughter about the breathing difficulty the following day. My daughter was worried and persuaded me all day long "Mom, you should see a doctor right now. It is not a common thing." I said I didn't want to go, the symptoms was better than the previous day. But my daughter didn't yield an inch. I couldn't refuse her any more. She forced me to go to see what happen, so I inevitably went there and it turned out MI."

> "Yes, my primary health care provider said that my blood level kept rising, it sounded like threating me. He said I would become ill if I didn't get that, but I was absolutely fine at that time. And I just didn't feel the urgent need for it because I was doing okay. I talked with my son-in-law and he said the medical exams weren't necessary so I didn't have it. But several years later I got MI. He was right; he knew something about my condition. However I have no resentment against my son-in-law, anyway it was my decision."

Some women sought professional medical advice first. Because they thought the symptoms were unusual, severe, and unbearable, or they had seen a doctor regularly for existing chronic illness like diabetes or hypertension. The hospitals women went to were either nearby clinics, district hospitals, or general hospitals. Some women were directly referred to a general hospital for suspected myocardial infarction for more professional treatment, but other women had no choice other than to return home after receiving symptomatic treatment such as intravenous hydration, prescription of digestive medication, anti-emetics with words of assurance when they were in a primary health care or a non-heart specialized district hospital; As a result, women had to spend much time in doing self- management and then went out again to seek another opinion for aggravated symptoms.

> "Every Friday night, I drank alcohol in a get-together with my co-workers. But that Friday night I had a severe upset stomach, and throw up continuously. I took digestive medicine since I thought it was about hangover or upset stomach. But it didn't work out for me. The next day, I went to see a primary care provider, he had seen me for control of diabetes for a couple of years for diabetes. He told me it was upset stomach. He reassured me that I would be fine after the intravenous for correction of dehydration. However, the symptoms were still same during weekends even after the hydration. I tried prescribed anti-emetics at home, but I had to run to the rest room incessantly. Thus I made a doctor's appointment at bigger hospital thinking that I shouldn't be this way. On Monday morning, it was the day I saw the physician. I had several exams that day, and a gastroscopy was scheduled on the very next day. By the Monday evening, the symptoms became better. Next morning, it was before 8:00. I got the phone call from the ER at the hospital I went saying that I should come immediately giving without any details. The physician told me the whole story about my condition, MI attack, on my arriving. My three major arteries were almost blocked."

On the contrary, women who went to a large general hospital were given an optimal treatment immediately regardless of recurrence of MI.

> "And then my son took me to ER and I had leg exam and I was sent to ICU where I got hospitalized. It happened in less than no time. The doctor said I have two cardiovascular tubes that are blocked."

> "After first intervention, I took medication every single day and kept regular follow-ups for five years. My doctor told me not to worry during the next ten years, but the stent was occluded only after five years. I had no choice but to follow his advice, so I admitted that day and got the replacement of the stent."

Delegating authority Women delegated their authority to another person when they were unable to make reasonable decision due to severe pain or unconsciousness, or when they could not act or make decision autonomously because of patriarchal social customs or financial reasons. Severe pain or sudden unusual pain made women bewildered and lost at what to do. For these reasons, the women needed to ask someone else to do something for them, and then the person who was delegated acted for the woman's interests by determining the next steps needed in order to relieve symptoms. The delegate then chose a hospital for a professional treatment, the means of transportation, and decided on the types of treatment instead of her.

> "I suddenly felt something's squeezing in my chest all the way to my throat which made me difficult to breathe. So I got out of the bathroom I took off my corset and outerwear but I didn't feel better so I called my children. As they saw me they were really astonished at my situation. I couldn't breathe for pain. After that, they called 911 and told the 911 staffs took me to the B. hospital… I thought I really have a big problem

> as I collapsed for the second time in the ER. So I didn't remember anything happened in the ER. My children handled everything for me. And I finally got to know that it was my heart problem after listening to what my doctor explained to me after all intervention was finished.."

Some women asked their family about what should be done for the symptoms, or they needed a husband's confirmation in getting a treatment. Additionally, there were socio-cultural and economic factors. Women were in downgraded or subservient positions, and their decision-making power was limited. To be more specific, they were subordinate under the authority of the male head of the household, and they relied upon their grown-up children for economical support. Some women were in need of being confirmed to have a professional treatment because they were non-autonomous and economically dependent on their husband or grown-up child. Even in cases when they finally just described the symptoms to their family after suffering much pain, they would wait for their family to decide on the next course of action.

> "My kids take care of everything. I don't have money. So they own a gas station and some of them make money outside so they send me to school and give me some pocket money and pay for my medical bills. I appreciate it, they are the shield of my life now….. It was wise behavior and good virtue for woman keeping thoughts to her. It became possible to say something after in-law parents died. Woman couldn't speak when she was ill. Woman had to get permission if wanted to do anything. If woman said about anything wrong, she was rebuked by family."

> "I was really tired than usual. I just wanted take rest lying on the bed because of extreme fatigue and didn't want to eat anything for several days. I thought I couldn't endure any

> longer. So I asked my kids what should I do and they said I should go to the hospital. They took me the A. hospital. They are like a part of me like my foot. I can't imagine without them. I couldn't go anywhere if they didn't give me a ride. In fact, I should have seen a doctor earlier by all means like taking a taxi before the symptoms got worse, but I couldn't because my husband didn't allow me to tell them."

The result of the woman delegating the authority brought about either desirable or undesirable consequences; all grown-up children listened to a woman attentively, made all haste to find an optimal treatment, and then eventually she could obtain medical help. In contrast, some women were in near-death scenarios because their husbands didn't agree with taking her the ER in spite of all explanations about the symptoms she was experiencing.

> "My children saved me from death. When I had no idea about my condition, they tried every means available to save me."

> "I was extremely tired when I woke up in the morning. I felt numb in my hands and feet and stuffy in my chest. I told my husband "Honey, I think I have to go to ER." After I had cerebral hemorrhage the doctor said I must to come to ER whenever I feel numb in my hands and feet and dizzy. But then my husband said "Why don't you just lie down and wait for a little bit." So I was lying down after that I don't remember what happened next… My husband said when he came in he saw my face turned as white as a sheet and my lips got dark blue and my body looked stiff. So, my husband thought I was dead. He called my younger son saying "Son, your mom passed away. Come soon" and then he called 911."

For autonomy in following a physician's order, most women tended to follow a physician's advice blindly with great trust or respect. They did not question the recommendations of a physician and had no doubt in their ability to return to good physical health as far as they heed the advice.

> "But then the doctor said that I need to have surgery right away. He said there was no other way than a surgery. So, I told him that I don't want to since I'm not in a good financial situation, but he strongly urged me to get the surgery, so I just set up the surgery date and came home. I had no choices but I think he was right… I thought that I will get better soon because my doctor did my surgery. I also thought that now I just need to listen to what medicine or anything my doctor says and follow it then I would get sick nevermore."

But in one case, a woman disagreed with her physician's opinion about the results of tests for heart function which, in fact, turned out to be normal, because she was suspicious of the quality of health services she received and put more emphasis on the symptoms and feelings she notices from her body.

> "My heart was starting to feel tight and creaky but it wasn't that I couldn't breathe at all, so I went to K Hospital because I had been diagnosed with MI there 13 years ago. I went in and took the electrocardiogram but they didn't find anything wrong with my heart. But I didn't want to give up this time after receiving doctor's prescription saying there's nothing wrong with my heart, but I insisted on my way about transfer to the S. hospital because I felt something bad happened to me. I returned to home with the doctor's note in

> that night. On the next day, I had a general check-up in S. hospital but then the doctors said in surprise “why are you here?” and asked me to go to the ER as soon as possible.”

Getting an ideal treatment

Getting an ideal treatment was a process of finding an ideal hospital for a reperfusion therapy and the quality of care women attempted. Choosing the hospital and determining the means of transportation varied according to the combinations of three main factors: human factors, physical factors, and social factors. In some cases complicated interactions among the factors resulted in undesirable effects on women who had a first MI. For the first attack, almost 72 % (N= 13) of participants arrived at hospital within 6hours from the onset of actual symptoms to seek professional treatment, 17% (N=3) of participants arrived at hospital about 12hours later from the actual symptoms presentation, and 11% (N=2) of participants arrived at hospital more than a day later from the actual symptoms presentation. Prior experience of MI taught some women to make a better decision and reduced response time, but not for the others. Eight participants had a subsequent MI, 12% (N=1) of participants arrive at hospital within 6 hours from the onset of actual symptom presentation, 25% (N=2) of participants arrived at hospital more than 6hours but less than 12 hours later, 38% (N=3) of participants arrived more than one day later. 25% (N=2) of participants was diagnosed with subsequent MI through a regular follow-up coronary angiography without any symptom. Women who had prior MI experience went through to the hospital where they got the intervention at the onset of symptoms. As soon as women arrived or were transported, they got reperfusion therapy without delay.

