Symptom Experiences, Symptom Management, and Symptom Outcomes in
Patients Waiting for Coronary Artery Bypass Graft

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ชื่อวิทยานิพนธ์	ประสบการณ์อาการ การจัดการอาการ และผลลัพธ์การจัดการอาการใน ผู้ป่วยที่รอผ่าตัดทางเบี่ยงหลอดเลือดหัวใจ
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บทคัดย่อ

การวิจัยครั้งนี้มีวัตถุประสงค์ เพื่ออธิบายประสบการณ์อาการ การจัดการอาการ และ ผลลัพธ์การจัดการอาการในผู้ป่วยที่รอผ่าตัดทางเบี่ยงหลอดเลือดหัวใจ โดยคัดเลือกกลุ่มตัวอย่าง แบบเฉพาะเจาะจงตามคุณสมบัติที่กำหนดจำนวน 60 ราย จากทะเบียนผู้ป่วยที่รอผ่าตัดทางเบี่ยง หลอดเลือดหัวใจที่มารับบริการในโรงพยาบาลสงขลานครินทร์ เครื่องมือวิจัยที่ใช้ประกอบด้วย แบบบันทึกข้อมูลส่วนบุคคลและข้อมูลเกี่ยวกับความเจ็บป่วย แบบประเมินประสบการณ์อาการ แบบสัมภาษณ์การจัดการอาการ และผลลัพธ์ของการจัดการอาการ แบบสอบถามผ่านการ ตรวจสอบคุณภาพของเครื่องมือ วิเคราะห์ข้อมูลโดยใช้สถิติบรรยาย และวิเคราะห์ข้อมูลเชิงคุณภาพ เกี่ยวกับการจัดการอาการในผู้ป่วยที่รอผ่าตัดทางเบี่ยงหลอดเลือดหัวใจ โดยใช้วิธีวิเคราะห์เนื้อหา อย่างง่าย ผลการวิจัยพบว่า

1. ในประสบการณ์อาการที่เกิดขึ้น พบว่าอาการที่พบบ่อย ได้แก่ เจ็บหน้าอก/แน่นหน้าอก เจ็บหน้าอกร่วมกับปวดร้าวไปอวัยวะต่างๆ เหนื่อยล้า/อ่อนเพลีย อาหารไม่ย่อย/ท้องอืด หอบ เหนื่อย/หายใจลำบาก/หายใจขัด กลัว/ตกใจกลัว เครียด/วิตกกังวล และรู้สึกไม่แน่นอน/ไม่มั่นคง แต่อาการเหล่านี้เกิดขึ้นไม่บ่อยนัก รวมทั้งผู้ป่วยรับรู้ว่าไม่รุนแรง

2. ผู้ป่วยใช้วิธีการจัดการจัดการกับอาการที่หลากหลาย ได้แก่ (1) การจัดการโดยใช้ยา เช่น ยาอมใต้ลิ้น ยาพ่น/ยาดม ยาระบาย ยาลดกรด และยาสมุนไพร (2) การจัดการโดยไม่ใช้ยา เช่น การพัก การนวด การทุบอก การกดท้อง การจัดท่า การหลีกเลี่ยงอาหารที่มีแก๊ส การใช้เทคนิคการ ผ่อนคลาย และวิธีทางศาสนา และ (3) การจัดการโดยใช้ยาร่วมกับการจัดการโดยไม่ใช้ยา ซึ่งกลุ่ม ตัวอย่างส่วนใหญ่จะเป็นผู้จัดการกับอาการของโรคด้วยตนเองที่บ้านก่อนที่จะขอความช่วยเหลือ จากคนอื่น

3. ผลลัพธ์ของการจัดการอาการพบว่า ผู้ป่วยส่วนใหญ่มีอาการดีขึ้นหลังใช้วิธีจัดการกับ อาการดังกล่าว และภาวะสุขภาพโดยรวมและรายด้าน อยู่ในระดับปานกลาง ยกเว้นด้านสุขภาพจิต อยู่ในระดับสูง

ผลการศึกษา สามารถใช้เป็นแนวทางสำหรับพยาบาลในการวางแผนการดูแลที่ต่อเนื่อง
เพื่อส่งเสริมการจัดการกับอาการที่เกิดขึ้นของผู้ป่วยขณะรอผ่าตัดทางเบี่ยงหลอดเลือดหัวใจ

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Abstract

The purposes of this study were to describe the symptom experiences, symptom management strategies, and symptom outcomes in patients waiting for coronary artery bypass graft (CABG). Sixty patients purposively selected from waiting lists for CABG and attending at the university hospital, in southern Thailand were interviewed. Data were collected using demographic and health-related data form, symptom experience, symptom management, and symptom outcome questionnaires. The questionnaires were developed based on the literature review and the Symptom Management Model (Dodd et al., 2001). Data were analysed using descriptive statistics and simple content analysis for some open-ended questions. The results were as follows:

1. The most common symptoms of patients waiting for CABG were chest pain/chest discomfort, chest pain with referred pain, fatigue/weakness, indigestion/abdominal distension, dyspnea/shortness of breath/difficult breathing, fear/fright, stress/anxiety, and uncertainty. Those symptoms were reported as being infrequent and their severity perceived as being mild.

2. The strategies used to manage symptoms were various, and included: (1) using pharmacology such as isosorbide dinitrate, inhalant, laxative, antacid, and herbs, (2) using non-pharmacological strategies such as resting, massaging, chest thumbing, abdominal compressing, positioning, avoiding gas-inducing diet, using relaxation and religious coping, and (3) combining both methods. The symptoms were primarily managed by patients at home rather than asking for help from other persons.

3. Most subjects reported that the outcomes after their symptom management were improved. Their overall health status and all dimensions were reported at a moderate level, except mental health which was reported at a high level.

The results of this study can be used to guide nurses in assessing and planning a continuing care to enhance the effective strategies of symptom management in patients waiting for CABG.

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CHAPTER 1

INTRODUCTION

Significance of the Problem

Coronary artery bypass graft (CABG) is an important intervention which is applied on the patients with coronary artery disease (CAD) to relieve angina and myocardial ischemia (MI) (McHugh, Hankey, & Belcher, 2000; Rihal, Raco, Gersh, & Yusuf, 2003). In Thailand, the incidences of CABG have been increasing every year. According to the Medical Statistic Office of the Songklanagarind Hospital, Hat Yai, Thailand (2008), the incidences of CABG have increased; in the past five years there were 6 cases reported in 2002 and this number increased up to 105 cases in 2007.

The number of patients who require CABG is increasing and at the same time the available facilities are limited. This situation makes the patients to wait for long time to undergo CABG. Some patients wait for CABG for more than one year (V. Chittitaworn, personal communication, July 9, 2008). Further, the long waiting time for CABG is partly due to the shortage of surgical or financial resources, the shortage of critical care beds and the severity of patients' condition (Cesena, Favarato, Cesar, de Oliveira, & da Luz, 2004; Fox, O'Dea & Parfrey, 1998; Rexius, Brandrup, Oden, & Jeppsson, 2004). According to Songklanagarind Hospital, patients' condition is the priority for CABG. For example, some patients do not show the severity of symptoms like unstable angina, so the CABG surgery is usually postponed until their conditions

are severe enough. But, some cardiac surgeons decide to perform surgery, if the disease threatens the life of patient (V. Chittitaworn).

Waiting for CABG surgery had an impact on patient's health which includes physical, psychological, and social dimensions (Cesena et al., 2004; Fitzsimons, Parahoo, Dip, & Stringer, 2000; McCormick, Naimark, & Tate, 2006). Studies on patients waiting for CABG surgery have been conducted in many developed countries. They found the impacts of waiting for CABG surgery on patients' health such as cardiac complications, morbidity, and mortality (Cesena et al.; Fitzsimons et al., 2000; Koomen et al., 2001; Legare, MacLean, Buth, & Sullivan, 2005; Rexius et al., 2004; Sampalis, Boukas, Liberman, Reid, & Dupuis, 2001). Many symptoms are presented as cardiac symptoms such as chest pain or discomfort, fatigue, upper gastrointestinal pain, debility, aerodigestion, and neuropsychological symptoms (Chen, Woods, Wilkie, & Puntillo, 2005; Fitzsimons et al.; Granot, Goldstein-Ferber, & Azzam, 2004; Lovlien, Schei, & Gjengedal, 2006; Perry, Petrie, Ellis, Horne, & Moss-Morris, 2001). Chest pain is the common symptom found in patients waiting for CABG (Bengtson, Herlitz, Karlsson, Hjalmarson, 1996). Bengtson et al. (1996) found that most of patients waiting for CABG complaint about the chest pain. Even though chest pain is the common symptom, different genders may perceive the symptom in different ways. According to Granot et al. (2004), women reported chest pain more often than men. In addition, the severity of chest pain affects the sleeping pattern of the patients.

Moreover, the severity of symptom is associated with various psychological symptoms such as anxiety, depression and stress that will worsen the condition of patient (Bengtson et al., 1996; Jonsdottir & Baldursdottir, 1998). The common symptoms are uncertainty and fear about the future (Bengtson et al.). Similarly,

Fitzsimons et al. (2000) who conducted the qualitative study to describe the thoughts and feelings regarding the experience of patients waiting for CABG found that uncertainty and anxiety emerge as the dominant themes among the patients. In addition, the social problems were found in the patients when their physical capacity and functioning were decreased such as the ability to perform working, usual household chores, and self-care ability (Fitzsimons et al.). Jonsdottir and Baldursdottir (1998) found that most of the patients in waiting period have negative effects on the daily lives and jobs. The conditions of patients waiting for CABG also affect the relationship with family and friends and cause dissatisfaction about work and sexual life (Jonsdottir & Baldursdottir).

There are many factors that trigger the occurrence of symptoms, which emerged from both patients' conditions and environment. According to patients' condition, pain location and the symptom occurrences are related to infarction location (Culic et al. as cited in Chen et al., 2005). Moreover, the severity of the disease, such as severe left ventricular dysfunction and heart failure cause the sudden or cardiac death while waiting for CABG (Cesena et al., 2004). Lallukka et al. (2006) found that the working condition such as work-fatigue, physical and mental strain at work, lack of social support, health behaviors such as smoking, binge drinking, and increased body mass index, low socio-economic status and menopause are associated with occurrence of symptoms. Moreover, co-morbidity such as diabetes and hypertension affect the patients' symptoms, particularly chest pain (Patel, Black, & Markides, 2003). Therefore, controlling these factors is necessary in order to prevent and manage patients' symptom severity.

For relieving symptoms, in western countries, patients waiting for CABG use several management strategies to deal with their symptoms. The management

strategies includes taking anti-anginal medications (Jackson, Doogue, & Elliott, 1999), analgesic muscular rubs, rest, position changes, drinking spirits (Foster & Mallik, 1998), and lifestyle modification (McHugh et al., 2001). Moreover, some patients contact a physician, family, and friends about the action to be taken when they experienced cardiac symptoms (Finnegan et al., 2000). The experience and interpretation of symptoms are the important factors in symptom management to encourage the patients for seeking help (Horne, James, Petrie, Weinman, & Vincent, 2000). For instance, the severe physical symptom stimulates the patients to seek help (Kearney as cited in McSweeney, Cody, & Crane, 2001). As male and female patients perceive the symptoms in the different ways, they need different symptom management strategies (DeVon, Ryan, Ochs, & Shapiro, 2008). Granot et al. (2004) found that women use the self-management practice to reduce their chest pain by resting. Women do not associate their chest pain with heart disease because they think it is a problem found in men. There is no need to consult a doctor about this, and they are also less directed by family or by friends to seek medical care (Finnegan et al., 2000; Lefler, 2002; Richards, Reid, & Watt, 2002). Moreover, in Thailand, the symptom management strategies related heart disease include asking for help, using self-management practice (e.g., self-medication, resting, changing position, pre-cordial thumb, relaxation, acupressure, and massage), waiting and seeing, and enduring (Dej-adisai, 2006). Proper symptom management reduces the number of hospital visits or readmissions. On the contrary, if the patients do not use proper symptom management, the negative outcome can occur (Perry et al., 2001).

The study regarding symptom outcomes in patients waiting for CABG has not been reported yet by any researcher. It has been reported in only one study conducted by Dej-adisai (2006), who found that the symptom outcome of each patient with acute

myocardial infarction (AMI) is different, and it depends on many dimensions. In addition, she also found that some symptom management strategies are effective but some are not. In her study, symptom outcomes were reported as symptom status, including getting worse, no change, and getting better. Her findings showed that more than half of AMI patients reported their symptom status as getting worse.

The previous studies regarding patients with CABG have been conducted in western countries, but those studies were conducted on symptom experiences and symptom management. Moreover, no study about patients waiting for CABG has been conducted in Thailand. Since, Thailand is one of the Asian countries, where the culture is different from western countries. The culture difference may influence how patients perceive health/illness, which related to their symptom management and symptom outcomes (Dodd et al., 2001). Moreover, although one study was conducted in 125 Thai patients with AMI regarding symptom clusters and its management. However, it was unclear, that whether the patients who participated included the patients who were waiting for CABG (Dej-adisai, 2006). The condition between patients with AMI and patients waiting for CABG may be different, in terms of frequency and severity of the physical symptoms and psychosocial impacts. During the waiting period of CABG, the patients' conditions are usually severe and many cardiac complications always develops (Cesena et al.). Therefore, the symptom experiences, symptom management, and symptom outcomes among Thai patients waiting for CABG are worth to investigate.

To describe symptom experiences, symptom management, and symptom outcomes of patients waiting for CABG, Symptom Management Model developed by Dodd et al. (2001) was used in this study. This study focused on managing symptoms by the patients at home rather than curing the disease which is directly related to the

nursing profession. The findings of this study can assist nurses and other health care providers to provide better advice and services for patients waiting for CABG which they can use at home.

Objectives

The objectives of this study were as follows:

1. To describe the symptom experiences of patients waiting for CABG

2. To describe the symptom management strategies used by patients waiting for CABG

3. To describe the symptom outcomes of patients waiting for CABG

Research Questions

The research questions of this study were as follows:

1. What are the symptom experiences of patients waiting for CABG?

2. What symptom management strategies are used by patients waiting for CABG?

3. What are the symptom outcomes of patients waiting for CABG?

Conceptual Framework

To understand symptom experiences, symptom management and symptom outcomes of patients waiting for CABG, the Symptom Management Model developed by Dodd et al. (2001) was applied in this study. This model is composed of three dimensions and three nursing domains. Three dimensions include (1) symptom experience, (2) symptom management strategies, and (3) symptom outcomes. Each dimension is interrelated and three nursing domains include (1) person domain, (2) environment domain, and (3) health and illness domain.

Symptom experience is a dynamic, which involve the interaction of three subconcepts including the patients' perception of symptoms, evaluation of symptoms, and response to symptoms. Perception of symptoms refers to the perception of an individual regarding a change from the way that the patients usually feel or behave. Evaluation of symptoms refers to the judgment of the patients to characterize the symptom experience. Response to symptoms refers to the patients' responses to the symptoms. Dodd et al. (2001) were also interested in the presentation of several concurrent symptoms or coexistent symptoms that may be occurred as a symptom cluster. In this model, the dynamic nature of symptom expression means that the primary symptom within a cluster may be subjected to rapid change (Dodd et al.).

Symptom management strategies are defined as the management of symptoms through biomedical, professional, and self-care strategies to manage or prevent the symptoms. They include the specifications of what, when, where, why, how much, to whom, and how (Dodd et al., 2001).

Symptom outcomes are defined as the outcomes that emerged from symptom experience and symptom management strategies to evaluate and verify the effectiveness of symptom management strategies (Dodd et al., 2001). The indicators of the outcomes consist of eight indicators that include functional status, self care, costs, quality of life, morbidity and co-morbidity, mortality, and emotional status (Dodd et al.).

In this study, the symptom experiences, symptom managements, and symptom outcomes of patients waiting for CABG were explored. Symptom experiences are composed of symptom perception and symptom evaluation. The patients waiting for CABG perceived their symptoms including physical and psychological symptoms and evaluated their symptoms in terms of frequency and severity. Their symptoms were

managed depending on what, when, where, why, how much, to whom, and how. The symptom outcomes were evaluated as symptom status and health status. The conceptual framework of this study was presented in Figure 1.

Operational Definition

Symptom experiences are defined as several symptom occurrences that change the feelings and behaviors of patients waiting for CABG over the last month from the way they usually feel or behave. Symptom experiences include symptom perception and symptom evaluation. The symptom perception is the recognition of having symptom occurrences. The symptom evaluation is the way in which patient characterizes the frequency and severity of symptom. These symptom experiences were measured by using the Symptom Experiences Questionnaire that was developed by the researcher based on the previous study (Dej-adisai, 2006).

Symptom management is defined as performances, behaviors and coping of the patients waiting for CABG to relieve their symptom experiences at home over the last month including what, when, where, why, how much, to whom, and how. Patients waiting for CABG were interviewed by the researcher by using the Symptom Management Questionnaire which was developed by the researcher.

Symptom outcomes are defined as the perception of patients waiting for CABG regarding the symptom status including getting better, no change, and getting worse and health status resulting from symptom management which is managed by patients in the last month. Symptom outcomes were measured into two parts. In part one, the symptom status was assessed by using checklist. Part two, the health status was assessed by using the Short Form-36 Health Survey Version 2 (SF-36 V2) (Ware, 2000).

Symptom experiences of patients waiting for CABG		Symptom management of patients waiting for CABG		Symptom outcomes of patients waiting for CABG

1. Symptom perception
   - Symptom occurrence
2. Symptom evaluation
   - Frequency
   - Severity
		-What, When, Where, Why,
		   How much, To whom, and How
				- Symptom status
				- Health status
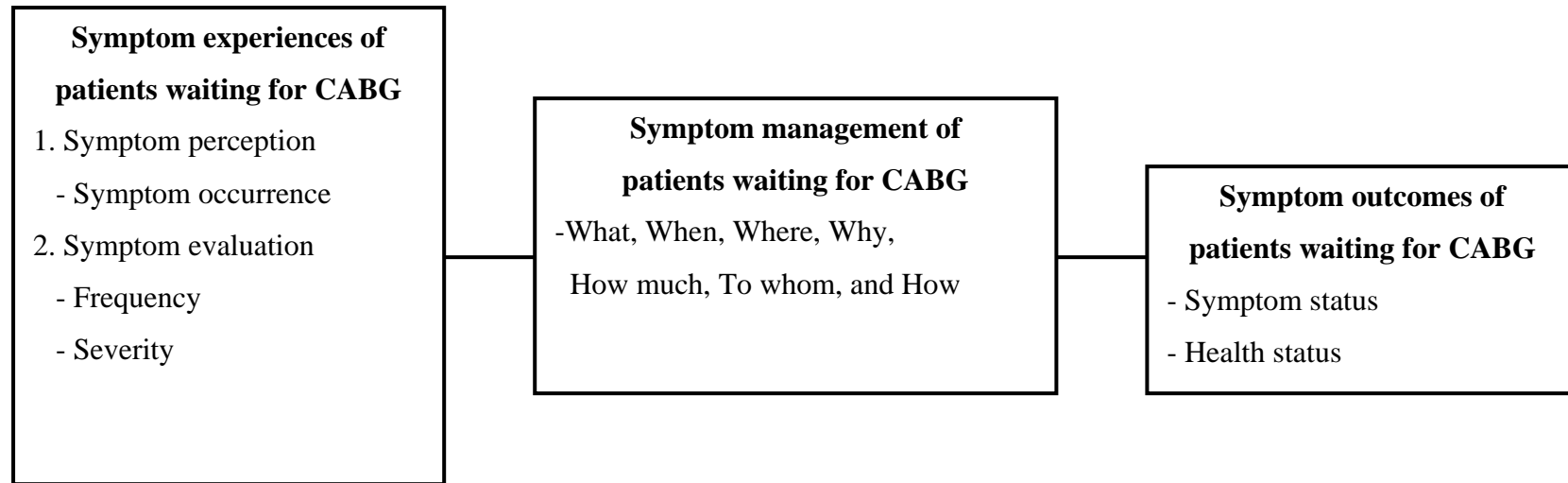
Figure1. Conceptual framework of symptom experiences, symptom management, and symptom outcomes of patients waiting for CABG

Scope of the Study

This study is a descriptive research, which aimed to investigate the symptom experiences, symptom management, and symptom outcomes of patients waiting for CABG. The subjects were outpatients who were waiting for CABG at the Songklanagarind Hospital from January 2009 to May 2009.

Significance of the Study

The findings of this study can contribute knowledge to the nursing profession in the following aspects:

1. They can help nurses to understand symptom experiences, symptom management, and symptom outcomes of patients waiting for CABG and develop teaching appropriate symptom management for these patients.

2. They can provide valuable information for nurses to develop some interventions to prevent negative outcomes or complications of patients waiting for CABG.

3. They can be used as baseline data for further research related to symptom experiences, symptom management, and symptom outcomes of patients waiting for CABG.

CHAPTER 2

LITERATURE REVIEW

This chapter is a review of literature relevant to the present study. The literature review is grouped and presented in four different parts as follows:

1. Overview of patients waiting for CABG

   1.1 Coronary artery disease (CAD)

      1.1.1 Pathophysiology of CAD

      1.1.2 Treatments for CAD

   1.2 Indications for CABG and pre-surgical conditions

   1.3 Definition of waiting for CABG

   1.4 Patients' perception and impacts on patients waiting for CABG

2. Symptom management model

3. Symptom experiences, symptom management, and symptom outcomes of patients waiting for CABG

   3.1 Symptom experiences of patients waiting for CABG

   3.2 Symptom management of patients waiting for CABG

   3.3 Symptom outcome of patients waiting for CABG

4. Factors associated with symptom experiences, symptom management and symptom outcomes of patients waiting for CABG

5. Conclusion

Overview of Patients Waiting for CABG

The presence of waiting list and lengthy waiting time for CABG has raised concerns regarding the number of CAD among Thai population which increases yearly, particularly the occurrence of ischemic heart disease. In 2006, there were 132,500 patients who were suffering from CAD (National Statistic Office of Thailand, 2006). Additionally, waiting for CABG is a situation of much professional and public attention (Ray, Buth, Sullivan, Johnstone, & Hirsch, 2001).

Mostly, the priority group of patients waiting for CABG is based on the severity of symptom (Jonsdottir & Baldursdottir, 1998; Koomen et al., 2001). Rexius et al. (2004) categorized the priority group in patients waiting for CABG based mainly on the severity of symptom, the extent of CAD, and left ventricular function. In addition, Seddon et al. (1999) prioritized the waiting list into four categories viz emergency in hospital, emergency while waiting at home, semi-emergency, and routine. The last three categories were defined as waiting on the outpatient list for cardiac surgery (Seddon et al.). Moreover, Koomen et al. categorized the priority categories in waiting list based mainly on the severity of condition as imperative, urgent, and routine. In case of imperative, surgery is intended within one week, which includes patients with left main and/or severe three vessel disease with angina at rest and/or ST-T segment changes in the electrocardiogram (ECG); in case of urgent, surgery is intended between one and six weeks, patients with left main or three-vessel disease with angina on exertion despite adequate anti-anginal medication but without complaints at rest and/or ST-T segment changes on the ECG; and in case of routine, surgery is intended within three months. Many studies showed that the priority categories in waiting for CABG is based mainly on the severity of patient's condition (Levy et al., 2005; Sampalis et al., 2001; Schofield, 2003), but there are some

differences in term of duration of waiting time. The duration of waiting time might be different and depends on institutional policy.

In fact, CABG surgery should be offered within a week after diagnostic coronary angiography (CAG), because the complications always occurred within four weeks after diagnostic catheterization or early in the queuing process (Ray et al., 2001; Stott, 2002). Similarly, a previous study found that the incidence of waiting list of CABG related deaths appears higher in the initial few weeks compared to several weeks (Plomp et al., 1999). The incidence of death within the first month was 1.19 per 1,000 patient-weeks while the incidence of death after the first month was 0.76 per 1,000 patient-weeks (Plomp et al.).

Many studies showed that the patients who need CABG still have to wait for more than one year (Haddad et al., 2002; Seddon et al., 1999). Haddad et al. found that the waiting time for CABG ranges from 3 days to 77 months. Moreover, Tryfonidis, Prendergast, and Curzen (2002) found that the average waiting time from CAG to CABG surgery is 18.7 months and the mean delay from CAG to CABG surgery is 13.5 months. The consequence of long waiting time may cause death at mortality rate of 4-5% per year that is greater than the CABG itself (Large, 2002).

Coronary Artery Disease

CAD is a chronic disease in which the coronary arteries gradually harden and narrowed (atherosclerosis). This condition is also referred as coronary heart disease (Elhendy, Prewitt, & Weitzman, n.d.). CAD is the leading cause of death in both sexes, accounting for about one-third of all deaths (Warnica, 2007). CAD is a complex disease that causes reduced or no blood flow in one or more of the arteries that encircle and supply the heart. The disease may be focal or diffuse. Apart from rare congenital anomalies (birth defects), CAD is usually a degenerative disease. It is

uncommon as a clinical problem before the age of 30 years and common by the age of 60 years (Pearlman, Lin, Newell, Krasny, & Coombs, 2007).

Pathophysiology of CAD

CAD is a chronic disease in which blood flow is obstructed through the coronary arteries that supply the heart with oxygen-rich blood. This obstruction is caused by a disease known as atherosclerosis, which is sometimes called "hardening of the arteries." Atherosclerosis leads a person to danger of cardiovascular problems. First, the inner lining of the artery (e.g. the endothelium) is damaged. This causes white blood cells (WBC) to gather at the site of injury. This provokes an inflammatory immune response that causes further damage to the artery wall. WBC and cholesterol combine to form lipid foam. In the early stages of atherosclerosis, these fatty streaks are presented on the arterial wall as plaque deposits. Over time, the plaque may calcify, or form a hardened "shell." This reduces the artery's ability to contract and expand and thus narrows the artery and reduced the amount of blood that can flow through it. If the plaque deposit ruptures, a blood clot can form at the site of the rupture, or pieces of the plaque can travel through the arteries until they eventually cause a blockage (Elhendy et al., n.d.). This interrupts coronary blood flow and causes some degree of myocardial ischemia. The consequences of acute ischemia are collectively referred as acute coronary syndromes depending on the location and degree of obstruction and range from unstable angina to transmural infarction (Warnica, 2007).

