FACTORS INFLUENCING PREHOSPITAL DELAY TIME AMONG PATIENTS WITH PERIPHERAL ARTERIAL OCCLUSIVE DISEASE

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A THESIS SUBMITTED IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR
THE DEGREE OF DOCTOR OF PHILOSOPHY (NURSING)
FACULTY OF GRADUATE STUDIES
MAHIDOL UNIVERSITY
2013

Thesis
entitled

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ACKNOWLEDGEMENTS

I would like to express my gratitude to my dissertation committee for their supports in completing this study. My deepest appreciate goes to Assist. Prof. Dr. Orapan Thosingha, my academic advisor and chairperson of my dissertation committee for her assistance, guidance, comments and driving force in development of this dissertation. My co-advisor, Associate Professor Chaneon Ruangsetakit, M.D., Associate Professor Dr. Chukiat Viwatwongkasem, and Professor Dr. Barbara Riegel, have provided valuable knowledge and suggestions for this study. I also appreciate Professor Somchit Hanucharurnkul for valuable suggestions. Lecturer Kritaya Kritayakarana, M.D., the external committee, has given valuable guidance for this dissertation.

My sincere thanks to the many experts involved in this study who gave their helpful suggestion throughout the content validity process of all instruments used in this study.

My gratefulness goes to the staff nurses and other health care providers at data collecting hospitals as well as the participants for their cooperation in data collection.

Thanks to the Ministry of University Affairs for the scholarship. My special thanks go to my colleagues at the department of Fundamental of nursing and Nursing Administration, The Thai Red Cross Society Nursing College who worked hard while I was undertaking this program.

I am thankful for the love of my husband for supporting everything in this research including financial matters and precious time, my children and my family for their supports and cheerfulness. I also appreciate my classmates for their friendships and share experiences.

And lastly, I would also like to take this opportunity to apologize and express my thanks to those whose names I failed to list on this page. I genuinely appreciate all your help. Thank you.

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FACTORS INFLUENCING PREHOSPITAL DELAY TIME AMONG PATIENTS WITH PERIPHERAL ARTERIAL OCCLUSIVE DISEASE

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ABSTRACT

Only one third of patients with peripheral arterial occlusive disease (PAOD) seek medical care after perceiving the symptoms of PAOD, and most PAOD patients come to visit the physicians when they develop ulceration and gangrene. As a result, there are few choices of treatment for them. Finally, PAOD patients end with lower extremity amputation and die within 3 years. Therefore, a better understanding about factors influencing prehospital delay time is needed among patients with PAOD.

The purpose of this study was to 1) describe the relationship between internal stimuli in terms of sociodemographic characteristics and clinical characteristics; environmental stimuli in terms of social support; knowledge about PAOD; depression and fear; and treatment-seeking behaviors with prehospital delay time among patients with PAOD, 2) predict prehospital delay time among patients with PAOD from the factors aforementioned. This study is based on the Self-regulation theory which is proposed by Leventhal and Cameron. Data collection was conducted in 3 university hospitals residing in Bangkok, Thailand. A sample of 212 patients with PAOD, who newly diagnosed or diagnosed during the 4 months proceeding to the study, were recruited into the study. The questionnaires and interviewing form were employed to collect data. The SPSS program version 17.0 was used for data analysis.

The results revealed that the average duration of prehospital delay time was 95.75 days (SD = 162.63 days), and the median was 30 days. The findings indicated that gender: male, income less than 10,000 baht per month, social support, and treatment seeking behavior had positive effect on prehospital delay time. Whereas, source of medical expense: self-pay, depression, and fear had negative effect on prehospital delay. The model explained 41.0% of the variance in prehospital delay time.

The information obtained from this study is beneficial for nurses and health care providers in order to develop clinical practice guidelines for screening and early detection. Moreover, interventional program or national campaign to increase knowledge about PAOD among patients who were at risk should be developed. It is expected that patients who have knowledge of the signs and symptoms, risk factors, effects and appropriate treatment of PAOD would not be delayed in seeking appropriate hospital care.

KEY WORDS: PREHOSPITAL DELAY TIME/ PERIPHERAL ARTERIAL OCCLUSIVE DISEASE

127 pages

ปัจจัยที่มีอิทธิพลต่อการมาโรงพยาบาลล่าช้าในผู้ป่วยโรคหลอดเลือดแดงส่วนปลายอุดตัน
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บทคัดย่อ

ผู้ป่วยโรคหลอดเลือดแดงส่วนปลายอุดตันเพียง 1 ใน 3 (Peripheral arterial occlusive disease: PAOD) เท่านั้นที่มารับการรักษาในโรงพยาบาล ภายหลังจากผู้ป่วยรับรู้ว่ามีอาการของโรคหลอดเลือดแดงส่วนปลายอุดตัน และผู้ป่วยส่วนใหญ่มาพบแพทย์เมื่อมีอาการเกิดแผลขาดเลือด (Ulceration) และ เกิดเนื้อเน่าตาย (gangrene) เป็นผลให้ผู้ป่วยมีทางเลือกในการรักษาค่อนข้างน้อย ในที่สุดผู้ป่วยหลอดเลือดแดงส่วนปลายอุดตัน จะถูกตัดขา (Amputation) และเสียชีวิตภายใน 3 ปี ดังนั้นจึงมีความจำเป็นต้องศึกษาปัจจัยที่เกี่ยวข้องกับการมาโรงพยาบาลล่าช้าในผู้ป่วยโรคหลอดเลือดแดงส่วนปลายอุดตัน

การวิจัยนี้มีวัตถุประสงค์เพื่อ 1.อธิบายความสัมพันธ์ระหว่าง คุณลักษณะส่วนบุคคล และ คุณลักษณะทางคลินิก การสนับสนุนทางสังคม ความรู้เกี่ยวกับโรคหลอดเลือดแดงส่วนปลายอุดตัน ภาวะซึมเศร้าและความกลัว และพฤติกรรมการแสวงหาทางสุขภาพ กับการเข้ามารับการรักษาในโรงพยาบาลล่าช้าในผู้ป่วยโรคหลอดเลือดแดงส่วนปลายอุดตัน และ 2.ทำนายการเข้ามารับการรักษาในโรงพยาบาลล่าช้าในผู้ป่วยโรคหลอดเลือดแดงส่วนปลายอุดตันจากปัจจัยดังกล่าว โดยกรอบแนวคิดพื้นฐานจากทฤษฎีการกำกับตนเองของลีเวนทาลและคาเมรอน กลุ่มตัวอย่างคือผู้ป่วยโรคหลอดเลือดแดงส่วนปลายอุดตันรายใหม่หรือได้รับการวินิจฉัยมาแล้วไม่เกิน 4 เดือน จำนวน 212 คน ที่มารับการรักษาที่โรงพยาบาลระดับมหาวิทยาลัย 3 แห่งในกรุงเทพมหานคร คัดเลือกกลุ่มตัวอย่างด้วยวิธีการสุ่มอย่างง่าย เก็บรวบรวมข้อมูลโดยใช้แบบสัมภาษณ์และแบบสอบถามและทดสอบทางสถิติโดยใช้โปรแกรม SPSS เวอร์ชั่น 17.0

ผลการวิจัยพบว่ากลุ่มตัวอย่างในการศึกษาครั้งนี้ใช้ระยะเวลาเฉลี่ยตั้งแต่รับรู้อาการจนถึงวันที่มารับการรักษาในโรงพยาบาลที่มีศัลยแพทย์ทางด้านหลอดเลือด 95.76 วัน (SD = 162.62 วัน) โดยมีค่ามัธยฐาน 30 วัน ปัจจัยที่มีผลต่อการมาโรงพยาบาลล่าช้าได้แก่ เพศ รายได้น้อยกว่า 10,000 บาท การสนับสนุนทางสังคม และพฤติกรรมแสวงหาการรักษามีผลทำให้ผู้ป่วยมาโรงพยาบาลล่าช้ามากขึ้น ส่วนผู้ป่วยที่จ่ายค่ารักษาพยาบาลเอง ความกลัว และภาวะซึมเศร้า มีผลทำให้ผู้ป่วยมาโรงพยาบาลเร็วขึ้น โดยปัจจัยดังกล่าวสามารถทำนายได้ 41%

ข้อมูลที่ได้จากการศึกษาครั้งนี้จะเป็นประโยชน์สำหรับพยาบาลและบุคลากรทางสุขภาพในการพัฒนาแนวปฏิบัติในการตรวจคัดกรองผู้ป่วยเบื้องต้นในผู้ป่วยที่มีโรคร่วมที่เป็นปัจจัยเสี่ยง ได้แก่ผู้ป่วยโรคเบาหวาน ความดันโลหิตสูงและไขมันในเลือดสูง รวมทั้งการรณรงค์เพื่อเพิ่มความรู้เกี่ยวกับโรคหลอดเลือดแดงส่วนปลายอุดตันในผู้ป่วยที่มีปัจจัยเสี่ยงโรคหลอดเลือดแดงส่วนปลายอุดตัน โดยคาดหวังว่าผู้ป่วยที่มีความรู้เรื่องอาการและอาการแสดง ปัจจัยเสี่ยง ผลกระทบ และการรักษาที่เหมาะสมของโรคหลอเลือดแดงส่วนปลายอุดตันจะสามารถเข้ารับการรักษาที่เหมาะสมอย่างทันท่วงที

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CHAPTER I
INTRODUCTION

Background and significance of the problem

Only one third of patients with peripheral arterial occlusive disease (PAOD) seek medical care after perceiving the symptoms of PAOD (Willigendael, et al., 2004) and most patients with PAOD come to visit the physicians when they have ulceration and gangrene (Cambou, et al., 2010; Mutirangura, Ruangsetakit, Wongwanit, Sermsathanasawadi, & Chinsakchai, 2006; Sawangphong, 2009). As a result, there are few choices of treatment for them. Finally, patients with PAOD end with lower extremity amputation and die within 3 years (Bradbury, 2010).

PAOD is a condition that indicates systemic atherosclerosis (Mukherjee & Cho, 2009). PAOD is associated with increased risk of coronary heart disease (Diehm, et al., 2004; Duran, et al., 2010), stroke (Busch, Lutz, Rohl, Neuner, & Masuhr, 2009; Diehm, et al., 2004; Meves, et al., 2010), carotid stenosis (Ahmed & Al-Khaffaf, 2009; Ohnishi, et al., 2010) and also increased risk of death from ischemic events (Busch, Lutz, Rohl, Neuner, & Masuhr, 2009; Sprengers, Janssen, Moll, Verhaar, & Graaf, 2009). The disease derives from interference in blood circulation caused by the gradual formation of atherothrombosis, leading to arterial stenosis (Mukherjee & Cho, 2009; Watson, Watson, & Pater, 2006). The severity of symptoms depends on the degree of stenosis and occlusion of peripheral blood vessels, which affects the amounts of oxygen and nutrients delivered to tissues at distal parts of the limbs (Watson, et al., 2006). If the stenosis is more narrow, pain at rest occurs, followed by ischemic ulcers and tissue gangrene, which eventually lead to extended death of soft tissue and muscles of the extremities.

Treatment for PAOD depends on its severity. It ranges from preventive measures, such as smoking cessation, controlling diabetes, hypertension, and dyslipidemia to surgery. When the severity of PAOD advances to the catastrophic or limb-threatening stage, revascularization and limb amputation are the treatments of

choice (Mutirangura, et al., 2006; Rosero, Kane, Clagett, & Timaran, 2010; Stehouwer, et al., 2009; van Kuijk, Flu, Bax, & Poldermans, 2009).