Transporting to a hospital In most cases, women themselves were a major decision maker who considered many elements at once contributing to find an excellent hospital where they could get the professional treatment. Three main factors in selecting the hospital for women were as follows: human, physical, and social factors. These three factors combined together, closely affected each other, and impacted on women's hospital choice. Women decided the hospital with the purpose of successful treatment and hospitalization in the context of individual situation. The human factors affected women's decision for hospital choices were family, friends, and health care professionals including EMS staffs. Most women chose the hospital together with family and physician in considering the availability of qualified treatment including availability of best equipment, technology, and a prominent physician when they needed to refer to a specialist.

> "Because it's the best hospital I can trust. I never thought about hospitals other than this hospital. The hospital boasted a long history and a deep-rooted tradition; it has greatest doctors and facilities. It is the undisputed hospital."

Additionally women thought about closeness to their and other family member's residence for more convenient visit during hospitalization and future follow-up visits after discharge, a network of acquaintances in the hospital for careful and more prompt handing of every task for the treatment, and good physical appearance of a facility as a way of ensuring higher technological capabilities.

> "I have younger daughter who lives there and she has an only child. The one who lives with me has two children. So when I'm admitted to the hospital it's easier for my younger daughter to come to see me since she has only one child. It was also much easier to go to the hospital with my daughter later after the treatment done"

> “The doctor said to me it could be treated only in bigger hospital. They did not have a specialist and medical equipment. So I called one of my acquaintances who worked in S. hospital and told about the critical situation which needed emergency intervention. You know, they would not prepare an emergency treatment if I just go to the hospital without any notice. There were several big hospitals in Seoul, but S. hospital is the best hospital, isn’t it? I felt safer because my friend worked there. It is important to have someone who works in a hospital when sick.”

Some women who were transported by EMS, and they wanted to take them the hospital where they used to go for their existing medical records not to have a repetitive test if they were referred to a hospital never went before but to have a complete treatment with keeping their complete medical information.

> “I felt pressure on my chest while I watched the TV shows in the evening. I knew what the symptom meant at that time, because it was my third attack. I called 911 since I knew this one was coming. The EMS staff recommended me to go to W. hospital as I talked about a potential heart attack. But I stopped them from going to W. hospital and insisted to go to B. hospital which I used to go. Because B. hospital kept all my medical records and the physicians knew well about my medical condition, so that repetitive test would not be done.”

Family and friends made a decision about selecting hospital on behalf of woman when she was seriously ill or unconscious so she was not able to participate in the decision. Even then, those above three factors affected on their decision. Sometimes the hospital was decided by the suggestion of EMS staff based on routine registry in an ambulance.

> “When I was at home and then I collapsed losing my mind. So my kids called an ambulance. But then when I was on an ambulance I recovered from short breathing and got a clear conscience too. So I kind of felt embarrassed taking an ambulance because I was totally normal. I asked the EMS staff where you took me? Which hospital? He answered I was transferring to B. hospital. Because it located near my house, and was a big hospital capable to manage my symptoms. Also my children asked them to take me near big hospital for easier visiting after the treatment because I had to work through the night and took rest during the day time. My kids worried that I won’t be able to go to see a doctor for work after the treatment.”

It was the outpatient department not the ER that many women visited first for the symptoms because of a preconceived idea about the ER. Some women hesitated to visit the ER because they considered the ER was the place for people who were really sick or they hated to wait a long time in ER to have a bed to lie down or have many unnecessary medical exams for a diagnosis. Thus they made an appointment with a physician in the outpatient department or a primary care clinic although they wanted to go to the ER for the symptoms in fact.

> “I thought that the best idea is to go to the S. hospital but at the same time, there are a lot of procedures and exams you need to go through and wait for a long time. Even I didn’t think my symptoms were serious things that needed emergency care. I thought really sick people uses the ER. So, I just decided to go to the internal medicine clinic in my neighborhood, but I had to came back home because it was past 8 o’clock by then so the clinic was close. ”

However, when women experienced a subsequent MI, their decision seemed no option other than the ER in the hospital where they went, because they used to go for a previous MI to the consistency of the treatment. Even an education of health care providers about the emergency contributed to the improvement on women's recognition about the ER use.

> "In my second attack, my husband did a good job taking care of everything since I had the similar experience before. Well, as you know, I was close to death with hesitation. My husband was told about the significance of calling 911 and going to ER in case of pain occurrence, he got off his butt and called 911 and then took me direct to ER in S. hospital."

Most women used or were transported by a private car or public transportation such as a taxi rather than an ambulance. They thought driving a car or taking a taxi might be faster than calling an ambulance or they could not think properly for pain at that time. Family's preference/opinion also influenced on the choice of transportation; a husband stopped his wife from calling ambulance when she asked, but he wanted to wait until their son-in-law came to drive instead. As a consequence, some of them experienced a lot of time delay for traffic jam and had to suffer extreme pain and anxiety in a taxi.. However, the experience of first MI let women and their family learned about the significance of ambulance in life-threatening situation, and then eventually increased the calling of an ambulance in emergency situation.

> "I experienced the pain as I hurried to meet my friend near a subway station. It wasn't hurt so much, although I never experienced before. I thought taking a taxi was quicker than a bus. Taking a subway was faster than a taxi, but I was not confident to use it because I had to transfer to go to the S. hospital. I was not sure about my condition

> whether I could move myself, so I took a taxi. It was horrible in enduring pain in the taxi. The cold sweat all over me, and I was dizzy. The taxi was caught in traffic jam. I was stranded on the road. I was able to get to the hospital after 40mins wait. I should have taken a taxi at that time, but I had no idea. I could not think properly”

> “I asked my husband first when the pain got worse and he called our son-in-law saying I should wait till he comes to take me to the hospital. I argued with my husband about calling 911 since I had no time to waste. However my husband said it took more time an ambulance came to our house. I couldn’t wait any longer. In the meantime, it already passed nearly an hour. It was very urgent, I couldn’t bear the pain any longer, so I said I can’t wait that long so I just called 911 by myself. He didn’t understand my situation. I asked him to call 911 but he said that’s not a good idea so I begged him to call 911 for me and then I got on the ambulance to get to the hospital. He thought I was impatient.”

By the way, women were more likely to be transported by an ambulance when they were observed in extreme pain or unconscious by bystanders.

Getting an intervention On arriving the ER in the hospital they finally went, every woman were given an initial therapy for restoration of perfusion such as percutaneous intervention (PCI) or coronary artery bypass graft (CABG) with close monitoring without a moment’s delay. Some women described everything was ready, which was different from their expectation, so they could get every test immediately they needed.

> “But I didn’t think that I need to go to the hospital that time so I called my son-in-law and took a taxi. When he picked up my call he was so shocked saying that I need to go to the

> emergency room at S. hospital immediately. He said that he would be there too. So when I got there he was already there waiting for me and he filled out all applications for me. So I could get emergency treatment as soon as I arrived and be admitted into the intensive care unit for a whole day. I was expecting it to take much longer to get a treatment, but it was over before I completely noticed it. And on the next day I had a surgery not on my chest but on the femoral part."

Most women thought the process of treatment was endurable and felt glad at the result; they felt as if they have been reborn or rejuvenated because the symptoms which made them distressed for a while disappeared after the treatment.

> "I feel healthier than my 40's. Sometimes I feel alive. I used to take a rest for a while before starting a work, and then had to lie down and take a rest to resume myself. I got headaches and chest pains all the time before the treatment, but all these chronic pains miraculously disappeared after that."

Meanwhile, some women expressed hospitalization was the awful experience due to a tightly controlled environment for close monitoring and observation of other patients who were critically ill. Some women stayed longer than expected for complication such as respiratory failure and stroke episode, which made them worried about their future health.