Treatments of CAD

Treatment for CAD varies according to the severity of the disease, the location of blockages in the blood vessels, the presence of any risk factors (e.g. abnormal cholesterol profile or high blood pressure) and the overall health of the patient. Treatment options include medications, medical procedure, and risk factors modification (Elhendy et al., n.d.).

1) Medications

Medicines used to treat CAD include statins, beta-blockers, calcium-channel blockers, nitrates, antiplatelets, and angiotensin-converting enzyme (ACE) inhibitors.

1.1) Statins. These medications decreases the amount of cholesterol in the blood, especially low-density lipoprotein or bad cholesterol to decrease the production of primary material that deposits on the coronary arteries (Grogan, 2008), and they also block the production of specific enzymes which used by the body to make cholesterol (Elhendy et al., n.d.).

1.2) Beta-blockers (β-blockers). These medications block the effect of the sympathetic nervous system on the heart (Elhendy et al., n.d.). These agents slow down the heart beat rate and decrease blood pressure, which decreases the heart's demand for oxygen. Moreover, they reduce the risk of future heart attacks (Grogan, 2008).

1.3) Calcium-channel blockers. These medications relax the muscles that surround the coronary arteries and cause the vessels to open, in order to increase the blood flow to the heart. Moreover, they control high blood pressure (Grogan, 2008). Some calcium-channel blockers also decrease the workload of the heart and some also decrease the heart beat rate as well (Columbia University Medical Center, Department of Surgery, New York, 2007).

1.4) Nitrates (e.g. nitroglycerin). These medications cause arteries to relax or dilate and improve blood flow to the heart (Elhendy et al., n.d.).

1.5) Antiplatelets (e.g. aspirin, clopidogrel). These medications can inhibit the formation of blood clots by decreasing the ability of platelets (a clotting component of the blood) to bind together and form a blood clot (Grogan, 2008).

1.6) ACE inhibitors. These medications decreases blood pressure and may help to prevent progression of CAD. Moreover, ACE inhibitors can also reduce the risk of future heart attacks (Grogan, 2008).

2) Medical procedure

Medical procedure demonstrate as revascularization procedure that composed of interventional cardiology, cardiovascular surgery, and medications including, thrombolysis and heparinization.

2.1) Angioplasty and stent placement (percutaneous coronary revascularization). In this procedure, a long thin catheter is inserted into the narrowed part of artery. A wire with a deflated balloon is passed through the catheter to the narrowed area. The balloon is then inflated, compressing the deposits against the artery walls, thus allowing more blood to flow through the widened vessel (Grogan, 2008). A major problem with this approach is the gradual re-closure of the vessel (restenosis) (Elhendy et al., n.d.). The recent introduction of stents has somewhat helped in solving this problem. These stents are implanted in the artery after angioplasty. They hold the plaque against the wall and help to prevent the vessel from closing again (Elhendy et al.). Latest stents, known as drug eluting stents which have been coated with special drugs can also help to reduce restenosis (Grogan, 2008).

2.2) Atherectomy. It is another catheter-based procedure, in this procedure a special catheter is guided into the blocked coronary artery. This catheter

is equipped with a blade that cuts away the soft plaque deposits, or grinding burr that pulverizes harder, calcified plaque (Elhendy et al., n.d.).

2.3) CABG. It is a surgery that increases blood flow to the heart by creating a detour and re-routing the blood flow around the blocked portion of the artery. A section of a blood vessel from another part of the body (e.g. the leg-saphenous vein or chest-internal mammary artery) is relocated and grafted above and below the damaged portion of the coronary artery to form an open channel around the blockage (Elhendy et al., n.d.).

2.4) Minimally invasive coronary artery bypass (MICAB). It is a less invasive by-pass surgery technique. The incision is smaller, and may be done while the heart is still beating to reduce the risk of complications (American Heart Association, 2008). MICAB is effective in some situations, such as patients who have limited disease in one or two main coronary arteries but it is not commonly used. MICAB is sometimes used in conjunction with coronary angioplasty to treat multi-vessel disease (Elhendy et al., n.d.).

2.5) Transmyocardial laser revascularization (TMLR). This procedure involves the use of a laser to create tiny channels in the lower left chamber of the heart (the left ventricle), which may increase blood flow within the heart. While the heart is still beating, the surgeons use the laser to make 20 to 40 tiny (one-millimeter-wide) channels through the oxygen-deprived heart muscle and into left ventricle. These channels give a new route for blood to flow into the heart muscle, which may reduce pain of angina. TMLR is only used for the patients who do not respond to other treatments such as medicines, angioplasty, or CABG (American Heart Association {AHA}, 2008).

2.6) Thrombolysis. Thrombolysis is the breakdown of blood clot, by pharmacological means. It works by stimulating fibrinolysis by plasmin through infusion of tissue plasminogen activator, a protein that normally activates plasmin. Thrombolytic agents actively reduce the size of clot. This makes the clot soluble and subject to further proteolysis by other enzymes, and restores blood flow over occluded blood vessels (Wardlaw, Berge, del Zoppo, & Yamaguchi, 2004).

2.7) Heparinization. Heparin is an antithrombotic agent in patients with CAD. Heparin prevents the formation of clots and extension of existing clots within the blood. Its administration is known to increase circulating free fatty acids, which may adversely affect myocardial energetics, especially during ischemia (Fragasso et al., 2002).

3) Risk factor modification

Risk factors are traits related to the development and progression of CAD. Decreasing risk factors improves the long term survival and quality of life of CAD patients. Risk factor modifications include:

3.1) Stop smoking. Smoking is directly related to an increased risk of the heart attack and its complication. CAD patients who keep on smoking have a 43% greater chance of dying from a heart attack than those who stop smoking (Goldenberg et al., 2003).

3.2) Decrease lipid and cholesterol intake. A high-fat diet can contribute to increased fat content in the blood, thus leading to heart attack.

3.3) Control high blood pressure. High blood pressure can damage the lining of coronary arteries and lead to coronary artery disease. Blood pressure should be checked on a regular basis. A healthy diet, exercise, medications and controlling sodium in diet can control high blood pressure.

3.4) Control blood sugar. High blood sugar are linked to the progression of CAD. High blood sugar can be controlled through monitoring blood sugar, diet, exercise, and medications.

3.5) Increase physical activity. Regular physical activity can lower many CAD risk factors, including LDL cholesterol, high blood pressure, and excess weight. Physical activity also can lower risk for diabetes and raised the levels of HDL cholesterol.

3.6) Maintain ideal body weight. When the patients are overweight, the heart has to do more work, and thus increases the risk of high blood pressure, high cholesterol levels and diabetes.

3.7) Reduce stress. An emotionally upsetting event is the common trigger for a heart attack, particularly anger. Also, some of the ways patients cope up with stress, such as drinking, smoking, or overeating, are harmful to healthy heart. Physical activity can help to relieve stress and reduce other CAD risk factors.

Many treatments were used to manage with CAD, including medications, medical procedure, and risk factors modification. However, this study focuses on CABG procedure, particularly patients waiting for CABG.

Indications for CABG and Pre-Surgical Conditions

In recent years, there has been a progressive increase in the number of patients undergoing revascularization (Schofield, 2003). Patients who present the symptoms of CAD are referred to the cardiologist to assess the need for surgical revascularization (Sobolev, Levy, Hayden, & Kuramoto, 2006). Patients who have persistent symptoms and a diminished quality of life while receiving optimal medical therapy are generally considered for revascularization. CABG is the most commonly used method of revascularization for symptomatic CAD (Hamm et al., 1994; Herlitz, Brorsson, &

Werko, 1999). This intervention has been proved to be safe and effective in relieving medically uncontrolled angina pectoris in most patients (Urden, Stacy, & Lough, 2002). The objectives of CABG are the improvement of anginal status, symptoms and quality of life and to prolong life expectancy (Jelinek, 2002; Urden, Stacy, & Lough, 2002).

There is a team to perform procedure of patient selection for CABG. It consists of at least one cardiologist who evaluates the results of CAG and decides on treatment (Grech, 2003; Tryfonidis et al., 2002) and one cardiac surgeon who assesses the patients' need and suitability for CABG (Sobolev, Levy, Hayden, & Kuramoto, 2006). This team decides between medical therapy, angioplasty, or cardiac surgery on the basis of history, non-invasive tests and cine-angiograms for coronary anatomy and left ventricular function (Koomen et al., 2001).

There are two indications for CABG including, symptomatic and prognostic. The first indication involves patients whose angina is not adequately controlled by medical treatment and the second indication is the presence of CAD which has been shown to probably a better prognosis with surgery than with medical treatment (Schofield, 2003). Such diseases which are indication of CABG includes (1) significant (more than 50%) stenosis of the left main stem, (2) significant proximal stenosis of the three major coronary arteries, and (3) significant stenosis of two major coronary arteries including high grade stenosis of the proximal left anterior descending artery (LAD). In addition, the impaired left ventricular function increases the prognostic advantage of surgery over medical treatment in all categories (Schofield).

Mostly, indications for CABG depend on consensus opinion in accordance with institutional guidelines for anatomy, stress test, and symptom burden (Cox et al,

1996 as cited in Ray et al., 2001). In particular, patients with CAD are prioritized according to angina symptoms, coronary anatomy, and left ventricular function impairment to facilitate them to access the surgical revascularization (Levy et al., 2005). Sampalis et al. (2001) reported that the events before CABG include, myocardial infarction (MI) that is determined by the clinical ischemic pain, new appearance of Q-waves or left bundle branch block, elevated creatine kinase (CK) level or elevated creatine kinase-MB (CK-MB) fraction, new unstable angina that is determined by decreased threshold and increased intensity, frequency or duration of pain, and by rest pain with ST-segment elevation, and ST-segment depression or T-wave inversion.

A study about priority setting and cardiac surgery found that the priority setting decisions for cardiac surgery were based on a complex set of interrelated clinical and non-clinical reasons (Koomen et al., 2001). Clinical reasons that cardiac surgeon considers in decision-making includes, coronary anatomy, left ventricular (LV) function, symptoms, co-morbidities, special urgent situations such as tight aortic stenosis or high left main coronary artery (LMCA) disease and goals of cardiac surgery. Left ventricular function is classified in four categories including normal, slightly diminished, diminished, and poor (Koomen et al.). In regard to coronary anatomy, it is divided into five categories that consist of left main disease, multi-vessel including proximal anterior descendent artery stenosis, three-vessel without anterior descendent artery stenosis, single-vessel proximal anterior descendent artery stenosis, and one or two-vessel disease without anterior descendent artery lesion (Cesena et al., 2004). Moreover, non-clinical reasons that cardiac surgeon uses in decision-making includes, patients' social situations, lifestyle choices, occupation,

mental state (high level of anxiety), advanced age, and obesity (Walton, Martin, Peter, Pringle, & Singer, 2007).

The CABG surgery is used both for the relief of symptoms and prolongation of life (Urden et al., 2002). The conditions of symptoms are classified into four sub-classes including, (1) class I: conditions for which there is evidence and/or general agreement that a given procedure/treatment is useful and effective, (2) class IIa: weight of evidence/opinion is in favor of usefulness/efficacy, (3) class IIb: usefulness/efficacy is less established by evidence/opinion, and (4) class III: conditions for which there is evidence and/or general agreement that the procedure/treatment is not useful/effective and in some cases may be harmful. In addition, indications of clinical subsets for CABG which are currently in practice are mentioned in Table 1 (Camp & Mentzer, 2004).

Table 1

Indications of clinical subsets for CABG

Indication	Class I	Class IIa	Class IIb	Class III
1. Asymptomatic or mild angina	- Significant (50% or greater reduction of lumen diameter) left main coronary artery stenosis. - Left main equivalent: significant (70%) stenosis of the proximal LAD and proximal left circumflex artery (Cx). - Three-vessel disease.	- Proximal LAD stenosis with one or two vessel disease.	- One or two vessel disease not involving the proximal LAD.	- None
2. Chronic stable angina	- Significant left main coronary stenosis. - Left main equivalent: significant (70%) stenosis of the proximal LAD and proximal left Cx artery. - Three-vessel disease. - Two-vessel disease with significant proximal LAD	- Proximal LAD stenosis with one vessel disease. - One or two vessel CAD without significant proximal LAD stenosis, but with a moderate area of viable myocardium and demonstrable ischemic on noninvasive testing.	- None	- One or two vessel disease not involving significant proximal. LAD stenosis. - Borderline coronary stenosis (50% to 60% diameter in locations other than the left main coronary artery) and no demonstrable ischemia on noninvasive testing.

Table 1 *(Continued)*

Indication	Class I	Class IIa	Class IIb	Class III
	stenosis and either ejection fraction (EF) < 0.50 or demonstable ischemic on non-invasive testing. - One or two vessel CAD without significant proximal LAD stenosis, but with a large area of viable myocardium and high-risk criteria on non-invasive testing.			- Insignificant coronary stenosis (<50% diameter reduction).
3. Unstable angina/Non-Q wave MI	- Disabling angina despite maximal non-invasive therapy. - Significant left main coronary artery stenosis. - Left main equivalent: significant (70%) stenosis of the proximal LAD and proximal left Cx artery. - Ongoing ischemia not responsive to maximal	- Proximal LAD stenosis with one or two vessel disease.	- One or two vessel disease not involving the proximal LAD.	- None

Table 1 *(Continued)*

Indication	Class I	Class IIa	Class IIb	Class III
	non-surgical therapy.			
4. ST-segment elevation (Q-wave) MI	- None	- Ongoing ischemia/ infarction not responsive to maximal non-surgical therapy.	- Progressive LV pump failure with coronary stenosis compromising viable myocardium outside the initial infarct area. - Primary reperfusion in the early hours (6 to 12 hours) of an evolving ST-segment elevation MI.	- Primary reperfusion late (12 hours) in an evolving ST-segment elevation MI without ongoing ischemia.
5. Poor LV function	- Significant left main coronary artery stenosis. - Left main equivalent: significant (70%) stenosis of the proximal LAD and proximal left Cx artery. - Proximal LAD stenosis with two or three vessel disease. stenosis.	- Poor LV function, with significant viable non-contracting revascularizable myocardium and without any of the above anatomic patterns.	- None	- Poor LV function, without evidence of intermittent ischemia and without evidence of significant revascularizable viable myocardium.

Table 1 *(Continued)*

Indication	Class I	Class IIa	Class IIb	Class III
6. Life-threatening ventricular arrhythmias	- Left main coronary artery - Three vessel coronary disease.	- By-passable one or two vessel disease causing life-threatening ventricular arrhythmia. - Proximal LAD disease with one or two vessel disease.	- None	- Ventricular tachycardia with scar and no evidence of ischemia.
7. CABG after failure PTCA	- Ongoing ischemia or threatened occlusion with significant myocardium at risk. - Hemodynamic compromise.	- Foreign body in crucial anatomic position. - Hemodynamic compromise in patients with impairment of the coagulation system and without previous sternotomy.		- Absence of ischemia. - Inability to revascularization due to target anatomy or no-reflow state.
8. Patients with previous CABG	- Disabling angina despite maximal non-invasive therapy.	- By-passable distal vessel with a large area of threatens myocardium.	- Ischemia in the non-LAD distribution with a patent IMA graft to the LAD supplying functioning myocardium, without an aggressive attempt at medical management and/or percutaneous revascularization.	

Definition of Waiting for CABG

Many studies defined the waiting time for CABG in various ways which are as follows:

The waiting time for CABG is defined as the time that patient is enrolled onto the waiting list for CABG surgery by a cardiac surgeon to the time the patients gets CABG (Morgan et al., 1998; Naylor, Szalai, & Katic, 2000; Rexius et al., 2004; Rexius, Brandrup-Wongsen, Oden, & Jeppsson, 2005; Seddon et al., 1999). But another definition defines the waiting time for CABG as the time that patient is emrolled onto the waiting list for CAG by a cardiologist to the time the patients gets CABG (Bengtson, Karlsson, & Herlitz, 2000; Ray et al., 2001). There are many reasons related to waiting time for CABG. The reasons for postponement of cardiac surgery are categorized into three groups (Dagmar as cited in Ivarsson, Larsson, & Sjoberg, 2004) as follows:

1) Patients related reasons: The patients do not keep the appointment or suddenly refuse the cardiac surgery because they feel that they are not ready for it at the time it is offered (National Health Service Trust, 2008).

2) Medical reasons: Sometime the patient's health deteriorates, or the pre-operative investigations are not completed. Some patients do not present the severity of symptoms, such as unstable angina. Thus, the cardiac surgery is postponed until the patient's conditions become severe (Dagmar as cited in Ivarsson et al., 2004).

3) Organizational reasons: There are many reasons for the postponement of cardiac surgery, for instance, shortage of surgeon, lack of operating room for cardiac surgery, the shortage of intensive care unit (ICU) beds, lack of operating equipment, and lack of time because of previous cardiac surgeries exceeding the

scheduled time (Cesena et al., 2004; Fox et al., 1998; Jonsdottir & Baldursdottir, 1998).

In summary, the waiting time for CABG is defined as the starting time when patient is assessed for CABG surgery by a cardiac surgeon, after getting CAG by a cardiologist unto the waiting list to the time the patients gets CABG. Moreover, the waiting time includes the delay and/or postponement which is associated with patient related reasons, medical reasons, and organizational reasons.

Patients' Perception and Impacts of Waiting for CABG

Waiting time is both positive, as it gives patients enough time to prepare themselves before intervention, and negative, as it is a virtue of the stress encountered by waiting an indeterminate length of time (Jonsen, Athlin, & Suhr, 2000). However, the long waiting time may cause several problems for the patients, their families, and society (Haddad et al., 2002). In regard to patients, who are delayed for cardiac surgery faces the increased risks of worsening symptoms (Ray et al., 2001). They may experience a high degree of dependency (Lindsay, Smith, Hanlon, & Wheatley, 2000). Moreover, most of the patients are not satisfied with their health status, due to the major symptoms, such as fatigue, dyspnea, chest pain, anxiety, and depression (Jonsdottir & Baldursdottir, 1998). The length of waiting time is a contributing factor and it also heightens the perceptions of risk for myocardial infarction (MI) of patients waiting for CABG (McHugh et al., 2001). The co-morbid medical condition may increase the amount of time in waiting for CABG. Death may even occur, resulting in psychological problems and repercussions for their families (Fitzsimons et al., 2000). Patients waiting for CABG have three times more chances to die than members of the general population (Naylor et al., 2000). Mostly, the death occurs within four weeks

after diagnostic catheterization, so CABG should be offered within a week after diagnosis of CAG (Silber et al., 1996).

During the time of waiting for CABG, a comorbid condition can be developed (Levy, Sobolev, Kuramoto, Hayden, & MacLeod, 2007). A previous study showed that the effect of the waiting list of the patients for CABG is finally death and it also upgrades the need of more urgent intervention due to worsening of symptoms or adverse events, such as unstable angina occurring while the patients waiting for CABG that induced the patients to undergo hospitalization before surgery (Ray et al., 2001). This fact was supported by a study of Jackson, Doogue, and Elliott (1999), who reported that while waiting for CABG, 44% of patients had cardiac events including, death (4%), non-fatal MI (6%), and readmission with unstable angina (34%). Being in the waiting period indicates a risk of death and cardiac readmission can also take place while waiting for CABG (Ray et al., 2001; Seddon et al., 1999). However, one study showed that the waiting time was not associated with both mortality and morbidity outcome among patients waiting for CABG (Legare et al., 2005).

In addition, the quality of life of patients waiting for CABG is affected. Teo et al. (1998) conducted a study in 102 patients with CAD who have been on the waiting list for CABG surgery for more than six weeks to assess the quality of life perceived by these patients. The result showed that approximately 87% of patients reported that their quality of life is worsen since they have been placed on the waiting list, mainly in regard to issues related to work, income, stress, social support, and frustration.

Regarding psychosocial aspect, living with CAD during the waiting time has negative effects mostly on the daily lives and jobs (Jonsdottir & Baldursdottir, 1998). Some patients are unable to work due to illness which results in a decreased

productivity and an increased cost of health insurance due to physical incapability (Fitzsimons, Parahoo, Richardson, & Stringer, 2003; Haddad et al., 2002). These situations cause economic burdens and worries (Jonsdottir & Baldursdottir; Naylor et al., 2000). In addition, the family relationships (sexual life) are altered because of the patients' illness (Fitzsimons et al., 2000). The major symptoms of patients also have a negative repercussion on their spouse and families, particularly on their emotional conditions (Jonsdottir & Baldursdottir).

In conclusion, waiting time for CABG is an important period that can produce adverse events and death. Patients waiting for CABG experienced a wide range of physical, psychological, and economic difficulties that disrupt their lives and affect their quality of life and their families as a holistic.

Symptom Management Model

In order to describe the symptom experiences, symptom management, and symptom outcomes in patients waiting for CABG in this study, the Symptom Management Model developed by Dodd et al. (2001) was used. This model focuses on nursing domains and managing symptoms at home rather than curing the disease which is directly related to nursing profession.

Symptom management is a strategy that patients uses through biomedical, professional and self-care ways for managing symptom occurrence with a goal to avert or delay a negative outcome (Dodd et al., 2001). In general, it is clear that symptom management can be applied to get rid of a disease or minimizing the impact of symptoms. The Symptom Management Model of Dodd et al. assumes that the symptom management is a dynamic process. It is modified by individual outcomes and the influences of the nursing domains.

Dodd et al. (2001) had identified three domains of nursing profession which are related to Symptom Management Model including (1) person, (2) health and illness, and (3) environment. The three domains of nursing science are described as follows:

1) Person domain. It consists of demography, psychology, and physiology of a person. This domain can interfere with an individual's view and responses to the symptom experiences.

2) Health and illness domain. It comprises of variables which are unique to the health or illness state of an individual and includes risk factors, injuries, or disabilities. This domain has direct and indirect effects on symptom experiences, symptom management strategies, and symptom outcomes.

3) Environment domain. It includes physical, social, and cultural variables of the patient. The physical environment may encompass home, work, and hospital. The social environment includes social support network and interpersonal relationships. Cultural aspects of the environment are beliefs, values, and practices that are unique to one's identified ethnic, racial, and religious group.

These three domains are contextual variables which influences all three dimensions of the model including (1) symptom experiences, (2) symptom management strategies, and (3) symptom outcomes.

1) Symptom experience. It includes perception of symptoms, evaluation of symptoms, and response to symptoms. Perception of symptoms refers to the change in individual's feeling and behavior from the way he or she usually used to feels or behaves. Evaluation of symptoms refers to making judgments about symptom severity, cause, treatability, and the effect of symptoms on the lives of individuals.

Response to symptoms refers to the change in individual's functioning including physiological, psychological, sociological, and behavioral components.

2) Symptom management strategy. It is a dynamic process, often requiring change in strategies over time or in response to acceptance or lack of acceptance of the devised strategies. Symptom management begins with assessment of the symptom experiences from the individuals' perspective, followed by identifying the focus for intervention strategies. The intervention strategies may be targeted at one or more components of the individual's symptom experience to achieve desired outcomes. Symptom management strategy include the specifications of what (the nature of the strategy), when, where, why, how much (intervention dose), to whom (recipient of intervention), and how (delivered).

3) Symptom outcome. It is associated with symptom experience and symptom management strategies. Symptom outcome is conceptualized as eight indicators which include (1) symptom status, (2) functional status, (3) emotional status, (4) cost, (5) morbidity and co-morbidity, (6) mortality, (7) quality of life, and (8) self-care.
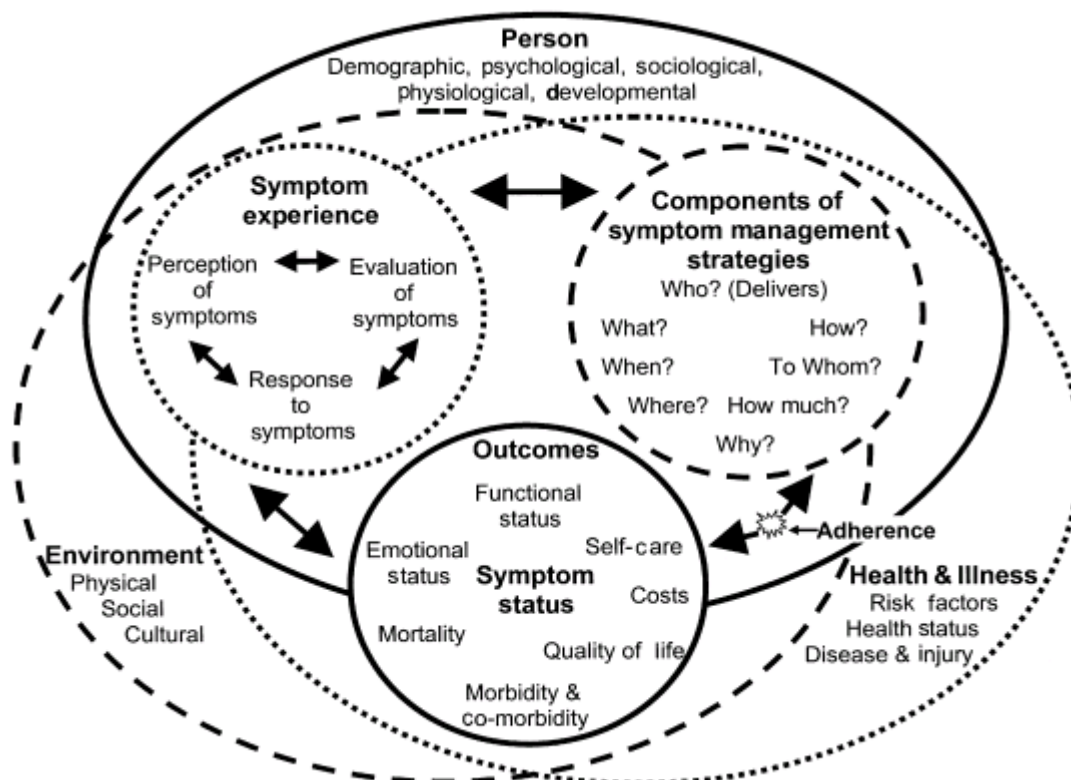
Figure2. Revised Symptom Management Conceptual Model

Note from Revised Symptom Management Conceptual Model (p. 670), by M. Dodd et al., 2001, Journal of Advanced Nursing, 33(5).