The changes of developing of PAOD increase with age, and the disease affects both males and females (Alzamora, et al., 2010; Brevetti, Oliva, Silvestro, Scopacasa, & Chiariello, 2004; McDermott, 2006; Ostchega, Paulose-Ram, Dillon, Gu, & Hughes, 2007). Moreover, it affects populations around the world, including Europe (Alzamora, et al., 2010; Brevetti, et al., 2004; Diehm, et al., 2004; Leng, et al., 2000; Ramos, et al., 2009), North America (McDermott, 2006; Murabito, et al., 2002; Ohman, et al., 2006; Ostchega, et al., 2007) and Asia (Hebert, et al., 2010; Narayanan, Koh, Phang, & Subramaniam, 2010; H. Ohnishi, et al., 2010; Tavintharan, et al., 2009; Yang, et al., 2007).

In Europe, asymptomatic PAOD i.e., having an Ankle Brachial Index (ABI) below 0.90 affects one fifth of the population (Alzamora, et al., 2010; Diehm, et al., 2004; Ramos, et al., 2009), and symptomatic PAOD affects 10% (Alzamora, et al., 2010; Brevetti, et al., 2004; Diehm, et al., 2004; Leng, et al., 2000; Ramos, et al., 2009). Interestingly, most patients with PAOD wait to visit a physician until they have ulceration and gangrene (Cambou, et al., 2010). In the U.S., PAOD affected between 8 and 12 million people, and new case findings are increasing at the rate of 1 million each year (American Heart Association, 2004). The prevalence of intermittent claudication varies from 1% to 5% in the US (McDermott, 2006; Murabito, et al., 2002). The risk of PAOD increases with increasing age and affects 12% of people older than 65 years, or approximately 5 million patients. Of those, 30%, or approximately 1.5 million, were patients with symptomatic PAOD while 3.5 million patients had asymptomatic PAOD (Ostchega, et al., 2007). In Asia, there were studies of the prevalence of PAOD in patients who had risk factors such as hypertension, diabetes mellitus (DM), and smoking. 8.7% of Chinese patients with hypertension had PAOD (Yang, et al., 2007). Meanwhile, 24% of China's smoking population had PAOD (Luo, et al., 2010). In addition, the prevalence of PAOD among patients with DM in Singapore ranged from 10.4% to 15.2% (Narayanan, Koh, Phang, & Subramaniam, 2010; Tavintharan, et al., 2009).

Likewise, in other countries, patients with PAOD are increasing in Thailand. A study done by Sritara and colleagues revealed that 5.2% of Thailand's

urban, middle-class population has PAOD. In contrast, according to Mutirangura and colleagues (2006), the prevalence of PAOD among people who visited the hospital was 102 per 100,000 population. The majority of patients who came to a tertiary care hospital (78.7%) had a limb-threatening condition and required intensive vascular management, including revascularization and amputation (Mutirangura, et al., 2006). This figure also confirms that the majority of patients with PAOD access to medical care only after they have reached a catastrophic stage. Moreover, it was found that patients who received primary amputation had a mortality rate 2.6 times greater than those who received revascularization (Mutirangura, et al., 2006).

Ideally, patients with PAOD would be diagnosed at an early stage i.e., at intermittent claudication or asymptomatic stage for early treatment and secondary prevention, such as lifestyle modifications and pharmacotherapy targeting dyslipidemia, diabetes, hypertension and platelet function to promote peripheral circulation (Bell, 2009; Brassard, 2009; Kikano & Brown, 2007; Norgren, et al., 2007). Some studies found that only between 1% and 2% of patients who were treated for intermittent claudication underwent amputation in five years or less whereas patients who sought medical attention at catastrophic stages were amputated within six months of diagnosis (Bonham & Kelechi, 2008; Norgren, et al., 2007). Moreover, 50% of patients with a limb-threatening condition who received revascularization were expected to have no more than 3 years to live after receiving revascularization (Bradbury, et al., 2010). In addition, it was found that patients who received primary amputation had a mortality rate 2.6 times greater than those who received revascularization (Mutirangura, et al., 2006). In the above-mentioned studies, most patients with PAOD visited the physicians to receive treatment when they had reached catastrophic stages or developed limb-threatening conditions leading to revascularization or limb amputation. The consequences of amputation are disability and expensive treatment over a long period. (Bell, 2009; Bradbury, et al., 2010) and perhaps even increased social burden (Alan T. Hirsch, et al., 2006; Spronk, et al., 2008; Coen D. A. Stehouwer, et al., 2009). Surprisingly, the evidence showed that only one third of patients with PAOD seek medical care (Willigendael, et al., 2004), and most patients with PAOD came to visit physicians when they had ulceration and gangrene (Cambou, et al., 2010; Mutirangura, et al., 2006; Sawangphong, 2009). This

figure demonstrates that patients with PAOD who wait too long before seeking medical attention face a much greater risk of mortality. On the other hand, if patients with PAOD do not delay before seeking medical help, they are more likely to have better outcomes of treatment, including prevention of amputation and an overall higher quality of life (A.T. Hirsch, et al., 2007; Wann-Hansson, Hallberg, & Risberg, 2005; Willigendael, et al., 2004).

The prehospital period is crucial and related to morbidity and mortality in both acute illnesses (Dracup & Moser, 1997; Fukuoka, et al., 2006; Lesneski, 2009) and chronic illnesses (Burgess, Ramirez, Smith, & Richards, 2000; Korsgaard, Pedersen, & Laurberg, 2008; Korsgaard, Pedersen, Sørensen, & Laurberg, 2006; O'Mahony & Hegarty, 2009; Sunny, Hopfgarten, Adolfsson, & Steineck, 2008). The prehospital delay time in patients with PAOD is defined as the time from onset of the PAOD symptoms to decision to seeking treatment at the hospital. However, research on the exact time of prehospital delay in patients with PAOD is rare. Only the study of Sawangphong (2009) who studied the first time diagnosis in patients with PAOD was available and found that the median of first time diagnosis was 30 days and the symptom that induced the patients to seeking treatment was gangrene and ulceration.

Factors important to prehospital delay time can be conceptualized into four domains (Figure 1.1) (Leventhal & Cameron, 1987). The first is internal and environmental stimuli, which are the triggers of process to label and interpret the PAOD symptoms; it depends on sociodemographic characteristics, clinical characteristics and social support. The second, symptoms are labeled and interpreted, which based on knowledge about PAOD. The third is how emotion is related to respond to PAOD symptoms including depression and fear. The final factor relates to the behaviors that patients with PAOD use to deal with the severity of their symptoms, in terms of treatment-seeking behaviors. According to the literatures review, research on factors related to prehospital delay time in patients with PAOD is very limited. Only the study of Sawangphong (2009) who studied factors related to the first time diagnosis in patients with PAOD was available. However, it did not study how prehospital delay time and sociodemographic characteristics, clinical characteristics, social support, knowledge about PAOD, depression and fear, and treatment- seeking behaviors are associated. Therefore, this study will fill this gap in the literature on

prehospital delay time among patients with PAOD. The research findings will facilitate healthcare providers' understanding of the factors that influence prehospital delay time. In addition, this research will serve as the origin of knowledge-based accumulation, with a specific understanding of the nursing phenomena of prehospital delay. Accordingly, the knowledge from the study can be used as guidelines for health care providers in developing strategies to prevent prehospital delay in patients with PAOD. Thus, this group of patients could receive appropriate care at the appropriate time. Moreover, this knowledge can be used to change health care policy in regard to screening and early detection of PAOD in risk groups. If PAOD is detected early, patients will receive appropriate treatment earlier, the expense of care will eventually decrease, and the quality of life of this group of patients will be improved.

Research Question

What are the factors influencing prehospital delay time among patients with PAOD?

Purposes of the Study

The purposes of the present study are to

1. Describe the relationship between internal stimuli in terms of sociodemographic characteristics and clinical characteristics, environmental stimuli in terms of social support, knowledge about PAOD, depression and fear, and treatment-seeking behaviors with prehospital delay time among patients with PAOD.

2. Predict prehospital delay time among patients with PAOD from internal stimuli in terms of sociodemographic characteristics and clinical characteristics, environmental stimuli in terms of social support, knowledge about PAOD, depression and fear, and treatment-seeking behaviors.

Research Hypothesis

The hypothesis of this study is that internal stimuli in terms of sociodemographic characteristics and clinical characteristics, environmental stimuli in terms of social support, knowledge about PAOD, depression and fear, and treatment-seeking behaviors will have an influence on prehospital delay time among patients with PAOD**.**

Conceptual Framework

Self-Regulation Theory (Leventhal & Cameron, 1987) primarily guides this study. It describes the individual as an active problem solver who uses the mental process to assess the changes occurring in body and determine the resolution to deal with threats to health. Self-Regulation Theory states that internal and environmental stimuli affect behavioral expression in response to a threat to health. Internal stimuli related to characteristics of each individual; including age, gender, and socioeconomic status, as well as Clinical Characteristics (Figure 1.2). Environmental stimuli include messages from people that are important, such as family members, friends. The theory assumes that health-related behavior depends on the individual processes: cognitive and emotional (Figure 1.1), which both processes are interactive. The cognitive process guides to use the information to understand and interpret the health threat. An individual's knowledge about the health threat identified in memory and leads to a person's behavior (Leventhal & Deifenbach, 1991). Emotional processing of the theory states that the emotion associated with the situation that threatens the health, which depends on knowledge. Because cognitive and emotional processes in parallel, personal knowledge about the threat of illness or health affect interpretation of the threat to health and are associated with health behavior.

Self-regulation model identifies three stages i.e. representation, coping, and appraisal, in which direct the behavior of the individual when the threat to health occurs. Representation is identified as when the information is perceived, and recognized (Leventhal, Brissette, & Leventhal, 2003). The process of cognitive representation occurs when the person assesses changes or any deviation in the body, depending on the individual’s knowledge or information, which is derived from health

care professionals, broadcast media, or experiences. In the present study, knowledge about the symptoms of PAOD leads patients to perceive and identify PAOD symptoms, which contributes to the behavior in response to their symptoms. If the patients have low level of knowledge about PAOD, they will seek treatment from inappropriate sources or self-treatment that leads to delay for appropriate medical treatment. The emotional process of representation arises mostly from culture or values of the family to respond to the change in the body. According to the knowledge or cognitive representation characterized the risk to health; the patient will recognize his / or her symptoms and considered in its seriousness. Coping as the second stage, in which the individual develops strategy of coping, based on the result of the representation stage. The cognitive process of this phase, manifested as behavior, which person chooses to use based on the information that obtained in the representation. In this study, treatment-seeking behaviors as coping strategies for managing symptoms of PAOD. For example, if the individual considers intermittent claudication or pain at rest as symptoms of PAOD or illness, he or she can deal with it by visiting the doctor. If an individual considers these symptoms as the symptoms of excessive walking or exercise, he or she can deal with these symptoms by resting or ignore them. The emotional process of this phase depends on recognition of individual of the health threat in the representation. The information of the individual helps the individual deal with the emotional reaction to the health threat. For instance, if intermittent claudication or pain at rest refers to arterial occlusion is perceived, this perception will produce fear than seen as related to excessive walking or exercise; therefore, behavior will be different.

The appraisal is the third stage, in which the individual evaluates the coping strategies based on the desire of individual outcomes, which might be symptom relief or back to normal state. Moreover, appraisal can be affected different coping strategy and representation stages; for example, if intermittent claudication or rest pain is perceived as a symptom of excessive walking or exercise, the patients may try other coping strategies instead of the former strategy which ineffective.

Emotions can influence the interpretations of symptoms and affect the representation, coping, and appraisal. For instance, if a patient thought intermittent claudication or rest pain related to arterial disease, he/ or she may generate a high level

of fear which cause the patient to act instead of waiting. Moreover, depression can be lead to prehospital delay because patients do not pay attention to their symptoms.

Prehospital delay represents the outcome of the process between representation, coping, and appraisal. This can be assumed that if a patient selects a suitable response strategy, he/ she has a short duration from onset of the PAOD symptoms until the day that a patient decides to seek treatment from the vascular specialist in the hospital (Figure 1.2).