> "But when I was in ICU for a few days, it was a very difficult time. I even felt like I'd rather die than staying there. They just made to lie on a bed all day and eat on the bed and relieve on the bed, oh my! it drove me nuts. How can you really do that on the bed. So I went almost crazy trying to be patient. I could pee there but I barely dump my load after I

> was placed in the patient’s room where I used the bathroom... And it was really dark in that room so that made it worse.”
>
> “They said that I was in ICU getting a ventilator treatment for 8 days. I heard that the medical team told my family to get ready for my death since there was a high chance of death. I became conscious after 8 days…. After I recovered my consciousness I was sent to the ICU and got treatment there. I couldn’t get out my bed the entire time and I always had a short breath so I had to sit down. I really worried about my health whether I could lead regular lives. “

Time to spend in resuming normal activity varied according to a woman. Most women described it was not hard for them in doing every day routines after discharge from the hospital.

Maintaining optimal health

Maintaining optimal health was intellectual and practical efforts women strived for retaining the optimal level of physical health and preventing recurrence. It happened after the treatment of the first MI until the subsequent MIs if they had. What women did to improve and maintain their level of health were as follows: increasing medical compliances, strengthening connection, and extending knowledge. These strategies specifically focused on self-modification involving general areas of life style changes and improvement on health knowledge about MI for optimal health outcomes. Women’s health seeking behaviors changed greatly after MI, however the number of MI recurrence and the improved knowledge level of the disease did not directly linked with an appropriate health seeking behavior.

Increasing medical compliances Women made a lot of efforts to abide by a medical advices including taking a prescribed medicine, scheduled medical exams, and medical appointments to keep from occurring recurrence and achieve a desirable health. Most women put great reliance on their physician's advice and decisions and praised a hospital as an excellent hospital which they were treated, because they were profoundly grateful to have a new lease of life after being treated for MI. They showed very cooperative behavior in following a physician's suggestion derived from the belief which they would not get worse as far as they keep a medical advice.

> "I could live now because my doctor did an amazing job on my surgery. He's the only one that I'm trusting in my heart. I believe that I will not get an MI again if I do as he tells me. Even if I got an MI again, I certainly will be recovered as long as he gives me medical treatment…I could live again because of him."

Additionally the idea about a narrow escape from a potential sudden death made women awakened to MI in going through the episode of heart attack. Such increased awareness of MI encouraged them to put self-care and self-directed exercises into practice and execute life style changes including receiving health education, stop smoking, regular work out, taking things easy, and managing dietary control in order to prevent recurrence. Some women got much help from family in changing life styles and managing diet.

> "I found that later that my heart stopped beating for 20-30 seconds. You know when people are about to die their hearing the last sense to go. That was right. I have my eyes was late only for 5 minutes I would probably have died on the street. I was alive from death …. But I felt like I really need to take care of myself from now. I need to exercise more and try to eat more right, I used to eat vegetables more than meats, though. Recently, I put more attention on overall health. My kids frequently call and check

> whether what I ate and how much exercise I did. Sometimes it bothers me, but I am thankful to them for their attention. I try to work out more as they suggest, although I don't like to go outside for exercise. I have not done exercise before MI."

While some women experienced recurrence despite of a good compliance, which caused them disappointed and discouraged but they kept following a physician's advice without losing hope for recovery and trust their physician.

> "Yes, I really disappointed at that time because I did the best I could in take care of myself, in taking exercise and eating carefully. My physician told me no worries at that time, but it occurred after only 2 years. But there is no way out other than following my physician's advice. I think it will not go serious if I keep the medical advices."

One woman who had an MI in her early 40's showed poor compliance such as non-participation in clinic visits, because she was symptom free after the first attack and had no other chronic condition that it needed to care almost for 10 years before having the second MI. In addition, she was not heard any emphasis on regular visits and specific instructions from her physician.

Strengthening connection Women prepared for an unpredictable and critical situation after the treatment for the first MI; some women living by themselves opened a passcode of a front door or shared a list of emergency contact numbers and a name of hospital they used to people who live in next door and friends to prepare for emergency situations. In one case, a woman living alone occasionally kept a door unlocked on purpose so that EMS staffs could enter her house without interruption when she was unconscious or critically ill alone.

> “In my day, I was not afraid of living alone. But it has changed as I became old and experienced multiple MI attacks. I am worried about dying alone… So I have given a passcode of the front door to friends, a social worker, and neighbors. Even I have pinned the emergency contact numbers in order to let them know the hospital I used to go and call my relatives and in case of being serious ill. You know, I have no child so I let them know what I need in emergency.”

Woman’s experience of MI alerted people around her such as family, friends, and health care providers to an emergency situation; her family visited a woman more often, a grown up daughter asked a woman to live together to avoid being alone, a primary health care provider became more alert about her physical health adding MI into her health history for an immediate action in case of recurrence.

> “Yeah, I used to go to H. hospital almost a year or year and a half for DM. My primary healthcare provider knew about my first attack, I told him about it since I moved here. I went to see my doctor whatever symptoms happened and he asked me about my heart condition. Something likes that. So I went there and said my symptoms and other things once a month and once in two months. I had no idea about the episode. The doctor told me that my condition became even worse, and then one day he told me I should pick one hospital out to three big hospitals……My daughters live right next door. Her family moved here after my attack. So they are all living around here. All of them are here so whenever I call we can go to the hospital directly. Although I live with my husband, they always worry about my health. They stop by my house on their way home to check me.”

Extending knowledge Women engaged in intellectual activity about heart health in several ways for extending their knowledge to prevent recurrences of MI and restore optimal health. They did research/explored on what the cause of MI is, how serious disease MI is, and what actions should be done for symptoms by chatting with family, friends, and other people with MI, reading a heart health related brochure, watching health related TV shows, and suggestion from a physician. After getting an optimal intervention for MI, for some women, they continued the inferences throughout the disease management process to figure out not only the cause of symptoms but also the fundamental cause of the disease, and then concluded that MI itself was more of a curable disease rather than a fatal disease. They used to hope for the best that the risks could be lowered by the controlling risk factors.

> "And I noticed that about 70% of the patients are female. Just out of curiosity, I even asked female patients in the waiting area in the outpatient department if they smoke or not and no one was smoking… I concluded smoking could be one of the possible reasons but mainly it has to do with getting a lot of stress and going through sadness that you cannot emotionally control. Especially introverted people are the ones who can easily get this disease when they can't release their stress and try to hold it to themselves and can't go out with people…. I had talked with people who had MI like my sister-in-law and my friends. They don't smoke at all. Their symptoms were somewhat different from mine. They are doing fine and enjoying their life. I think it is not that serious disease. It is preventable as long as I keep medical advices like taking prescribed medicine, keeping regular follow-ups and check -ups, and doing regular work out, and seeing a doctor immediately when symptoms occur"

After consideration of causes of MI, some women blamed that psychosocial stresses, natural weakness, a life of austerity when they were young were the fundamental causes of MI, and lack of self-health care or self-concern which was built on lack of knowledge was a direct and immediate cause of MI.

> "I have thought for a while about why I had the serious disease. Most people lived a hard life at those times especially hard to women. It was incommensurable with women in these days. I weighted under 95Ib for almost 40 years before my in-law parents passed away, but now I am weighing about 120 Ib. I spent hard times. Even I was born weak. I couldn't tell anything about my difficulties to anybody. However most people in my generation lived like that. I think this Hwa-byeong led my body vulnerable, but it can't be the decisive causes. The ultimate cause was my ignorance about health. I had no interest about health and never heard of MI. I didn't know how to take care of myself."

Their acquired knowledge through experiencing MI made direct and significant contributions to immediate attention when they faced with the subsequent symptoms. Some women quickly recognized the symptoms of MI and then went to ER right away. Meanwhile some women did not seem to apply the acquired knowledge in handling a situation despite of proper understanding of MI when the symptoms occurred.

> "I had prodromal symptoms in 2009 but in 2011 I didn't have any detectable symptoms and it just happened while I was getting ready for bed. I was dizzy and couldn't breathe well. I couldn't even walk. I felt like being dragged around like a dog without any strength at all. Although the symptoms were not exactly same as the previous one, I could guess it was MI. So this time I called 911 and I could get to the hospital in 10 minutes.

> The people at the hospital said that I should always call 911 when I have such symptoms. They said it's faster in an urgent situation."

> "I felt chest stuffiness again in Feb, 2011, so my physician prescribed nitroglycerin and said to me I should come to see him if the symptoms get worse. In the beginning, nitroglycerin eased the chest pain, but it got really worse and worse. I should have gone to see the physician, but I decided to continue my work and waited one more week until the scheduled appointment. The physician told me that the sheaths in my vessel were blocked, so I had to get an open-heart surgery."