In summary, there are three different types of nursing domains that comprises of person domain, health and illness domain, and environment domain. These three domains are contextual variables influencing symptom experience including perception of symptoms, evaluation of symptoms, and response to symptoms; symptom management strategy and symptom outcomes.

Symptom Experiences, Symptom Management, and Symptom Outcomes of

Patients Waiting for CABG

Symptom Experiences of Patients Waiting for CABG

Waiting for CABG surgery produces the impact on both physical and psychological aspects. For physical symptoms, the dominant physical symptom appearing among patients waiting for CABG is the chest pain (Arslanian-Engoren, 2005; Canto et al., 2007; Horne et al., 2000; Jonsdottir & Baldursdottir, 1998; Omran & Al-Hassan, 2006). Even though, chest pain is regarded as the hallmark symptom of cardiac symptom, but not all patients experience chest pain (Canto et al.). Patients during waiting period also reported the other symptoms such as sweating or fever, arm pain, shoulder pain, radiating pain, fatigue, weakness, palpitation, tachyarrhythmia, shortness of breath, indigestion, nausea/vomiting, fainting/ lightheadedness, dizziness, syncope, diaphoresis and sweating (Canto et al.; Horne et al.; Jonsdottir & Baldursdottir).

While waiting for CABG, not only the physical symptoms occur, but also various psychological symptoms also occur. The psychological symptoms include uncertainty, fear, anxiety, stress, depression, disappointment and worry (Ivarsson et al., 2004). The patients are also afraid of dying of MI before cardiac surgery (Jonsdottir & Baldursdottir, 1998). The greatest problem among patients waiting for CABG is uncertainty and fear about what will happen next (Hawley, 1998). Moreover, some patients feel uncertainty due to their concern about whether or not their symptoms will be treated in time and their financial situation and the future of their families (Bengtson et al., 1996).

Regarding the literature review, symptom occurrences reported by CAD patients seem to be similar to the symptom occurrences of patients waiting for CABG.

Most symptoms are related to heart disease. The symptom experienced in CAD patients is categorized into two groups including, typical and atypical symptoms (Horne et al., 2000). The typical symptom comprises the symptoms that are commonly perceived as associated with cardiac problems. Dej-adisai (2006) found that the most prominent symptom in typical symptom group of AMI patients is the chest pain. The typical symptoms also include radiating pain or numbness (arm, jaw, back, neck, shoulder, epigastria or other locations), collapse (fainting or loss of consciousness), and cardiac arrest (Horne et al.). Moreover, the atypical symptom comprises other symptoms that may occur during an acute cardiac event but the symptoms may be less likely associated with a cardiac origin. Atypical symptoms are described as mild, short termed, and non-standard in the symptom presentation (Canto et al., 2007). Atypical symptoms include unexplained shortness of breath, indigestion, epigastric pain, abdominal distension, nausea/vomiting, diarrhea, belching, hiccups, fainting/lightheadedness, dizziness, fatigue, weakness, palpitation, tachyarrhythmia, clammy limbs, fever, syncope, confusion, diaphoresis, and sweating (Canto et al.; Dej-adisai; Horne et al.). The most prominent symptom in atypical symptom group is epigastric pain (Dej-adisai).

Comparing the symptoms of men and women, Ashton (1999) found that the atypical symptoms occur more frequently in women compared to men. Women experienced atypical symptoms, such as back and jaw pain, shoulder blade/upper back pain, nausea and vomiting, dyspnea, shortness of breathe, palpitation, indigestion, loss of appetite, dizziness, fatigue, syncope, tiredness, weakness, and sweating (McSweeney et al., 2001; Omran & Al-Hassan, 2006; Patel, Rosengren, & Ekman, 2004). The presentation of fatigue is a prominent reported symptom by women (Lovlein et al., 2006).

On the contrary, men often experienced the typical symptoms, such as chest pain and diaphoresis (Patel et al., 2004). It may be due to the fact that men more likely attribute their symptoms as cardiac symptoms than women (Bengtson et al., 2000; Lovlien et al., 2006; Omran & Al-Hassan, 2006). Although chest pain is the most common symptom in both men and women, the absence of chest pain is noted more commonly in women (Canto et al., 2007). Women are less likely to report chest pain compared with men (Canto et al.).

According to the literature review, the physical and psychological symptoms in patients waiting for CABG include are presented in Table 2 (Arslanian-Engoren, 2005; Canto et al., 2007; Dej-adisai, 2006; DeVon et al., 2008; Hravnak et al., 2007; Ivarsson et al., 2004; Omran & Al-Hassan, 2006; Patel et al., 2004).

Table 2

Symptom experiences of patients waiting for CABG

Dimension	Symptom occurrences
1. Physical	- chest pain/chest discomfort
	- radiating pain
	- upper extremity numbness, clammy limbs
	- sweating, diaphoresis, fever
	- tiredness, fatigue, weakness, loss of strength, collapse, confusion
	- shortness of breath, dyspnea, breathlessness, difficulty breathing, coughing
	- tachyarrhythmia, irregular heartbeat, palpitation
	- lightheadedness, nausea/vomiting, dizziness
	- diarrhea, loss of appetite, indigestion, upset stomach, heartburn, epigastric pain, abdominal distension, belching, hiccups
2. Psychological	- anxiety, stress, worry
	- uncertainty
	- fear, fright, afraid
	- disappointment
	- depression, sadness
	- sleep disturbance, restlessness

Symptom Management of Patients Waiting for CABG

Symptom management is defined as the strategy to avert or delay a negative outcome through biomedical, professional, and self-care strategies (Dodd et al., 2001). It is a dynamic process, which always changes over time or in response to a patient's acceptance (Dodd et al.). In addition, the Dictionary of Cancer Terms defines symptom management as the care given to patients to improve the quality of life that has a serious or life-threatening disease. The goal of symptom management is to prevent or to treat the symptoms of a disease, its side effects caused by the

treatment of a disease, and psychological, social, and spiritual problems related to a disease or its treatment as early as possible (National Cancer Institute, {NCI}, n.d.).

The management of symptoms may differ from the management of an individual symptom (Barsevick, Beck, Whitmer, & Dudley, 2002). The experience and interpretation of symptoms is an important source of symptom management to encourage the patients for seeking help. When the symptoms become severe enough, the physical nature of the symptoms stimulates the patients to seek for a help (Horne et al., 2000). However, lack of knowledge about symptoms of CAD may influence the interpretation of symptoms (Kearney, 2000 as cited in McSweeney et al., 2001). Well-educated patients are more likely to seek more information and to involve actively in decision making about their symptom management (Omran & Al-Hassan, 2006).

In general, symptom management strategies of both patients waiting for CABG and CAD patients are quite similar. The symptom management is classified into two groups including, non-pharmacological and pharmacological management strategies.

1) Non-pharmacological management

Regarding the literature review, the non-pharmacological management strategies that the patients with heart disease used to manage their symptom experiences include (1) consultation or asking for help, (2) self-management, (3) waiting and seeing, (4) enduring (Dej-adisai, 2006), and (5) lifestyle modification (McHugh et al., 2001).

1.1) Consultation or asking for help. It is one of the symptom management strategies that the patients always use to manage their symptoms before seeking medical treatment (Lovlien et al., 2006). Perception of symptom severity influences the symptom management of the patients by stimulating them to seek help

(Foster & Mallik, 1998). Mostly, after occurrence of symptom, the patients usually consult with someone, especially with their family or friends about their acute symptoms (Lovlien et al.). Some patients consult a physician before consulting hospital services (Perry et al., 2001). Especially, the patients who experienced cardiac symptoms are more likely to contact a physician, family, and friends about what actions to take (Asthon, 1999; Finnegan et al., 2000). But, if the patients perceive that their current symptoms match with prior symptoms, they would more likely prefer to help by themselves rather than to rely on others for help (Horne et al., 2000).

1.2) Self-management. The patients use self-management to manage their symptoms because they do not realize the importance of symptoms, and they also do not appraise their symptoms as serious symptoms or symptoms originated from the heart related diseases (Kathleen & Debra, 1997; Moser et al., 2006). Normally, self-management strategies that the patients always used are resting and self-medication before seeking help or making the decision to consult the hospital (Perry et al., 2001). Foster and Mallik (1998), found that the patients who delay to ask for help for longer than 24 hours perceived that their symptoms are sporadic and not too severe, and they believe that their chest pain is due to indigestion. Thus these patients used to take indigestion remedies at home to manage their symptoms. This perception may lead the patients to delay in seeking help which results in the development of more severe symptoms (McSweeney et al., 2001).

Additionally, there are many self-management strategies that patients use to manage their symptoms, such as analgesic muscular rubs, drinking spirits, rest and position changes. Furthermore, Dej-adisai (2006) found that self-management that the patients use are effective which include, massage, acupressure, pre-cordial thumb, body straightening, position changes, and sponge. Moreover, to relieve symptoms,

meditation (focusing on breathing in and breathing out), praying, and chest compressing are self-management strategies that are also used to relieve the symptoms. But they are not effective enough in relieving the symptom occurrences (Dej-adisai).

1.3) Waiting and seeing. Perception of symptom severity influences the symptom management (Foster & Mallik, 1998). When the patients perceive their symptoms as mild, they try to tolerate the symptoms or ignore them initially, or they try to manage them by waiting and watching until they disappear instead of going to a hospital (Sobolev et al., 2006). Dej-adisai (2006) found that most of AMI patients manage their symptoms by waiting and seeing. Mostly, the duration of waiting and seeing before seeking medical treatment is less than one hour. There are many reasons for using this strategy to manage the symptom, which includes waiting for symptoms to go away, perception of mildly severe symptoms, presentation of atypical symptoms, inconvenient transportation facility for going to health care service, and perception of non-cardiac symptoms. Similarly Miller (2002) found that the patients do not perceive the symptoms as serious symptoms and they also perceive symptoms as non-cardiac symptoms.

1.4) Enduring. It is used when the patients perceive their symptoms as mildly severe (Dej-adisai, 2006). When patients perceive the symptoms as mildly severe, they try to tolerate or ignore them initially (Sobolev et al., 2006). Dej-adisai found that most of the AMI patients use enduring to manage their symptoms by providing several reasons which include (1) perception of mildly severe symptoms, (2) inconvenient transportation facility for going to health care service, (3) perception of common symptoms, (4) symptom presentation at night time, (5) perception of non-

cardiac symptoms, (6) unwillingness for going to a hospital, and (7) having experience of cardiac symptoms before.

       1.5) Lifestyle modification. Not only four symptom management strategies as mentioned above are important for preventing or delaying the negative symptom outcome, but also lifestyle modification is important. Lifestyle modification may be more motivated for patients on the waiting list for CABG than others and it is also more effective to prevent the complications (McHugh et al., 2001; Stott, 2002). Lifestyle modification focuses on diet, smoking cessation, blood pressure monitoring, lipid management (body weight control), exercise, and stress or anxiety management (McHugh et al.).

       As far as the non-pharmacological management strategies are concerned, several symptom management strategies are used by the patients to manage their symptoms depending on their perception and evaluation of the symptoms. Some strategies may be effective, but some may be not. If chosen symptom management strategy is ineffective, then the symptoms will become worse instead of preventing or delaying them.

      2) Pharmacological management

      Pharmacological management strategies are the strategies that the patients use to manage their symptoms by taking prescribed medications or traditional medications. Mostly, patients with angina who are potential candidates for coronary revascularization are given chronic treatment with at least two to three anti-ischemic drugs which are used to manage chronic stable angina pectoris (Herlitz et al., 1999). The medication that can improve a chance of survival includes aspirin and other anti-platelet drugs, nitrates, β-blockers, statins, and ACE inhibitors when left ventricular impairment is occurred (Aroney et al., 2006; Maynard, Scott, Ridell, & Adgey, 2000).

Pharmacological management continues to be the main stay for anti-anginal therapy in patients waiting for CABG. Whenever, the patients experience chest pain, they usually use self-treatment for relieving chest pain. The conventional anti-anginal medications (anti-ischemic drugs), include nitrates (nitroglycerine/isosorbide dinitrate), β-blockers, and calcium channel blockers (Herlitz et al., 1999; Jackson et al., 1999).

While waiting for CABG, patients experience not only chest pain, but also other disturbing symptoms, especially sleep disturbance. Jonsdottir and Baldursdottir (1998) found that while waiting for CABG, patients experience sleeping difficulty and use sleeping medications. Similarly, Bengtson et al. (1996) found that the patients always use sedatives and sleeping medications to manage their sleep disturbance. Women use sleeping medications more frequently than men, because women frequently suffer from sleeping disorders, such as difficulty in going to sleep, difficulty waking up, repeated awakening, and insomnia (Bengtson et al.). Moreover, indigestion remedies are the predominant form of pharmacological management strategies in patients waiting for CABG, because the patients believe that their chest pain is due to indigestion (Foster & Mallik, 1998). Furthermore, taking soothing medication (*Ya-Hom*) is also used to manage the symptom occurrences (Dej-adisai, 2006).

In addition, the patients waiting for CABG may have co-morbidity, such as hypertension, diabetes, obesity or overweight, and dyslipidemia. So, anti-hypertensive drugs, oral hypoglycemic agent or insulin, and statins are used to control risk factors that can develop more severity of CAD (Cesena et al., 2004).

Symptom Outcomes of Patients Waiting for CABG

Symptom outcomes emerge from symptom experiences and symptom management strategies. Symptom outcomes are conceptualized in the form of eight indicators which include, (1) symptom status, (2) functional status, (3) emotional status, (4) cost, (5) morbidity and co-morbidity, (6) mortality, (7) quality of life, and (8) self care (Dodd et al., 2001).

According to the literature review, the study about symptom outcomes in patients waiting for CABG has not been reported yet. There is only one study conducted about symptom clusters and symptom cluster management in AMI patients, and in this study, symptom outcomes were evaluated as symptom status, including getting worse, no change, and getting better. The findings of this study showed that more than half of AMI patients reported their symptom status as getting worse (Dej-adisai, 2006). Regarding this study, symptom status and health status were used to evaluate the symptom outcomes of patients waiting for CABG. Health status and health-related quality of life are often used interchangeably, assuming that a fully healthy life results in a high quality of life (Suwanno, 2007).

Health status

Health status is chosen to represent the symptom outcomes of the Symptom Management Model (Dodd et al., 2001). Health status is conceptualized as a consequence of the symptom management, which is influenced by perception and evaluation of symptoms. In this study, the term "health status" was used to capture physical and psychological dimensions. Health is consistently considered as an important aspect of quality of life. Consequently, health-related quality of life (HRQoL) measures have been developed to assess aspects of an individual's

subjective experience that is related both directly and indirectly to health, disease, disability, and impairment (Cieza et al., 2002).

In this study, health status of patients waiting for CABG was measured by using the Short Form-36 Health Survey (SF-36). SF-36 is widely used to measure health status in patients with cardiac disease and CABG surgery (Kiebzak, Pierson, Campbell, & Cook, 2002; Lindsay, Smith, Hanlon, & Wheatley, 2001; Vaccarino et al., 2003). Dempster and Donnelly (2000) compared the validity, reliability, and sensitivity of the SF-36 with other generic questionnaires such as the Nottingham health profile and the sickness impact profile for patients with CAD. They concluded that the SF-36 is the most appropriate generic instrument to assess HRQoL of cardiac patients.

The Short Form-36 Health Survey

The SF-36 is used to measure general health status of patients waiting for CABG. The original version was developed in England by J. E. Ware in the mid 1980s (Ware & Gandek, 1998) with 36 items in 8 subscales of eight health concepts. The eight health concepts were selected from 40 concepts that were included in the Medical Outcomes Study (MOS) (Ware, 2000). SF-36 had already been tested and validated (Ware & Sherbourne, 1992). The SF-36 should be administered within a one-month recall period in which participants perceive their health status (Ware & Gandek). SF-36 items also represent the multiple operational indicators of health, including behavioral functioning and dysfunction, distress and well-being, objective reports and subjective ratings, and both favorable and unfavorable self-evaluations of general health status (Ware).

The SF-36 contains 36 items in eight subscales that cover the domains of role limitations (physical), physical functioning, general health perceptions, bodily pain,

energy/vitality, social functioning, role limitations (emotional), and mental health. The subscales have been shown to have good internal consistency and reliability (Arthur, Daniels, McKelvie, Hirsh, & Rush, 2000). Likert-type scale response descriptors were designed to match the various subscale items. In this method, a score for each items is derived from a standardized set of response choice; scores for some items are needed to be recorded so that all item scores are then computed by simply summing the scores assigned to each item responses and by transforming scores to 0 - 100 (Ware & Gandek, 1998). All of the 36 items, except health transition (HT), are scored the eight SF-36 scales. Score of each subscale can range from 0 to 100 and the total score of SF-36 can range from 0 to 800 with a higher score indicating better general health status.

Recently, the SF-36 has been recommended as a novel psychometric property to measure health status, since it has been translated into more than 40 countries as part of the International Quality of Life Assessment (IQoLA) Project (Ware & Gandek, 1998). Most SF-36 items have their roots in instruments that have been in use since the 1970s and 1980s, including the General psychological Well-Being Inventory, various physical and role functioning measures, the Health Perceptions Questionnaire, and other measures that were useful during the Health Insurance Experiment (HIE) (Ware, 2000). The MOS researchers selected and adapted questionnaire items from these and other sources and developed new measures for a 149-item Functioning and Well-Being Profile (FWBP) (Ware & Gandek). The FWBP was the source for questionnaire items and instructions that was adapted for use in the SF-36. The SF-36 was first made available in a "developmental" form in 1988 and in "standard" form in 1990 (Ware & Sherbourne, 1992).

Compared with the standard SF-36 version 1.0, improvements in version 2.0 included simpler instructions and questionnaire items, an improved layout for questions and answers in the self-administered version, greater comparability with widely used translations and cultural adaptations, and five-level response choices instead of dichotomous response choices for items in the two role functioning scales (Ware, 2000). The SF-36 is a generic measure of general health status as opposed to one that targets a specific age, disease, or treatment group.

The content validity of the SF-36 has been compared with that of other widely used generic health surveys. Systematic comparisons indicates that the SF-36 include eight of the most frequently measured health concepts. Among the contents areas included in the SF-36, are: sleep adequacy, cognitive functioning, self-esteem, eating, recreation and hobbies, communication, and symptoms and problems that are specific to one condition. Symptoms and problems are not included in the SF-36, because the SF-36 is a generic measure (Ware, 2000).

Most of the SF-36 scales were constructed to replace longer scales and attention was initially given to how well the short-form versions perform in empirical tests as compare with the full-length versions. The SF-36 scales have been shown to perform with about 80-90% empirical validity in the studies involving physical and mental health "criteria." (McHorney, Ware, Rogers, Raczek, & Lu, 1992). This disadvantage of the SF-36 should be weighed against the fact that some of these long form measures require 5-10 times greater respondent burden. Empirical studies of this tradeoff suggested that the SF-36 provides a practical alternative to longer measures and that the eight scales and two summary scales rarely miss a noteworthy difference in physical or mental health status in the group level comparisons (Katz, Larson, Phillips, Fossel, & Liang, 1992).

Factors Associated With Symptom Experiences, Symptom Management, and

Symptom Outcomes of Patient Waiting for CABG

There are several factors that influence symptom experiences, symptom management, and symptom outcomes of patients waiting for CABG. These factors can have both directional and indirectional effects for these three dimensions. The predictive factors of symptom experiences, symptom management, and symptom outcomes of patients waiting for CABG are related to three domains of nursing science including person domain, health and illness domain, and environment domain (Dodd et al., 2001).

Person Domain

Person domain consists of age, gender, stress, and socio-economic status as follows:

1) Age. The advanced age increases the risk for symptom severity (Cesena et al., 2004). Elderly patients perceive the symptoms, such as chest pain more often than younger patients. On the contrary, younger patients experience more psychological symptoms, such as anxiety, depression, vulnerability, impatience, and irritability than the elderly patients (Jonsdottir & Baldursdottir, 1998). Rankin, & Fofonoff (2001) used a chart audit of symptom differences in three age groups of 105 men and 48 women to determine trends. The age groups included 35-64 years old, 65-75 years old and more than 75 years old patients. They reported that women in the age group 65-75 years old had the highest percentage of atypical symptoms. On the other hand, psychosomatic symptoms were reported more frequently by younger patients than elderly patients (Bengtson et al., 1996). Moreover, advanced age is at significant risk factor for the death of patients waiting for CABG ($p = .007$) (Morgan et al., 1998).

2) Gender. Male gender is at significant risk factor of death while waiting for CABG (Rexius et al., 2004), because men have more risk behaviors, such as smoking than women (Koivula et al., 2002; Morgan et al., 1998). But, women perceive the severity and frequency of symptoms more than men (Bengtson et al., 2000; Lovlien et al., 2006; Omran & Al-Hassan, 2006). It may be due to the physiological and sociological differences between women and men (DeVon et al., 2008; Miller, 2002). Women typically have a smaller body surface area than men which in turn is associated with smaller size of heart and correspondingly diminutive coronary arteries (McLarty, Mann, Lawson, & Foster, 2003). In addition, women are more likely to have co-morbid disease such as hypertension, diabetes or obesity than men (Hassan, Chiasson, Buth, & Hirsch, 2005). These include higher risk factors for operative mortality in female than male gender (Levy et al., 2007).

Even though, women perceive the severity and frequency of symptoms more than men (Bengtson et al., 2000; Lovlien et al., 2006; Omran & Al-Hassan, 2006), men are more likely to seek treatment than women as they are more ready to perceive their symptoms as cardiac experience than women (Lefler & Bondy, 2004). Additionally, women are less likely to seek treatment than men due to families and social responsibilities (Arslanian-Engoren, 2000).

3) Stress. Patients waiting for CABG experience severe stress (Jonsdottir & Baldursdottir, 1998). Stress situations are associated with the severity of symptoms, especially chest pain (Bengtson et al., 2000; Canto, 2007; Jonsdottir & Baldursdottir, 1998). Stress ultimately affects the coronary blood flow (Stone, 1990 as cited in Jonsdottir & Baldursdottir, 1998). Patients who reports CAD as life stressor have 1.3 times increased exertional chest pain compared with the patients who do not reports CAD as life stressor (Canto et al., 2007). Therefore, effective stress management

should be paid more attention in patients waiting for CABG for preventing the undesirable symptoms, especially chest pain.

4) Socioeconomic status. Socioeconomic status is associated with the health status of patients waiting for CABG. Patients who have higher education and receive higher incomes have higher self-management ability resulting in better health status (Suwanno, 2007). MacMahon and Lip (2002) found that patients belonging to low socio-economic classes are observed to have greater suffering from symptoms, poor psychosocial wellness, and poor health outcome. Patients with inappropriate personal resources have higher levels of depression, stress, hostility, anger, anxiety and uncertainty over time and take longer or fail to return to normal daily activities, work, and social activities.

Health and Illness Domain

Health and illness domain consists of smoking, severity of illness, and co-morbid disease as follows:

1) Smoking. Smoking is one of the most important risk factors which affect the genesis of CAD (Vartiainen et al. as cited in Koivula et al., 2002). It is the major risk factor for sudden death and angina pectoris because it produces vasospasm, especially coronary spasm (Sugiishi & Takatsu, 1993). The smokers compared with non-smokers are significantly more likely to report exertional chest pain (Patel et al., 2003). Although patients know that smoking is a major cause of symptom severity, some patients waiting for CABG keep on smoking, because they do not perceive the symptoms as very severe (Jonsdottir & Baldursdottir, 1998).

2) Severity of illness. The severity of illness is the major predictive factor for urgency and death in waiting time for CABG. Morgan et al. (1998), Ray et al. (2000), and Rexius et al. (2004) found that the risk factors for death includes left main stem

stenosis, impaired left ventricular function, and unstable angina pectoris. Regarding the severity of angina, it depends on the infarction size that is measured by CPK level (Omran & Al-Hassan, 2006). In addition, heart failure of class III or IV is risk factors for sudden death in waiting period of CABG (Cesena et al., 2004).

3) Co-morbid disease. Common co-morbid diseases of patients with cardiovascular disease are such as hypertension, diabetes, dyslipidemia (cholesterol was higher than 240 mg/dl or 6.22 mmol/l), and obesity (Hassan et al., 2005). These co-morbid diseases are risk factors of death for the patients in the waiting period (Cesena et al., 2004; Rexius et al., 2004; Seddon et al., 1999). Moreover, patients having co-morbid disease perceived more severe chest pain than patients who do not have it (Bengtson et al., 1996). Similar to Patel et al. (2003), they revealed that diabetes and hypertension are associated with an increased likelihood of exertional chest pain.

Environment Domain

Environment domain includes social support and culture as follows:

1) Social support. Social network of patients waiting for CABG is an important factor to assist patients for managing their symptoms. Emotional support from social network, particularly from family members and relatives can be important source to reduce anxiety (Koivula et al., 2002). For example, men get help quickly when they experience symptoms because their wives feel anxious and take control, by promptly asking for help for their husbands, thus the patients can be assisted from health care provider or others timely (Foster & Mallik, 1998).