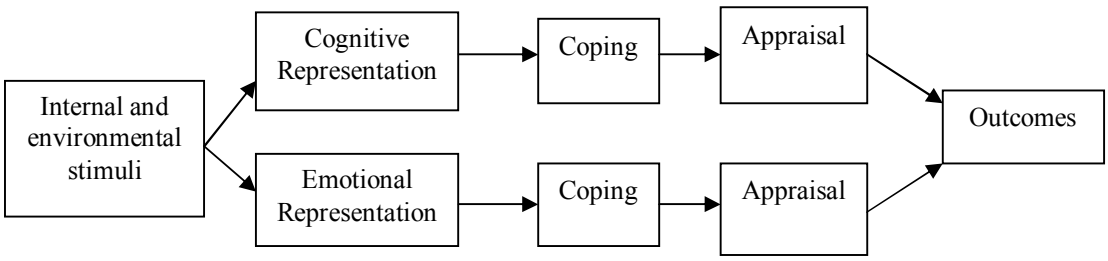

Figure 1.1 Self-Regulation Model (Leventhal & Cameron, 1987)

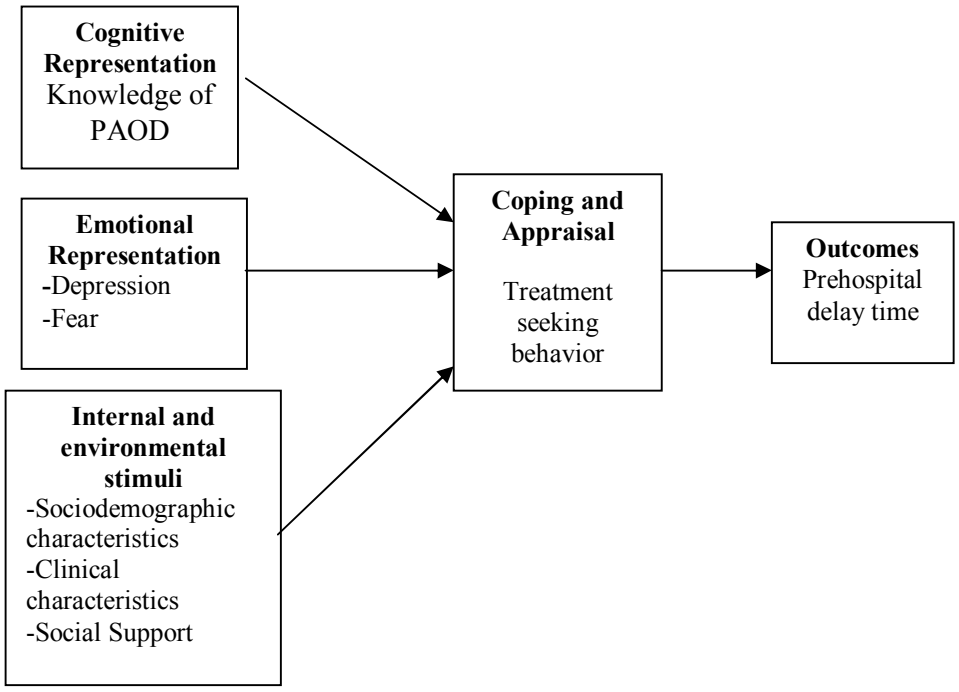

Figure 1.2 Conceptual framework of this study

Table 1.1 Framework concepts, study variables, and measurements

Framework Concept	Study Variables	Measurements
	Sociodemographics characteristics: age, gender, income, education, and medical expense	Demographic record form
Internal and environmental stimuli	Clinical characteristics	Medical history record form
	Social support	Perceived social support scale (Gregory D. Zimet, Dahlem, Zimet, & Farley, 1988)
Cognitive representation	Knowledge about PAOD	Knowledge about peripheral arterial occlusive disease questionnaire
Emotional representation	Depression	The hospital anxiety and depression scale (HADS) (Zigmond & Snaith, 1983) by using depression domain
	Fear	The visual analog fear scale
Coping and appraisal	Treatment-seeking behaviors	Treatment-seeking behaviors interview form
Outcome	Prehospital delay time	The sequence of time interview form

Scope of the Study

This research investigates the factors influencing prehospital delay time among patients with PAOD who receive treatment in the outpatient departments of Siriraj hospital, Ramathibodi hospital, and Phramongkutklao hospital. The duration for data collection from December 2011 to July 2012.

Definitions of terms

1) Sociodemographic characteristics refers to age, gender, income, education, and medical expense of the respondents of this study. They were collected by using demographic record form developed by researcher upon enrollment.

- Age refers to real age of participants at time of the interview or completes year of age at time of interview.
- Gender categorizes as male and female.
- Education refers to year of educational obtainment
- Income refers to total income per month of all family members.
- Medical expense refers to sources of medical expense are reimbursement, universal coverage, social security card, insurance companies, and self-pay.

2) Clinical Characteristics refers to comorbidity of the respondents in this study. They were collected by using the medical history record form developed by researcher.

3) Social Support refers to the resource persons, which influence PAOD patients' decision to seek for health care. It was measured by using Multidimensional Perceived Social Support Scale (Gregory D. Zimet, Dahlem, Zimet, & Farley, 1988). This 12-items self-report scale examines perceived availability of social relationships and satisfaction with social support. The item's rating scale varies from 1 (very strongly disagree) to 7 (very strongly agree). Higher scores indicate a higher level of social support of individuals.

4) Knowledge about PAOD refers to a cognitive representation about patients with PAOD's familiarity with symptoms, risk factors, and consequences of having PAOD that they might gain through their experience or education. It was measured by using knowledge about peripheral arterial occlusive disease questionnaire developed based on review the related literature**.** It has 16 items with yes or no answer. Higher scores indicate the high level of knowledge in PAOD.

5) Depression refers to the feeling of sadness that come and go in response to particular life circumstances (Berman & Furst, 2011).

In this study, depression refers to the feeling of sadness that come and go in response to the PAOD symptoms. It was measured by the Hospital Anxiety and Depression Scale (HADS) (Zigmond & Snaith, 1983) in the domain of depression.

6) Fear refers to the emotional reaction to a specific, identifiable and immediate threat such as a dangerous animal or an injury, and it has a protective function associated with the fight or flight response (Rachman, 1989).

In this study, fear refers to emotional reaction to the PAOD symptoms and it is associated with decision seeking treatment. The visual analog fear scale was developed by the researcher from related literature was used to measure fear in this study.

7) Treatment-seeking behaviors refers to the manner in which patients cope with PAOD symptoms before patient decides to seek treatment at the hospital. They were evaluated by using treatment-seeking behaviors interview form, which developed by the researcher from related literature.

8) Prehospital delay time refers to the time from onset of the PAOD symptoms including intermittent claudication, pain at rest, ulceration or gangrene, or other symptoms of arterial insufficiency such as loss of skin hair distally, thinning and dry skin, and nail thickening until the day that patients came to receive treatments from any health care setting. This factor was evaluated by using the sequence of time interview form developed by the researcher.

Expected Outcomes

1. Health care providers know the factors influencing prehospital delay time in patients with PAOD and can be used as guidelines for developing strategies to prevent prehospital delay in patients with PAOD.

2. The knowledge of this study can be used to change health care services, increasing PAOD awareness and providing screening and early detection of PAOD among patients at risk to prevent its progression.

CHAPTER II
LITERATURE REVIEW

This study describes the factors influencing prehospital delay time among patients with peripheral arterial occlusive disease (PAOD). The literature review of this study consists of five major parts as follows. In addition, a summary of literature review will be included.

1. Prevalence of patients with PAOD
2. Pathophysiology of PAOD
3. Treatment for PAOD
4. Prehospital delay among patients with PAOD
5. Factors influencing prehospital delay time among patients with PAOD

    5.1 Internal and environmental stimuli

        5.1.1 Sociodemographic characteristics

        - Age
        - Gender
        - Income
        - Education
        - Medical expense

        5.1.2 Clinical characteristics

        5.1.3 Social support

    5.2 Cognitive representation in terms of knowledge of PAOD

    5.3 Emotional representation in terms of fear and depression

    5.4 Coping and appraisal in terms of treatment seeking behaviors

6. Summary

Prevalence of patients with peripheral arterial occlusive disease

Most patients with PAOD are older adults, as its prevalence gradually increases with age. According to the American Heart Association (Writing Group Members, et al., 2008), PAOD affects 8 million Americans and develops in 1 million Americans each year. The prevalence increases with age and affects as many as 1 in 5 adults over age 65 years. Only 10% of patients with PAOD have leg pain with classic intermittent claudication, 40% are asymptomatic, and 50% have symptoms other than claudication. Ostchega and colleagues (2007) assessed PAOD prevalence in U.S. civilian noninstitutionalized population by determining the ABI, the ratio of systolic blood pressure (SBP) in the ankles (posterior tibial vessels) to SBP in the right arm (right brachial vessel), which less than 0.9 in either leg. They reported that 5 million U.S. adults aged 60 and older have PAOD and that more than two-thirds of the cases are asymptomatic. The prevalence of PAOD increases with age, from 7% in persons aged 60 to 69 to 23% in persons aged 80 and older. When comparing PAOD in men and women at the same age, there are no differences. Like other countries in Europe, Italy has the prevalence of symptomatic PAOD was 1.6%, varying from 0% in women aged 40–49 years to 6.4% in men aged 70–80 years (Brevetti, et al., 2004). The prevalence of symptomatic PAOD in Spain varied from 4.5% (N=6,172) to 7.6% (N=3,786), and with an increase of age of 10 years, the prevalence of PAOD doubled (Alzamora, et al., 2010; Ramos, et al., 2009). Moreover, PAOD affected 16% of the male Australian population over 65 years of age (Bulmers and Coombes, 2004).

In Thailand, the study of Sritara and colleagues (2007) revealed that the overall prevalence of PAOD in urban, middle class Thai population was 5.2%; the age-standardized prevalence was 4% for men and 9% for women (N=3,499). According to Mutirangura and colleagues (2006), the prevalence of PAOD was 102 per 100,000 population. Most of patients treated in limb-threatening condition (78.7%) that required intensive vascular management including revascularization (41.3%) and amputation (31.9%). They found that if major amputation as the primary treatment, it related with high rates of morbidity and mortality. Comparison mortality rate between revascularization and primary major amputation indicated that patients with a limb-threatening condition receiving primary amputation had mortality rates higher than revascularization 2.6 times (Mutirangura, et al., 2006).

PAOD has the same risk factors similarly to cardiovascular disease and cerebrovascular disease including diabetes mellitus, hypertension, dyslipidemia as well as smoking. There are a large amount of studies about these risk factors and PAOD. They found that patients with diabetes have a 3 to 5-folds increased risk of developing PAOD compared with people without diabetes (Hurst & Lee, 2003; Khattab, Ali, & Rawlings, 2005; Potier, Abi Khalil, Mohammedi, & Roussel, 2010). Patients with hypertension have 4 times the incidence of PAOD (White, 2010; Yang, et al., 2007) and increased blood cholesterol levels have 2 to 3 times PAOD occurrence (Lane & Lip, 2009; White, 2010). Smoking increases the risk of developing PAOD 4-fold when compared with non smokers (White, 2010). Currently, these behaviors and diseases affect larger numbers of people. Therefore, trends in the incidence of new cases of PAOD is increasing continuously (Brevetti, et al., 2004; Ostchega, et al., 2007; Willigendael, et al., 2004). In 2007, there were 722,747 diabetic patients, 1,309,144 hypertensive patients and over 40 year-old smokers had 5.5 million (The National Statistical Office, 2007). As a result, patients with PAOD increased accordingly; for instance, 27.33% of the diabetic patients treated at Lampang Hospital had PAOD as a concurrent disease (Kanjanawong, 2004).

In conclusion, PAOD affects people around the world especially in the elderly. Most patients with PAOD came to the hospital when they had critical limb-ischemia. Moreover, prevalence of PAOD is gradually increased because there are many people who had PAOD risk factors.