On the other hand, some women were influenced from the limited experience of acquaintances and scrappy knowledge. Their superficial knowledge did not cover/explain the whole progression and aspects of MI. As a result of that they waited till symptoms improve and failed to go to the hospital immediately.

> "I had medicine from H. hospital but hmm, I got dizzy and couldn't see very well, hmm I had those symptoms. I never thought about MI recurrence at that time. I thought MI symptoms were accompanied by severe chest pain or cold sweating with completely drained energy that I experienced before. However, this time the symptoms were quite different from previous attack. Before the attack, I told my primary health care provider about the symptoms, but he just listened. I thought it was all about DM after swimming. After the first attack, my doctor prescribed a small pill for chest pain, but I had not pain but dizziness. So I didn't think about taking the pill. Later I found that it was the worst symptoms when the disease becomes worse. It would have been a close call."

Summary

This chapter described the study findings. The core phenomenon of the health seeking behavior of Korean women with myocardial infarction, “Finding an optimal solution for the symptoms,” is led by the nature of the symptoms and the situation they are in at the time of the attack. To relieve the symptoms and determine the cause of symptoms, women use the following strategies: attributing symptoms, evaluating situations, self-managing symptoms, and consulting about the symptoms. During the action/interaction, strategies are influenced by their previous knowledge and experience, effectiveness of self-management, medical assumptions, inherited social norms, previous MI treatment experience, and support from others. Consequently, women got an optimal treatment in a timely manner and maintain optimal health.

Chapter V. Discussion and Implications

This chapter provides a summary and discussion of the major study findings, which will be compared to previous findings from the scientific literature with respect to similarities and differences, followed by discussion of influencing factors about Korean Women's health seeking behavior in MI (KWHSB-MI). Additionally, a review of the implications for clinical practice and future study as well as limitations of the study will be included.

Summary of Study Findings

Women's health seeking behavior at the onset of MI is a complex cognitive process, influenced by various psycho-socio-cultural factors which women undertake the actions in order to both relieve their symptoms and figure out the cause. The steps of the sequence are interdependently linked, and the solutions for symptoms are evaluated in terms of effectiveness by women or consultants until the end results of HSB are achieved. The process occurs swiftly once women experience acute symptoms. On the other hand, when symptoms are common and tolerable every step is repeated until the end goal is accomplished. A core concept that emerged from this study is "finding an optimal solution for symptoms." Seven subcategories for precisely portraying a core concept include: a) experiencing symptoms, b) attributing symptoms, c) evaluating situations, d) self-managing symptoms, e) consulting about symptoms f) getting an ideal treatment, and g) maintaining optimal health.

In the following pages, I compare the core concept that I identified from KWHSB-MI with five theoretical models pertinent to women's health seeking behavior at the onset of symptoms of MI. The qualitative method of grounded theory was used in all studies to explore the experience of women with symptoms of MI. The models' features are summarized in Table 3.

	Dempsey et al. 1995	**Turris & Johnsoon 2008**	**Davis et al. 2013**	**Higgingson 2008**	**Leeman- Castillo 2005**	**KWHSB-MI**
Core categories	Maintaining control and relinquishing control	Maintaining integrity	Searching for the meaning of symptoms	Delay in seeking help:	Not identified	Finding an optimal solution for symptoms
Sub categories	Symptom awareness	Resisting disruption	Symptom recognition	Not recognizing symptoms	Appraising symptoms	Experiencing symptoms
	Perceived insignificance			Engendered perception		Attributing symptoms
	Concern of others		Continuing with life as usual		Being a patient	Evaluating situations
	Self-treatment		Searching for relief and assigning a cause	Maintaining control thorough self-medication	Treating the symptoms	Self-managing symptoms
	Lay consultant		Use of others		Communicating with family and health care professionals	Consulting about symptoms
	Hospital treatment	Suspending agency	Moving toward definitive care		Actively obtaining care	Getting an ideal treatment
		Integrating experiences and new knowledge				Maintaining optimal health

Table 3 Comparison of HSB model

Discussion of Study Findings

Comparison of other models of women's HSB at the time of MI symptoms presentation revealed both similarities and differences with the KWHSB-MI model.

Dempsey, Dracup, and Moser (1995) studied the prehospital experience of women with symptoms of AMI to understand the phenomenon of delay in female cardiac patients. They conducted in-depth interviews with sixteen American women all presenting symptoms of AMI, within the first 24 hours after admission using the interview questions about experience of symptoms presentation, thoughts and behaviors after symptoms awareness, and knowledge about heart attack. Dempsey et al. (1995) created a model of women's experiences with MI symptoms from the data that offers a psychosocial process involving two core categories: (1) maintaining control and (2) relinquishing control, and five subcategories of symptom awareness, perceived insignificance, self-treatment, perceived threat, and lay consultation. The conceptualized control theory model of women's response is the psychosocial process, which represents women's psychological desire that controls women themselves and their environment to maintain all in good condition. Five subcategories of the control theory have relevance to the findings of KWHSB-MI: experiencing symptoms, attributing symptoms, evaluating situations, self-managing symptoms, and consulting about symptoms. However, there are two additional steps evident in the data from the study of KWHSB-MI which are not compatible with the control theory. These include 'getting an ideal treatment' and 'maintaining optimal health.' This discrepancy may result from the recall bias as Dempsey *et al*. (1995) point out as the limitation of their study. Dempsey *et a*l.'s respondents, all of whom were selected from a coronary care unit were diagnosed with AMI within 72 hours. Their intentional or unintentional recall about the experiencing symptoms of AMI may differentially direct all the information at the time of a current event rather than expose every association with any symptoms they experienced at any time period without preconceptions.

The control theory (Dempsey et al. 1995) and the core concepts of KWHSB-MI, “finding an optimal solution for symptoms”, are comparable in their structure and iteration. Consultants, including lay people and health care providers in this study, repeated the HSB process as women did, which led the model to be multi-dimensional and iterative. It is important to elaborate this distinction because the additional iterations of consultation could lead to the longer delay in seeking optimal treatment.

Turris and Johnson (2008) studied women’s experiences of seeking treatment for the interpreted symptoms of potential cardiac illness using a GT. One-hundred hours of naturalistic observation and in-depth interviews were conducted with 16 women in two urban emergency departments in Canada. They identified the basic social psychological process of maintaining integrity, which included three distinct phases: resisting disruption, suspending agency, and integrating experiences and knowledge. In their study, women put forward their best efforts to maintain their holistic integrity from the onset of symptoms to treatment. When women sought treatment as they sensed their impaired physical integrity, they proceeded through three successive stages in an effort to preserve their capabilities and maintain role responsibilities.

Considering their overall findings as well as details, Turris and Johnson’s model has shares commonalities with the current study. For example, the majority of constituent concepts indicate chronological similarities in their activities and in activities related to seeking treatment from the symptoms onset to after discharge upon cardiac related diagnosis. Indeed, a multitude of influencing factors, including defending women’s social obligations played a role as inhibitors in seeking treatments.

Although the second phase of the maintaining integrity model, ‘suspending agency’, partially shared the sub-concepts with the KWHSB-MI study regarding women’s purpose of ensuring physical integrity, a discrepancy occurred because the current study of Korean women did not focus on the women’s experiences in ED.

In addition, there are distinctions between Turris and Johnson’s model and the model derived from the study of KWHSB-MI: only inhibiting factors interfered with and impacted women’s treatment seeking and its one –way property. Women’s decisions in the KWHSB-MI study were affected by the context of their situation, which facilitated seeking treatment or hindered getting prompt treatments.

There are two potential explanations for the one-way property of inhibiting factors in the model. First, Turris and Johnson covered a one-time cardiac episode, although some of the participants had a previous attack. Second, only study participants were the main decision-maker even after considering their shared particular social values. Most stages in the Korean Women’s MI study were repeated by those involved, such as help from their family until getting optimal treatment, because women’s surroundings and social values greatly influenced their decisions.

Higginson (2008) investigated women’s thought process and coping strategies during acute MI. He conducted in-depth interviews about experiences during acute MI with 25 post-MI participants in England. The central theme Higginson identified was ‘delay in seeking help’ along with the three sub-categories: maintaining control through self-medication, not recognizing symptoms, and engendered perception of heart disease. The subcategories contributed to women’s delays in seeking treatment for symptoms. On the whole, similarities to other models and the current model incorporate its subsequent psychosocial processes, and support women’s psychosocial reasons for delaying in seeking treatment. Women's desire to maintain the existing state, combined with their conflicting social values and beliefs, explained each stage of the process as well as the related factors in treatment seeking at the same time, which are commonly found in both KWHSB-MI and Higginson's studies.