2) Culture. Culture aspects of the environment are beliefs, values and practices that are unique to one's identified ethnic, racial, or religious group (Dodd et al., 2001). Culture beliefs can influence the symptom perception, symptom evaluation, and symptom management (Kleinman, Eisenberg, & Good, 2006).

Conclusion

From the literature review, it can be concluded that patients waiting for CABG suffered from both physical and psychological symptoms, but how they can experience and interpret the symptoms in their lives may differ. From this situation, it is clarified that symptom management is related to how the symptoms are perceived by patients; whether they are bothered by symptoms or they are not active in decision making for the use of symptom management strategy. In this study, there are two types of symptom management strategies including pharmacological and non-pharmacological management strategies that can help the patients to remove or minimize the adverse effect of symptoms, but some symptom management may not be effective to relieve the symptoms. The effectiveness of using symptom experience and symptom management can reduce the adverse events and mortality rate. Moreover, it also associated with general health status of patients waiting for CABG that is the indicator for evaluation of the symptom outcome in this study. However, based on the literature review up to date, the previous studies were done in the western countries that may not explain the symptom experiences, symptom management, and symptom outcomes of Thai patients waiting for CABG because of different cultural and social contexts. Therefore, this study was conducted to describe the symptom experiences, symptom management, and symptom outcomes of Thai patients who were waiting for CABG at home.

CHAPTER 3

METHODOLOGY

The descriptive study describes the symptom experiences, symptom management, and symptom outcomes in the patients waiting for CABG.

Population and Setting

The target population was adult and elderly patients who were scheduled for CABG by the cardiac surgeon but were on waiting list, and attending the surgical and medical outpatient department (OPD) of Songklanagarind Hospital. The subjects were recruited from the surgical and medical OPD. From the waiting list registration records, the average admission rate of the patients from 2007 to 2008 ranged from 100 to 105 cases (Waiting list for CABG, Songklanagarind Hospital, 2008). The subjects were patients who were waiting for CABG during 2007 to 2008.

Sample

Sample size

The researcher proposed to collect 80 subjects based on the estimated population. However, the researcher was not able to collect the required number of subjects because of time limitations and fewer cases were on the waiting list during data collection period than expected. Sixty patients waiting for CABG participated in the study.

Sampling design

Subjects were recruited using purposive sampling. The inclusion criteria for their recruitment were as follows:

1) Be appointed for CABG by the cardiac surgeon and will be on the waiting list more than one month.

2) Be fully conscious and able to communicate in Thai language.

Instrumentation

The instruments comprised of four parts to assess symptom experiences, symptom managements, and symptom outcomes in patients waiting for CABG (Appendix B).

1) Demographic and Health-Related Data Form

The Demographic and Health-Related Data Form was developed by the researcher. It was composed of two parts. Part one was used to assess patients' demographic data related to gender, age, marital status, religion, educational level, occupation, family income, medical payment, residential area, and number of family members. Part two was used to assess health related data including family history of CAD, smoking habits, drinking habits, co-morbidity, length of waiting for CABG, medication currently taken, and clinical examination. These data were obtained from interviews and medical records.

2) Symptom Experiences Questionnaire (SEQ)

The SEQ was developed by the researcher based on the Symptom Management Model (Dodd et al., 2001) and the literature review. Symptom experiences consisted of symptom perception and symptom evaluation. Symptom perception of patients waiting for CABG consisted of 22 most common symptom

occurrences including 17 physical symptoms that are chest pain/chest discomfort, chest pain with referred pain, epigastric pain, dyspnea/shortness of breath/difficulty breathing, dizziness/blackness/fainting/light-headedness, upper extremity numbness, edema of the extremities, sweating/diaphoresis, clammy limbs, heartburn, indigestion/abdominal distension, nausea/vomiting, fatigue/weakness, palpitation, tachyarrhythmia, coughing, and bored with food and 5 psychological symptoms are uncertainty, fear/fright, stress/anxiety, sad, and insomnia.

Each symptom was assessed for its occurrence using a checklist (yes/no) format. If it was checked as "yes" then subjects were asked to rate its frequency and severity. Frequency of symptom occurrence was evaluated using a four-point Likert-type scale ranging from rarely, sometime, almost all of the time, and all of the time. Severity of symptom occurrence was evaluated using a four-point Likert-type scale ranging from mildly severe, moderately severe, very severe, and extremely severe.

3) Symptom Management Questionnaire (SMQ)

The SMQ was used to assess the symptom management of the patients waiting for CABG. It was developed by the researcher based on the Symptom Management Model (Dodd et al., 2001) and the literature review. The questionnaire was in the form of open-ended questions. If each symptom experience was answered then subjects were asked to describe the symptom management in the statements in terms of what, when, where, why, how much, to whom, and how related to each symptom occurrence.

4) Symptom Outcomes Questionnaire (SOQ)

The SOQ was used to assess the symptom outcomes of patients waiting for CABG. This tool consists of two parts. Part 1 was used to assess the symptom status of patients waiting for CABG. It was the checklist format which includes conditions

such as getting better, no change, and getting worse. Part 2 was SF-36 which was used to assess the health status of patients waiting for CABG. SF-36 V2 was developed to measure the health status among healthy people and several groups of people with chronic diseases. It covers two main dimensions of physical and mental health (Ware, 2000). The SF-36 V2 was developed from the SF-36 V1 and was used to measure the physio-psychosocial well-being (Behavioral Epidemiology Unit {BEU}, 1995). The original SF-36 V2 was translated into Thai language by Methakanjanasak in 2005 (Wongpiriyayothar, 2006). The reliability coefficient of the SF-36 V2 was tested for the well-being in 92 congestive heart failure patients and the obtained Cronbach's alpha coefficient was 0.93 (Wongpiriyayothar).

The SF-36 V2 consists of 36 items which measure the eight dimensions of general health (GH: 5 items), physical functioning (PF: 10 items), role limitations due to physical health problems (RP: 4 items), role limitations due to emotional problems (RE: 3 items), bodily pain (BP: 2 items), social functioning (SF: 2 items), vitality (VT: 4 items to evaluate energy and fatigue), and mental health (MH: 5 items) (BEU, 1995).

The SF-36 V2 can be used for self-administration or administered by an interviewer. The response to the questions on each scale is summed to provide eight subscale scores ranged from 0 to 100. Total score ranges from 0 to 100. Person having a high score represents better health status than a person having a low score. There is a single unscaled item (Q2) which measures the changes in respondents' health over the past year (BEU, 1995). It is a Likert-type scale which consists of a five-point scale (0, 25, 50, 75, 100) for item Q1, Q4a-4d, Q5a-5c, Q6, Q8, Q9a-9i, Q10, Q11a-11d, three-point scale (0, 50, 100) for item Q3a-3j, and six-point scale (0, 20, 40, 60, 80, 100) for item Q7. Each response of a question is converted to 0 to 100.

In this study, the total score was classified into three levels using criteria identified by Wongpiriyayothar (2006). Scores of 0 to 33.33 indicates low perceived health status, 33.34 to 66.67 indicates moderate perceived health status, and 66.68 to 100 indicates high perceived health status

Validity of instruments

The contents of four instruments were validated by three experts. Among three experts one expert was lecturer in Faculty of Nursing at Maha sarakham University and the second expert was a cardiovascular nurse specialist at the Cardiac Care Unit of Ramathibodi Hospital, Mahidol University. Third expert was a cardiac surgeon from the Department of Surgery, Songklanagarind Hospital, Faculty of Medicine. The instruments were evaluated for relevance regarding symptom experiences, symptom managements, and symptom outcomes in patients waiting for CABG. The researcher then modified the contents based on the experts' recommendations.

Reliability of instruments

The Thai version SF-36 was tested for its internal consistency in 20 patients waiting for CABG, who came for a follow up at Songklanagarind Hospital from which the Cronbach' s alpha coefficient obtained was found to be 0.88. The internal consistency coefficient tested in a sample size of 60 subjects in this study was found to be 0.79.

Ethical Considerations

1. Approval from the Institutional Review Board of the Faculty of Nursing, Prince of Songkla University was obtained.

2. Permission to conduct this study was obtained from the Director of Songklanagarind Hospital.

3. Permission for data collection was obtained from the Heads of the surgical and medical OPD involved in the study.

4. The researcher explained the purpose of the study to eligible subjects. Subjects who were willing to participate in the study gave oral and written consent (Appendix A). They received further explanation about the study. They were also informed that they had a right to stop or continue from the study for any reason without fear of any negative consequences to the care provided to them. Researcher used the coding system to identify the subjects. Subjects were assured of anonymity, confidentiality of all information given, and that the use of such information was only for the purpose of this study.

5. After the subjects wrote the informed consent, the researcher started collecting data.

Data Collection

Data were collected after the permission was obtained from the Director of Songklanagarind Hospital, and the Heads of the surgical and medical OPD. The researcher explained the objectives, design and duration of the study to the Heads Nurses in two OPDs.

Data collection procedures

1. The researcher assessed the patients from the waiting list for CABG of four cardiac surgeons according to the next follow up. The selected patients' name, age, diagnosis, and date of follow up were recorded.

2. The patients' medical records were reviewed to obtain the primary information about their health profile.

3. Patients who felt comfortable and conscious were chosen. Subjects who met the inclusion criteria were approached to participate and were informed about the objectives and purpose of the study by the researcher.

4. Patients who agreed to participate were then requested to give verbal consent and the researcher explained the components of the questionnaire.

5. The subjects were interviewed by using the questionnaire. Symptom occurrence, symptom frequency, symptom severity, symptom management and symptom outcomes were asked in detail. Before completing the questionnaire, the subjects were asked to repeat and ensure their responses. The questionnaire would take about 30 to 40 minutes for person to be completed.

6. Upon submission the researcher checked for completeness of the questionnaire; if any item was missing, subjects were asked to complete it.

Data Analysis

Data were processed by computer software. According to the objectives of the study and the level of measurement of the variables, the procedures of data analysis were as follows:

1. Demographic and health related data were analyzed using frequency, percentage, mean, and standard deviation.

2. Symptom occurrence, frequency, and severity of symptoms were analyzed using frequency and percentage.

3. Symptom management was analyzed using simple content analysis.

4. Symptom outcomes were analyzed into two parts. In part 1, the symptom

status resulting from symptom management was analyzed using frequency and percentage. In part 2, the health status was analyzed using mean and standard deviation.

CHAPTER 4

RESULTS AND DISCUSSION

Results

The descriptive study was designed to study symptom experiences, symptom management and symptom outcomes of patients waiting for CABG. The results and discussion of this study were presented in two parts as follows:

Part 1: Demographic and health related data

Part 2: Symptom experiences, symptom management, and symptom outcomes of patients waiting for CABG

Part 1: Demographic and Health Related Data

Most of the subjects in this study were men (73.3%) with a mean age of 62.92 years old. Majority of them were Buddhist and married. About two-thirds of subjects had undergone primary school education, half of subjects were laborer and approximately one-fourth of them had income of 5,000 to 10,000 baht per month. More than half of the subjects used universal coverage scheme (30 baht) and lived out of Songkhla province. Most subjects stayed outside the Songkhla province with at least three members of the family (Table 3).

Table 3

Frequency and percentage of subjects classified by demographic data (N = 60)

Characteristics	N	%
Gender		
Male	44	73.3
Female	16	26.7
Age (year) (M = 62.92, SD = 8.1, Range = 42-80)		
36-60	24	40.0
> 60	36	60.0
Marital status		
Single	3	5.0
Married	46	76.7
Divorced/widowed	11	18.3
Religion		
Buddhist	51	85.0
Muslim	9	15.0
Educational level		
Primary school	38	63.3
High school	14	23.3
Diploma/bachelor	8	23.4
Occupation		
Unemployed	21	35.0
Retired	7	11.6
Laborer/employee	30	50.0
(farmer, gardener)		
Government officer/	2	3.4
entrepreneurship		
Income of family (baht per month)		
< 5,000	13	21.7
5,000-10,000	16	26.7
10,001-20,000	11	18.3
20,001-30,000	12	20.0
> 30,000	8	13.3
Medical payment		
Universal coverage scheme	36	60.0
(30 baht)		
Health insurance	4	6.7
Self payment	1	1.7
Government support	19	31.7
Residential area		
Songkhla province	19	31.7
Out of Songkhla province	38	63.3
Number of family members who stay with the patient		
< 3 persons	22	36.7
3 persons or more	38	63.3

Most subjects (70.0%) had no family history of CAD. Nearly half of subjects (46.7%) stopped smoking, only 13.3% still smoked, and 96.7% does not drink alcohol. Most of the subjects have more than one underlying disease, the three most reported were hypertension (63.3%), dyslipidemia (51.7%), and diabetes (36.7%). According to duration of waiting for CABG, it was found that 31.7% of subjects waited for four to six months, followed by 25.0% waited for one to three months, and 18.3% waited more than one year. The four mostly used medicines currently taken were Isosorbide dinitrate (ISDN), aspirin (ASA), anti-lipidemia, and beta-blockers. The majority of subjects was diagnosed with triple-vessel disease either proximal or non-proximal left anterior descending (LAD) involvement. For subjects who had ejection fraction (EF) test, it was found that the highest number of subjects had EF 50 to 65% (n = 13), but the result of EF of 20 subjects was not specified in patients' record. The least number of subjects had EF less than 30% (n = 8). More than half had no history of revascularization. By examination of cardiac function status at the first diagnosis to current status, it was found that half of subjects had increased New York Heart Association (NYHA), from class I to II (11.7%), from class I to III (1.7%), from class II to III (26.6%), and from class III to IV (10.0%), and only one subject had better NYHA (Table 4).

Table 4

Frequency and percentage of subjects classified by health related data (N =60)

Characteristics	N	%
Family history of CAD		
No	42	70.0
Yes	18	30.0
Smoking habits		
Non-smoking	24	40.0
Stop smoking	28	46.7
Smoking, but less now	8	23.3
Alcohol drinking habits		
No	58	96.7
Yes	2	3.3
Co-morbid disease		
No	7	11.7
Yes *	53	88.3
Hypertension	38	63.3
Dyslipidemia	31	51.7
Diabetes	22	36.7
Gout	9	15.0
Renal insufficiency	9	15.0
Valvular heart disease	5	8.3
Congestive heart failure	3	5.0
Others	18	34.0
Duration of waiting for CABG (months)		
1-3	15	25.0
4-6	19	31.7
7-9	5	8.3
10-12	10	16.7
> 12	11	18.3
Medication currently taken *		
Isosorbide dinitrate	58	96.7
Aspirin	58	96.7
Anti-lipidemia	56	93.3
Beta-blockers	55	91.7
Angiotensin-converting enzyme inhibitor	38	63.3
Omeprazole	31	57.4
Diuretic	26	43.3
Calcium antagonists	22	36.7
Anti-diabetic drugs	21	35.0
Anti-ischemic drugs	10	16.7
Isosorbide dinitrate	10	16.7
Sedatives	7	11.7
Others	28	46.7

* Patients reported more than one answer

Table 4 *(Continued)*

Characteristics	N	%
Diagnosis		
1-or 2-vessel disease	7	11.7
3-vessel disease, no proximal LAD involvement	22	36.7
3-vessel disease and proximal LAD involvement	29	48.3
Left main artery disease	2	3.3
Ejection Fraction (%)		
< 30	8	13.3
30-49	10	16.7
50-65	13	21.7
> 65	9	15.0
No result	20	33.3
Revascularization		
No	39	65.0
Yes	21	35.0
Thrombolysis	1	4.8
Heparinization	2	9.5
PTCA	18	85.7
NYHA Classification		
At the first diagnosis → Current status		
Class II (no change)	21	35.0
Class III (no change)	6	10.0
Class IV (no change)	2	3.3
Class I → Class II	7	11.7
Class I → Class III	1	1.7
Class II → Class III	16	26.6
Class III → Class IV	6	10.0
Class IV → Class III	1	1.7

Note: LAD = left anterior descending

      PTCA = percutaneous transluminal coronary angioplasty

      NYHA = New York Heart Association

Part 2: Symptom Experiences, Symptom Management and Symptom Outcomes of Patients Waiting for CABG

Symptom experiences of patients waiting for CABG

Twenty five symptoms, both physical and psychological symptoms were reported. The five top most common physical symptom occurrences were chest

pain/chest discomfort (80.0%), fatigue/weakness (66.7%), chest pain with referred pain (55.0%), indigestion/abdominal distension (51.7%), and dyspnea/shortness of breath/difficult breathing (50.0%). The five least reported symptom occurrences were constipation (18.3%), nausea/vomiting (15.0%), clammy limbs (13.3%), joint pain/muscle strain (8.4%), and diarrhea (1.7%). Most of the common physical symptom occurrences were reported as rarely occurred, except indigestion/abdominal distension that occurred almost all of the time (48.4%). Patients perceived these common symptom occurrences as being mild, but chest pain with referred pain were reported as being very severe (51.5%). Moreover, other physical symptoms such as nausea/vomiting (66.7%), sweating/diaphoresis (61.1%), and joint pain/muscle strain (60.0%) were reported as very severe (Table 5).

Almost half of subjects reported psychological symptoms. The common psychological symptom occurrences were fear/fright (48.3%), stress/anxiety (48.3%), and uncertainty (46.7%). As some patients said "…*I don't want to get the cardiac surgery because I feel fear about the complications of cardiac surgery and death…*", "…*I am worried whether I can work due to chest pain…*", and "…*I don't know the future, when will I get the chance of undergoing cardiac surgery…*". Most of psychological symptoms occurred all the time. However, patients perceived them as mildly severe (Table 5).

From additional analysis, when each symptom experience was compared with gender by Chi-square Test, it was found that some of the symptoms were more significantly reported by male than female patients ($p < .05$). These symptoms were uncertainty and fear/fright (Table 6). In addition, chest pain with referred pain occurred more likely in patients aged over 60 years compared to those who aged less than 60 years ($p < .05$) (Table 7).

Symptom management of patients waiting for CABG

The strategies used to manage symptoms were composed of three groups including (1) pharmacology, (2) non-pharmacology, and (3) combining both methods. The symptom management strategies that were used to manage chest pain/chest discomfort and chest pain with referred pain were quite similar. Most of subjects (79.1%,) used pharmacological management strategy to manage these symptoms such as taking ISDN. In addition, non-pharmacological management strategy was also used to manage the symptoms such as resting, chest thumbing, massaging/rubbing or moving the arms, and waiting and seeing/enduring. Only few subjects used the combination of both methods (Table 8).

Regarding fatigue/weakness, all subjects used non-pharmacological strategies to manage this symptom and the most common strategies were resting (82.5%) (Table 9). For managing indigestion/abdominal distension, both pharmacological and non-pharmacological management strategies were used. However, most of subjects (67.7%) used pharmacological strategies such as taking laxative, antacid, soothing medicine, and curcuma. In addition, some subjects (32.3%) used non-pharmacological strategies such as belching, abdominal compressing, waiting and seeing, and avoiding gas-inducing diet (Table 10). According to dyspnea, most subjects (80.0%) used non-pharmacological management strategy and the highest number of subjects with dyspnea (40%) usually used relaxation technique (Table 11).

Table 5

Frequency and percentage of symptom experiences reported by patients waiting for CABG (N = 60)

Symptoms *	N	%	Frequency								Severity							
			Rarely		Sometime		Almost all the time		All the time		Mildly severe		Moderately severe		Very severe		Extremely severe	
			N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
1. Chest pain/chest discomfort	48	80.0	20	42.6	12	25.5	15	31.9	-	-	20	42.6	15	31.9	9	19.1	3	6.4
2. Fatigue/weakness	40	66.7	13	32.5	20	50.0	5	12.5	2	5.0	23	57.5	8	20.0	9	22.5	-	-
3. Chest pain with referred pain	33	55.0	14	42.4	8	24.2	11	33.3	-	-	7	21.2	7	21.2	17	51.5	2	6.1
4. Indigestion/ abdominal distension	31	51.7	6	19.4	8	25.8	15	48.4	2	6.4	15	48.4	11	35.5	5	16.1	-	-
5. Dyspnea/shortness of breath/difficult breathing	30	50.0	14	46.7	8	26.7	7	23.3	1	3.3	14	46.7	6	20.0	9	30.0	1	3.3
6. Fear/fright	29	48.3	5	17.2	11	38.0	12	41.4	1	3.4	14	48.3	5	17.2	10	34.5	-	-
7. Stress/anxiety	29	48.3	7	24.1	8	27.6	14	48.3	-	-	15	51.7	5	17.2	9	31.1	-	-
8. Uncertainty	28	46.7	4	14.3	12	42.9	10	35.7	2	7.1	18	64.3	2	7.1	7	25.0	1	3.6
9. Tachyarrhythmia	27	45.0	15	55.6	8	29.6	4	14.8	-	-	14	51.9	6	22.2	5	18.5	2	7.4
10. Epigastric pain	25	41.7	12	48.0	7	28.0	6	24.0	-	-	13	52.0	9	36.0	2	8.0	1	4.0
11. Upper extremity numbness	25	41.7	9	36.0	8	32.0	4	16.0	4	16.0	21	84.0	1	4.0	3	12.0	-	-

*Patients reported more than one symptom

Table 5 *(Continued)*

Symptoms *	N	%	Frequency								Severity							
			Rarely		Sometime		Almost all the time		All the time		Mildly severe		Moderately severe		Very severe		Extremely severe	
			N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
12. Insomnia	25	41.7	3	12.0	11	44.0	11	44.0	-	-	11	44.0	5	20.0	9	36.0	-	-
13. Palpitation	23	38.3	14	60.9	5	21.7	4	17.4	-	-	13	56.5	5	21.8	2	8.7	3	13.0
14. Dizziness/ blackness/ fainting/ lightheadedness	22	36.7	8	36.4	7	31.8	7	31.8	-	-	14	63.6	2	9.1	6	27.3	-	-
15. Coughing	22	36.7	5	22.7	9	40.9	8	36.4	-	-	16	72.7	1	4.6	5	22.7	-	-
16. Sad	19	31.7	6	31.6	8	42.1	5	26.3	-	-	12	63.2	4	21.1	3	15.7	-	-
17. Edema of the extremities	18	30.0	8	47.1	5	29.4	4	23.5	-	-	11	64.7	5	29.4	1	5.9	-	-
18. Loss of appetite	18	30.0	1	5.6	15	83.3	2	11.1	-	-	11	61.1	6	33.3	1	5.6	-	-
19. Sweating/ diaphoresis	15	27.8	14	77.8	1	5.6	3	16.6	-	-	5	27.8	2	11.1	11	61.1	-	-
20. Heartburn	11	18.3	4	36.4	2	18.2	5	45.4	2	6.4	5	45.5	2	18.2	4	36.3	-	-
21. Constipation	11	18.3	1	9.1	4	36.4	6	54.5	-	-	6	54.5	4	36.4	1	9.1	-	-
22. Nausea/vomiting	9	15.0	6	66.7	-	-	3	33.3	-	-	3	33.3	-	-	6	66.7	-	-
23. Clammy limbs	8	13.3	5	62.5	1	12.5	2	25.0	-	-	4	50.0	3	37.5	1	12.5	-	-
24. Joint pain/muscle strain	5	8.4	-	-	2	40.0	3	60.0	-	-	1	20.0	1	20.0	3	60.0	-	-
25. Diarrhea	1	1.7	-	-	-	-	1	100	-	-	-	-	-	-	1	100	-	-

*Patients reported more than one symptom

Table 6

Comparison of the subjects' experiences on symptom occurrences classified by gender (N = 60)

Symptom occurrence	Gender		χ^2
	Male	Female	
	n (%)	n (%)	
Uncertainty	20 (60.6%)	13 (39.4%)	.014*
No uncertainty	24 (88.9%)	3(11.1%)	
Fear/fright	18 (60.0%)	12 (40.0%)	.020*
No fear/fright	26 (86.7%)	4 (13.3%)	

*= p < .05

Table 7

Comparison of the subjects' experiences on symptom occurrences classified by age (N = 60)

Symptom occurrence	Age (years)		χ^2
	36-60	> 60	
	n (%)	n (%)	
Chest pain with referred pain	17 (51.5%)	16 (48.5%)	.044*
No chest pain with referred pain	7 (25.9%)	20 (74.1%)	

*= p < .05

Table 8

Frequency and percentage of subjects' management strategies when experienced with chest pain and chest pain with referred pain

Strategies	Chest pain (n = 48)		Chest pain with referred pain (n = 33)	
	N	%	N	%
1. Pharmacological (ISDN)	38	79.1	15	45.5
2. Non-pharmacological				
2.1 Resting	8	16.7	9	27.3
2.2 Chest thumbing	1	2.1	-	-
2.3 Massaging/rubbing the arms/moving the arms	-	-	4	12.1
2.4 Waiting and seeing/enduring	-	-	4	12.1
3. Combination of both the methods (Pharmacological and resting/massaging)	1	2.1	1	3.0

Table 9

Frequency and percentage of subjects' management strategies when experienced with fatigue/weakness (n = 40)

Strategies	Fatigue/weakness	
	N	%
Non-pharmacological		
1. Resting	33	82.5
2. Waiting and seeing	5	12.5
3. Consuming sweetie and sweet water	2	5.0

Table 10

Frequency and percentage of subjects' management strategies when experienced with indigestion/abdominal distension (n = 31)

Strategies	Indigestion/abdominal distention	
	N	%
1. Pharmacological (laxative, antacid, soothing medicine (*Ya-Hom*), curcuma (*Ka-Min-Chan*)	21	67.7
2. Non-pharmacological		
2.1 Belching, abdominal compressing	4	12.9
2.2 Waiting and seeing	4	12.9
2.3 Avoiding gas-inducing diet	2	6.5

Table 11

Frequency and percentage of subjects' management strategies when experienced with dyspnea (n = 30)

Strategies	Dyspnea	
	N	%
1. Pharmacological (ISDN, inhalant)	6	20.0
2. Non-pharmacological		
2.1 Relaxation (resting, deep breathing, meditation)	12	40.0
2.2 Positioning (body straightening, turning over)	6	20.0
2.3 Waiting and seeing	6	20.0

Regarding psychological symptoms (stress/anxiety, fear/frighten, uncertainty, and sadness), only non-pharmacological management strategy was applied to manage these symptom occurrences in patients waiting for CABG in this study. Non-pharmacological strategies were classified into four groups including, religious

coping, positive thinking, distraction, and seeking information. The highest number of subjects used religious coping such as accepting/resigning, praying/reading religious books, meditation, and going temple for managing these psychological symptoms. Moreover, some subjects also seek information (Table 12).