Pathophysiology of peripheral arterial occlusive disease

The function of arteries is to carry oxygen and nutrition to the tissues in the body in order to exchange oxygen and nutrition with the waste through the capillary walls in peripheral vascular beds. After exchange, the blood containing waste and low oxygen blood cells is conveyed from the capillaries to the veins, after which the blood is transported back to the heart.

Arterial occlusion occurs gradually from atherosclerosis or the inflammation process (White, 2010). In the early stages of arterial occlusion, there is no visible pathophysiological change; however, the physical compensation results in

increasing collateral circulation size and increases blood circulation rates in collateral circulation in order to supply adequate blood to tissue and compensate for decreasing blood flow due to occlusion (Phipps, Monahan, Sands, Marek, & Neighbors, 2003; Watson, et al., 2006; White, 2010). In later stages, when the arterial occlusion is more severe, the increasing blood supply in collateral circulation is inadequate and pathophysiological changes in that part of the leg result. In chronic ischemia, the pathophysiological changes are muscle atrophy, thinner skin, hair loss and increased susceptibility to toe ulcers with slow healing. In addition, muscle atrophy occurs significantly due to leg functioning i.e. the ischemic area of the leg does not receive enough oxygen for metabolism, therefore anaerobic metabolism occurs, yielding lactic and pyruvic acids. Lactic acid stimulates pain sensory free nerve endings (Watson, et al., 2006; White, 2010) which results in pain. Resting leg muscles do not require added oxygen to metabolize. Thus, the ischemic areas with sufficient oxygen for aerobic metabolism will have carbon dioxide and water as the products when burned completely. Resulting in pain relief or pain is gone, which is known as intermittent claudication (Black & Hawks, 2005). If pain due to lack of blood flow to the leg is more serious. The patient will suffer from pain that occurs while sleeping is called rest pain, which leads to the patients do not sleep enough. Vasodilatation which occurs while sleeping due to the reduction of blood throughout the body, resulting in a decrease in blood volume and blood flow to distal organs. Resulting in pain at upper metatarsal, the patients will have severe pain and wake up to do something for promoting circulation to distal organ (Phipps, Monahan, Sands, Marek, & Neighbors, 2003; White, 2010). The patients may also suffer from incurable ischemic ulcers and gangrene.

Rest pain and ischemic ulceration or gangrene of forefoot or toes is the common clinical presentation of critical limb ischemia (CLI) (Phipps, et al., 2003; White, 2010). The ischemic ulcers represent the effect of soft tissue trauma. The severity of ischemic ulcers depends on the erosion of the skin. Skin repair is hampered by inadequate tissue perfusion, oxygenation, and cellular replication (White, 2010). Ischemic gangrene, meanwhile, occurs when resting limb blood flow is insufficient to maintain cellular viability. Tissue death inexorably extends to the junction of threshold blood flow for tissue viability. Initially the pain may be severe, resulting from not only

ischemic neuropathy but also ischemic injury of the skin and subcutaneous sensory nerves, osteomyelitis, and ascending infection. As the course of ischemic necrosis progresses, pain may actually decrease owing to complete ischemic death of the nerves and other pain–producing tissues (Bosiers, Lioupis, Deloose, Verbist, & Peeters, 2009; Cao, Rango, & Lenti, 2009; White, 2010) that lead to major amputation.

In sum, PAOD occurs when the blood vessel in the circulatory system is clogged, some or all of which can happen for several reasons. The severity of symptoms depends on the period of the obstruction in relation to the decrease of oxygen and nutrients to lower distal organs. As a result, the amount of carbon dioxide and waste product increase. That leads to significant symptom is pain while walking or exercising, which is called intermittent claudication, if the blockage is more serious cause ischemic ulcer and /or gangrene which ultimately may lead to amputation if do not receive appropriate treatment.

Treatment for peripheral arterial occlusive disease

Treatment for patients with PAOD depends on the severity of the disease, which can assess by history of illness assessment; physical examinations including functional-sensory assessment, skin and tissue assessment, peripheral circulation and pulse palpation. Moreover, the Ankle-Brachial Index (ABI), non-invasive examinations, which is the ratio of ankle pressure to brachial pressure measurement using ultrasonic Doppler to analyze the flow of red blood cells in the arteries to the signal that it is the sound that is heard. Usually, the ABI is greater than or equal to 1.0. For patients with symptoms of IC ABI values in the range 0.3-0.9. And when the patient is rest pain ABI values below 0.3 (Pornpibull, 1999; Sriasadaporn, 2002). The severity can be categorized according to Fontaine's Classification (Fontaine, Kim & Kieny, 1954; cite in Cimminiello, 2002) as describe in Table 2.1

Table 2.1 Classification of peripheral arterial occlusive disease: Fontaine's Stages and Rutherford's

Fontaine		**Rutherford**	
Stage	**Clinical**	**Category**	**Clinical**
I	Asymptomatic	0	Asymptomatic
IIa	Mild claudication	1	Mild claudication
IIb	Moderate to severe claudication	2	Moderate claudication
		3	Severe claudication
III	Ischemic rest pain	4	Ischemic rest pain
		5	Minor tissue loss
IV	Ulceration or gangrene	6	Major tissue loss

Each stage of PAOD is treated in a different way and needs different care services for managing peripheral arterial occlusive disease, as described by the care pathway of patients with PAOD (figure 2.1). The risk factor modification as the secondary prevention is appropriate for all stages of PAOD because these risk factors are associated with severity of the symptoms. If risk factors are controlled, the disease will be stable or decrease in severity (Faisal & Leslie, 2008; Flu, Tamsma, Lindeman, Hamming, & Lardenoye, 2010; Khan, Cleanthis, Smout, Flather, & Stansby, 2005).

The standard of care protocol for patients with PAOD is divided into 2 categories; asymptomatic and symptomatic (Catalano, 2007; Fintel, 2008). Asymptomatic PAOD is focused on risk reduction of ischemic occurrence. In this phase, the provision of care emphasizes in atherosclerosis risk reduction, risk factor modifications and antiplatelet therapies (Catalano, 2007). However, it is greatly preferable that patients are detected early in the non-limb threatening condition. If they were diagnosed earlier and received proper treatment with antiplatelet such as low dose aspirin, the occurrence of vascular events or ischemic limb ischemia would be significantly reduced (Fintel, 2008).

Symptomatic PAOD is placed on management of early ischemic symptom; intermittent claudication and rest pain, which can help improve the patients' quality of life. Many previous studies have shown that when intermittent claudication or rest pain is well controlled, patients' quality of life will improve because they will be able to perform more daily activities (Carol, et al., 2000; Keeling, Naughton, & O'Connell, 2008; Slovacek, Slovackova, & Chovanec, 2008; Wann-Hansson, Hallberg, & Risberg, 2005).

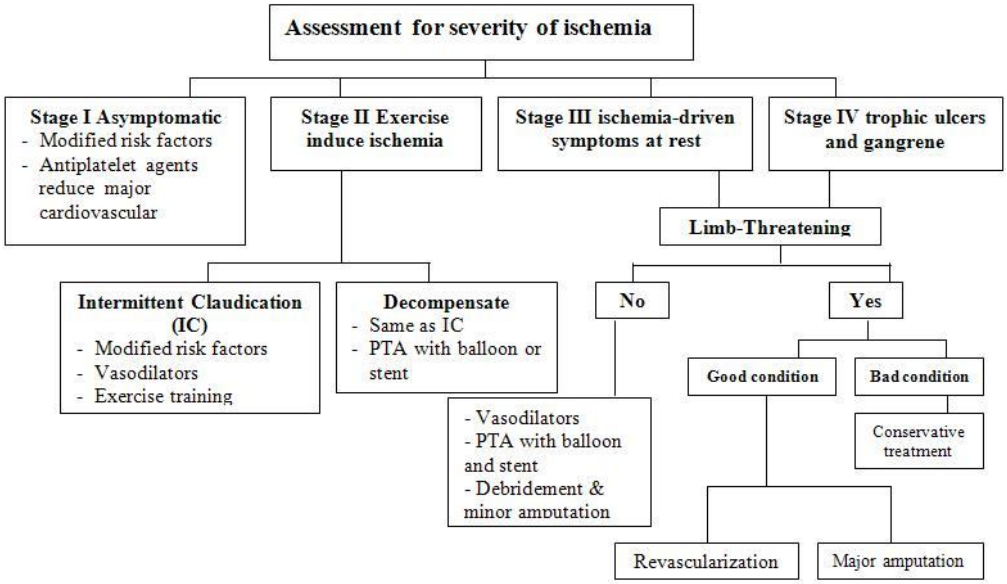

Figure 2.1 Care pathways of patients with PAOD
(Mutirangura, Ruangsetakit, Wongwanit, Sermsathanasawadi, & Chinsakchai, 2006; Norgren, et al., 2007; York & Taylor, 2010)

In summary, each stage of disease will receive different treatment. The treatment begins with lifestyle modifications, reduce risk factors, use of pharmacology and surgery depending on the severity of the disease (Mutirangura, 2002). Therefore, if the patient receives standard of care in early stage of disease, the severity will decrease and it will not complicate and difficult to treat.

Prehospital Delay time among patients with peripheral arterial occlusive disease

From the literature review, prehospital delays are commonly found among patients with chronic illnesses. Patients with different types of illness had different causes for prehospital delay. The most frequent studies address prehospital delay time among patients with acute myocardial infarction (AMI). Prehospital delay time in patients with AMI is defined a duration of hours and minutes of each person recognized the chest pain and/ or shortness of breath until he or she receives initial treatment from a doctor or emergency department or calls an ambulance to receive the maximum benefits of reperfusion therapy (Chughtai, et al., 2010; K. Dracup, et al., 1995; I. Johansson, Stromberg, & Swahn, 2004a, 2004b; Lesneski, 2009; Lesneski & Morton, 2000; Pitsavos, Kourlaba, Panagiotakos, & Stefanadis, 2006). Prehospital delay time among AMI leads to poor prognosis and increases the risk of death (K. Dracup, et al., 1995). In patients with breast cancer, prehospital delay time has been studied at different points of times including the symptom experience prior to the occurrence of a symptom, followed by the symptom occur but did not yet visit the doctor who was specialist in the breast clinic, and followed by symptom evaluation and diagnosis of breast cancer or benign breast disease. Prolong delay is associated with reduced survival from breast cancer (O'Mahony & Hegarty, 2009; Samur, et al., 2002; Strayer & Caple, 2010). Furthermore, prehospital delay time among patients with colorectal cancer refers to the duration of the symptoms of colorectal cancer begin to show up until receiving surgical treatment or radiation therapy or chemotherapy or palliative treatment of the cancer. It was found that prehospital delay time was associated with the severity of colorectal cancer (Korsgaard, et al., 2008; Korsgaard, et al., 2006).

In conclusion, prehospital delay time can be conceptualized as onset of the PAOD symptoms until the day that patient receives initial treatment from any health care institutes which depends on patients' factors. Those include the duration from patients' perception of health deviation until they come to health care services for receiving treatment. Therefore, prehospital delay time in patients with PAOD is the time from onset of the PAOD symptoms including intermittent claudication, rest pain, ulceration or gangrene, or other symptoms of arterial insufficiency composes of loss of

skin hair distally, thinning and dry skin, and nail thickening until the day that patient decide to receive treatment in any health care facility.

It is crucial for patients with PAOD to avoid delays in visiting the physician. Yet a large number of studies found that most patients with PAOD came to the hospital in the catastrophic stage of disease (Bailey, Saha, Magee, & Galland, 2003; Cambou, et al., 2010; Mutirangura, et al., 2006; Sawangphong, 2009; Willigendael, et al., 2004) that lead to complexity of treatment including revascularization and amputation and increase morbidity and mortality rate.