Leeman-Castillo (2005) explored how women of different ethnic and language backgrounds acted in response to symptoms of acute MI and how they sought care. She conducted a mixed method research study which included semi-structured interviews with 17 Latinas and 26 non-Latina women in Colorado, all of whom were diagnosed with AMI along with a comprehensive medical records review. Core themes emerged on the interview topics such as women's experiences and beliefs regarding heart attack, social support toward health issues, and decision to seek medical care. Encompassing themes included: communicating with family and healthcare professionals, treating the symptoms, appraising the symptoms, and being a patient. Each theme in this model fits with most themes of KWHSB-MI. Furthermore, they play a role in influencing contextual factors related to seeking professional treatments in terms of the patient's activities responding to symptoms of MI. Moreover, subcategories of each theme show the women's varied reactions constructed on socio-cultural beliefs toward a continuum of seeking treatment. Unlike the KWHSBM study, Leeman-Castillo only investigated factors that contribute to delay, focusing on the cardiac episode at that time of the study, so the study did not include other cardiac episodes which could have significant potentiality associated with seeking treatment.

Lastly, Davis, Mishel, Moser, Esposito, Lynn, and Schwartz (2013) looked closely at how women recognized and made sense of their symptoms, and then made decisions to seek treatment. In-depth semi-structured interviews with nine multiracial women with acute coronary symptom (ACS) were conducted. Six of these participants were diagnosed with MI and the other three participants were diagnosed with unstable angina (UA). A basic social process of women upon experiencing their symptoms, and searching for the meaning of symptoms, was determined through grounded theory. The two core categories within the basic social process were: symptom recognition and the larger social context. The overall process of searching for the meaning of symptoms theory is congruent with the process of the model of KWHSB-MI. Once women experience consistent and patterned symptoms, they initiate making an effort to gain understanding about the meanings of symptoms, classify the situations, and then formulate a direction to manage the symptoms. Furthermore, each subordinate step shares commonalities with KWHSBM regarding embedded sociocultural beliefs and values along with non-specific symptoms as influencing factors in seeking treatments. This explains how women recognize and interpret the symptoms in a broader range of daily life and why women decide to wait and look despite the intensification of symptoms.

The comparison of the findings across models with regard to women's HSB at the onset of MI symptoms showed some similarities and differences among the characteristics of the models. As to features shared in common among the models with KWHSB-MI, most all of the models started conceptualizations in chronological order from the moment the women recognized symptoms of MI to seeking professional treatments as an ending point. Moreover, although each model differed in manner of the labeling and the sequential arrangement of the condition, each of the models similarly illuminated the embedded socio-cultural conditions as influencing factors towards getting legitimate treatments. In particular, Higginson (2008) described "not recognizing symptoms" as the failure of symptom recognition, which was described as "experiencing symptoms" in KWHSBM. However, the concept of "not recognizing symptoms" in Higginson's model was placed at the second stage of the process, which was unlike the order in other models.

The three distinctive differences between KSHSB-MI and other models are as follows. Firstly, KWHSBM characterized the women's reaction as an iterative process by covering prior MI experience along with recent MI in the investigation. This wide scope of investigation broadened the extent of MI experience, considering the increasing likelihood of recurrence. Accordingly, KWHSB-MI created an additional stage, "maintaining optimal health," which was not addressed in other models. In fact, "maintaining optimal health" was not only an ending point of a cycle of HSB, but also took a role as a turning point to bridge women's new response toward a subsequent MI.

Secondly, KWHSB-MI covered a longer time frame in comparison with other models by retrospectively including prodromal symptoms without time constraints. Any symptoms women described, recognizing they were relevant to MI, were treated as reality in keeping with the essential premise of grounded theory.

Thirdly, the multifaceted aspect of KWHSB-MI acknowledged the significant roles of additional participants such as family involvement regarding the seeking of professional treatments, based on the imbedded patriarchal social system and cultural expectation in which women were involved. The pathway women took was altered by the others at any given time, consequently causing either the slowing down or expediting in proceeding ahead to obtaining treatment.

In summary, the comparison of the findings with other models for HSB for women at the onset of MI symptoms revealed the finding that KWHSB-MI extended the understanding of the

HSB of women at the onset of symptoms presentation, as well as incomparable psycho-socio-cultural modes which were imposed upon Korean women as they sought treatment.

Moreover, these distinctions brought two particular strengths of the findings of KWHSB-MI. First, the longer time frame in keeping track of symptoms including not merely prodromal symptoms but also recurrent symptoms reveals convincing evidence in understanding women's HSB. In reality, it grants the use of more comprehensive monitoring of cardiac condition in those Korean women at high risk. Second, the identification of unique psycho-socio-cultural conditions in which Korean women engaged regarding seeking treatment illuminates a trajectory women take, which is different from women in other cultures. As Korean women's HSB was strongly determined through socio-cultural filters, disclosed various features of influential beliefs and social networks well explain how Korean women cope with the symptoms and make a decision to get treatment.

In the following pages, the influencing factors of Korean women's decision for treatment seeking will be discussed.

Influencing factors on KWHSB-MI

The dynamic and complex HSB of Korean women was determined by interaction of the multifaceted factors not by a sole factor. The disclosed main factors of Korean women's HSB were as follows: various natures of symptoms, social situation women involved, cultural values, psychological beliefs women relied on, and a consultant whom women asked in social networks. Those factors were consistent with the conceptual model in the Chapter 2.Literature review. Interaction among corresponding factors along with varied dimensions influenced the overall process, and resulted in a unique pathway for each woman. The combination of factors shortened or increased the delay time. The identified factors will be discussed based upon the given conceptual model.

Socio-demographic factors

Factors such as age, marital status, educational attainment, and living alone did not immediately impact on women's HSB. The average of educational attainment and monthly income level of the participants in this study were higher than those of Koreans aged over 65. Half of the participants had additional private health insurance with additional special terms regarding chronic diseases not only the national health insurance. However those advantageous variables had no direct impact on the women's decision for seeking treatment. The finding was consistent with other qualitative studies of women's HSB on MI symptoms presentation (Davis et al., 2013; Higginson, 2008). Women's experience showed that the knowledge of MI was irrelevant to their level of educational attainment, but was more in line with other variables such as information through daily living. Financial status and additional private health insurance did not show direct impact on the Korean women's current HSB, but had an implied indirect impact on the HSB of subsequent illnesses for the rest of their life. Women's income structure helped explain about the potential long lasting effect. Korean women are economically dependent on family members. Their source of income came mostly from husbands or adult children, not from work related earnings, which put women in an inferior position in asking for their care needs. Korean women described feeling sorry for their health care expenses. As a result, the economic dependency of Korean women plays a fundamental role in women's passivity when making decisions for seeking treatment.

Korean national health insurance limits the number of times in providing a particular intervention for a disease. In fact, percutaneous coronary interventions and stent use can be covered by a national health insurance at the most only three times in the patient's life time. Women get compensation money from a private health insurance policy for a contracted amount if they are insured, which helps women regain their mental stability. Women worry about relapse and financial capability at the same time, and then hesitate to seek treatment promptly because they need more time to prepare for medical charges. It is considerable information to add women's HSB findings in consideration of increasing rates of recurrent infarction and its higher mortality rate than those of first MI.

Clinical factors

HSB of Korean women began with the onset of symptoms, and its patterns varied by the nature of symptoms, comorbid diseases, and previous MI experience. Women's recognition was initiated according to the assorted characteristics of symptoms.

Women rapidly got alarmed and sought treatment once they encountered never experienced sudden and severe symptoms or increasing intensity and duration of symptoms, which presented as mild at the beginning. On the other hand, common symptoms or non-specific symptoms with slow onset led women to continue to wait and watch, hoping the symptoms would spontaneously disappear. Most Korean women in my study experienced coming and going of prodromal symptoms prior to acute symptoms. The onset time of prodromal symptoms was widely dispersed from the preceding several hours ago to as long as ten years ago with moderate symptoms: during which time they became familiarized with the symptoms, and dealt with them as common illness.

The discrepancy of Korean women's response toward seeking medical help upon the increasing severity of symptoms is supported by the previous research. The prehospital delay study of ACS in Ireland, O’Donnell *et al*. reported that patients with slow onset ACS were more likely to have prehospital delay time than their counterparts of fast onset ACS (O'Donnell, McKee, Mooney, O'Brien, & Moser, 2014). Some suggest that shorter prehospital delays are associated with acute onset, intense symptom, and increasing duration (Lovlien, Schei, & Hole, 2007; Noureddine et al., 2006). These results are in contrast to those of Banks (2006), who reported that patients who viewed their symptoms as serious took more time to seek medical help than did patients who viewed their symptoms as not serious.