Table 12

Frequency and percentage of subjects' management strategies when experienced with psychological symptoms

Strategies	Stress/ anxiety (n = 29)		Fear/ fright (n = 29)		Uncertainty (n = 28)		Sad (n = 19)	
	N	%	N	%	N	%	N	%
1. Religious coping								
1.1 Accepting/ resigning (*Tham-Jai*/*Plong*)	13	44.9	14	48.3	14	50.0	5	26.3
1.2 Prayer/reading dharma book	5	17.3	8	27.6	5	17.9	5	26.3
1.3 Meditation	1	3.4	4	13.8	3	10.6	2	10.5
1.4 Going temple	1	3.4	-	-	1	3.6	-	-
2. Positive thinking	4	13.8	-	-	1	3.6	1	5.3
3. Distraction (meeting friends)	4	13.8	1	3.4	-	-	5	26.3
4. Seeking information	1	3.4	2	6.9	4	14.3	1	5.3

Many reasons for managing the symptoms were given by the subjects in this study. Most of the subjects (80.0%) takes sublingual ISDN that it is an effective way to manage chest pain in terms of its convenience and its fast action for relieving their chest pain. In addition, most of subjects (75.0%) also provided the reasons that those strategies are effective to manage their symptoms which they have learnt from the

past experience. For example, using body straightening and deep breathing to manage with dyspnea. Nearly half of subjects (45.0%) thought that the symptoms will disappear or become better with time and they were able to tolerate these symptoms. Some subjects (16.7%) were suggested to take medications by other persons such as a physician and friends. Moreover, other reasons that were reported by subjects in this study includes that the initial strategy is ineffective, thinking that a symptom comes from a co-morbid disease, being inconvenient for seeking health-care service (the symptoms occurred at night time and being afraid of offending their children), and perceiving some particular symptoms as very severe (Table 13).

Most of the subjects (88.4%) managed the symptoms when the symptoms have already occurred, but some subjects (8.3%) managed the symptoms when they are expected to occur and was related to some activities such as working and taking a bath (Table 14). In addition, most symptoms were managed at home. However, some subjects made decision to go to a hospital when some symptoms does not improved after managing the symptoms such as chest pain/chest discomfort, chest pain with referred pain, dyspnea, and nausea/vomiting (Table 15).

Even though, most of symptom occurrences were primarily managed by patients but some patients also asked for help from their relatives. The symptom management strategy that was commonly used by the relatives was accompanying patients to a hospital (47.4%). Moreover, the relatives assisted the patients to manage with their symptoms by massaging, back thumbing, seeking information, and soothing (Table 16).

Table 13

Frequency and percentage of the subjects' reasons for their symptom management

used (N = 60)

Reasons*	N	%
1. Taking sublingual ISDN is an effective way to manage chest pain (in terms of its convenience when used, its fast action for relieving chest pain)	48	80.0
2. The strategy which was learnt from the past experience is effective to manage a symptom	45	75.0
3. Thinking that a symptom would disappear / become better and the subject will be able to tolerate the symptoms	27	45.0
4. The strategy which is suggested by someone is effective in symptom management	10	16.7
5. Thinking that a symptom is not severe and there is no need to be cautious	4	6.7
6. The initial strategy is ineffective and another strategy can be used	4	6.7
7. Thinking that a symptom comes from a co-morbid disease	4	6.7
8. Being inconvenient for seeking health-care service	4	6.7
9. Perceiving some particular symptoms as very severe	4	6.7

*Patients reported more than one reason

Table 14

Frequency and percentage of the subjects' reports of condition to be managed

(N = 60)

Conditions for symptom management	N	%
1. When a symptom has already occurred	53	88.4
2. When a symptom is expected to be occurred related to some activities (i.e. working, taking a bath)	5	8.3
3. No specify	2	3.3

Table 15

Frequency and percentage of the subjects' reports of the place for managing the

symptoms (N = 60)

Place	N	%
1. Home	43	71.7
2. Hospital/Primary Care Unit	11	18.3
3. Working place/garden	4	6.7
4. No specify	2	3.3

Table 16

Frequency and percentage of the subjects' reports of getting assistance from the

relatives (n = 19)

Symptom management by relatives	N	%
1. Accompanying patients to hospital	9	47.4
2. Massaging	5	26.3
3. Back thumbing	2	10.5
4. Seeking information	2	10.5
5. Soothing	1	5.3

Symptom outcomes of patients waiting for CABG

Symptom outcomes of patients waiting for CABG were composed of two

parts including, symptom status and health status. After managing the symptoms,

most of subjects reported of getting better for all symptoms (Table 17). Levels of

health status scores for overall health status and for each dimension of health in

patients waiting for CABG are displayed in Table 18 and 19. Overall health status

reported by subjects was at moderate level (M = 59.56, SD = 18.14). Regarding health

status in each dimension, it was found that the scores for health status in each

dimension was at moderate level, except the dimension of mental health was at high

level (M = 74.27, SD = 21.47).

Table 17

Frequency and percentage of symptom status reported by patients waiting for CABG

after managing the symptoms

Symptom	Getting better		No change		Getting worse	
	N	%	N	%	N	%
1. Chest pain/chest discomfort (n = 48)	40	83.3	-	-	8	16.7
2. Fatigue/weakness (n = 40)	35	87.5	3	7.5	2	5.0
3. Chest pain with referred pain (n = 33)	31	94.0	1	3.0	1	3.0
4. Indigestion/abdominal distension (n = 31)	28	90.3	3	9.7	-	-
5. Dyspnea/shortness of breath/difficult breathing (n = 30)	27	90.0	-	-	3	10.0
6. Fear/frighten (n = 29)	26	89.7	3	10.3	-	-
7. Stress/anxiety (n = 29)	27	93.2	1	3.4	1	3.4
8. Uncertainty (n = 28)	26	92.9	2	7.1	-	-
9. Sad (n = 19)	16	84.2	3	15.8	-	-

Table 18

Frequency and percentage of level of health status reported by patients waiting for

CABG after managing their symptoms (N = 60)

Level of health status	N	%
Low	4	6.7
Moderate	32	53.3
High	24	40.0

Table 19

Mean and standard deviation of health status reported by patients waiting for CABG

(N = 60)

Variables	Possible scores	M	SD	Level of health status
General health	0-100	64.33	21.44	Moderate
Physical functioning	0-100	36.15	33.11	Moderate
Role limitations due to physical problems	0-100	66.42	29.98	Moderate
Role limitations due to emotional problems	0-100	49.17	24.91	Moderate
Social functioning	0-100	60.83	22.52	Moderate
Bodily pain	0-100	66.04	30.89	Moderate
Vitality	0-100	59.31	31.86	Moderate
Mental health	0-100	74.27	21.47	High
Overall health status	0-100	59.56	18.14	Moderate

Discussion

The discussion of the results is presented in two parts as follows:

Part 1: Demographic and health related data

Part 2: Symptom experiences, symptom management, and symptom outcomes of patients waiting for CABG

Part 1: Demographic and Health Related Data

Sixty subjects were recruited as the samples in this study. Most subjects were male (73.3%) and nearly half of male patients have history of smoking. The higher proportion of males was congruent with the literature that shows the number of male

patients is higher than female patients among patients waiting for CABG (Levy et al., 2007). This might be due to the fact that men have more risky behaviors such as smoking than women (Koivula et al., 2002).

In addition, the age of most subjects in this study was more than 60 years (60.0%). By the age of 60 years, CAD is a degenerative disease which is commonly occurs as a clinical problem (Pearlman et al., 2007). This finding is similar to the study conducted by Levy et al. (2007) who found that most patients waiting for CABG were above the age of 60.

The majority of subjects were married and stayed with family members consisting of at least three persons. This may be due to the fact that most subjects were elders and were having families. Regarding Thai culture, most of the elders usually live with their spouses and children because Thai people believe in the repayment for their parents' goodness and usually live with their parents even after getting married (Choowattanapakorn, 1999). Parents are the supporters to the patients' while the patients get sick. Koivula et al. (2002) also found that most patients waiting for CABG had four or more supporters. Their spouses and children are their social network. Spouse is one of the social network that is the best supporter for emotional and tangible aid because it is emotionally close in patients waiting for CABG (Koivula et al.).

About two-third of subjects (63.3%) had primary school education which was a compulsory education in the previous time. Half of subjects were laborer/employee and the most of the subjects had monthly income of around 5,000 to 10,000 baht. With those occupation and income, they may not be able to cover their health care cost. However, their health care can be supported by government. In this study, most of the subjects (60.0%) used medical payment of universal health coverage scheme

(30 baht). According to the Thai government policy, the 30-baht scheme covers everyone who is not covered by other government-sponsored forms of insurance. It allows patients from different areas to gain access to the quality health service (NaRanong & NaRanong, 2006). This provides more health care opportunity for patients with CAD to get CABG procedure.

Nearly all the subjects (88.3%) had co-morbid disease and the top three co-morbid diseases were hypertension (63.3%), dyslipidemia (51.75), and diabetes (36.7%). These diseases were common co-morbid medical conditions in patients with CAD (Hassan et al., 2005). In addition, during waiting for CABG the co-morbid disease can be developed (Levy et al., 2007).

All the subjects in this study were accepted for elective CABG and were onto the waiting list for CABG. The highest number of subjects (31.7%) had waiting period for four to six months. Cesena et al. (2004) reported, waiting time for CABG surgery is around four months. In fact, waiting time for CABG should not be more than one week after diagnostic coronary angiography (CAG). Because the complications can always occur within four weeks after diagnostic CAG or early in the queuing process (Ray et al., 2001; Stott, 2002). However, there was no complication or death during the period of this study. Moreover, subjects were on the waiting list for elective CABG for at least one month due to the limited available facilities, for instance, shortage of cardiac surgeons and shortage of ICU bed. According to Songklanagarind Hospital, the proportion of cardiac surgeons and cardiac patient are imbalanced. There are only four cardiac surgeons whereas the numbers of cardiac patients are more than a hundred (V. Chittitaworn, personal communication, July 9, 2008). These findings are similar to Fox et al. (1998). In addition, it was found that the shortage of surgical and financial resources and the

shortage of ICU bed are the reasons for patients waiting for cardiac surgery (Cesena et al., 2004; Jonsdottir & Baldursdottir, 1998). Not only the dominant long waiting time comes from limited facilities, but it also comes from patients' factors such as feeling of fear, feeling better after taking medication, being unready to have cardiac surgery, or lacking of family support. As one of the patient said that "...*I don't want to get the operation because my children are not available to take care of me during hospitalization...*". These findings were congruent with the literature that reported that the patients refused for the cardiac surgery because some felt fear about the complications after surgery, some are not ready at the time it is offered because of lack of social support, and some thought that they still healthy (NHS Trust, 2008).

Medications prescribed for the subjects in this study varied according to the severity of the disease, the location of any blockages in the blood vessels, the presence of any risk factors (abnormal cholesterol profile or high blood pressure) and the overall health status of the patient (Elhendy et al., n.d.). According to this study, ISDN (96.7%) and ASA (96.7%) were the most common medications for the patients with CAD. Both medications are considered as the major medications of patient with CAD for relaxing or dilating the vessels and inhibiting the formation of blood clots to improve blood flow to the heart (Elhendy et al.; Grogan, 2008). Additionally, anti-lipidemia, beta-blockers, ACE inhibitors and calcium antagonists were also prescribed. These medications were bused to control the risk factors as arising from the use of anti-lipidemia (Statins) to decrease the amount of cholesterol in the blood, especially LDL or bad cholesterol (Grogan). Moreover, beta-blockers, ACE inhibitors and calcium antagonists were prescribed to control high blood pressure for preventing the progression of CAD and reducing the risk of future heart attacks (Grogan). From the observation, another medication that was commonly prescribed to the subjects is

omeprazole (66.7%). It was usually prescribed together with ASA. Omeprazole is the most widely used anti-ulcer drugs and is known to be effective inhibitors of gastric acid secretion by preventing of the gastric mucosal damage caused by ASA (Nefesoglu, Ayanoglu-Dulger, Ulusoy, & Imeryuz, 1998).

Most of the subjects (83.3%) who were diagnosed for triple-vessel disease, 36.7% had triple-vessel disease with no proximal LAD involvement and 48.3% had triple-vessel disease with proximal LAD involvement. The CABG surgery is usually performed in patients with multi-vessel CAD (Fox et al., 1998). At least one of following indications will be included (1) significant (more than 50%) stenosis of the left main stem; (2) significant proximal stenosis of the three major coronary arteries; and (3) significant stenosis of two major coronary arteries, including high grade stenosis of the proximal LAD (Schofield, 2003).

In addition, the impaired left ventricular function using EF needs to be accessed for surgical revascularization (Levy et al., 2005). EF is classified in four categories including normal (EF more than 65%), slightly diminished (EF 50 to 65%), diminished (EF 30 to 49%), and poor (EF less than 30%) (Koomen et al., 2001). The left ventricular function of subjects was slightly diminished which may be due to several factors. These are 1) having early detection and receiving medical treatment timely and 2) lifestyle modification from risk behavior. It was shown that 46.7% of subjects stopped smoking and 23.3% of subjects decreased smoking after they were diagnosed of CAD which can prevent further risks or complications during waiting for CABG (McHugh et al., 2001; Stott, 2002).

Only 38.3% of subjects had experienced revascularization, 85.7% of them undergone revascularization by PTCA. PTCA is a procedure for treatment of

symptomatic CAD and acute occlusion of the coronary arteries, which is aimed to restore or improve perfusion of heart muscle tissue (Grogan, 2008).

Half of the subjects have been found with worsening of NYHA. It may be due to the progression of CAD and co-morbid disease during waiting period. The co-morbid conditions can be developed at the time of waiting for CABG that increased risks of worsening symptoms (Levy et al., 2007; Ray et al., 2001). During waiting time for CABG, severe left ventricular dysfunction, advanced angina, heart failure functional classes and high triglyceride level are developed (Cesena et al., 2004). However, nearly half of subjects had unchanged NYHA, it may be due to the fact that their conditions were not severe and their co-morbid diseases and CAD can be effectively controlled by medications.

Part 2: Symptom Experiences, Symptom Management, and Symptom Outcomes of Patients Waiting for CABG

Symptom experiences of patients waiting for CABG

In this study, 25 symptoms, both physical and psychological symptoms were reported. From top five common physical symptoms, chest pain/chest discomfort (80.0%) was the most common symptom that was reported by the patients waiting for CABG. These findings are similar to a previous study which reports that the chest pain is a dominant physical symptom appearing among patients waiting for CABG (Arslanian-Engoren, 2005; Canto et al., 2007; Horne et al., 2000; Omran & Al-Hassan, 2006). In addition, chest pain is the hallmark symptom of cardiac symptom in patients with CAD (Canto et al.). Chest pain is caused by narrowing of the coronary arteries because of ischemia of the cardiac muscle. Subsequently, when the heart tries to perform at a high level (such as during exercise or hard work), the narrowed artery

is incapable of delivering the required blood volume to the working muscle resulting chest pain (Warnica, 2007).

Moreover, in this study other physical symptoms such as fatigue/weakness, chest pain with referred pain, indigestion/abdominal distention, and dyspnea/shortness of breath/difficult breathing were among the most common physical symptoms in patients waiting for CABG. It is possible that in CAD patients, their heart cannot pump enough blood to meet the need of their body, and thus shortness of breath or extreme fatigue on exertion are developed (Pearlman et al., 2007). The findings are congruent with a previous study which reports that the chest pain can be accompanied by shortness of breath, weakness, fatigue, nausea, sweating, or dizziness (Fogoros, 2006). Moreover, chest pain with referred pain in this study occurred more likely in patients aged over 60 years compared to those who aged less than 60 years. It is possible that elderly patients in this study rarely took medications to manage their chest pain. Another reason may be because elderly patients with CAD tend to receive less aggressive medical therapy and fewer revascularization procedures than do younger patients (Kelly, 2007).

The five least reported symptom occurrences were constipation, nausea/vomiting, clammy limbs, joint pain/muscle strain, and diarrhea. Even though these symptoms may not accurately associate with CAD, but they can be found in patients waiting for CABG. It may be due to the fact that most of the subjects were older in age (60.0%). Constipation is a very commonly reported among elderly patients (Harari, Gurwitz, Minaker, 1993) because of age-related physiologic changes and polypharmacy (Ginsberg, Phillips, Wallace, & Josephson, 2007). In addition, the constipation may relate to psychological symptoms such as stress/anxiety (Haug, Mykletun, & Dahl, 2002). In the present study, nearly half of the subjects reported

stress/anxiety. Distress and anxiety are associated with slow colonic transit as a possible etiological factor in constipation (Towers et al., 1994). Other symptoms, such as nausea/vomiting, clammy limbs, and diarrhea can be found in CAD patients which is similar to the findings of present study (Fogoros, 2006). Moreover 8.4% of the subjects in this study reported joint pain/muscle strain, it may be due to these subjects had co-morbid disease of Gout (15.0%).

Moreover, various psychological symptoms also occurred during waiting for CABG, such as fear/frighten, stress/anxiety, and uncertainty. These psychological symptoms are consistent with the findings of previous studies (Bengtson et al., 1996; Ivarsson et al., 2004). Patients feel fear/fright about the cardiac surgery, complications of cardiac surgery, and death. Regarding additional interview, a patient said that "…*I don't want to undergo the surgery because I feel fear about the complications of cardiac surgery such as pain, inability to work and death…*". It may be due to lacking of information among the patient about cardiac surgery or misunderstanding about this procedure. The findings are congruent with a previous study conducted by Bengtson et al.

Stress/anxiety was also presented as psychological symptoms during waiting for CABG. It may be due to the effect of symptoms or diseases on patients' daily lives and jobs. In the present study, more than half of subjects (65%) were occupied on working role and they were the responsible person in making money for their family. But these subjects were unable to work due to their illness and physical incapacity which results in a decreased productivity. These situations caused economic burdens and stress. Regarding additional interview, a patient said that "…*I am worried, since I have got the disease and I can't work due to the chest pain…*". The findings are not different from previous studies (Fitzsimons et al., 2003; Haddad et al., 2002;

Jonsdottir & Baldursdottir, 1998). Moreover, stress is associated with the severity of symptoms, especially chest pain (Bengtson et al., 2000; Canto, 2007). Stress can also affect coronary blood flow (Stone as cited in Jonsdottir & Baldursdottir, 1998).

Moreover during waiting for CABG, patients may feel uncertainty about the future of their lives. As one patient said that "…*I don't know the future. What will happen next with my life?…*". It may be due to the subjects did not receive accurate information regarding the ongoing treatment. As a patient said that "…*a physician doesn't tell anything about my further treatment and my condition…*". This is consistent with the findings of the previous study which found uncertainty is the common psychological symptom in patients waiting for CABG (Bengtson et al., 2000). Moreover, the patients waiting for CABG feel uncertainty due to their concerns about whether their symptoms will be treated in time or not, their financial situation, and the future of their families (Bengtson et al., 1996).

Fear/fright and uncertainty in male were found significantly more than in female patients. It is possible that men hold the responsibility of being the head of family and they typically have multiple roles of responsibilities to their family as mentioned above, due to male patients feel more fear/fright while waiting for CABG. These findings are similar to Thai context that man is the head of the family and being ultimately responsible for the home and most authority in home belonged to men (Yoddumnern-Attig, Richter, Soonthorndhada, Sethaput, & Pramualratana, 1992). Those subjects who are unable to work due to physical incapacity, they may feel fear and uncertainty about how they and their family's lives would be. Moreover, most psychological symptoms were found in higher proportion in female than male patients. It may be due to the ways the male patients used to cope up with stress such as alcohol drinking and cigarette smoking.

Most physical and psychological symptoms were reported to occur rarely and as mildly severe, particularly chest pain/chest discomfort. Even though, chest pain is a dominant symptom in patients with CAD (Canto et al., 2007). Most subjects in this study reported that the symptoms occurred rarely and were mildly severe. This differs from a previous study which found the chest pain to occur frequently and as pretty severe (Dej-adisai, 2006). It is possible that nearly all the subjects in this study continuously took cardiac medication, particularly ISDN (96.7%) and ASA (96.7%). Both medications are the major medications for treating CAD patients. They are used for relaxing and dilating the vessels (Elhendy et al., n.d.) and inhibiting the formation of blood clots (Grogan, 2008) to improve blood flow in the arteries that encircle and supplies the heart leading to reduced chest pain (Elhendy et al.). Some patients took anti-lipidemia, beta-blocker, and ACE-inhibitors to control the risk factors of the progression of atherosclerosis (Grogan). In addition, approximately one-third of subjects in this study had undergone revascularization during waiting for CABG, including thrombolysis, heparinization, and PTCA. These procedures increase blood to flow into the heart muscle which may help to reduce the chest pain (AHA, 2008). Moreover, it is possible that the long period of waiting time was associated with perception of mildly severe symptoms. Patients with a long-term history of a specific symptom often learn to catalogue various, discrete, and subtle sensations associated with the symptom (Dodd et al., 2001). Further half of subjects were laborer/employee (i.e. farmer, gardener, and carpenter) who may tolerate the symptom occurrences.

However, there were some symptoms that patients perceived as rarely occurred but were severe. Those symptoms included chest pain with referred pain (51.5%), sweating/diaphoresis (61.1%), and nausea/vomiting (66.7%). Even though these symptoms rarely occur, but most subjects perceived them as very severe. It may

be the reasons that these symptoms were presented as the concurrent symptoms of chest pain. Patients who reported chest pain with referred pain as very severe or extremely severe usually reported along with palpitation, nausea/vomiting, dizziness/blackness/fainting/ lightheadedness, and sweating/diaphoresis. These findings are similar to the findings of previous study (Kerry, Marjorie, Amy, & Viola, 2002). These findings are supported by Dodd et al. (2001) who reported that the patients experienced symptom clusters perceiving the symptoms as more severe than patients experience single symptom.

Symptom management of patients waiting for CABG.

The occurrence and severity of symptoms have influence on patients waiting for CABG in seeking treatment and/or mange symptoms because of the impact of symptoms on the patients' daily life. Dodd et al. (2001) stated that the goal of symptom management is overt or to delay a negative outcome through self-management. However, management depends on the individual's perception of the symptom experience, whether their symptoms affect their life or not by interaction of three components (symptom occurrence, symptom perception, and symptom evaluation) of symptom experience. Symptom management begins with assessment of the symptom experience from the individual's perspective, followed by identifying the focus for intervention strategies (Dodd et al.). The management of symptoms may differ from an individual's symptom management (Barsevick et al., 2002). In this study, there were three major symptom management strategies for managing the symptoms of patients waiting for CABG including pharmacological management strategy, non-pharmacological management strategy, and combining both methods. The discussion of symptom management in this study was classified on the basis of symptom experience.

In this study, the pattern of symptom management strategies that were used to manage the chest pain/chest discomfort and chest pain with referred pain were quite similar. It may be due to the fact that both symptoms were the typical symptoms that may have similar symptom characteristic. Patients perceived both symptoms as associated with cardiac problems (Horne et al., 2000). Most subjects usually managed by using pharmacological management strategies such as taking ISDN. ISDN is indicated for relieving or preventing the chest pain due to CAD. The mode of action of ISDN is to relax vascular smooth muscle and consequent dilation of peripheral arteries and veins, especially the latter one. Dilation of the veins promotes peripheral pooling of blood and decreases the venous blood to return to the heart, thereby reducing preload. Afterload is reduced due to arteriolar relaxation and thus dilation of the coronary arteries occur (Fung et al., 1981). The subjects in this study used ISDN because it is convenient to use and effective and rapid for relieving chest pain. Sublingual ISDN is used for instant relief in case of brief episodes of chest pain. It acts within five minutes (Soroka University Medical Center, 2008).

The individual pattern of taking ISDN in this study was different. It depends on the experience of patients. In this study, some subjects took ISDN when the chest pain had occurred and some subjects took it before doing some kind of activities, for example, before working or taking a bath. Subjects provided the reasons that they learnt from their past experience and some subjects followed the suggestions given by the physician. The findings of present study support the fact that experience and interpretation of symptoms are the important sources of symptom management to encourage the patients for managing their symptoms (Horne et al., 2000).

Additionally, non-pharmacological management strategies, including resting, chest thumbing, massaging/rubbing or moving the arms, and waiting and

seeing/enduring were also used to manage chest pain/chest discomfort and chest pain with referred pain in this study. Subjects provided the reasons that these strategies made them to relax and feel more comfortable. Resting helps the patients to relax and reduces the oxygen consumption by the cardiac muscle (Convertino, 1997). Only one subject used chest thumbing to relax the pain in chest muscle. Some patients used massaging at local area/rubbing or moving the arms to relax the arm muscles, which are similar to the findings of the study conducted by Dej-adisai (2006). Moreover, few subjects used pharmacological management strategies combined with resting and massage for relief chest pain. Combining both methods helped subjects to feel more comfortable than using only pharmacological method. This finding is similar to the previous study (Perry et al., 2001).

Resting was the most common strategy for managing fatigue/weakness. It is possible that this strategy was effective in managing this symptom in the past experience. Resting is necessary for patients with heart disease. Energy conservation can be accomplished by resting (Redeker, Ruggiero, & Hedges, 2004). Some patients used waiting and seeing due to which they thought that this symptom was not severe and it will disappear. Moreover, two subjects consumed sweets and sweet water when they feel fatigue/weakness. Regarding health related data in this study, more than half of subjects had co-morbidity disease of diabetes. It is possible that these two subjects perceived fatigue/weakness as hypoglycemic symptom. Fatigue/weakness is a symptom of neuroglycopenic group in hypoglycemic patients (Towler, Havlin, Craft, & Cryer, 1993).