Cambau and colleagues (2010) studied about the management of 940 hospitalized patients with PAOD in France, found that 54.3% of those patients came to hospital with ulceration and /or gangrene. Moreover, they found that 28.7% of patients with PAOD who had ulceration and/or gangrene, died in 1 year. These findings are in congruence with the study of Bailey and colleagues (2003), which found that patients with PAOD who had ulceration and gangrene, had significant increased in the number of deaths in comparison to patients with PAOD with only rest pain. Furthermore, the study of awareness in 219 patients with PAOD found that only 34% of those or one third had consulted a physician within 6 months after onset of the PAOD symptoms (Willigendael, et al., 2004). Interestingly, 20% of patients with PAOD were not seeing a physician any more (Willigendael, et al., 2004) that can lead to prehospital delay.

Nevertheless, the studies of exact time of prehospital delay in patients with PAOD remain scarce. Only the study of Sawangphong (2009) who studied the duration from 90 patients with PAOD perceived onset of symptoms to the time they visit health care services, found that 39% were less than 30 days and 38% were more than 90 days. In addition, most of patients with PAOD who visited the hospital had limb-threatening conditions. Although there was no study on the exact time of progression from stage to stage in PAOD, related literature show that if patients seek medical treatment as soon as possible after perceiving onset of symptoms they will have better outcomes than those who not seek medical treatment.

Factors influencing prehospital delay time among patients with peripheral arterial occlusive disease

From the literature review, factors influencing prehospital delay time in patients with PAOD can be divided into 4 categories: internal and environmental stimuli; cognitive representation; emotional representation; and coping and appraisal. The details of each factor are described as follow;

1) Internal and environmental stimuli included sociodemographic characteristics, clinical characteristics, and social support

1. Sociodemographic characteristics are those related to patients' characteristics. These include age, gender, income, education, and medical expense.

Age: Age may be a factor influencing prehospital delay time in patient with PAOD. From the literature review, elderly patients are seeking treatment for a period longer than young people. This is because older people have limited access to medical treatment. In particular, they live in the suburbs or living alone (Ottesen, Dixen, & Torp-Pederson, 2004). Furthermore, elderly people may have cognitive impairment from stroke or dementia or sensory impairments from diabetic neuropathy (Pataky & Vischer, 2007) that lead to prehospital delay (Ottesen, et al., 2004; Pitsavos, et al., 2006; Rittger, et al., 2009). Moreover, the studies about prehospital delay time in other chronic illnesses revealed that older patients were more likely to delay seeking care from medical than younger patients (H. L. Nguyen, Saczynski, Gore, & Goldberg; Storla, Yimer, & Bjune, 2008). In addition, elderly may have the belief that pain is to be patient if there is a complaint relating to the pain is a sign of weakness or inevitable part of aging (Catananti & Gambassi, 2009; H. L. Nguyen, et al.). The possible consequence of these reasons may be lead to longer delay in seeking treatment after the symptom manifestation.

In many countries the most patients with PAOD are older adults and increase with age (Brevetti, et al., 2004; Ostchega, et al., 2007). In Thailand, the study found that patients with PAOD had average age of 67 years (Mutirangura, 2009; Mutirangura, et al., 2006). Sritara and colleagues (2007) revealed that the overall prevalence of PAOD in urban, middle class Thai population was 5.2%.

The age-standardized prevalence for men was 4%, while 9% for women. According to Sawangphong (2009), who studied about factors associated with first diagnosis time in patients with PAOD, elderly with PAOD have earlier first diagnosis time than younger with PAOD that lead to early PAOD treatment.

Given the above, there was no consensus that PAOD with older age were more delay seeking treatment than younger age. Therefore, age is still a topic area to explore in this study.

Gender: The evidence of sex differences in pain perception is inconsensus. There is reported that men with a higher pain tolerance than women (Chesterton, Barlas, Foster, Baxter, & Wright, 2003). However, other studies are not congruent with these results (Defrin, Shramm, & Eli, 2009; Defrin, Moser, McKinley, Dracup, & Chung, 2005; Shachal-Shiffer, Hadgadg, Peretz, 2006; Sarlani, Greenspan, 2002). Moreover, the literature review found that if the symptoms manifested in women, they will be used coping strategies to minimize the impact of the disease. Therefore, they tended to delay in seeking treatment (Kristofferzon, Lofmark, & Carlsson, 2003; Pitsavos, et al, 2006).

The association between gender and prehospital delay time in PAOD has not yet been explored. There is the evidence showing that females appear to have more asymptomatic disease when compared to males. However, when females seek medical treatment, they have more advanced stage of disease (critical limb ischemia) that lead to amputation as a first priority of treatment (Egorova, et al., 2010; Vouyouka, et al., 2010; Vouyouka & Kent, 2007). Regarding physical function, Collins and colleagues (2006) discovered that scores on physical function and general health were lower for women than for men with PAOD. From various epidemiologic studies, Newman (2000) found that more women described a difficulty with mobility tasks and a decreased activity level in relation to their PAOD experience. Moreover, it was found that PAOD is often undetected in women in general medical practice (McDermott, Kerwin, & Liu, 2001; McDermott, et al, 2003). Gender differences in the prevalence of patient characteristics, such as level of physical activity and comorbidities may lead to underrecognition and undertreatment of PAOD in women

(McDermott, et al, 2003). It was congruent with Leng and colleagues (2000) who studied about femoral atherosclerosis in males and females population found that males with plaque had more increasingly odds of leg pain than females with plaque (OR=2.9). It led to males seeking for earlier treatment than females. It was unclear about the difference of claudication symptom experience between men and women (Tomczyk & Treat-Jacobson, 2009). Additionally, there was misunderstandings about the process of PAOD among both genders may contribute to prehospital delay in PAOD in both groups (Tomczyk & Treat-Jacobson, 2009).

In this study, differences in gender may be an influencing factor which necessary to further explore because there was no agreement among previous studies.

Income: There is evidence indicating that patients with high-income households are able to pay out of pocket for emergency services or a broad array of treatment options (Alter, Iron, Austin, & Naylor, 2004). In addition, low-income patients (less than 37,000 US$/year) may also have financial barriers to decide to seek treatment and quality care services (Schoen & Doty, 2004). It can be seen that the income level of the patient and the delay in seeking treatment are related. AMI patients with lower annual income will delay seeking treatment than those with higher annual income. In other words, patients with the lower income had the longer the delay.

The evidence of a relationship between income and prehospital delay time in PAOD is still limited. Kroger and colleagues (2009), indicated that low income have higher odds (OR = 1.72, 95%CI = 1.21 – 2.46) for suffering from PAOD than patients with high income but there was not significant correlation; while, the study of disparities in vascular surgery showed that patients with PAOD with low income led to receive delay in treatment contributed to limb amputation (Morrissey, et al., 2007; L. L. Nguyen & Henry, 2010). A study on the social and economic factors that are correlated with the severity of PAOD. Studies of patients with PAOD 691,833 patients have been treated in the hospital and was diagnosed with the condition of critical limb ischemia, treatment is received revascularization, and amputation. These findings demonstrate that treatment by amputation rate is higher in patients with low incomes (Eslami, Zayaruzny, & Fitzgerald, 2007).

In conclusion, there was a study to indicate that income influences prehospital delay in patients with PAOD. However, these studies are limited in their application to the Thai context to indicate that income influence prehospital delay. Therefore, income is still required exploration whether it influences prehospital delay among patients with PAOD or not.

Education: Although, there was no evidence to indicate that education related to prehospital delay time in PAOD. From the literature review, patient's level of education in other chronic diseases was explored. Patients with AMI who had low level of education had delayed seeking treatment. There was a significant difference in duration of delay between patients with 9 to 12 years of education (mean = 13.8 hours) and patients with more than 12 years of education (mean = 7.6 hours) (K. Dracup, Mckinley, & Moser, 1997). However, education level in diabetes patients was both associated (Borrell, Dallo, & White, 2006; Kapur, 2007; Pintong, 2005) and not associated (Chaveephongkamjorn, et al, 2002) with glycemic control to prevent progress of disease. In addition, studies on the use of health services in people aged 50 and over indicated that 50 percent of people who no education was less likely to use health services, and 45 percent of those with primary education less likely to use health services as compared to those with secondary education or higher (Nyo, 2007). The United Nations (2002) maintains that education helps improve social status, and changes the lives of people who have a direct impact on their health. This means that education is not just known better. But it's also better to access health services.

In patients with PAOD, it was found that patients with PAOD with low (OR = 1.57, 95% CI = 1.03 – 2.37) and median (OR = 1.58, 95%CI = 1.20 – 2.08) education had higher odds for suffering from PAOD compared to patients with PAOD with high education. These groups had the crucial risk factors, especially diabetes mellitus and smoking, that they did not adjust and concern in their behaviors; it can lead to the increase of severity of PAOD (Kröger, et al., 2009). Moreover, low education level seemed to be linked to progress of disease to catastrophic stage that lead to higher rates of major lower limb amputation due to peripheral arterial occlusive disease (Ferguson, Nightingale, Pathak, Jayatunga, & Wright, 2010). In Thailand, majority of patients with PAOD had less than primary or elementary education levels (Panchoowong, 2007; Sawangphong, 2009; Thangrod, 2010). Therefore, they showed

limited knowledge about the progression of disease the life style modification (Panchoowong, 2007; Sawangphong, 2009; Thangrod, 2010).

Given the above, there was no study to indicate that education level influences prehospital delay time in patients with PAOD. Therefore, whether education influences prehospital delay time in patients with PAOD or not is still a required area of exploration.

Medical expense: Medical expense status could predict access to care and outcomes of vascular diseases, including lower extremity revascularization (Giacovelli, et al., 2008; Yeh, Jones, Schulman, Karmacharya, & Velazquez, 2010). Among 73,532 patients with PAOD with lower extremity revascularizations, patients with PAOD without insurance had worse access to vascular care and had high rate of limb threatening ischemia that tended to have limb amputation after revascularization (Giacovelli, et al., 2008). Furthermore, the study among vascular surgery patients including patients with PAOD found that patients with uninsurance had less likely to receive optimal treatment than patients with insurance (Yeh, et al., 2010). Given the above, it can be concluded that insurance related with access to treatment if patients received appropriate treatment in appropriate time, they will be have better outcome in term of limb salvage. Therefore, medical expense may be one of crucial factors that leads to prehospital delay time and in need of further exploration.

2. Clinical characteristics: Clinical characteristics are one of the internal stimuli that may affect the cognitive representation. Symptoms from other comorbidities may overshadow the symptoms from PAOD, that so patients with PAOD misperceive symptoms. Clinical characteristics in this study will focus on arthritis and spinal disease. Studies have revealed that these comorbidities concealed the symptoms from PAOD (McDermott, 2006; McDermott, et al., 2003; McGrae McDermott, et al., 2001).

McDermott and colleagues (2003) studied leg symptoms among patients with PAOD. It was found that patients with PAOD and spinal stenosis had functional ability worse than patients with PAOD without spinal stenosis. Even if patients with PAOD and spinal stenosis had ABI value more than patients with PAOD without spinal stenosis, they still had limited walking ability. It was similar with patients with PAOD and arthritis (McGrae McDermott, et al., 2001). Although they

had the same ABI level, patients with PAOD and arthritis had more functional decline than patients with PAOD without arthritis.

However, there was no study in regard to the correlation between these clinical characteristics and prehospital delay time. Therefore, clinical characteristics still require exploration.

3. Social support: There have been many studies about social support and positive relationships with health. These studies reflect the interests of all age groups and social support in dealing with the disease and health care. Low levels of social support are associated with increased cardiac death and all-cause mortality (Grewal, Steward, & Grace, 2010; Rozanski, Blumenthal, Davidson, Saab, & Kubzansky, 2005) and influence the progression of atherosclerosis in patients with cardiovascular diseases (Mookadam & Arthur, 2004; Wirtz, et al., 2006).