The presence of comorbid illness was associated with delay in seeking treatment. Patients with diabetes and hypertension delayed longer than those without comorbidities (Banks & Malone, 2005; Gibler, Armstrong, Ohman, Weaver, & Stebbins, 2002). It can be posited that patients interpreted symptoms as their preexisting chronic illness rather than MI, and thus led to prehospital delay. Furthermore, the lack of a health provider’s role in convincing patients about high risk of AMI was indicated by the participants.

However, there are conflicting findings regarding a history of AMI. Most women were quicker to seek treatment if experiencing a recurrent MI, while some decided to wait until symptoms went away. The cumulative study findings consistently support the conclusion that the past experience of MI contributed to an increased prehospital delay (Dracup & Moser, 1997; Moser, McKinley, Dracup, & Chung, 2005; Quinn, 2005). Moser et al. (2005) reported no gender differences in response time from symptoms onset to hospital, but the longer delay was observed among women who had a previous MI. They attributed this to the expectations of symptoms women held being different from the symptoms they were actually experiencing. Meanwhile in KWHSB-MI, women’s improved knowledge of MI, acquired through from their healthcare provider was the main contributor in reducing delay time during a relapse. The delay during a recurrent MI may be explained based on the interplay of social situations and cultural values women kept, such as not wanting to bother other people because they considered themselves no longer a mission carrier.

Sociocultural factors

Korean women deeply considered socio-cultural factors when making a decision to seek medical treatment throughout the process. It is widely accepted that cultural barriers are closely associated with women's prehospital delay in their daily social context. The identified major socio-cultural conditions are as follows: lack of autonomy in patriarchal society, role responsibility(Davis *et al*. 2013), and hwa-byeong. Being consistent with the findings of KWHSB-MI, the cumulative studies reveal that lack of autonomy contributes to women's prehospital delay. Women are dependent on men such as their husband, grown up son, and son in law. To make a decision for seeking treatment, women asked for men's agreement for spending money in order to obtain health care (Leeman-Castillo, 2005; Rani & Bonu, 2003). Also, they willingly waited for the family member to return home to discuss their symptoms (Currie & Wiesenberg, 2003; Leeman-Castillo, 2005; Turris, 2009). Another possible reason for delaying is the low economic status of women. Currie and Wiesenberg (2003) explained that women felt guilty when they were in need of healthcare expenses if they were a housekeeper, and their devotion to family was implicit.

Similarly, women spent much time to complete their duties in their role of mother, caregiver, or employee in preparation for potential hospitalization, which contributed to longer prehospital delays due to women's lack of knowledge about MI. These findings are consistent with Davis *et al*.'s qualitative work of women's thoughts and behaviors with symptoms of ACS (Davis *et al.*, 2013). However, in one case, an exceptional woman of KWHSB-MI determined to go to ER at midnight because she believed she was the only person to take care of her children. Her strong responsibility was connected with the correct knowledge of myocardial infarction, which directed her to a legitimate decision.

Women were more likely to bear symptoms and attempted self-medication when symptoms occurred during nighttime, or when they were on duty. These findings can be supported by the prior studies of prehospital delay among women at symptoms presentation of MI (Banks & Dracup, 2006; Higginson, 2008; Taghaddosi, Dianati, Fath Gharib Bidgoli, Bahonaran, 2010; Davis et al., 2013). The work by Higginson (2008) provided details that women wished to maintain control without bothering anyone, and did not want to make a big deal of it (Davis et al. 2013).

Interpretation of symptoms was culturally determined. Karasz et al. conducted a qualitative study of medically ambiguous symptoms among a South Asian immigrant group and a European Americans group, and proposed that ambiguous and mild daily symptoms, medically unexplained symptoms, and psychological distress were more often associated with cultural interpretations than with clearly explainable physical symptoms with biomedical profiles (Karasz, Dempsey, & Falleck, 2007).

When women attributed the symptoms as hwa-byeong, the prevalent culture-bound syndrome among Korean women who are over age of 40, they tended to tolerate the symptoms. Their interpretation of symptoms was the end result of reciprocal interaction among cultural beliefs in the social context. They shaped several causes of hwa-byeong as it was called ‘stress’, which included financial conflicts, a husband’s affair, and conflicts with in-laws. Women believed their lack of virtue or efforts aroused it, which kept their troubles locked up inside for a long time, rather than speak about things and thus rarely sought medical treatment (Choi & Yeom, 2011). Although they are a very common group of symptoms, they are rarely studied relating to health seeking behavior. A similar analysis can be found in Turris' work of Canadian women with the symptoms of potential cardiac illness. In her qualitative study, she reported 'stress' as a common reason of symptoms identified by the participants to make sense of symptom presentation (Turris, 2009).

Health service factors

Going straight to the ER is the single most important factor in order to get time sensitive intervention. However, most women triage symptoms in accordance with severity, and then referred themselves either to a HP, a traditional Korean medical doctor, pharmacist, or ER based on their own knowledge. In many cases, moderate, long-time experienced common symptoms were attributed to common illness, and led women themselves to a general physician or traditional medical doctor, which contributed to longer prehospital delay. The cross-sectional study of Iran indicated that referring to a general physician before ER was one of the major delaying factors, which caused substantially longer delays in obtaining professional intervention (Banks & Dracup, 2006; Taghaddosi, Dianati, Fath Gharib Bidgoli & Hahonaran, 2010). In a descriptive study of ambulance use in Sweden, Johansson *et al*. indicated that common first line of action to seek help is calling or seeing a general physician rather than going to ER (Johansson, Strömberg, & Swahn, 2004). Shared presumption of ER use among women in KWHSB-MI also included misinformation about long waiting time to get a treatment as a barrier to getting timely treatment. These findings explain the detoured paths women took as a result of their symptoms.

Types of transportation and distance to ER are also influential in reducing prehospital delay. Women who lived a close distance from a hospital showed shorter prehospital delay time.

In contrast, women who lived in a rural area took much longer time in arriving at ER, having traveled to several clinics and small hospitals to get a diagnosis and intervention before ER. Moreover, the women had to wait for days until a reserved spot in the hospital was activated for her. The recent Iranian study reported that the long distance between residence and hospital was the most common cause of prehospital delay and higher mortality among AMI patients (Saberi, Adib-Hajbaghery, & Zohrehea, 2014).

With reference to transportation, previous findings reported the significant association between transportation types and delay time. In a Chinese study of emergency medical service of acute myocardial infarction, patients using EMS had much shorter prehospital delay times than those using other transportation such as taxi or self-transport (Wang & Hsu, 2013). In KWHSB-MI, women showed a perceptible change in ambulance use during a recurrent MI. They did not hesitate in calling an ambulance at symptoms presentation, and so could arrive at ER within ten minutes, which was eye-opening progress in comparison to previous transportation experiences. It was a valuable lesson affected by a health care provider’s education to the patient and her family, as testified to by the participants in KWHSB-MI.

Psychological factors

Lack of knowledge about MI and religious self-interpretation were the influencing factors in Korean women’s decision making. Knowledge regarding MI and use of ambulance or ER were included. Regardless of educational attainment, most of the women described had never heard about MI, and attributed symptoms as common illness. Only one woman matched her symptoms with representing illness; something she had learned about from a television commercial. Moreover, the woman failed in attributing her symptoms as being of cardiac in origin for her subsequent MI. She had undergone new symptoms for several weeks, and did not even attempt to ask a doctor about her condition. Symptom incongruence between perceived and expected symptoms is pointed out as a major factor in prehospital delay (Dempsey, Dracup, & Moser, 1995; MacInnes, 2006; Noureddine, Arevian, Adra, & Puzantian, 2008).

The factor of personal embarrassment has relevance to a lack of knowledge about ambulance or ER use, which caused women to avoid ambulance transport or ER visits. Women thought they were not that seriously ill, worried about others blaming them when the symptoms turned out to be a common illness, did not want to make it a big deal, or avoided being a burden to others (Hong et al., 2011; Johansson et al., 2004; Y. H. Park et al., 2012). In Japanese and Swedish studies about predictors of prehospital delay, perceived seriousness and importance of symptoms shortened the prehospital delay by employing the use of an ambulance (Fukuoka et al., 2006; Johansson et al., 2004). Conclusively, patients' interpretations of the meaning of their symptoms impacts on the decisions about whether or not to seek treatment. Patients who think of their symptoms as serious, or of cardiac origin are less likely to delay (Rosenfeld, 2004). It is necessary that these findings are included in designing education interventions for women, families, and the public.