For managing indigestion/abdominal distension, both pharmacological and non-pharmacological management strategies were used by the subjects. Most of the subjects used pharmacological management strategies including taking laxative,

antacid, *Ya-Hom*, and *Ka-Min-Chan*. Subjects used laxative and antacid because these medications made them feel more comfortable. Laxative induces bowel movements. It works to hasten the elimination of un-indigested remains of food and gas in the large intestine (Rang, Dale, & Ritter, 2003). In addition, antacids are a type of medicine that can provide immediate relief for mild to moderate symptoms of indigestion. They are commonly used as self-prescribed medications. They consist of calcium carbonate and magnesium and aluminum salts in various concentrations. The effect of antacids on the stomach is due to partial neutralization of gastric hydrochloric acid and inhibition of the proteolytic enzyme, pepsin, so that it no longer irritates the mucosa of digestive system (Maton & Burton, 1999).

Additionally, *Ya-Hom* was also used by the subjects to manage indigestion in this study. Mostly, it was used by elderly patients who experienced abdominal distention, dizziness, and nausea/vomiting, which is similar to the findings of previous study (Dej-adisai, 2006). Furthermore some patients used herbal medicine, such as *Ka-Min-Chan*, to manage indigestion as they were suggested by their friends. *Ka-Min-Chan* is traditional medicine that has been used in many conditions, such as anti-bacterial, anti-fungal, anti-oxidant, and anti-ulcer effects. A hot water extract of the dried rhizome has been taken orally as a tonic and to calm the stomach. Additionally, the fresh juice taken regularly on an empty stomach has been used to prevent stomach disorders (Scartezzini & Speroni, 2000).

Non-pharmacological management strategies including belching and abdominal compressing, waiting and seeing, and avoiding gas-inducing diet were used by approximately one-third of subjects in this study. Subjects reported that belching and abdominal compressing could help them to release gas in their abdomen. These strategies made the patients to relieve the symptom and feel more comfortable,

which are similar to the findings of previous study (Dej-adisai, 2006). However, four subjects (12.9%) used waiting and seeing strategy due to which symptom frequently occurred and they can tolerate it. In addition, some of the subjects reported that their symptoms were not perceived as serious symptoms and the symptoms did not threaten their daily lives. Patients who perceived their symptoms as not serious, they try to manage their symptoms by waiting and seeing until the symptoms disappeared (Finnegan et al., 2000; Moser et al., 2006), or they try to tolerate or ignore them initially (Sobolev et al., 2006).

Dyspnea was managed by both pharmacological and non-pharmacological management strategies. Pharmacological strategy used to manage dyspnea includes ISDN and inhalant. Some subjects in this study used ISDN as they suffer from both dyspnea and chest pain. In addition, the subjects who had co-morbidity of asthma managed dyspnea by using inhalant. However, most subjects used non-pharmacological management strategies including relaxation, positioning, and waiting and seeing to control dyspnea. Subjects reported that these strategies could relieve dyspnea more effectively and almost all subjects with dyspnea reported that the symptom get better after managing them non-pharmocology. Relaxation techniques, such as resting, deep breathing, and meditation were practiced by subjects in this study. Subjects believed that these strategies controlled their breathing to be smooth and comfortable. Deep breathing is a relaxation technique that helps the patients to breathe fully and deeply. Deep breathing makes the diaphragm to move far down into the abdomen, and lungs are able to expand more completely into the chest cavity. More oxygen is taken in and more carbon dioxide is released with each breathe which help the patient to relieve dyspnea (Davis, Eshelman, & McKay, 1982). In addition, another strategy was positioning, including body straightening and turning the body

over. One subject reported that dyspnea always occurred at night time, turning the body over made him feel better and more comfortable. Moreover, another possible reason could be that the body straightening and turning over of the body helps in chest expansion (Dej-adisai, 2006).

Religious coping (both Buddhist and Muslim) was usually used when subjects in this study confronted psychological symptoms (stress/anxiety, fear/frighten, uncertainty, and sad). It may be due to 60% of subjects were elderly. Thai elderly people have a good practice on religious activities (Othaganont, Sinthuvorakan, & Jensupakarn, 2002). Subjects usually performed the religious activity to cope up with their psychological symptoms by holding onto religious principle for a cure and a longer life. Religious coping was appraised with reference to the individual, culture, beliefs, and religion.

In this study, Buddhist subjects often used accepting/resigning (*Tham-Jai/Plong*), prayer/reading dharma book, meditation, and going to temple while they were confronting with psychological problems. Integrating Buddha's teaching into their lives was a crucial way of patients' to rearranging their life for alleviating their suffering from inevitable and uncontrolled events. Following Buddha's teachings, the patients have well adjusted to living with people with happiness and have the right understanding of the truth of human life. The findings of the present study support culture and values notions about Buddhist concepts and religious ritual. The Buddhist notion expresses that all things and experiences are inconsistent, unsteady, and impermanent. Human life embodies this flux in the aging process, the cycle of rebirth (samsara), and in any experience of loss. Buddhist teaching teaches human beings to accept the human life (Minarik, 1996).

In addition, prayer/reading dharma book and meditation was performed by patients waiting for CABG in this study. Some patients performed prayer (Buddhist prayer) because they believed in supernatural powers. They hope that the sacred prayers could help their circumstances to be cured. Moreover, using religious coping by performing meditation to manage their symptoms was also reported by patients waiting for CABG in this study. Meditation commonly was practiced by Buddhists to achieve a peaceful mind. The behavioral components of meditation are relaxation, concentration, an altered state of awareness, a suspension of logical thought and the maintenance of self-observing attitude (Perez-De-Albeniz & Holmes, 2000). In addition, meditation has been used as a method of stress reduction (Davidson et al., 2003). Although this strategy makes the patients comfort but it may not be effective enough to relieve all psychological symptoms (Dej-adisai, 2006).

In addition, Islamic patients also used religious coping to manage their psychological symptoms by putting trust in God and prayer (*La-Mad*). They believed that sickness is a test from God (*Allah*). Islamic teaching teaches human beings how to face difficulty in life, such as illness, suffering and death. Muslims view these problems as tests from God, which should be handled with patience and prayers. They consider an illness, as well as other tests, as atonement for their sins to achieve the best life in the hereafter. Despair, hopeless and frustration are not considered good in Islamic belief because everything that happens on the earth is with God's supervision. Hope and optimism for the best life in the future is embedded in Islamic philosophy (Mills, as cited in Ibrahim, 2004). Therefore, integrating the right understanding, right thought, right effort, right mindfulness, and right concentration into their experiences lead the patients to understand or insight the true nature of human life and to prepare

their mind to accept or reject the uncertainty (impermanence) of their illness. Consequently, the patients' suffering was found to be diminished.

Additionally, other strategies, such as distraction and seeking information were also used for managing the psychological symptoms. In this study, distraction used by subjects was meeting their friends. These strategies may temporarily distract the patients' attention away from the psychological problems. Seeking information was another alternative strategy reported by patients waiting for CABG to reduce the level of psychological symptoms. Information about the disease, operation date, ongoing treatment, cardiac surgery, and complications of surgery were shown to be the patients' needs which were also reported in the previous study (Linsey, Sherrard, & Bickerton, 1997). Accurate information about what will be the outcome of the surgery can reduce fear and anxiety of the unknown situation (Maltas, 2003).

Mostly, symptom management was performed by patients waiting for CABG in this study when the symptoms had already occurred. It may be due to the fact that when the symptoms occur, the physical nature of the symptoms stimulates the patients to manage those symptoms (Horne et al., 2000). However, some subjects managed the symptoms when the symptoms were expected to occur. The subjects can feel it during some daily activities such as working and taking a bath which they learnt from their past experiences. For example, chest pain was observed after taking a bath, so taking sublingual ISDN was used to prevent chest pain effectively. In general, patients waiting for CABG in this study performed symptom management by themselves at home before consulting for help from others. However, when the symptoms were not found to be improved after managing by the first strategy, the patients preferred to visit the hospital. The findings of this study are congruent with a previous study

which reported that the patient takes the decision to visit hospital when they perceive the symptoms as severe (Horne et al.).

Even though, most of patients waiting for CABG in this study usually managed their symptoms by themselves. Social network (family members or relatives) is an important resource to assist the patients in managing their symptoms (Koivula et al., 2002). After symptom onset, some patients in this study usually consult with their family members about their acute symptoms. This finding was similar to the study of Lovlien et al. (2006). The family members being the co-sufferers while they were caring for their ill loved ones suffering from severe illness was perceived as being very important by the relatives of this study. In this study, symptom management strategies provided by the relatives includes massaging, back thumbing, seeking information, and soothing. Going to hospital was the most common strategy applied by the relatives. It is possible that the elderly patients were most likely unable to go to the hospital by themselves when severe symptoms occurred and thus they had to rely on their children or others.

Symptom outcomes of patients waiting for CABG

In this study, symptom outcomes of patients waiting for CABG were composed of two parts including, symptom status and health status. Symptoms were generally better after managing them. It is possible that most symptom management strategies were effective to manage the symptoms. In addition, it may also be due to the fact that most subjects took the medications to control their symptoms and co-morbid diseases. Regarding to ISDN and ASA, they were generally prescribed for almost all of subjects. ISDN is considered as the most effective symptom management strategy for managing chest pain (Dej-adisai, 2006). Moreover, another possible reason could be that the most of the subjects in this study perceived the

symptoms as being mild. It may be due to the prognosis of subjects was not quite poor and more than one-third of subjects had EF > 50% (Table 4). EF value between 50% and 65% indicated that the healthy heart which has effective ability to eject blood (Cotran et al., 2005). Additionally, EF is one of the most important predictors of prognosis; with significantly reduced EF typically indicates the poorer prognoses (Owan et al., 2006).

Most subjects received the scores of overall health status at moderate level (53.3%) and high level (40.0%). The subjects had scores of overall health status in each dimension at moderate level, except the score of mental health was at high level (M = 74.27, SD = 21.47). It is possible that psychological symptoms typically were managed by non-pharmacological management strategies by the subjects themselves. In addition, most of the subjects used religious coping to manage the psychological symptoms which were reported as getting better, especially among elderly patients. Patients who used these symptom management strategies could control their psychological symptoms and relieve the severity of symptoms. Thereby, increased mental health will lead to increased overall health status. Another reason could be that most of the symptoms could be managed at home and the health status was reported to be moderate to high.

In addition, subjects may have good social support. Most of the subjects lived with their spouses and children and other family members consisting of at least three persons as mentioned above. In this study, when patients experienced the symptoms, the relatives assisted the patients by helping in managing the patients' symptoms both physical and psychological symptoms. For example, when the patients experienced very severe symptoms, their relatives took control by promptly taking them to a hospital. In addition, the relatives assisted the patients to manage their symptom

occurrences by massaging and back thumbing. With respect to receiving informational support and emotional support, some patients who displayed psychological symptoms received related information and soothing from their relatives. It is in accordance with Thai context that family members or relatives take the responsibility for taking care of the patients while patients get sick. Thai people believe in repayment for their goodness and helping nature for their parents' (Choowattanapakorn, 1999). The family members may provide high emotional support for their loved ones. Emotional support that the patients received possibly produces a positive effect on mental health in these patients (Koivula et al., 2002). The findings from this study are consistent with the study of Koivula et al. (2002) who found that emotional support from social network, particularly from family members and relatives are the important source to reduce psychological symptom.

In summary, various symptoms including physical and psychological symptoms can occur in patients while waiting for CABG. Chest pain was the most common symptom reported. However, most symptoms were perceived as being infrequent and their severity was perceived as mild. The perception and evaluation of symptoms may be associated with some demographic and health-related data such as gender, age, and medications. Both pharmacological and non-pharmacological management strategies were used to manage the symptoms by the patients waiting for CABG. Those strategies were demonstrated as effective for managing the symptom occurrences. The individual symptom management strategy was different depending on the individual, culture, beliefs, and religion. In the study, patients waiting for CABG usually managed their symptoms by themselves rather than asking for help from others. Moreover, the findings of this study are in accordance with the Symptom Management Model (Dodd et al., 2001) which states that the symptom experiences,

symptom management, and symptoms outcomes are interrelated. In addition, some factors including person domain (gender, age, and occupation), health and illness domain (disease, cigarette smoking, co-morbid disease, duration of waiting for CABG, and medications), and environment domain (culture, beliefs, and religion) could influence these three dimensions.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

This chapter presents three parts including summary, limitations of the study, and implications and recommendations for further.

Summary

This study was a descriptive study aimed to study symptom experiences, symptom management, and symptom outcomes of the patients waiting for CABG. The 60 purposive subjects were recruited at Songklanagarind Hospital from January 2009 to May 2009. The symptom experiences, symptom management, and symptom outcomes of the patients waiting for CABG were examined based on the Symptom Management Model (Dodd et al., 2001).

Four parts of the instrument were used to obtain demographic and health-related data, symptom experiences, symptom management, and symptom outcomes of patients waiting for CABG. The content validity was validated by three experts and the internal consistency in 20 patients waiting for CABG who came for a follow up at Songklanagarind Hospital from which the Cronbach' s alpha coefficient obtained was found to be 0.88. The internal consistency coefficient tested in a sample of 60 subjects in this study was found to be 0.79.

The main findings of the study were summarized as follows:

1. Symptom experiences. Both physical and psychological symptoms were reported from the patients. The common physical and psychological symptoms of patients waiting for CABG were chest pain/chest discomfort (80.0%), fatigue/weakness (66.7%), chest pain with referred pain (55.0%), indigestion/ abdominal distension (51.7%), dyspnea/shortness of breath/difficulty in breathing (50.0%), fear/fright (48.3%), stress/anxiety (48.3%), and uncertainty (46.7%). Each symptom was differently perceived in terms of its frequency and severity. These symptoms were reported as being infrequent and their severity was perceived as being mild.

2. Symptom management strategies. Various strategies were used to manage the symptoms and they included: (1) using pharmacological strategies such as isosorbide dinitrate, inhalant, laxative, antacid, and herbs, (2) using non-pharmacological strategies such as resting, massaging, chest thumbing, abdominal compressing, positioning, avoiding gas-inducing diet, using relaxation and religious coping, and (3) combining both strategies. The symptoms were primarily managed by patients at home rather than asking for help from other persons.

3. Symptom outcomes. After performing symptom management strategies, most subjects reported that their symptoms were improved and their overall health status during waiting for CABG was at moderate level.

Limitations of the Study

The limitations of this study were as follows:

1. This study was a cross-sectional design which did not reflect change

overtime of symptom status and health status and could not capture the ongoing process of symptom experiences.

2. This study was conducted only at Songklanagarind Hospital and the convenience sampling was used. The lack of random sampling may contribute to the bias in sample selection and limits the generalization of the findings. Moreover, the number of the large sample in this study is small. Therefore, the findings were based on small numbers in subgroups and must be viewed with caution.

3. Most subjects in this study were elder. Therefore, they might be unable to recall all symptom occurrences over the past month.

Implications and Recommendations

The findings of this study provide several important implications for nursing practice, nursing administration, and nursing research as follows:

1. Nursing practice

The results of this study provide the nurses with knowledge regarding symptom experiences, symptom management, and symptom outcomes in patients waiting for CABG. Psychological symptoms frequently occurred during waiting for CABG. Nurses can use the results of this study to make some interventions such as self-help group for patients waiting for CABG, which may be beneficial for the patients in supporting them and managing their symptom occurrences.

2. Nursing administration

The nurse administrators can use the results of this study to create a policy for improving health care personnel and quality of nursing care. The nurse administrators may create a training program to teach the medical and surgical OPD nurses to gain

advanced knowledge about CAD, its treatment and symptom management for providing nursing care to the patients waiting for CABG and improving their health status.

3. Nursing research

Based on the limitations and the findings of this present study, several recommendations for future study are presented as follows:

1. A longitudinal-prospective study is recommended because symptom occurrence is a dynamic process.

2. Future studies should be conducted with various age groups and settings in order to increase the generalization of the research findings.

3. The number of women subjects in future studies should be increased to compare and discuss regarding gender differences.

4. Canadian Cardiovascular Society Angina Grading Scale should be used combined with New York Heart Association functional classification to evaluate the condition of CAD patients in terms of classification of severity of angina.

5. Since the findings of the present study indicated that demographic and health related data may relate to symptom experiences, symptoms management, and symptom outcomes, the factors influencing symptom experiences, symptom management, and symptom outcomes in patients waiting for CABG are worth to investigate and may contribute to a better understanding of them. Moreover, psychological symptoms frequently occurred during waiting for CABG, thus the coping strategies of patients waiting for CABG should be further studied.

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APPENDICES

APPENDIX A

PROTECTION OF HUMAN SUBJECTS' RIGHTS

INFORMED CONSENT FORM

คำชี้แจงและการพิทักษ์สิทธิของผู้ป่วยในการเข้าร่วมวิจัย

ข้าพเจ้านางสาวสุกานดา บุญคง ขณะนี้กำลังศึกษาระดับปริญญาโท สาขาการพยาบาล
ผู้ใหญ่ หลักสูตรนานาชาติ คณะพยาบาลศาสตร์ มหาวิทยาลัยสงขลานครินทร์ และทำวิทยานิพนธ์
เรื่อง **ประสบการณ์อาการ การจัดการอาการ และผลลัพธ์การจัดการอาการในผู้ป่วยที่รอผ่าตัดทาง**
เบี่ยงหลอดเลือดหัวใจ การศึกษานี้มีวัตถุประสงค์เพื่อศึกษาประสบการณ์อาการ การจัดการอาการ
และผลลัพธ์ที่เกิดจากการจัดการอาการในผู้ป่วยที่รอผ่าตัดทางเบี่ยงหลอดเลือดหัวใจ

ท่านเป็นผู้ป่วยกลุ่มเป้าหมาย จึงได้รับการติดต่อให้เป็นผู้ให้ข้อมูลในการวิจัย โดยท่าน
สามารถตอบรับเข้าร่วมวิจัยหรือปฏิเสธการเข้าร่วมวิจัยได้ตามความสมัครใจ การวิจัยในครั้งนี้ไม่ได้
ให้ประโยชน์ต่อท่านโดยตรง แต่จะเป็นประโยชน์ต่อไปในการพัฒนารูปแบบการบริการสุขภาพ
สำหรับผู้ป่วยที่รอผ่าตัดทางเบี่ยงหลอดเลือดหัวใจคนอื่นๆ ต่อการรักษาพยาบาล การบริการ หรือ
สวัสดิการต่างๆ ที่ท่านจะได้รับจากโรงพยาบาล ท่านยังคงได้รับบริการต่างๆตามมาตรฐานปกติของ
โรงพยาบาล

หากท่านตอบรับเข้าร่วมวิจัย ท่านจะได้รับการสัมภาษณ์และบันทึกข้อมูลต่อไปนี้ ได้แก่
ข้อมูลส่วนบุคคล ข้อมูลเกี่ยวกับความเจ็บป่วย ประสบการณ์อาการ การจัดการอาการ และผลลัพธ์ที่
เกิดจากการจัดการอาการในขณะรอผ่าตัดทางเบี่ยงหลอดเลือดหัวใจ โดยใช้เวลาสัมภาษณ์ประมาณ
30-40 นาที ในสถานที่ที่ผู้วิจัยเตรียมไว้ หรือสถานที่อื่นตามที่ท่านสะดวก โดยท่านเป็นผู้เลือกเวลา
ที่สะดวกในการให้สัมภาษณ์

การศึกษาครั้งนี้ได้ผ่านการพิจารณาอนุมัติจากคณะกรรมการควบคุมวิทยานิพนธ์ และ
คณะกรรมการพิจารณาจริยธรรมในการวิจัย คณะพยาบาลศาสตร์ มหาวิทยาลัยสงขลานครินทร์
การเข้าร่วมวิจัยของท่านในครั้งนี้ ไม่มีความเสี่ยงรุนแรงที่ทำให้เกิดอันตรายต่อร่างกายและชีวิตของ
ท่าน ไม่มีการให้ยา ไม่มีการให้สารเคมี และไม่มีการให้การรักษาอื่นใดที่กระทำต่อร่างกายของท่าน
นอกเหนือจากการรักษาที่ท่านได้รับตามปกติ อย่างไรก็ตาม ในระหว่างการสัมภาษณ์ท่านอาจจะมี
อาการเหนื่อย หรืออาการไม่สบายอื่นๆเกิดขึ้นได้ หากมีอาการดังกล่าวขอให้ท่านแจ้งให้ผู้วิจัยทราบ
โดยทันที เพื่อหยุดการสัมภาษณ์ และผู้วิจัยจะให้การช่วยเหลือท่าน และ/หรือปรึกษาแพทย์ผู้รักษา

ทันที ทั้งนี้เมื่อท่านมีอาการดีขึ้นท่านจะยังคงให้ข้อมูลต่อ หรือหยุดเข้าร่วมวิจัยได้ตามความสมัครใจ หรือนัดหมายวัน เวลาในการสัมภาษณ์ครั้งต่อไปตามความพร้อมของท่าน

ในการเข้าร่วมวิจัย หากท่านมีข้อสงสัยเกี่ยวกับการวิจัย ท่านสามารถสอบถามผู้วิจัยได้ทันที ท่านสามารถยกเลิกการเข้าร่วมวิจัยได้ตลอดเวลาแม้ว่าท่านจะลงนามให้คำยินยอมเข้าร่วมวิจัยแล้วก็ ตาม ในระหว่างการสัมภาษณ์ ท่านอาจมีข้อสงสัยเกี่ยวกับการดูแลรักษาตนเอง หรือข้อมูลเกี่ยวกับ ความเจ็บป่วยของตนเอง ผู้วิจัยจะตอบข้อคำถามของท่าน หรือติดต่อแพทย์หรือพยาบาลเจ้าของไข้ เพื่อให้ข้อมูลแก่ท่านในภายหลังเมื่อเสร็จสิ้นการสัมภาษณ์

ข้อมูลของท่านจะถูกเก็บเป็นความลับ ในแบบสอบถามจะบันทึกเฉพาะหมายเลขประจำตัว โรงพยาบาลของท่านเท่านั้น จะไม่มีการบันทึกชื่อ นามสกุล และที่อยู่ของท่าน ข้อมูลของท่านจะถูก เก็บอยู่ในรูปของเอกสารและฐานข้อมูลคอมพิวเตอร์ ข้อมูลในเอกสารจะเก็บไว้ในที่เฉพาะ มีเพียง ผู้วิจัยเท่านั้นที่สามารถเข้าถึงข้อมูลของท่าน ผู้วิจัยจะดำเนินการทำลายข้อมูลในเอกสารการ สัมภาษณ์ทันทีที่เสร็จสิ้นการวิจัย ส่วนฐานข้อมูลคอมพิวเตอร์จะเก็บไว้เพื่อการศึกษาวิจัยต่อไป ซึ่ง จะเก็บบันทึกเป็นภาพรวมของผู้ป่วยทั้งหมด โดยไม่มีการบันทึกชื่อ นามสกุล และที่อยู่ของท่าน การเสนอรายงานผลการวิจัยในวิทยานิพนธ์ การตีพิมพ์บทความวิจัย และการเสนอผลการวิจัยในที่ ประชุมต่างๆ จะนำเสนอในทางวิชาการเท่านั้น และเสนอเป็นภาพรวมของผู้เข้าร่วมวิจัยทั้งหมด โดยไม่มีการระบุหลักฐานใดๆที่เป็นข้อมูลเฉพาะตัวบุคคล

หากท่านมีข้อสงสัยใดๆเกี่ยวกับการศึกษาวิจัยครั้งนี้ หรือหากท่านต้องการข้อมูลเพิ่มเติม ท่านสามารถสอบถามผู้วิจัยได้ที่หมายเลขโทรศัพท์ 086-9463162 หรือติดต่อในเวลาราชการที่คณะ พยาบาลศาสตร์ มหาวิทยาลัยสงขลานครินทร์ และขอขอบคุณที่กรุณาให้ความร่วมมือในการวิจัยใน ครั้งนี้

<div style="text-align: right">

สุกานดา บุญคง

ผู้วิจัย

</div>

หนังสือแสดงเจตจำนงของผู้ป่วยในการตอบรับหรือปฏิเสธการเข้าร่วมวิจัย
(สำหรับผู้เข้าร่วมวิจัย)

ข้าพเจ้า นาย/นาง/นางสาว........................... (ชื่อ-สกุลผู้ป่วย) ได้รับการติดต่อจาก
ผู้วิจัยเพื่อขอความร่วมมือในการให้ข้อมูลในการทำวิทยานิพนธ์ เรื่อง**ประสบการณ์อาการ การ
จัดการอาการ และผลลัพธ์การจัดการอาการในผู้ป่วยที่รอผ่าตัดทางเบี่ยงหลอดเลือดหัวใจ** ของ
นางสาวสุกานดา บุญคง นักศึกษาพยาบาล ระดับปริญญาโท คณะพยาบาลศาสตร์ สาขาการ
พยาบาลผู้ใหญ่ หลักสูตรนานาชาติ มหาวิทยาลัยสงขลานครินทร์

ข้าพเจ้าได้รับการชี้แจงถึงวัตถุประสงค์ของการวิจัย สิทธิในการตอบรับเข้าร่วมหรือ
ปฏิเสธการเข้าร่วมในการวิจัยได้ตามความสมัครใจ โดยไม่มีผลใดๆต่อการรักษาพยาบาล การ
บริการ หรือสวัสดิการต่างๆที่ข้าพเจ้าจะได้รับจากโรงพยาบาล ข้าพเจ้ายังคงได้รับการบริการต่างๆ
ตามมาตรฐานปกติของโรงพยาบาล ไม่ว่าจะเข้าร่วมหรือไม่เข้าร่วมการวิจัยก็ตาม และการวิจัยครั้งนี้
ไม่ได้ให้ประโยชน์ต่อข้าพเจ้าโดยตรง แต่จะเป็นข้อมูลในการพัฒนารูปแบบการบริการสุขภาพ
สำหรับผู้ป่วยที่รอผ่าตัดทางเบี่ยงหลอดเลือดหัวใจต่อไป