Aquarius and colleagues (2006) examined The role of social support in patients with PAOD in terms of the impact on the severity of the disease. Which social support is a factor of invasive treatment in patients younger and older during the treatment. The study found that younger patients ($\leq$ 64 years old) tended to be invasively treated during follow-up more frequently than elderly patients. In younger patients with high levels of social support have been invasive treatments with PAOD severity. Therefore, younger patients and inadequate social support may be receive an inappropriate treatment. On the other hand, invasive treatment among older patients was not related to social support. In Thai society, most patients with PAOD are elderly when they tell their family members about their symptoms and severity, so the majority of patients with PAOD and their families find methods to relieve their symptoms by themselves before accessing health care services (Panchoowong, 2007; Sawangphong, 2009). After using this method for a short time, they will receive appropriate treatment from health care providers to reduce their severity.

In light of the aforementioned, it is interesting to note that so little is known about social support and patients with PAOD, even though social support may be one of the factors leading patients to receive early treatment or prehospital delay.

2) Cognitive representation: Knowledge about PAOD

Knowledge about PAOD may affect health-related behavior (Leventhal, Nerenz, & Steele, 1984) this study focuses on treatment-seeking behavior that may be lead to prehospital delay. However, the level of knowledge about PAOD in both ordinary people and patients with PAOD remains surprising low (A.T. Hirsch, et al., 2007; Lovell, et al., 2009; Willigendael, et al., 2004).

Willingendael and colleagues (2004) surveyed PAOD awareness among 1,048 people in the general population and 219 patients with PAOD. The results revealed that only 15% of the general population knew about PAOD whereas nearly 80% of patients with PAOD did not know about their disease or symptoms of PAOD. Only 25% knew that PAOD was an arterial disease and 77% of the patients with PAOD were concerned that PAOD could increase their risk for cardiovascular disease. Regarding the risk factors of PAOD, 45% of the patients with PAOD who had smoked at the onset of the symptom continued smoking. This finding was congruent with the findings of Sawangphong (2009), who revealed that more than half of patients with PAOD who received treatment from vascular specialists had general knowledge and risk factors about PAOD at a low level. Moreover, evidence has shown that only 14% of subjects who are familiar with PAOD know about the consequences of PAOD (amputation and death) and are unaware about important risk factors, including smoking and diabetes mellitus (A.T. Hirsch, et al., 2007; Lovell, et al., 2009). Additionally, sources of knowledge about PAOD are mostly obtained from broadcast media and rarely from health care professionals (A.T. Hirsch, et al., 2007; Lovell, et al., 2009).

There was the study on knowledge about PAOD and first diagnosis time (Sawangphong, 2009) which found that knowledge about PAOD was not correlated with first diagnosis time. However, there were some limitations in this study. Firstly, the study was conducted in patients with PAOD who had worse symptom severity and these symptoms lead the patients to hospital. Secondly, the instrument for PAOD knowledge assessment was not a standard instrument.

Thus, knowledge about PAOD may be associated with prehospital delay time in terms of affecting treatment-seeking behavior. If the patients have a low level

of knowledge about PAOD, they will seek treatment from inappropriate sources or self-treatment that leads to delay for proper medical treatment.

3) Emotional representation

Fear: Fear is the key emotion driving patients to cope with health threats (Leventhal, et al., 2003) and evidence has shown that patients with PAOD have fear for many reasons. Treat-Jacobson and colleagues (2002) found that patients with PAOD experienced fear of losing function and independence, fear of amputation and fear of loss of life because they did not know about treatment courses and they thought amputation as the final outcome to be met by every PAOD patient (Treat-Jacobson, et al., 2002). Moreover, studies have also found that depression can be lead to prehospital delay because patients do not pay attention to their symptoms (Bunde & Martin, 2006; Sullivan, et al., 2009).

Depression: There has been evidence showing that severity of PAOD is positively associated with depressive moods (Arseven, Guralnik, O'Brien, Liu, & McDermott, 2001; Smolderen, et al., 2010). However, there have been no studies to indicate whether fear and depression are related to prehospital delay time in patients with PAOD. Therefore, fear and depression continue to require further investigation.

4) Coping and appraisal: **treatment-seeking behaviors**

After patients interpret that symptoms are a threat to their health, they will try to relieve the symptoms. This study will focus on treatment-seeking behaviors. There is evidence to show that when patients with PAOD have found strategies to manage their symptoms when symptoms such as intermittent claudication, rest pain occurred (Panchoowong, 2007; Sawangphong, 2009; Wann-Hansson, Hallberg, Klevsgård, & Andersson, 2005).

Panchoowong (2007) reported that patients chose a variety of strategies to manage their pain as a result of individual experience or from various sources such as health personnel and the advice of family members or friends, including the sitting, taking pain relief medication as prescribed; the medicines own consumption; gently rub the pain area; or wearing socks; keep warm with a blanket; hot compress; massage and soak the feet in warm water, respectively.

These findings concurred with those of the study of Wann-Hanson and colleagues (2005) which found that patients with PAOD, selected the strategies for relieving pain such as hanging foot down, and gently massage or rub the area of pain. However, these studies did not indicate treatment-seeking behaviors before receiving diagnosis from a specialist.

Sawangphong (2009) studied reasons for not visiting a health care service in patients with PAOD found that more than 85% of patients with PAOD did not come to seek health care services because they did not realize or recognize the importance of their symptoms. Furthermore, other reasons preventing patients from seeking health care services were that they did not want to trouble anyone and were waiting to see if the symptoms would go away. However, these reasons did not correlate with leading patients to visiting health care service immediately. Moreover, the findings were congruent with Willigendael and colleagues (2004) who found that more than 60 % of patients with PAOD did not consult with a physician within 6 months after the onset of symptoms.

In summary, according to the literature review, numerous factors influence prehospital delay time in patients with PAOD. However, little is known about how these factors interact with prehospital delay time in patients with PAOD. Therefore, the present study is concerned with the relationships between internal stimuli in terms of sociodemographic characteristics and clinical characteristics/environmental stimuli in terms of social support, knowledge about PAOD, depression and fear and treatment-seeking behaviors with prehospital delay among patients with PAOD.

Summary

As previously stated, the numbers of patients with PAOD increases rapidly each year. The PAOD results from interference in blood circulation caused by the gradual formation of atherothrombosis, which that leads to arterial stenosis. The severity of symptoms depends on the degree of stenosis and occlusion of peripheral blood vessels, which affects the amounts of oxygen and nutrients delivered to tissues at distal parts of the limbs. If the stenosis is more narrow, will cause pain at rest, followed by ischemic ulcers and tissue gangrene, which eventually lead to extended death of soft tissue and muscles of the extremities if no proper intervention is given.

The severity of PAOD can lead to high costs for care, which affects financial status at familial and national levels in supporting the cost of care. Care services for treating PAOD depend upon PAOD severity and range from risk-factor modifications to revascularization or amputation (Mutirangura, et al., 2006; Rosero, Kane, Clagett, & Timaran, 2010; Coen D. A. Stehouwer, et al., 2009; van Kuijk, Flu, Bax, & Poldermans, 2009). According to the literature review, most patients had prehospital delay time because they received treatment in the late stage of the disease i.e. critical limb ischemia. If patients with PAOD can receive treatment in the early stages of disease, the risk for amputation will be decreased. However, there is a lot of evidence that has not been synthesized into a model to understand how these factors interact and which are the strongest predictors of delay in patients with PAOD. The researcher's interest in studying this issue stems from the expectation that the research findings will help health care providers know what influences prehospital delay time for patients with PAOD which will help them develop interventions to decrease delay for patients with PAOD. Moreover, knowledge of this study can be used to change health care services in terms of increasing PAOD awareness and providing screening and early detection of PAOD in risk groups to prevent the progression of PAOD.

CHAPTER III
METHODOLOGY

The design was a cross-sectional study to investigate factors influencing prehospital delay in patients with peripheral arterial occlusive disease (PAOD). The purposes of this study were 1) to describe the relationships between internal stimuli in terms of socio-demographic characteristics and clinical characteristics, environmental stimuli in terms of social support, knowledge about PAOD, depression and fear, and treatment-seeking behaviors with prehospital delay among patients with PAOD; and 2) to predict prehospital delay among patients with PAOD from internal stimuli in terms of socio-demographic characteristics and clinical characteristics, environmental stimuli in terms of social support, knowledge about PAOD, depression and fear, and treatment-seeking behaviors. The hypothesis of this study was that the internal stimuli in terms of socio-demographic characteristics and clinical characteristics, environmental stimuli in terms of social support, knowledge about PAOD, depression and fear, and treatment- seeking behaviors will have an influence on prehospital delay among patients with PAOD. The research methodology was as followed:

Population and Sampling

The target population in this study were patients with peripheral arterial occlusive disease visiting the vascular surgery outpatient departments of 3 university hospitals in Bangkok. Almost all samples were selected with the following inclusion criteria: new cases diagnosed with chronic PAOD or diagnosis with chronic PAOD during 4 months preceding the study; full cognition of their illness and ability to communicate in spoken and written Thai. Patients with acute PAOD and patients with PAOD from others causes, including traumatic vascular disorders, inflammation, or embolism were excluded from the study.

Sample Size

The sample size for this study was based on the rule of thumbs for multiple regression analysis proposed by Pedhazur and Schmekin (1991) stated that a substantial participants to predictor ratio is 30 to 1. There were 11 predictors in this study, i.e. gender, age, education, income, medical expense, comorbidity, social support, knowledge about PAOD, depression, fear, and treatment seeking behaviors. The calculation yielded 330 cases. Because there were no more new patients, readmitted patients, and followed up cases during the data collection period, 215 cases were participated in this study. However, 3 cases were excluded because they had ambiguous health history and were outlier cases, as discussed below. Therefore, 212 cases were recruited into the study.

Research Settings

The settings were the out-patient department of university hospitals in Bangkok, namely, Siriraj hospital, Ramathibodi hospital, and Phramongkutklao hospital. The details of the three settings were described as followed:

Siriraj hospital is a large tertiary care and university hospital with vascular surgeons who are experts in peripheral arterial occlusive disease. Approximately, 400 patients with PAOD are seen per year (Siriraj Hospital Statistical Department, 2010). The out-patient vascular clinic gives service to patients with PAOD from 8.00 a.m. to 12.00 p.m. on every Friday. There are approximately 30 patients with PAOD per week which include the new case of PAOD that may visit by himself or herself, is referred from other department, or is referred from another healthcare setting, and the follow up case. Moreover, the vascular surgery laboratory is open daily from 8.00 a.m. to 4.00 p.m. on Monday- Friday except the holidays. There are patients with PAOD about 20 per week receive the peripheral vascular specific evaluation who are both in-patients and out-patients that have the appointment with their vascular surgeon.

Ramathibodi hospital is a large tertiary hospital and has vascular surgeons who are experts in peripheral arterial occlusive disease. The number of patients with PAOD seen per year is about 150 PAOD cases per year. The out-patient vascular

clinic give service to patients with PAOD from 8.00 a.m. to 12.00 p.m. in every Tuesday which each week treats about 20 patients with PAOD that include the new case of PAOD that may visit by himself or herself, is referred from other department, or is referred from another healthcare setting, and the follow up case.

Phramongkutklao hospital a large tertiary hospital and has vascular surgeons who are experts in peripheral arterial occlusive disease. Approximately, 200 patients with PAOD are seen per year (Phramongkutklao Hospital Statistical Department, 2010). The out-patient vascular clinic gives service to patients with PAOD from 8.00 a.m. to 12.00 p.m. in every Tuesday and treats about 10-15 patients with PAOD in each week which include the new case of PAOD that may visit by himself or herself, is referred from other department, or is referred from another healthcare setting, and the follow up case.

Among 212 patients who were recruited into the study, 143 patients were from Siriraj hospital, 25 were from Ramathibodi hospital, and 44 were from Pramongkutklao hospital.

Instrumentation

The instruments for data collection in this study consisted of 8 parts (Appendix):

Part 1 Demographic record form: The researcher developed the demographic record form comprising 9 items with fill-in-the-blank and multiple choices questions regarding age, gender, marital status, educational level, total years of education, occupation, average of family monthly income, sufficiency of income and sources of money for medical expenses.