Religious self-interpretation was influential on Korean women seeking treatment. Women’s HSB varied depending on how they explained the meaning of symptoms to their faith. Some thought the pain was God’s will, and awaited their fate with prayer, meanwhile, some actively responded to symptoms to keep their health because they believed their body was given from God and should be protected soundly. The positive interpretation and subsequent action contributed to shorter prehospital delay time. Leeman-Castillo (2005) reported Latina women’s religious self –interpretation, in which they waited and watched till symptoms went away, thus causing delay. Women’s hospital delay due to religious self-interpretation can be explained by women's age. Most women in the study were elderly, aged 65 and over. In considering their age and task, they might think than themselves it is fine time to go. They would pray for removing symptoms or illness, if they were young, and had significant task to complete.

In conclusion, contributing factors that shorten or prolonged prehospital delay times along with illustration in the context of factors affecting women have been described. Understanding this in the unique context of Korean women should be the primary foundation for the next step of future investigations or development of an intervention.

Limitations

There are several limitations to be considered. With regard to the sample, only surviving Korean women with MI experience were included. Non-survivors of MI before getting treatment or women who decided not to obtain treatment were not included. Most participants lived in the suburbs of Seoul. The accounts and experiences of women who lived in rural areas, non-survivors before the hospital arrival, and those who decided not to obtain a treatment might be different from the experiences of the study participants. This is a single qualitative study with 18 participants, thus the results are not sufficient to support a recommendation of policy changes.

Implications for research and practice

For future research, more systematic study of a larger sample size including women in rural areas is warranted to compare HSB between two groups, women in rural areas and urban areas. For health professionals, education and counseling of patients and their families during hospitalization should be reinforced along with developing and adding new information to existing materials. Updated materials should include both typical and atypical symptoms, slow/fast onset, women at high risk for MI, and to-do lists for symptom presentation; for example, such as for EMS use. For the public, women’s coronary heart disease awareness programs such as annual campaigns needs to be developed in solidarity with public media and women’s organizations to increase public awareness.

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Appendix A: Physician approval letter

Health-seeking behavior of Korean women with myocardial infarction

(Date)

(Physician's address)

Dear Dr. (name):

Thank you for taking the time to read this information letter. My name is Insil Lee. I am a Registered Nurse and a doctoral student at the University of Washington in Seattle, Washington, USA.

For my dissertation, I am interested in learning about the experiences and health-seeking behavior of women who have myocardial infarction. Developing this knowledge base is important because most of the cardiovascular research conducted to date has been male oriented, and thus women lose the benefits from medical treatment on cardiac symptoms. I hope that this study will provide health-care professionals with information that will assist them in caring for women who present cardiac symptoms. Every effort will be made to ensure their participation will be voluntary. The study should in no way compromise their health or medical treatment.

In order to carry out this research about the experiences of women with myocardial infarction, I need to spend more time in your department to interview them. The participants will be contacted upon their admission or transfer. If women are willing to share their experiences with me, face to face interviews will take place in the hospital and it will last from thirty minutes to one and half hours. Additional interviewing will be conducted if necessary after they are discharged from the hospital. I will be asking questions about women's experiences, perceptions, and health-seeking behavior regarding their cardiac symptoms.

If you would like further information about this study please contact me directly at 010-9706-1973 or leei2@uw.edu. Thank you for your serious consideration of my request.

Sincerely,

Insil Lee, RN

To Whom It May Concern:

I give my permission for Insil Lee to contact my patients for her research at (hospital name).

Physician’s name: (   )

Date   : (   )

Appendix B: Letter for support to nursing department and charge nurse

Health-seeking behavior of Korean women with myocardial infarction

Insil Lee

School of Nursing

University of Washington

Box 357260

Seattle, WA 98195

To Whom It May Concern,

Thank you for taking the time to read this information letter. My name is Insil Lee. I am a registered nurse and a doctoral student at the University of Washington in Seattle, Washington in the United States.

For my dissertation, I am interested in learning about the experiences and health-seeking behavior of women who have myocardial infarction. Developing this knowledge base is important because most of the cardiovascular research conducted to date has been male oriented, and thus women lose the benefits of medical treatment on cardiac symptoms. I hope that this study will provide health-care professionals with information that will assist them in caring for women who present cardiac symptoms. Every effort will be made to ensure their participation will be voluntary. The study would in no way compromise their health or medical health.

In order to carry out this research about the experiences of women with myocardial infarction, I need to spend time in your department to interview them. The participants will be contacted upon their admission or transfer. If women are willing to share their experiences with me, face to face interviews will take place in the hospital and it will last from thirty minutes to one and half hours.

Additional interviews will be conducted if necessary after they are discharged from the hospital. I will be asking questions about women's experiences, perceptions, and health-seeking behavior about their cardiac symptoms. For everything to proceed smoothly, the support of the unit charge nurse is important in terms of identifying potential participants.

I ask for your support and thank you for your consideration. Your cooperation will contribute to the successful completion of my research.

If you would like further information about this study please contact me directly at 010-9706-1973 or leei2@uw.edu.

Thank you for your serious consideration of my request.

Sincerely,

Insil Lee, RN

Appendix C: Script for Initial Contact from Site Intermediary
Health-seeking behavior of Korean women with myocardial infarction

When you contact a woman to determine her willingness to hear more about this study, please use the following script:

Hello,

One of the PhD students at the School of Nursing, University of Washington, is conducting a study to learn about the experiences and health-seeking behavior of Korean women with myocardial infarction. She is looking for women with myocardial infarction who are willing to participate in the study. Participating in this study involves an in-person interview which takes from about thirty minutes to one and half hours; an additional interview will take place if it is necessary. Would you be willing to hear more from the researcher about this study?

If No > Thank you for your time.

If Yes > I will let her know you have an intention to take part in the study. She will visit you within 24 hours.

IF IN DOUBT ABOUT ELIGIBILITY, PLEASE CONFIRM USING THE LIST BELOW:

INCLUSION CRITERIA

- to have MI diagnosis
- to be able to understand and speak in Korean
- to be 40 years of age or older
- to be in physically and mentally stable condition to be interviewed

(Specifically, stable vital signs and alert and oriented to person, place, and time)

EXCLUSION CRITERIA

- MI has developed while hospitalized for some other reason

Contact: Insil Lee, RN

leei2@uw.edu, 010-9706-1973

Appendix D: Information about the study for potential participant

Health-seeking behavior of Korean women with myocardial infarction

My name is Insil Lee, RN, a Ph.D. candidate at the University of Washington, Seattle, in the United States. Thank you for your interest in the study. By participating in this study, you will not have any direct benefit, per se. However, the data on experiences and health-seeking behavior of Korean women with myocardial infarction will be used to provide information for healthcare providers about how to provide better health care for Korean women.

The goals of this study are to explore the experiences of Korean women at the onset of myocardial infarction symptoms to describe the process in seeking treatment for the symptoms of myocardial infarction.

This is right for you if …

you are diagnosed with myocardial infarction

you are able to understand and speak in Korean

you are 40 years or older

you are alert and oriented to person, place, and time

If you agree to participate, we will:

Schedule the interview at a convenient time for you

Talk about your experience at least once.

An additional interview will be conducted at any place you feel comfortable if you are discharged from the hospital.

Fill out a questionnaire about demographic information

A $25 gift card for the initial interview and a $ 20 gift card for an additional interview will be offered for your participation in this study.

Appendix E: Consent Form

UNIVERSITY OF WASHINGTON CONSENT FORM

HEALTH-SEEKING BEHAVIOR OF KOREAN WOMEN WITH MYOCARDIAL INFARCTION

Researchers

Principal investigators: Insil Lee, MSN, RN, PhD student, School of Nursing,
206-612-1632

Faculty advisors : Nancy Woods, PhD, RN, Professor, BNHS, 206-543-8746
Marcia Killien, PhD, RN, Professor, FCN, 206-543-8746
Barbara Cochrane, PhD, RN, Associate professor, FCN,
206-543-8746

24-hour emergency : Insil Lee, 206-612-1632

RESEARCHER’S STATEMENT

This form is called an “informed consent” form. It provides you with information about the study that you are being asked to participate in. As you read the content of this form, you will gain an understanding of the purpose of this study, the study procedures, its benefits and the potential risk associated. The information on this form will allow you to make your decisions as to whether to participate in the study or not. After you read the form, you may ask questions for more clarifications. If you decide to participate in this research study, you will be asked to sign the bottom of this form and a copy of the signed form will be provided to you.