ข้าพเจ้าทราบว่า การศึกษาวิจัยครั้งนี้ได้ผ่านการพิจารณาอนุมัติจากคณะกรรมการควบคุม
วิทยานิพนธ์และคณะกรรมการพิจารณาจริยธรรมในการวิจัย คณะพยาบาลศาสตร์ มหาวิทยาลัย
สงขลานครินทร์ ข้าพเจ้าทราบดีว่าตนเองจะได้รับการปกป้องจากอันตรายหรือความเสี่ยงที่จะทำให้
เกิดอันตรายต่อร่างกายและชีวิต โดยผู้วิจัยจะไม่ให้ยา ไม่ให้สารเคมี และไม่ให้การรักษาอื่นใดที่
กระทำต่อร่างกายของท่าน นอกเหนือจากการรักษาที่ท่านได้รับตามปกติ ข้าพเจ้าทราบว่าการให้
ข้อมูลสัมภาษณ์อาจทำให้มีอาการเหนื่อยหรือไม่สบายอื่นๆเกิดขึ้นได้ ซึ่งข้าพเจ้าสามารถแจ้งให้
ผู้วิจัยทราบโดยทันที เพื่อหยุดการสัมภาษณ์ และผู้วิจัยจะให้การช่วยเหลือตามหลักวิชาหรือปรึกษา
แพทย์ผู้รักษาทันที ข้าพเจ้าสามารถให้ข้อมูลต่อเมื่ออาการดีขึ้น หรือหยุดเข้าร่วมวิจัยได้ตามความ
สมัครใจ หรือนัดหมายวัน เวลาในการสัมภาษณ์ครั้งต่อไปตามข้าพเจ้าจะเห็นสมควร

ข้าพเจ้าทราบว่า ในการเข้าร่วมวิจัยนั้น ข้าพเจ้าจะได้รับการสัมภาษณ์ประมาณ 30-40 นาที
และผู้วิจัยจะบันทึกข้อมูลส่วนบุคคล ข้อมูลเกี่ยวกับความเจ็บป่วย ประสบการณ์อาการ การจัดการ
อาการ และผลลัพธ์ที่เกิดจากการจัดการอาการในขณะรอผ่าตัดทางเบี่ยงหลอดเลือดหัวใจ ข้าพเจ้า
สามารถเลือกสถานที่และเวลาในการให้สัมภาษณ์ตามความพร้อมของตนเอง เมื่อเสร็จสิ้นการ
สัมภาษณ์ ข้าพเจ้าสามารถสอบถามและมีสิทธิที่จะทราบข้อมูลต่างๆเกี่ยวกับการดูแลตนเองและการ
รักษาต่างๆได้จากผู้วิจัย หรือผู้วิจัยจะติดต่อประสานงานกับแพทย์และพยาบาลเจ้าของไข้เพื่อให้
ข้อมูลแก่ข้าพเจ้า

ข้าพเจ้าทราบว่า ผู้วิจัยจะเก็บข้อมูลของข้าพเจ้าเป็นความลับ การสัมภาษณ์จะไม่บันทึกชื่อ นามสกุลและที่อยู่ของข้าพเจ้า มีเฉพาะหมายเลขประจำตัวโรงพยาบาลของท่านเท่านั้นที่จะถูก บันทึกไว้ เอกสารการสัมภาษณ์จะเก็บไว้ในที่เฉพาะและถูกทำลายทันทีที่เสร็จสิ้นการวิจัย ข้อมูล จากการสัมภาษณ์จะถูกนำไปใช้ในทางวิชาการเท่านั้นโดยจะเสนอในภาพรวมของผู้ป่วยทั้งหมด ข้าพเจ้าทราบว่าข้อมูลที่เก็บอยู่ในฐานข้อมูลคอมพิวเตอร์จะนำไปใช้เฉพาะการศึกษาทางวิชาการ เท่านั้น

ข้าพเจ้าทราบว่า ตนเองสามารถติดต่อสอบถามข้อมูลเกี่ยวกับการวิจัยได้ที่หมายเลขโทร ศัพท์ 086-9463162 หรือติดต่อในเวลาราชการที่คณะพยาบาลศาสตร์มหาวิทยาลัยสงขลานครินทร์

ข้าพเจ้าขอรับรองว่าข้าพเจ้าทราบถึงสิทธิในการตัดสินใจเข้าร่วม หรือไม่เข้าร่วมการวิจัย ได้ตามความสมัครใจ และสามารถยกเลิกการเข้าร่วมวิจัยได้ตลอดเวลาแม้ว่าจะลงนามให้ความ ยินยอมเข้าร่วมวิจัยแล้วก็ตาม ทั้งนี้ข้าพเจ้ารับทราบข้อมูลและเข้าใจถึงวัตถุประสงค์ของการวิจัย ความเสี่ยง และประโยชน์ในการเข้าร่วมวิจัยตลอดจนบุคคลที่สามารถติดต่อขอข้อมูลเพิ่มเติม

ในการนี้ ข้าพเจ้า   [ ]   ยินยอมเข้าร่วมในการวิจัย

                      [ ]   ไม่ยินยอมเข้าร่วมในการวิจัย

ลงนาม ....(ผู้ป่วย)   ลงนามผู้วิจัย...

วันที่ ....   วันที่ ....

ลงนาม ....(ผู้แทนของผู้ป่วย)

วันที่.......................................

APPENDIX B

INSTRUMENTS

INSTRUMENTS

Symptom Experiences, Symptom Management and Symptom Outcomes in

Patients Waiting for Coronary Artery Bypass Graft

Code………………….

Date………………….

HN…………………...

Introduction: This instrument is divided into four parts. Part 1 is related to demographic and health-related data form. Part 2 is related to symptom experiences questionnaire. Part 3 is related to symptom management questionnaire. Part 4 is related to symptom outcomes questionnaire.

Part 1: Demographic and Health-Related Data Form

Direction: Please mark "√" or write the appropriate sections. There is no right or wrong answer. If you do not understand or not clear about these questions you can ask the investigator.

___

1. Gender ❑ 1. Male ❑ 2. Female

2. Age ………. years old

3. Marital status ❑ 1. Single ❑ 2. Married

❑ 3. Divorced ❑ 4. Widowed

4. Religion ❑ 1. Buddhist ❑ 2. Muslim

❑ 3. Christian ❑ 4. Others……….

5. Educational level   ❑ 1. None   ❑ 2. Primary School

                        ❑ 3. Junior High School   ❑ 4. Senior High School

                        ❑ 5. Diploma   ❑ 6. Bachelor Degree or higher

6. Occupation   ❑ 1. None   ❑ 2. Retired

                        ❑ 3. Farmer or gardener   ❑ 4. Private employee

                        ❑ 5. Government employee   ❑ 6. Entrepreneurship

                        ❑ 7. Housewife   ❑ 8. Others……….

7. Income of family (baht/ month)

                 ❑ 1. < 5,000   ❑ 2. 5,000-10,000   ❑ 3. 10,000-20,000

                 ❑ 4. 20,000-30,000   ❑ 5. > 30,000

8. Medical payment

                 ❑ 1. Universal coverage scheme (30 baht)   ❑ 2. Social insurance

                 ❑ 3. Health insurance   ❑ 4. Self payment

                 ❑ 5. Government support   ❑ 6. Others………….....

9. Residential area   ❑ 1. Songkhla province

                           ❑ 1.1 Rural   ❑ 1.2 Urban

                        ❑ 2. Out of Songkhla province

                           ❑ 2.1 Rural   ❑ 2.2 Urban

10. Number of family members ………. persons

11. Family history of CAD   ❑ 1. No   ❑ 2. Yes……………

12. Smoking habits   ❑ 1. Non-smokers/ stop smoking……….month ago

                        ❑ 2. Smokers, but less now……….rolls/ day

                        ❑ 3. Smokers, unchanged……….rolls/ day

                        ❑ 4. Smokers, more……….rolls/ day

13. Drinking habits   ❑ 1. Not using alcohol/ stop drinking……….month ago

❑ 2. Using alcohol, but less now

❑ 3. Using alcohol, unchanged

❑ 4. Using alcohol, more

14. Co-morbid disease

❑ 1. No   ❑ 2. Yes

If yes   ❑ 2.1 Valve disease   …….year…….month

❑ 2.2 Congestive heart failure   …….year…….month

❑ 2.3 Hypertension   …….year…….month

❑ 2.4 Diabetic mellitus   …….year…….month

❑ 2.5 Hyperlipidemia   …….year…….month

❑ 2.6 Kidney disease   …….year…….month

❑ 2.7 COPD   …….year…….month

❑ 2.8 Gout   …….year…….month

❑ 2.9 Others……….   …….year…….month

15. Length of waiting for CABG

❑ 1. 1 - 3 months   ❑ 2. 4 - 6 months   ❑ 3. 7 - 9 months

❑ 4. 10 -12 months   ❑ 5. > 1 year

16. Medication currently taken (For researcher)

❑ 1. Long and short acting nitrates   ❑ 2. Beta-blockers

❑ 3. Aspirin   ❑ 4. Calcium antagonists

❑ 5. Diuretics   ❑ 6. ACE inhibitors

❑ 7. Antidiabetic treatment   ❑ 8. Antihyperlipidemic med.

❑ 9. Sedative (incl. sleeping pill)   ❑ 10. 2-3 anti-ischemic med.

❑ 11. Others……………………

17. Clinical examination

Diagnosis

❑ 1. 1-or 2-vessel disease

❑ 2. 3-vessel disease, no proximal left anterior descending

(LAD) involvement

❑ 3. 3-vessel disease and proximal LAD

❑ 4. Left main artery disease

EF = ❑ 1. < 30%   ❑ 2. 30-49%   ❑ 3. 50-65%   ❑ 4. > 65%

Revascularization

❑ 1. No   ❑ 2. Yes

If yes ❑ 2.1 Thrombolytic strategy

❑ 2.2 Heparinization

❑ 2.3 Percutaneous Transluminal Coronary Angioplasty

New York Heart Association

1. At the first time

❑ 1.1 Class I   ❑ 1.2 Class II

❑ 1.3 Class III   ❑ 1.4 Class IV

2. At current

❑ 2.1 Class I   ❑ 2.2 Class II

❑ 2.3 Class III   ❑ 2.4 Class IV

Part 2: Symptom Experiences Questionnaire

Direction: The following items are symptom occurrences in patients waiting for CABG. Please mark "√" in the blank that indicates the frequency and severity of symptoms over the last month. There is no right or wrong answer. If you do not understand or are not clear about these questions you can ask the researcher.

The frequency of symptoms was described as follows:

Rarely = Symptoms occur once a month or more but less than sometime.

Sometime = Symptoms occur once a week or more but less than almost all of the time.

Almost all the time = Symptoms occur everyday or more than once a day or almost all of the time.

All the time = Symptoms occur all of the time.

The severity of symptoms was described at four levels including mildly severe, moderately severe, very severe, and extremely severe.

Symptom	No	Yes	Frequency				Severity			
			Rarely	Sometime	Almost all the time	All the time	Mildly severe	Moderately severe	Very severe	Extremely severe
1. Chest pain/chest discomfort										
2. Chest pain with referred pain identify…………………………										
3. Epigastric pain										
4. Dyspnea/shortness of breath/ difficult breathing										
5. Dizziness/blackness/fainting/ lightheadedness										
6. Upper extremity numbness										
7. Edema of the extremities										
8. Sweating/diaphoresis										
9. Clammy limbs										
10. Heartburn										
11. Indigestion/abdominal distension										
12. Nausea/vomiting										

Symptom	No	Yes	Frequency				Severity			
			Rarely	Sometime	Almost all the time	All the time	Mildly severe	Moderately severe	Very severe	Extremely severe
13. Fatigue/weakness										
14. Palpitation										
15. Tachyarrhythmia										
16. Coughing										
17. Loss of appetite										
18. Uncertainty										
19. Fear/frighten										
20. Stress/anxiety										
21. Sad										
22. Insomnia										
23. Others………............................. ………………………………………….....................										

Part 3: Symptom Managements Questionnaire

Direction: Please describe your symptom management strategies that you use to manage with each symptom experience.

☐ chest pain/chest discomfort   ☐ chest pain with referred pain

☐ epigastric pain   ☐ dyspnea/shortness of breath/difficult breathing

☐ dizziness/blackness/fainting/lightheadedness   ☐ upper extremity numbness

☐ edema of the extremities   ☐ sweating/diaphoresis   ☐ clammy limbs

☐ heartburn   ☐ indigestion/abdominal distension

☐ nausea/vomiting   ☐ fatigue/weakness   ☐ palpitation

☐ tachyarrhythmia   ☐ coughing   ☐ loss of appetite

☐ uncertainty   ☐ fear/frighten   ☐ stress/anxiety

☐ sad   ☐ insomnia   ☐ others……………….

Question

1. How do you manage your symptom occurrences? (what, when, where, why, how much, to whom, and how)

**For chest pain, how do you feel?

☐ No change (stable)

☐ Change

If change   ☐ More frequency   ☐ More severe   ☐ More duration

Taking sublingual medication   ☐ 1 tab and getting better
                                      ☐ 1 tab and no change

After taking sublingual medication and no change, how do you do?

……………………………………………………………………………………………

……………………………………………………………………………………………

……………………………………………………………………………………………

……………………………………………………………………………………………

Other symptoms, please describe

……………………………………………………………………………………………

……………………………………………………………………………………………

……………………………………………………………………………………………

……………………………………………………………………………………………

2. According to your symptom management, what is the most effective symptom management for each symptom?

……………………………………………………………………………………………

……………………………………………………………………………………………

……………………………………………………………………………………………

……………………………………………………………………………………………

3. What are your symptom outcomes after using symptom management?

Symptom	Symptom outcome			Symptom	Symptom outcome		
	Getting better	No change	Getting worse		Getting better	No change	Getting worse
1. Chest pain/ chest discomfort				12. Nausea/ vomiting			
2. Chest pain with referred pain identify ………………..				13. Fatigue/ weakness			
3. Epigastric pain				14. Palpitation			
4. Dyspnea/ shortness of breath/ difficult breathing				15.Tachyarrhyth -mia			
5. Dizziness/ blackness/ fainting/ lightheadedness				16. Coughing			
6. Upper extremity numbness				17. Bored with food			
7. Edema of the extremities				18. Uncertainty			
8. Sweating/ diaphoresis				19. Fear/ frighten			
9. Clammy limbs				20. Stress/ Anxiety			
10. Heartburn				21. Sad			
11.Indigestion/ abdominal distension				22. Insomnia			

Part 4: Symptom Outcomes Questionnaire (SF-36 V2)

This survey asks for your views about your health. This information will help you keep track of how you feel and how well you are able to do your usual activities.

Direction: Please answer every question by selecting the answer as indicated. If you are unusual about how to answer a question, please give the best answer you can.

1. In general, would you say your health is:

( )	( )	( )	( )	( )
Excellent	Very good	Good	Fair	Poor

2. Compared to one year ago, how would you rate your health in general now?

( )	( )	( )	( )	( )
Much better now than one year ago	Somewhat better now than one year ago	About the same as one year ago	Somewhat worse now than one year ago	Much worse now than one year ago

3…………………………………………………………………………………………....

แบบประเมินอาการ การจัดการอาการ และผลลัพธ์การจัดการอาการ
ในผู้ป่วยที่กำลังรอผ่าตัดทางเบี่ยงหลอดเลือดหัวใจ

เลขที่แบบสอบถาม............
วันที่.............................
HN...............................

แบบสอบถามนี้ประกอบด้วย 4 ส่วน ดังนี้

ส่วนที่ 1 แบบบันทึกข้อมูลส่วนบุคคลและข้อมูลเกี่ยวกับความเจ็บป่วยในผู้ป่วยที่รอผ่าตัดทาง
เบี่ยงหลอดเลือดหัวใจ

ส่วนที่ 2 แบบประเมินประสบการณ์อาการในผู้ป่วยที่รอผ่าตัดทางเบี่ยงหลอดเลือดหัวใจ

ส่วนที่ 3 แบบสัมภาษณ์การจัดการอาการในผู้ป่วยที่รอผ่าตัดทางเบี่ยงหลอดเลือดหัวใจ

ส่วนที่ 4 แบบประเมินผลลัพธ์ของการจัดการอาการในผู้ป่วยที่รอผ่าตัดทางเบี่ยงหลอดเลือดหัวใจ

**ส่วนที่ 1 แบบบันทึกข้อมูลส่วนบุคคลและข้อมูลเกี่ยวกับความเจ็บป่วยในผู้ป่วยที่รอผ่าตัดทางเบี่ยง
หลอดเลือดหัวใจ**

คำชี้แจง ในการตอบแบบสอบถามนี้ต้องการทราบข้อมูลส่วนบุคคลและข้อมูลเกี่ยวกับความ
เจ็บป่วยของท่าน โปรดเติมข้อความในช่องว่าง และ/หรือขีดเครื่องหมาย √   ในช่อง ❏
หน้าข้อความที่ตรงตามความเป็นจริง โดยแต่ละข้อขอให้ท่านเลือกตอบตรงตามความจริงที่ท่าน
เป็นอยู่

1. เพศ   ❏ 1. ชาย   ❏ 2. หญิง

2. อายุ.........ปี

3. สถานภาพสมรส   ❏ 1. โสด   ❏ 2. คู่
                    ❏ 3. หย่าร้าง   ❏ 4. หม้าย

4. ศาสนา   ❏ 1. พุทธ   ❏ 2. อิสลาม
                    ❏ 3. คริสต์   ❏ 4. อื่นๆ ระบุ..............

5. ระดับการศึกษาชั้นสูงสุด
                    ❏ 1. ไม่ได้รับการศึกษา   ❏ 2. ประถมศึกษา
                    ❏ 3. มัธยมศึกษาตอนต้น   ❏ 4. มัธยมศึกษาตอนปลาย
                    ❏ 5. อนุปริญญาหรือเทียบเท่า   ❏ 6. ปริญญาตรีหรือสูงกว่า

6. อาชีพ

    ❏ 1. ไม่ได้ประกอบอาชีพ   ❏ 2. เกษียณ

    ❏ 3. เกษตรกรรม   ❏ 4. ลูกจ้างบริษัทเอกชน

    ❏ 5. ข้าราชการ   ❏ 6. รัฐวิสาหกิจ

    ❏ 7. งานบ้าน   ❏ 8. อื่นๆ (ระบุ)………………

7. รายได้ของครอบครัว……………บาท/เดือน

8. การจ่ายค่ารักษา   ❏ 1. สิทธิบัตรประกันสุขภาพถ้วนหน้า (30 บาท)

    ❏ 2. ประกันสังคม   ❏ 3. ประกันสุขภาพ

    ❏ 4. จ่ายเอง   ❏ 5.เบิกได้

    ❏ 6. อื่นๆ (ระบุ)………………

9. พื้นที่อาศัย

    ❏ 1. จ. สงขลา

        ❏ 1.1 ในตัวเมือง   ❏ 1.2 ชานเมือง

    ❏ 2. นอก จ. สงขลา

        ❏ 2.1 ในตัวเมือง   ❏ 2.2 ชานเมือง

10. จำนวนสมาชิกในครอบครัว………………คน

11. ประวัติการเจ็บป่วยด้วยโรคหลอดเลือดหัวใจของคนในครอบครัว

    ❏ 1. ไม่มี   ❏ 2. มี (ระบุ)………………………

12. การสูบบุหรี่   ❏ 1. ไม่สูบ หรือ เลิกสูบ…………………เดือน❏ 2. สูบ แต่ลดปริมาณลง

    ❏ 3. สูบ เท่าเดิม   ❏ 4. สูบ มากขึ้น

13. การดื่มสุรา   ❏ 1. ไม่ดื่ม หรือ เลิกดื่ม…………………เดือน ❏ 2. ดื่ม แต่ลดปริมาณลง

    ❏ 3. ดื่ม เท่าเดิม   ❏ 4. ดื่ม มากขึ้น

14. การเจ็บป่วยร่วม

    ❏ 1. ไม่มี   ❏ 2. มี

    ถ้ามี ❏ 2.1 กล้ามเนื้อหัวใจขาดเลือด…………ปี………เดือน

    ❏ 2.2 หัวใจวาย…………ปี………เดือน

    ❏ 2.3 ความดันโลหิตสูง…………ปี………เดือน

    ❏ 2.4 เบาหวาน…………ปี………เดือน

    ❏ 2.5 ไขมันในโลหิตสูง…………ปี………เดือน

    ❏ 2.6 โรคไต…………ปี………เดือน

    ❏ 2.7 โรคปอดอุดกั้นเรื้อรัง…………ปี………เดือน

❑ 2.8 อื่นๆ (ระบุ)……………………………..

15. ระยะเวลาที่รอผ่าตัดทางเบี่ยงหลอดเลือดหัวใจ

❑ 1. 1-3 เดือน ❑ 2. 4-6 เดือน ❑ 3. 7-9 เดือน

❑ 4. 10-12 เดือน ❑ 5. > 1 ปี

16. ยาที่รับประทานอยู่ในปัจจุบัน (จ่ายโดยแพทย์) (สำหรับผู้วิจัย)

❑ 1. Long and short acting nitrates ❑ 2. Beta-blockers

❑ 3. Salicylates ❑ 4. Calcium antagonists

❑ 5. Diuretics ❑ 6. ACE inhibitors

❑ 7. Antidiabetic treatment ❑ 8. Antihyperlipidemic

treatment

❑ 9. Sedative (incl. sleeping pill) ❑ 10. 2-3 anti-ischemic medications

❑ 11. อื่นๆ (ระบุ)………………………

17. ผลการตรวจทางคลินิก

การวินิจฉัย

❑ 1. 1-or 2-vessel disease

❑ 2. 3-vessel disease, no proximal left anterior descending

(LAD) involvement

❑ 3. 3-vessel disease and proximal LAD

❑ 4. Left main artery disease

EF = ❑ 1. < 30% ❑ 2. 30-40% ❑ 3. 50-65% ❑ 4. > 65%

Revascularization

❑ 1. ไม่มี ❑ 2. มี

ถ้ามี ❑ 2.1 Thrombolytic strategy

❑ 2.2 Heparinization

❑ 2.3 Percutaneous Transluminal Coronary Angioplasty

New York Heart Association

1. ครั้งแรกที่ได้รับการวินิจฉัยว่าต้องรักษาโดยการผ่าตัดทำทางเบี่ยงหลอดเลือดหัวใจ

❑ 1.1 Class I ❑ 1.2 Class II ❑ 1.3 Class III ❑ 1.4 Class IV

2. ครั้งล่าสุด

❑ 2.1 Class I ❑ 2.2 Class II ❑ 2.3 Class III ❑ 2.4 Class IV

ส่วนที่ 2 แบบประเมินประสบการณ์อาการในผู้ป่วยที่รอผ่าตัดทางเบี่ยงหลอดเลือดหัวใจ

คำชี้แจง ข้อความที่จะถามท่านต่อไปนี้เป็นการถามเกี่ยวกับประสบการณ์อาการในผู้ป่วยที่รอผ่าตัด
ทางเบี่ยงหลอดเลือดหัวใจ ขอให้ท่านบอกความรู้สึกของท่านว่าในช่วงหนึ่งเดือนที่ผ่านมา ท่านมี
อาการตามที่ถามหรือไม่ ถ้าไม่มีไม่ต้องประเมินความถี่และความรุนแรงของอาการในข้อนั้น แต่ถ้า
มีอาการนั้นให้บอกว่าอาการแต่ละอาการมีความถี่และความรุนแรงต่อท่านมากน้อยเพียงใดตาม
วิธีการประเมินที่ให้ไว้ คำตอบที่ท่านให้มาจะไม่มีค่าคะแนนให้ว่าท่านตอบถูกหรือผิด แต่จะเป็นค่า
คะแนนที่เกิดจากความรู้สึกของท่านจริงๆ

      โปรดตอบทุกข้อตามความเป็นจริงโดยกาเครื่องหมาย √ ลงในช่องที่ตรงกับความรู้สึกของ
ท่าน เพื่อต้องการทราบประสบการณ์อาการ ความถี่และความรุนแรงของอาการที่มีและเกิดขึ้นกับ
ท่านดังนี้

      ท่านสามารถประเมินความถี่ของอาการตามความรู้สึกต่อไปนี้

นานๆครั้ง   หมายถึง มีอาการเกิดขึ้นประมาณเดือนละ 1 ครั้งหรือ
                       มากกว่า 1 ครั้งแต่น้อยกว่าเป็นบางครั้ง

บางครั้ง   หมายถึง มีอาการเกิดขึ้นประมาณสัปดาห์ละ 1 ครั้งหรือ
                       มากกว่า 1 ครั้งแต่น้อยกว่าเกือบตลอดเวลา

เกือบตลอดเวลา หมายถึง มีอาการเกิดขึ้นทุกวัน อาจจะเป็นวันละครั้ง
                       หรือมากกว่า 1 ครั้งแต่น้อยกว่าตลอดเวลา

ตลอดเวลา   หมายถึง มีอาการเกิดขึ้นวันละหลายครั้งหรือเกือบตลอดเวลา

      ท่านสามารถประเมินความรุนแรงของอาการตามความรู้สึก 4 ระดับ ต่อไปนี้

1. มีความรุนแรงน้อย
2. มีความรุนแรงปานกลาง
3. มีความรุนแรงมาก
4. มีความรุนแรงมากที่สุด

อาการ	ไม่มี	มี	ความถี่				ความรุนแรง			
			นานๆครั้ง	บางครั้ง	เกือบตลอด เวลา	ตลอดเวลา	น้อย	ปานกลาง	มาก	มากที่สุด
1. เจ็บหน้าอก/แน่นหน้าอก										
2. ปวดร้าวไปอวัยวะต่างๆ ระบุ..										
3. ปวดยอดอก/ลิ้นปี่										
4. หอบเหนื่อย/หายใจลำบาก/ หายใจขัด										
5. วิงเวียนศีรษะ/ตาลาย/หน้า มืด/เป็นลม										
6. ชาปลายมือปลายเท้า										
7. บวมที่แขน/ขา										
8. เหงื่อออก										
9. แขนขาเย็นชื้น/ซีด										
10. แสบยอดอก										
11. อาหารไม่ย่อย/ท้องอืด										

อาการ	ไม่มี	มี	ความถี่				ความรุนแรง			
			นานๆครั้ง	บางครั้ง	เกือบตลอด เวลา	ตลอดเวลา	น้อย	ปานกลาง	มาก	มากที่สุด
12. คลื่นไส้/อาเจียน										
13. เหนื่อยล้า/อ่อนเพลีย										
14. ใจสั่น										
15. หัวใจเต้นเร็วผิดปกติ										
16. ไอ										
17. เบื่ออาหาร										
18. รู้สึกไม่แน่นอน/ไม่มั่นคง										
19. กลัว/ตกใจกลัว										
20. เครียด/วิตกกังวล										
21. เศร้า										
22. นอนไม่หลับ										
23. อื่นๆ............................										