Part 2 Medical history record form: The researcher developed medical history record form with a section consisting of multiple choice and fill-in-the-blank questions regarding ABI value, Fontaine's stage of disease, location of occlusion, comorbidity, and smoking history. For this study, comorbidity, was considered as a

predictor for prehospital delay time. Therefore, the amount of comorbidities were calculated and performed as continuous variable.

Part 3 Multidimensional scale of perceived social support (MSPSS) (Gregory D. Zimet, et al., 1988), had 12 items that measured for self-report perceived social support, was used. The items were scored on a 7-likert scale with response options from 1 (very strongly disagree) to 7 (very strongly agree). The three domains of support were evaluated: significant other (items 1, 2, 5, and 10), friends (items 6, 7, 9, and 12), and family (items 3, 4, 8, and 11). The total score ranged from 12 to 72, were obtained by subtracting the summation of all item scores by 12. MSPSS was translated from English to Thai by Boonyamalik (2005) and used it to assess perceived social support in Thai adolescents attending school in his research.

Validity

The MPSS was originally developed by Zimet and colleagues in 1988. The data based on undergraduates at Duke University including 139 male and 136 female. The factor analysis revealed that 12 items and derived sub-scores of perceived support from significant others, friends and family. In this study, the content validity was tested by five experts in cardiovascular diseases. The content validity index (CVI) was calculated from the total rating scores given by five experts and dividing by total items (Waltz, Strickland, & Lenz, 2005). In each scale, the panel of five experts rated with the score of 3 or 4 and the CVI of MSPSS was 1.0. Therefore, it met the proportion required by Lynn (Lynn, 1986).

Reliability

The MPSS had acceptable internal consistency reliability using Cronbach's alpha for total scores with perceived support from family, friends and significant others at 0.88, 0.91, 0.87 and 0.85, respectively (Blumenthal, et al., 1987; Gregory D. Zimet, et al., 1988). The test-retest reliability for the total scores and three subscales were 0.85, 0.72, 0.85, and 0.75, respectively. Moreover, the instrument has been used to assess perceived social support in 203 patients with PAOD whereby Cronbach's alpha coefficient was .92 for the total scores, and .89, .96, and .95 for the

subscales support from partner, family and friends, respectively (Aquarius, et al., 2006).

For the Thai version, Boonyamalik (2005) tested the translated version in 1,135 Thai adolescents attending in schools. In his study, the MSPSS showed Cronbach's Alpha Coefficient of reliability at 0.89. Furthermore, the another study using this measure in 75 adolescent with psychosomatic problems indicated the reliability 0.88. In this study, for the sample 212 patients with PAOD, the reliability of internal consistency was 0.80 for total scores and 0.85, 0.75, and 0.85 for the subscales support from partner, family, and friends, respectively.

Part 4 The Knowledge about peripheral arterial occlusive disease questionnaire was developed by the researcher from related literature. The questionnaire begins with the question "Have you ever heard about PAOD?" and follow by the questions of knowledge about PAOD. It contained 3 domains consisting of knowledge about PAOD symptoms, PAOD risk factors and the effects of PAOD comprising the following 16 items:

1) Knowledge about PAOD symptoms: Items 1-7.
2) Knowledge about PAOD risk factors: Items 8-12.
3) Knowledge about the effects of PAOD: Items 13-16.

The answers consisted of 2 choices i.e. "yes" and "no" with the scores between 0-16 points whereby higher scores mean higher level of knowledge.

Instrument Development

The content domains of knowledge of the PAOD questionnaire was derived from a literature review (Cambou, et al., 2010; A.T. Hirsch, et al., 2007; Lovell, et al., 2009; McDermott, 2006; Norgren, et al., 2007; Ostchega, et al., 2007; Willigendael, et al., 2004). The content domains are symptoms, risk factors, and effects. After that, items were generated for each domain. Netemeyer and colleagues (2003) stated that the number of items will depend on the number and complexity of the facets of the domain. If the domain is narrowly defined and the resulting scale is to be short, a pool as small as 20-30 items may suffice (Netemeyer, et al., 2003). The domains of this instrument are not complex; therefore, the number of items in the

initial pool was 20 items. The symptoms domain comprised 7 items, the risk factors domain comprised 7 items, and effects domain comprised 6 items. Five of all items were false symptom, risk factor, and effects of PAOD to prevent social desirability bias (DeVellis, 2003). The items in each domain were arranged in a suitable sequence into blueprint format and revised with the help of a native English-speaker to assure clarity and minimize redundancy. The response format of each item is binary i.e. 1, "yes" and 0, "no". Because each item has minimal variability, this format of only one of two answers was judged to be sufficient. Furthermore, it decreases the burden placed on the participants when they can quickly answer (DeVellis, 2003).

Validity

Content validity was assessed by using content validity index (CVI) to assist in quantifying the process of validating content of measurement. The CVI is calculated from the content experts' ratings of the content relevance of the items on an instrument. A 4-point Likert scale is used where 1 equals 'not relevant' to 4, 'very relevant'. The CVI represents the proportion of items on an instrument that achieved a rating of 3 or 4 by the content experts. To be content valid, each item must receive a score of 3 or 4 by four of five experts or .80 overall (Lynn, 1986).

The format for expert evaluation in this study, 4-point rating scale was put together onto the 20-item Knowledge about PAOD questionnaire. Five reverse items were included to make sure that each reverse item was not relevant to any symptoms, risk factors, or PAOD effects. The 4-point scale provides the options of: "1 = not relevant; 2 = unable to assess relevance without item revision or item is in need of such revision that it would no longer be relevant; 3 = relevant but needs minor alteration; and, 4 = very relevant and succinct" (Lynn, 1986). Moreover, the question "what other symptoms, risk factors, or effects that should be included?" was included at the end of each domain. The 20 items were judged by five experts who have experience in cardiovascular practice between 15 and 40 years in the role of clinical nurse specialist, nurse educator, and nurse practitioner. Then, CVI of the items and CVI of the instrument without 5 reverse items were calculated. The CVI of each item ranged from 0.8 to 1.00 and the CVI of the instrument was 0.87. The comments and

suggestions of the experts were adjusted to writing and editing to ensure that the content was clear and comprehensive.

The content validity of knowledge of peripheral arterial occlusive disease questionnaire in Thai version was judged by five experts who are 1 vascular specialist, 2 vascular nurses, and 2 nurse educators. CVI of each item was 1.0 and CVI of the instrument was 1.0.

Reliability

In this study, for the sample 212 patients with PAOD, the internal consistency reliability was tested by using KR-20. The coefficient of reliability of the PAOD Knowledge questionnaire was 0.73.

Part 5 The hospital anxiety and depression scale (HADS) was developed by Zigmond and Snaith (1983) to assess anxiety and depression in general patients in a hospital. The Thai language version of HADS was translated by Nilchaikovit and colleagues (1996) which used it in cancer patients. The Thai version is composed of 2 domains and 14-items:

Domain of anxiety has 7 items, including Items 1, 3, 5, 7, 9, 11, and 13.

Domain of depression has 7 items, including Items 2, 4, 6, 8, 10, and 14.

The scale for each domain ranges from 0 to 3 points. The interpretation of each domain is:

0-7	=	Normal
8-10	=	Borderline Abnormal
11-21	=	Abnormal

Only the domain of depression will be used to assess depression in this study.

Validity

Factor analysis was used to determine the construct validity that divide into 2 components: 1) Items 1, 3, 5, 7, 9, 11, and 13 for anxiety and 2) Items 2, 4, 6, 8, 10, 12 and 14 for depression.

For validity in this study, the content validity is tested and accepted by five experts in cardiovascular diseases. The content validity index (CVI) was calculated from the total rating scores given by five experts and dividing by total items (Waltz, Strickland, & Lenz, 2005). In each scale, the panel of five experts rated with the score of 3 or 4 and the CVI of HADS was 1.0. Therefore, it met the proportion required by Lynn (Lynn, 1986).

Reliability

In the original version, the HADS had 16 items divided into 2 domains: 8 items on depression and 8 items on anxiety. The instrument was tested with 50 out-patients who sought treatment at the Medicine Department (Zigmond, & Snaith, 1983). The item-total coefficient correlation was determined by the Spearman correlation. The results indicated that the correlation of depression ranged from 0.60 to 0.30 while anxiety ranged from 0.76 to 0.41. Moreover, the weakest items of both domains were removed, so each domain comprises 7 items.

For the Thai version, Nilchaikovit and colleagues (1996) tested the translated version in 60 cancer patients. The result showed Cronbach's alpha coefficient of anxiety domain was 0.82, while the depression domain was 0.85. Moreover, the comparison of the participants' responses and psychiatrists' diagnoses was tested for determining the sensitivity and specificity. For the depression domain, sensitivity and specificity were 85.71% and 91.3%, respectively, whereas those of anxiety were 100% and 86%, respectively. In this study, for the sample, 215 patients with PAOD, the internal consistency reliability was 0.90.

Part 6 The visual analog fear scale was developed by the researcher from related literature and contains 5 items on fear i.e. fear of loss of function, fear of loss of independence, fear of loss of leg, and fear of loss of life. Each item contains a 10-cm visual analog scale (Waltz, et al., 2005), with an end point of 0 for "no fear" and 10 for "extreme fear". Patients were asked to make a mark on the line representing their feelings of fear during the past 1 month preceding the study.

The visual analog fear scale scores ranged between 0 and 10; higher scores indicated high level of fear.

Validity

The first version of this instrument has been constructed in English. The content validity of the visual analog fear scale based on stages of content validity (CV) determination was proposed by Lynn (1986) and composed of a developmental stage and a judgment or quantification stage. In the developmental stage, the researcher identified the items about the feelings of fear as derived from related literature (Treat-Jacobson, et al., 2002; Wann-Hansson, Hallberg, Klevsg¡rd, et al., 2005). The items were then arranged in a suitable sequence for a useable form. In the judgment or quantification stage, the five experts in peripheral vascular disease validated the content of each item and instrument. A 4-point Likert scale was used ranging from 1 (not relevant) to 4, (very relevant). The CVI represents the proportion of items on the instrument that achieved a rating of 3 or 4 by the content experts. For the content to be valid, each item must receive a score of 3 or 4 by four of five experts, or .80 overall (Lynn, 1986). The content validity index (CVI) of each item was between 0.8 and 1.0. The CVI of the instrument was 0.95. According to the comments and suggestions of these experts, the instruments had revised and rewritten to ensure that the content was clear and comprehensive.

The content validity of visual analog fear scale-Thai version was judged by five experts. CVI of each item was 1.0 and CVI of the instrument was 1.0.

Reliability

The internal consistency reliability of the Visual Analog Fear Scale in 215 patients with PAOD was 0.35.

Part 7 The treatment seeking behavior interview form was developed by the researcher. The interview form contained 6 items. The first item asked for the first patient's perception about symptom related with PAOD. Then the second item asked for how to manage their symptoms. Using treatment seeking behaviors, which were derived from Response to Symptoms Questionnaire and review of the literature as guideline (K. Dracup & Moser, 1997; Panchoowong, 2007; Zegrean, Fox-Wasylyshyn, & El-Masri, 2009). After that, asking for the frequency and effectiveness of each treatment seeking behavior. Content analysis was used for the data from the

interview. Then, the number of treatment seeking behaviors was calculated and preformed as continuous variable. These seeking behaviors as proposed in the scale comprised both appropriate and inappropriate behaviors. Accordingly, the higher number of the behaviors could not represent the appropriateness of seeking behaviors. In contrary, the scores only reflect the number of seeking behaviors performed by patients with PAOD.