PURPOSE OF THE STUDY

The purpose of this research study is to learn about the experiences of women having symptoms of myocardial infarction and what they do about the symptoms for seeking care. Some women have different experiences than others; therefore it is important to find more from women like you. By participating in this study, you will help generate understanding of women’s experiences and health-seeking behavior in relation to myocardial infarction. Further, the results of this study will help health care providers and policy makers to have better understanding about your concerns at the time of symptom presentation and take your experience into consideration in identifying ways they might help you in seeking treatment and making recommendations for policy changes.

STUDY PROCEDURES

If you decide to be in this study, you will participate in at least one interview and possibly more if the researcher would like to ask more questions or clarify something discussed. The interview will last approximately from thirty minutes to one and half hours in length. The interview time will be made upon a mutually agreed upon date and time. The interview will take place in the hospital, either in your room or some other area in the hospital. An additional interview, if it is needed after a discharge, will take place with your permission anywhere you can speak freely, such as a home or public place. Individual interviews will be led by the interview guide. The interview guidelines will include specific topics that are to be covered. Sample interview questions include: ‘Would you tell me the story about when you first thought you might be having symptoms of cardiac illness?’ and ‘Would you tell me about your feeling and thought on what was happening to you?’ The interview session will be digitally audio tape recorded and transcribed if you have agreed so that an accurate record of the interview will be made. You may request for the recorder to be turned off at any time during the interview. You may stop the interview at any time or choose not to answer any or all of the questions.

RISKS, STRESS, OR DISCOMFORT

Taking part of this study is not expected to be associated with any risk or discomfort; however, you may experience emotional discomfort when discussing your experiences. If this occurs keep in mind that you can stop the interview at any time.

BENEFITS OF THE STUDY

This research is designed to benefit society by giving me new knowledge about the experiences of women with myocardial infarction. You may not benefit personally from being in this research. Reflecting upon your own experience might help you evaluate your own health-seeking behavior and you may get some valuable health information from me because I am a nurse with 6 years of clinical experience in the field.

OTHER INFORMATION

Your routine nursing and medical care will not be affected by your participation in this study. Your participation is completely voluntary, and you have the right to refuse to participate or withdraw from the study without affecting your hospital care or medical care at home after you are discharged. Information about you is confidential. Interview notes, transcripts, and memos will be coded and will have all names removed to protect your privacy. After each of the interviews the conversation from the audio tapes will be transcribed and a pseudonym will be used to refer to you so that your real name will not be used. The original recorded conversation will be downloaded on a USB drive and secured in a locked cabinet until the end of the study at which time it will be deleted. I and my dissertation committee will be the only ones that will have access to all the memos, notes, and audio recording. A translator will see only some of the transcribed verbatim to verify the translation from Korean into English.

There may be times when federal laws or university staff requires the disclosure of such records, including personal information to make sure of quality control or safety. If disclosure is required, the records will be examined by the reviewers with the protection of your privacy.

There will be no costs for being in the study.

As part of this you will be receiving a $ 25.00 gift card for the first interview and a $ 20.00 gift card for an additional interview if needed.

Printed name of the Investigator Date Signature of the Investigator

Subject's statement

This study has been thoroughly explained to me. I volunteer to take part in this research. I have had a chance to ask questions. If I have questions later about the research, I can ask the researcher listed above. If I have questions about my rights as a research subject, I have the right to be connected with the University of Washington Human Subjects Division at (001) 206-543-0098 through translation services. I will receive a copy of this consent form. I have put my initials below to give my consent for the procedures. I have also signed the form.

I give my permission for the researcher to audiotape my interview.

Yes ______ No ______

I give my permission for the researcher to take notes during my interview.

Yes ______ No ______

I give my permission for the researcher to re-contact me for an additional interview.

Yes ______ No ______

I give my permission for the researcher to re-contact me to clarify information.

Yes ______________ No ______________

Printed name of research participant Date Signature of research participant

Appendix F: Interview Guide

Health-seeking behavior of Korean women with myocardial infarction

Opening: In this study, I would like to learn about your experience with cardiac symptoms and what you did when symptoms occurred (in terms of seeking care).

1. Tell me the story about your experience when you thought you were having symptoms of cardiac illness.
    - Distinguish her story-first experience from second or third experience
2. Tell me about your feelings and thoughts on about what was happening to you
    - Characteristics of symptoms in terms of quality, intensity, location, frequency

      "How did it come on?", "How did it feel?", "How did they last?"
    - Thoughts about seriousness, causal relationship, anticipated susceptibility and outcomes

      "Did you know what was happening right away or did it take some time to figure things out?"
    - Follow up question- "What were your activities at that time?"

      "Have you had a similar experience in the past?"

“Tell me how you first came to know you might be having symptoms of myocardial infarction”

“Was your experience similar to what you expected?”

3. What did you do when had the symptoms?
    - About what you have done for alleviation or seeking help at the time of symptoms presentation
    - (probing prediction) What were your thoughts in regards to your actions following the symptoms?
    - How did you think you might need someone to help you?
    - How did you know what to do?
    - Was that your first experience? or did you have similar experience before?
    - What were the consequences of these the actions?
4. What were your thoughts about taking care of other things in your life?
    - Importance of role responsibilities
    - (probing) Reluctant to stop activities or changes her role promptly
    - (probing) uncertainty vs. certainty about the following action
5. How did you decide to seek medical treatment?

- What influenced your decision to go into the hospital?
- If you did not go to the hospital, what would have been the consequence?

6. Is there anything you wanted to tell the researcher?

Appendix G: Demographic Questionnaires
Health-seeking behavior of Korean women with myocardial infarction

Participant ID				a
Month/ day/ year				

<General Characteristics>

1. Date of Birth:

2. Marital Status : 1) Currently married ( )
   2) Not married ( )
   3) Divorced ( )
   4) Widowed ( )
   5) Separated
3. Highest Education: 1) Elementary School ( )
   2) Middle School ( )
   3) High School ( )
   4) College/ University ( )
   5) Graduate School ( )
   6) None ( )
   7) Others
4. Religion : 1) Christianity ( )

2) Catholic ( )

3) Buddhism ( )

4) Confucianism ( )

5) None ( )

6) Others ( )

5. Current Occupation: 1) Yes ( ) 2) No ( )

5-1 If yes, what kind of job do you have now?

1) Professional (doctor, lawyer, priest, artist, teacher, etc)
2) General Employee (Office worker, general government officer, etc)
3) Sales/ Services (Small business owner, sales person, etc)
4) Physical Labors (Factory employee, mechanic artisan, farmer, etc)
5) Housewife
6) Other ( )

5-2 If no, what kind of job you had in the past?

1) Professional (doctor, lawyer, priest, artist, teacher, etc)

2) General Employee (Office worker, general government officer, etc)

3) Sales/ Services (Small business owner, sales person, etc)

4) Physical Labors (Factory employee, mechanic artisan, farmer, etc)

5) Others ( )

6. Family income (Ten thousand ₩/ month), please circle on that applies:

1) < 100

2) 100-200

3) 200-300

4) 300-400

5) 400-500

6) > 600

7. Do you currently live with another person(s)?

No ( )

Yes ( )-Number other than self living in home ( )

Relationships of the persons who you live with ( )

Ages of family member who live with you if applicable:

( )

8. Current residential area

1) Seoul Metropolitan city

2) Other metropolitan city

3) City

4) Gun

5) Eup

6) Myeon/ Ri

9. Smoking habits

1) Current smoker

2) Non-smoker

3) Quit smoking

10. Medical history

1) Diabetes Mellitus

Yes ( ), No ( ), if yes; how long have you been diagnosed? ( )

2) Hypertension

Yes ( ), No ( ), if yes; how long have you been diagnosed? ( )

3) Hypercholesterolemia

Yes ( ), No ( ), if yes; how long have you been diagnosed? ( )

4) Menopause

Yes ( ), No ( ), if yes; When did you stop your period? ( )

5) Renal disease

Yes ( ), No ( ), if yes; how long have you been diagnosed? ( )

6) Thyroid disease

Yes ( ), No ( ), if yes; how long have you been diagnosed? ( )

7) Other ( )