ส่วนที่ 3 แบบสัมภาษณ์การจัดการอาการในผู้ป่วยที่รอผ่าตัดทางเบี่ยงหลอดเลือดหัวใจ

คำชี้แจง ให้ท่านช่วยเล่าการจัดการอาการในขณะที่รอผ่าตัดทางเบี่ยงหลอดเลือดหัวใจที่ท่านได้
ปฏิบัติเพื่อจัดการอาการดังกล่าว

☐ เจ็บหน้าอก/แน่นหน้าอก ☐ ปวดร้าวไปอวัยวะต่างๆ ☐ ปวดยอดอก/ลิ้นปี่

☐ หอบเหนื่อย/หายใจลำบาก/หายใจขัด ☐ วิงเวียนศีรษะ/ตาลาย/หน้ามืด/เป็นลม

☐ ชาปลายมือปลายเท้า ☐ บวมที่แขน/ ขา ☐ เหงื่อออก

☐ แขนขาเย็นชื้น/ซีด ☐ แสบยอดอก ☐ อาหารไม่ย่อย/ท้องอืด

☐ คลื่นไส้/อาเจียน ☐ เหนื่อยล้า/อ่อนเพลีย ☐ ใจสั่น

☐ หัวใจเต้นเร็วผิดปกติ ☐ ไอ ☐ รู้สึกไม่แน่นอน/ไม่มั่นคง

☐ วิตกกังวล ☐ เครียด ☐ กลัว/ตกใจกลัว

☐ หายใจลำบาก/หายใจไม่อิ่ม ☐ อื่นๆ ระบุ............................

แนวคำถาม

1. ท่านมีวิธีการจัดการหรือแก้ไขอาการอย่างไร ที่ท่านคิดว่าเป็นวิธีการจัดการที่ได้ผลใน
การแก้ไขอาการดังกล่าวที่เกิดขึ้น

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2. วิธีการจัดการหรือแก้ไขอาการดังกล่าวท่านมีวิธีการปฏิบัติอย่างไร (วิธีที่ใช้คืออะไร ทำ
อย่างไร ที่ไหน เมื่อไหร่ นานเพียงใด บ่อยแค่ไหน ทำไม ใครเป็นคนทำให้)

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3. ผลลัพธ์ที่เกิดขึ้นจากวิธีการจัดการอาการของท่านดังกล่าวข้างต้นเป็นอย่างไร

☐ ดีขึ้น ☐ คงเดิม ☐ แย่ลง

อย่างไร...

....

ส่วนที่ 4 แบบประเมินผลลัพธ์ของการจัดการอาการในผู้ป่วยที่รอผ่าตัดทางเบี่ยงหลอดเลือดหัวใจ

คำชี้แจง แบบสอบถามนี้เป็นแบบสอบถามที่สำรวจความคิดเห็นต่อภาวะสุขภาพของท่านในด้าน ต่างๆ โปรดตอบคำถามทุกคำถาม โดยการขีดเครื่องหมายถูกต้องลงใน ( ) ในข้อที่ท่านเห็นด้วย มากที่สุด

1. โดยทั่วไปท่านคิดว่าสุขภาพของท่านเป็นอย่างไร

( ) ดีเลิศ ( ) ดีมาก ( ) ดี ( ) พอใช้ ( ) ไม่ดี

2. เมื่อเทียบกับปีที่แล้วท่านคิดว่าสุขภาพท่านเป็นอย่างไร

( ) ดีกว่าปีที่แล้วมาก ( ) ค่อนข้างดีกว่าปีที่แล้ว ( ) เหมือนกับปีที่แล้ว

( ) ค่อนข้างแย่กว่าปีที่แล้ว ( ) แย่กว่าปีที่แล้วมาก

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APPENDIX C

ADDITIONAL TABLES

TABLES

Table C-1

Frequency and percentage of subjects classified by demographic data (N = 60)

Characteristics	N	%
Gender		
Male	44	73.3
Female	16	26.7
Age (year)(M = 62.92, SD = 8.1, Range = 42-80)		
60 or less	24	40.0
More than 60	36	60.0
Marital status		
Single	3	5.0
Married	46	76.7
Divorced	3	5.0
Widowed	8	13.3
Religion		
Buddhist	51	85.0
Muslim	9	15.0
Educational level		
Primary	38	63.3
Junior high	6	10.0
Senior high	8	13.3
Diploma	1	1.7
Bachelor or higher	7	11.7
Occupation		
None	18	30.0
Retired	7	11.7
Farmer or gardener	16	26.7
Government employee	1	1.7
Entrepreneurship	1	1.7
Housewife	3	5.0
Others	14	23.3
Income of family (baht)		
< 5,000	13	21.7
5,000-10,000	16	26.7
10,001-20,000	11	18.3
20,001-30,000	12	20.0
> 30,000	8	13.3

Table C-1 *(Continued)*

Characteristics	N	%
Medical payment		
Universal coverage scheme (30 baht)	36	60.0
Health insurance	4	6.7
Self payment	1	1.7
Government support	19	31.7
Residential area		
Songkhla province	19	31.7
Rural	11	57.9
Urban	8	42.1
Out of Songkhla province	41	68.3
Rural	13	31.7
Urban	28	68.3
Number of family members who stay with the patient		
< 3 persons	22	36.7
3 persons or more	38	63.3

Table C-2

Frequency and percentage of subjects classified by health-related data (N = 60)

Characteristics	N	%
Family history of CAD		
No	42	70.0
Yes	18	30.0
Smoking habits		
No	53	88.3
Yes	7	11.7
Alcohol drinking habits		
No	58	96.7
Yes	2	3.3
Co-morbidity		
No	7	11.7
Yes	53	88.3
Valvular heart disease	5	8.3
CHF	3	5.0
HT	38	63.3
DM	22	36.7
Dyslipidemia	31	51.7
Renal insufficiency	9	15.0
COPD	1	1.7
Gout	9	15.0
Cardiomegaly	3	5.0
Cerebrovascular accident	1	1.7
Asthma	3	5.0
Tuberculosis	1	1.7
Abdominal aortic aneurism	1	1.7
Gall stone	3	5.0
Peptic ulcer	2	3.3
Psoriasis	1	1.7
Cord compression	1	1.7
Duration of waiting for CABG (month)		
1-3	15	25.0
4-6	19	31.7
7-9	5	8.3
10-12	10	16.7
> 12	11	18.3
Medication currently taken *		
Long and short acting nitrates	58	96.7
Acetyl salicylic acid	58	96.7
Anti-lipidemia	56	93.3
Beta-blockers	55	90.7
ACE inhibitor	38	63.3
Diuretic	26	43.3

*Patients reported more than one answer

Table C-2 *(Continued)*

Characteristics	N	%
Calcium antagonists	38	63.3
Anti-diabetic	21	35.0
Plavix	15	25.0
Anti-ischemic drugs	10	16.7
Sedatives	10	16.7
Isosorbide dinitrate	10	16.7
Digitalis glycosides	3	5.0
Co-diovan	1	1.7
Omeprazole	40	66.7
Ranitidine	1	1.7
Laxative	4	6.7
Gout medications	5	8.3
Antihistamine	1	1.7
Folic acid	2	3.3
Vitamin B_2	2	3.3
Bronchodilator	4	6.6
Muscle relaxant	4	6.6
Diagnosis		
1-or 2-vessel disease	7	11.7
3-vessel disease, no proximal LAD involvement	21	35.0
3-vessel disease and proximal LAD	29	48.3
Left main artery disease	2	3.3
Ejection fraction (%)		
< 30	8	13.3
30-49	10	16.7
50-65	13	21.7
> 65	9	15.0
No result	18	33.3
Revascularization		
No	39	65.0
Yes	21	35.0
Thrombolytic therapy	1	4.8
Heparinization	2	9.5
PTCA	18	85.7
New York Hear Association		
At the first time		
Class I	8	13.3
Class II	32	53.3
Class III	16	26.7
Class IV	4	6.7
At current		
Class II	27	45.0
Class III	25	41.7
Class IV	8	13.3

Table C-3

Frequency and percentage of symptom experiences reported by patients waiting for

CABG (N =60)

Symptoms	N	%
Chest pain/chest discomfort	48	80.0
Chest pain with referred pain	33	55.0
Head	7	21.2
Molar or jawbone	2	6.1
Neck	4	12.1
Shoulder	9	27.3
Arms	14	42.4
Back	7	21.2
Legs	2	6.1
Flanks	1	3.0
Epigastric pain	25	41.7
Dyspnea/shortness of breath/difficult breathing	30	50.0
Dizziness/blackness/fainting/lightheadedness	22	36.7
Upper extremity numbness	25	41.7
Edema of the extremities	17	28.3
Sweating/diaphoresis	18	30.0
Clammy limbs	8	13.3
Heartburn	11	18.3
Indigestion/abdominal distension	31	51.7
Nausea/vomiting	9	15.0
Fatigue/weakness	40	66.7
Palpitation	23	38.3
Tachyarrhythmia	27	45.0
Coughing	22	36.7
Loss of appetite	18	30.0
Uncertainty	28	46.7
Fear/frighten	29	48.3
Stress/anxiety	29	48.3
Sad	19	31.7
Insomnia	25	41.7
Constipation	11	18.3
Joint pain/muscle strain	5	8.3
Diarrhea	1	1.7

*Patients reported more than one symptom

Table C-4

Frequency and percentage of symptom experiences reported by patients waiting for

CABG classified by gender (N =60)

Symptoms *	Frequency (N)	Percentage (%)	Male		Female	
			N	%	N	%
1. Chest pain/ chest discomfort	47	78.3	37	78.7	10	21.3
2. Fatigue/ weakness	40	66.7	30	75.0	10	25.0
3. Chest pain with referred pain	33	55.0	27	81.8	6	18.2
4. Indigestion/ abdominal distension	31	51.7	25	80.6	6	19.4
5. Dyspnea/ shortness of breath/ difficult breathing	30	50.0	25	83.3	5	16.7
6. Fear/ frighten	29	48.3	19	65.5	10	34.5
7. Stress/ anxiety	29	48.3	20	69.0	9	31.0
8. Uncertainty	28	46.7	19	67.9	9	32.1
9. Tachyarrhythmia	27	45.0	20	74.1	7	25.9
10. Epigastric pain	25	41.7	18	72.0	7	28.0
11. Upper extremity numbness	25	41.7	16	64.0	9	36.0
12. Insomnia	25	41.7	20	80.0	5	20.0
13. Palpitation	23	38.3	19	82.6	4	17.4
14. Dizziness/ blackness/ fainting/ lightheadedness	22	36.7	18	81.8	4	18.2
15. Coughing	22	36.7	16	72.7	6	27.3
16. Sad	19	31.7	15	78.9	4	21.1
17. Edema of the extremities	18	30.0	13	72.2	5	27.8
18. Bored with food	18	30.0	15	83.3	3	16.7
19. Sweating/ diaphoresis	15	27.8	10	66.7	5	33.3
20. Heartburn	11	18.3	8	72.7	3	27.3
21. Constipation	11	18.3	9	81.8	2	18.2
22. Nausea/ vomiting	9	15.0	6	66.7	3	33.3
23. Clammy limbs	8	13.3	7	87.5	1	12.5
24. Joint pain/ muscle strain	5	8.4	4	80.0	1	20.0
25. Diarrhea	1	1.7	1	100	-	-

*Patients reported more than one symptom

Table C-5

Frequency and percentage of symptom frequency reported by patients waiting for

CABG (N = 60)

Symptoms	Rarely		Sometime		Almost all the time		All the time	
	N	%	N	%	N	%	N	%
Chest pain/chest discomfort	20	42.6	12	25.5	15	31.9	-	-
Chest pain with referred pain	14	42.4	8	24.2	11	33.3	-	-
Epigastric pain	12	48.0	7	28.0	6	24.0	-	-
Dyspnea/shortness of breath/ difficult breathing	14	46.7	8	26.7	7	23.3	1	3.3
Dizziness/blackness/fainting/ lightheadedness	8	36.4	7	31.8	7	31.8	-	-
Upper extremity numbness	9	36.0	8	32.0	4	16.0	4	16.0
Edema of the extremities	8	47.1	5	29.4	4	23.5	-	-
Sweating/diaphoresis	14	77.8	1	5.6	3	16.6	-	-
Clammy limbs	5	62.5	1	12.5	2	25	-	-
Heartburn	4	36.4	2	18.2	5	45.4	-	-
Indigestion/abdominal distension	6	19.4	8	25.8	15	48.4	2	6.4
Nausea/vomiting	6	66.7	-	-	3	33.3	-	-
Fatigue/weakness	13	32.5	20	50.0	5	12.5	2	5.0
Palpitation	14	60.9	5	21.7	4	17.4	-	-
Tachyarrhythmia	15	55.6	8	29.6	4	14.8	-	-
Coughing	5	22.7	9	40.9	8	36.4	-	-
Loss of appetite	1	5.6	15	83.3	2	11.1	-	-
Uncertainty	4	12.5	15	46.8	11	34.4	2	6.3
Fear/frighten	5	17.2	11	38.0	12	41.4	1	3.4
Stress/anxiety	7	24.1	8	27.6	14	48.3	-	-
Sad	6	31.6	8	42.1	5	26.3	-	-

Table C-5 *(Continued)*

Symptoms	Rarely		Sometime		Almost all the time		All the time	
	N	%	N	%	N	%	N	%
Insomnia	3	12.0	11	44.0	11	44.0	-	-
Constipation	1	9.1	4	36.4	6	54.5	-	-
Joint pain/muscle strain	-	-	2	40.0	3	60.0	-	-
Diarrhea	-	-	-	-	1	100	-	-

Table C-6

Frequency and percentage of symptom severity reported by patients waiting for

CABG (N = 60)

Symptoms	Mildly severe		Moderately severe		Very severe		Extremely severe	
	N	%	N	%	N	%	N	%
Chest pain/chest discomfort	20	42.6	15	31.9	9	19.1	3	6.4
Chest pain with referred pain	7	21.2	7	21.2	17	51.5	2	6.1
Epigastric pain	13	52.0	9	36.0	2	8.0	1	4.0
Dyspnea/shortness of breath/ difficult breathing	14	46.7	6	20.0	9	30.0	1	3.3
Dizziness/blackness/fainting/ lightheadedness	14	63.6	2	9.1	6	27.3	-	-
Upper extremity numbness	21	84.0	1	4.0	3	12.0	-	-
Edema of the extremities	11	64.7	5	29.4	1	5.9	-	-
Sweating/diaphoresis	5	27.8	2	11.1	11	61.1	-	-
Clammy limbs	4	50.0	3	37.5	1	12.5	-	-
Heartburn	5	45.5	2	18.2	4	36.3	-	-
Indigestion/abdominal distension	15	48.4	11	35.5	5	16.1	-	-
Nausea/vomiting	3	33.3	-	-	6	66.7	-	-
Fatigue/weakness	23	57.5	8	20.0	9	22.5	-	-
Palpitation	13	56.5	5	21.8	2	8.7	3	13.0
Tachyarrhythmia	14	51.9	6	22.2	5	18.5	2	7.4
Coughing	16	72.7	1	4.6	5	22.7	-	-
Loss of appetite	11	61.1	6	33.3	1	5.6	-	-
Uncertainty	20	6.3	3	9.4	7	22.0	2	6.3
Fear/fright	14	48.3	5	17.2	10	34.5	-	-
Stress/anxiety	15	51.7	5	17.2	9	31.1	-	-
Sad	12	63.2	4	21.1	3	15.8	-	-

Table C-6 *(Continued)*

Symptoms	Mildly severe		Moderately severe		Very severe		Extremely severe	
	N	%	N	%	N	%	N	%
Insomnia	11	44.0	5	20.0	9	36.0	-	-
Constipation	6	54.5	4	36.4	1	9.1	-	-
Joint pain/muscle strain	1	20.0	1	20.0	3	60.0	-	-
Diarrhea	-	-	-	-	1	100	-	-

Table C-7

Frequency and percentage of the top three strategies managed by patients waiting for

CABG (N = 60)

Symptom management		N	%
Chest pain/chest discomfort	Taking ISDN	40	85.1
	Resting	4	8.5
	Stop doing activity	2	4.3
	Going to hospital	2	4.3
Chest pain with referred pain	Taking ISDN	15	45.5
	Resting	9	27.3
	Massaging/rubbing the arms/moving the arms	4	12.1
	Waiting and seeing/enduring	4	12.1
	Taking ISDN with massaging	1	3.0
Epigastric pain	Chest compressing	6	24.0
	Waiting and seeing	4	16.0
	Body straightening	4	16.0
	Taking ISDN	3	12.0
Dyspnea/shortness of breath/ difficult breathing	Body straightening	6	20.0
	Waiting and seeing	4	13.3
	Deep breathing	4	13.3
	Using inhalant	4	13.3
	Resting	2	6.7
Dizziness/blackness/fainting/ lightheadedness	Waiting and seeing	6	27.3
	Going to hospital	4	18.2
	Using inhalant/ borneol	3	13.6
	Resting	3	13.6
Upper extremity numbness	Massaging	15	60.0
	Waiting and seeing	3	12.0
	Enduring	2	8.0
	Hands fisting	2	8.0
	Hand moving	2	8.0
Edema of the extremities	Waiting and seeing	10	58.8
	Arms or legs straightening	3	17.6
	Leg raising	2	11.8
Sweating/diaphoresis	Going to hospital	5	27.8
	Blowing the fan	5	27.8
	Resting	3	16.7
	Taking *Ya-Hom*	2	11.1

Table C-7 *(Continued)*

Symptom management		N	%
Clammy limbs	Sponging	2	25.0
	Waiting and seeing	2	25.0
	Wearing the socks	2	25.0
	Massaging	2	25.0
Heartburn	Taking antacid	5	45.5
	Waiting and seeing	2	18.2
	Belching	2	18.2
	Drinking sweet/ cold water	1	9.1
	Resting	1	9.1
Indigestion/abdominal distension	Taking laxative	14	45.1
	Taking antacid	6	19.3
	Waiting and seeing	4	12.9
	Belching	2	6.5
	Abdominal compressing	2	6.5
	Avoiding gas-inducing diet	2	6.5
	Taking *Ka-Min-Chan*	1	3.2
Nausea/vomiting	Waiting and seeing	2	22.2
	Using inhalant	2	22.2
	Rinsing the mouth with warm water	2	22.2
	Trying to vomit	1	11.1
	Sponging	1	11.1
	Going to hospital	1	11.1
Fatigue/weakness	Resting	31	77.5
	Waiting and seeing	5	12.5
	Consuming sweetie/ drinking sweet water	2	5.0
Palpitation	Waiting and seeing	8	34.8
	Resting	5	21.7
	Taking ISDN	3	13.0
Tachyarrhythmia	Taking a sit	7	25.9
	Waiting and seeing	7	25.9
	Resting	4	14.8
	Going to hospital	3	11.1
Coughing	Waiting and seeing	8	36.4
	Taking cough-syrup	5	22.7
	Drinking warm water	4	18.2
Loss of appetite	Food modification	7	38.9
	Drinking soft drinks	3	16.7
	Waiting and seeing	3	16.7
	Eating meal	1	5.6
Uncertainty	Letting it go	7	21.9

Table C-7 *(Continued)*

Symptom management		N	%
	Laying down	4	12.5
	Meditation	3	9.4
	Prayer	3	9.4
Fear/fright	Laying down	12	41.4
	Putting trust in God	3	10.3
	Seeking information related to operation	2	6.9
	Positive thinking	2	6.9
Stress/anxiety	Laying down	8	27.6
	Letting it go	4	13.8
	Positive thinking	4	13.8
	Prayer	2	6.9
	Putting trust in God	2	6.9
Sad	Distraction	4	21.1
	Letting it go	3	15.8
	Prayer	2	10.5
Insomnia	Sleeping and turning over	8	32.0
	Watching TV	7	28.0
	Taking sedatives	3	12.0
	Letting it go	3	12.0
Constipation	Taking laxatives	6	54.5
	Drinking plenty of water	2	18.2
	Eating sour fruit	1	9.1
	Letting it go	1	9.1
Joint pain/muscle strain	Taking Gout medications	3	60.0
	Massaging with analgesic cream	2	40.0
Diarrhea	Going to hospital	1	100.0

Table C-8

Comparison of the subjects' smoking classified by gender (N = 60)

Smoking	Gender		X^2
	Male	Female	
No	10 (38.5%)	16 (61.5%)	.000*
Yes	34 (100%)	-	

*= p < .05

Table C-9

Comparison of the subjects' experiences on symptom occurrences classified by gender (N = 60)

Symptom occurrences	Gender		X^2
	Male	Female	
Chest pain/chest discomfort			
No	9 (75.0%)	3 (25.0%)	.884[ns]
Yes	35 (72.9%)	13 (27.1%)	
Chest pain with referred pain			
No	20 (74.1%)	7 (25.9%)	.907[ns]
Yes	24 (72.75)	9 (27.3%)	
Dyspnea/shortness of breathe/ difficult breathing			
No	21 (70.0%)	9 (30.0%)	.559[ns]
Yes	23 (76.7%)	7 (23.3%)	
Fear/frighten			
No	26 (86.7%)	4 (13.3%)	.020*
Yes	18 (60.0%)	12 (40.0%)	
Stress/anxiety			
No	24 (77.4%)	7 (22.6%)	.459[ns]
Yes	20 (69.0%)	9 (31.0%)	
Uncertainty			
No	24 (88.9%)	3 (11.1%)	.014*
Yes	20 (60.6%)	13 (39.4%)	
Sad			
No	30 (73.2%)	11 (26.8%)	.967[ns]
Yes	14 (73.7%)	5 (26.3%)	

[ns] = non-significant   *= $p < .05$

Table C-10

Comparison of the subjects' experiences on symptom occurrences classified by age

(N = 60)

Symptom occurrences	Age (years)		X^2
	36-60	>60	
Chest pain/chest discomfort			
No	4 (33.3%)	8 (66.7%)	$.598^{ns}$
Yes	20 (41.7%)	28 (58.3%)	
Chest pain with referred pain			
No	7 (25.9%)	20 (74.1%)	$.044^*$
Yes	17 (51.5%)	16 (48.5%)	
Dyspnea/shortness of breathe/ difficult breathing			
No	12 (40.0%)	18 (60.0%)	1.00^{ns}
Yes	12 (40.0%)	18 (60.0%)	
Fear/frighten			
No	10 (33.3%)	20 (66.7%)	$.292^{ns}$
Yes	14 (46.7%)	16 (53.3%)	
Stress/anxiety			
No	11 (35.5%)	20 (64.5%)	$.460^{ns}$
Yes	13 (44.8%)	16 (55.2%)	
Uncertainty			
No	9 (33.3%)	18 (66.7%)	$.340^{ns}$
Yes	15 (45.5%)	18 (54.5%)	
Sad			
No	16 (39.0%)	25 (61.0%)	$.821^{ns}$
Yes	8 (42.1%)	11 (57.9%)	

^{ns} = non-significant *= p < .05

Table C-11

Comparison of the subjects' experiences on symptom occurrences classified by smoking (N = 60)

Symptom occurrences	Smoking		X^2
	No	Yes	
Chest pain/chest discomfort			
No	3 (25.0%)	9 (75.0%)	.147[ns]
Yes	23 (47.9%)	25 (52.1%)	
Chest pain with referred pain			
No	7 (25.9%)	20 (74.1%)	.199[ns]
Yes	19 (57.6%)	14 (42.4%)	
Dyspnea/shortness of breathe/ difficult breathing			
No	14 (46.7%)	16 (53.3%)	.601[ns]
Yes	12 (40.0%)	18 (60.0%)	

[ns] = non-significant

Table C-12

Comparison of the subjects' experiences on symptom occurrences classified by co-morbidity (N = 60)

Symptom occurrences	Co-morbidity		X^2
	No	Yes	
Chest pain/chest discomfort			
No	2 (16.7%)	10 (83.3%)	$.542^{ns}$
Yes	12 (25.0%)	36 (75.0%)	
Chest pain with referred pain			
No	7 (25.9%)	20 (74.1%)	$.668^{ns}$
Yes	7 (21.2%)	26 (78.8%)	
Dyspnea/shortness of breathe/ difficult breathing			
No	8 (26.7%)	22 (73.3%)	$.542^{ns}$
Yes	6 (20.0%)	24 (80.0%)	

^{ns} = non-significant

APPENDIX D

LIST OF EXPERTS

LIST OF EXPERTS

The content validity of research instrument (SEQ, SMQ, SOQ, and SF-36) was assessed by three panels of experts:

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