Part 8 The sequence of time interview form was used to assess prehospital delay time. It was developed by the researcher that comprised of data from the healthcare service setting that patients visited and the duration from onset of the PAOD symptoms to receive the health care service in each setting. For reliable data, the participants were asked about their symptoms in relation to their significant life situations such as birthdays, Thai national holidays or Thai festivals. The duration from onset of symptoms to receive health care service from vascular specialist was calculated. Prehospital delay time was assessed as a continuous variable. The responses to these questions were verified through a review of the patients' medical records. When discrepancies were found between what the participants had said and what their medical records reveal, medical record data was used because the participants might had recall bias due to the nature of their illness conditions. These interviews were done by researcher. Content analysis was used for the data from the interview. The prehospital delay time was calculated after the detail interview.

Table 3.1 Scales summary of the study measurements

Measurements	Level of measurement	Number of items
Demographic record form		
Age	Ratio	1
Gender	Nominal	1
Income	Ordinal	1
Year of education	Interval	1
Source of medical expense	Nominal	1
Medical history record form		
Comorbidity	Ratio	1
Perceived social support scale (Gregory D. Zimet, et al., 1988)	Interval	12
Knowledge about peripheral arterial occlusive disease questionnaire	Interval	16
The hospital anxiety and depression scale (HADS) : depression domain	Interval	7
The visual analog fear scale	Interval	5
Treatment seeking behaviors interview form		
Treatment seeking behaviors	Ratio	1
The sequence of time interview form	Ratio	1

Protection of Human Participants' Rights

The proposal for this study was submitted to the Institutional Review Board (IRB) of each setting; Siriraj hospital, Ramathibodi hospital, and Phramongkutklao hospital. After obtaining permission, researcher introduced herself to the head of Department of Vascular Surgery and head of the clinical nurse to introduce the purpose and details of research and cooperation in data collection. This allowed researchers to access the patients' data and medical records of the patients.

The protection of human rights was concerned with 3 aspects as followed:

The protection of human rights was concerned with 3 aspects as followed:

1. Benefit from research: The results of this research are useful for patients with PAOD overview by healthcare personnel can use the findings as a basis for educating patients with risk factors for the disease patients with PAOD receive. treatment within a reasonable period. Moreover, health care provider will be able to use research-based information to improve the healthcare system for patients with PAOD can access the health care system rapidly.

2. Risk from research: All participants were informed about the purpose and methods of this study. Communication in both written and verbal, to ensure that participants truly understood the study and was involved in their research. In this research, data were collected by interviewing participants and check information from medical records, there were no physical risks or side effects arising from the research. The participants took about 45 minutes to answer the questionnaire. Which might have some questions that might irritate the feelings and emotions of the participants , they could refuse to answer questions or to give up on it anytime they wanted to be denied access. It did not have any effect on receiving the treatment or care from the health care provider. Data collection in the outpatient department made while patients were waiting outside the examination room before the doctor call. If the patient was called into the examination room while the interviews, the patient had to see the doctor before and when the patient has been successfully then continued to interview. The researchers did not hamper disturbed patients to receive treatment from medical personnel.

3. Confidentiality of data: Data collected from the sample were kept strictly confidential consent form and the information collected was stored separately and used numbers instead of names of patients in which only the researchers could be access to a computer database by using password. The research has been published in related journals or presented at the conference that presentation as a whole data and generally not part of any person. After the entire samples were informed of the purpose of the research and other related issues, they signed a consent form for research participation.

Data Collection

1. The recommendation letters from the Faculty of Graduate Studies, Mahidol University were submitted to the Dean of Faculty of Medicine Siriraj Hospital, Mahidol University, Directors of Ramathibodi Hospital, and Phramongkutklao Hospital to request permission to conduct the study and approach each IRBs.

2. After obtaining permission, the researcher introduced herself to the head of Department of Vascular Surgery and head of the clinical nurse to introduce the purpose and details of research and cooperation in data collection. This allowed researchers to access the patients' data and medical records of the patients.

3. The researcher collected data by the following procedure.

3.1 The researcher surveyed a list of patients with PAOD who received treatment at the outpatient department for screening patients in this study.

3.2 The researcher introduce herself and built a relationship with the patient to explain the purpose of the study and asked to voluntarily took part in the research, in consideration of the patient's rights at all times.

3.3 The researcher distributed the research instruments after the participants signed the consent form and began the interviews in the following order: 1) Demographic record form; 2) Medical history record form; 3) Perceived social support scale; 4) The knowledge about PAOD questionnaire; 5) The hospital anxiety and depression scales; 6) The visual analog fear scale; 7) Treatment seeking behavior interview form and 8) The sequence of time interview form. If patients have any eye problems or illegible, the researchers read the questions and recorded the answers in the questionnaire for the patient.

3.4 At the close of the questionnaires, the researcher allowed time for any inquiries made by the participants and correction of any incomplete items. The answers were checked by the samples in a process lasting approximately 45 minutes.

4. The researcher submitted the collected data from the questionnaires to statistical analysis. The data were examined the outliers and missing values. The cases with outliers or too many missing values were determined to be cut off. The data were promptly analyzed by the researcher.

Data Analysis

Statistical analysis included the application of descriptive and inferential statistics. Descriptive statistics (mean, standard deviation, median, mode, skewness, kurtosis) were used to delineate the characteristics of the sample and examine the distribution of demographic variables and the variables of interest in this study by using the Statistical Package of the Social Science for Personal Computers (SPSS/PC) 17.0. Inferential statistics were used to determine the reliability of the instruments and subscales. In addition, descriptive statistics were conducted to test the assumptions of multiple regression. Dummy variables for gender, income, and source of medical expense, were performed for preventing violation of multiple regression assumption. The normality of distribution was determined by examining the histogram for each variable. Data were examined for outliers in each variable to evaluate possible data entry errors. To examine for multi-collinearity, the correlation between the exogenous variables did for moderate and high correlations. Multi-collonearity was present if high correlations (>.85) were found between variables (Munro, 2000). For the homoscedasticity assumption, every value of independent variables had an approximate distribution with equal variability for the dependent variable.

In order to answer the research questions using multiple regression analysis run by SPSS. An alpha level of .05 was the accepted level of significance for this study.

Research Question: What are the factors influencing prehospital delay among patients with PAOD? Multiple regressions were done to explore the relationship between the independent variables (internal stimuli in terms of socio-demographic characteristics and clinical characteristics, environmental stimuli in terms of social support, knowledge about PAOD, depression and fear, and treatment-seeking behaviors) and the dependent variable (prehospital delay time) and to determine which independent variables best explain the dependent variable.

CHAPTER IV
RESULTS

This cross-sectional study was designed to investigate factors influencing prehospital delay time among patients with peripheral arterial occlusive disease (PAOD). The purposes of this study were to 1) describe the relationships between internal stimuli in terms of socio-demographic characteristics and clinical characteristics, environmental stimuli in terms of social support, knowledge about PAOD, depression and fear, and treatment-seeking behaviors with prehospital delay time among patients with PAOD; and 2) predict prehospital delay time among patients with PAOD from internal stimuli in terms of socio-demographic characteristics and clinical characteristics, environmental stimuli in terms of social support, knowledge about PAOD, depression and fear, and treatment-seeking behaviors. The hypothesis of this study was that the internal stimuli in terms of socio-demographic characteristics and clinical characteristics, environmental stimuli in terms of social support, knowledge about PAOD, depression and fear, and treatment- seeking behaviors will have an influence on prehospital delay time among patients with PAOD.

This study presented descriptive statistics of the demographic characteristics and the major study variables. The result of preliminary analysis of multiple regressions is reported. The multiple regression analyses and the findings the hypothesis is presented.

Part I: Descriptive statistics of demographic characteristics and major study variables.

Characteristics of Study Sample and Study Variables

Description of the Study Sample

The participants for the study were 212 peripheral arterial occlusive disease (PAOD) patients who visited the vascular surgery outpatient departments of 3 tertiary hospitals in Bangkok and were new cases diagnosed with PAOD or diagnosis with PAOD during 4 months preceding the study. No missing data was showed in this analysis. The following presentation of the sample, including sociodemographic and clinical characteristics, smoking history, and medical conditions.

Sociodemographic Characteristics

The descriptive statistics including means, standard deviations, skewness, and kurtosis of the sociodemographic characteristics of the overall patients with PAOD in the study are presented in Table 4.1.

Age of participants in this study ranged from 40-89 years, with an average was 66.03 (SD = 12.56). Most of the participants were male (59.9%), while 40.1% were female. Approximately 67% of the participants were married, followed by widowed (20.3%), single (7.6%), and divorced or separated (5.2%).

Half of participants (51.9%) graduated elementary school, and average years of education were 8.13 (SD = 4.94). For occupation, 24.5% were agriculturists 23.6% were unemployed, and 17.9% worked for a government office. The majority of the participants lived in Bangkok and perimeter (58.0%). One-third of the participants (34.9%) reported a household income less than 5,000 baht per month and 65.6% of the participants reported the household income sufficiency but not enough for saving. Nearly half of the participants (46.2%) had universal coverage for medical expense, 37.7% had reimbursement, and 8.5% and 7.6% had social security and self-payment, respectively.

Table 4.1 Sociodemographic characteristics of the sample (n = 212)

Variables	Frequency	%
Age (years)		
≤ 59 (Adult)	66	31.2
60-69 (Early elderly)	49	23.1
70-79 (Middle elderly)	69	32.5
≥ 80 (Late elderly)	28	13.2
Mean = 66.03, SD = 12.56, Min = 40, Max = 89, Skewness = - 0.29, Kurtosis = - 0.86		
Gender		
Male	127	59.9
Female	85	40.1
Marital status		
Single	16	7.6
Married or living with partner	142	66.9
Widowed	43	20.3
Divorced or separate	11	5.2
Educational (level)		
None	6	2.8
Elementary School	110	51.9
Secondary School	47	22.2
Diploma or Technical	16	7.5
Bachelor or above	33	15.6
Education (years)		
Mean = 8.13, SD = 4.94, Max = 19, Min = 0, Skewness = - 0.29, Kurtosis = - 0.87		
Occupation		
Agriculturist	52	24.5
Unemployed	50	23.6
Government officer	38	17.9
Business owner	32	15.1
Employee	25	11.8
Retirement	15	7.1
Living province		
Bangkok and perimeter	123	58.0
Central (exclude Bangkok and perimeter)	33	15.6
Southern	17	8.0
North-Eastern	15	7.1
Eastern	14	6.6
Western	10	4.7

Table 4.1 Sociodemographic characteristics of the sample (n = 212) (cont.)

Variables	Frequency	%
Household Income (Baht per month)		
Less than 5,000	74	34.9
5,001 - 10,000	51	24.1
10,001 - 15,000	47	22.1
15,001 - 20,000	15	7.1
More than 20,000	25	11.8
Household Income Sufficiency		
Insufficiency	6	2.8
Sufficiency but no saving	139	65.6
Sufficiency and saving	67	31.6
Medical Expense		
Self payment	16	7.6
Reimbursement	80	37.7
Universal coverage	98	46.2
Social Security	18	8.5

Clinical Characteristics

The clinical characteristics of the patients with PAOD in the study including frequencies, means, and standard deviations are presented in Table 4.2.

Only one-fourth of the participants (n = 59) were measured ankle-brachial pressure index (ABI) in the clinic. The ABI ranged from 0.19 – 1.88 with a mean of 0.60 (SD = 0.25). Based on the Fontaine's stage of disease, 62.7% of all participants were stage IV ulceration or gangrene, 29.3% were stage II intermittent claudication, and 6.6% and 1.4% were stage III rest pain and stage I asymptomatic, respectively. One hundred and thirty-three participants had wound and/ or gangrene, most of them (88.7%) had ulcer and/ or gangrene at their toes. In addition, more than one-third (39.6%) of all participants were tibio-peroneal arterial occlusion, 35.4% were femero-popliteal arterial occlusion, and 14.2% were aorto-iliac arterial occlusion.

Table 4.2 Clinical characteristics of the sample (n = 212)

Variables	Frequency	%
Ankle Brachial Index (ABI) (n = 59)		
Less than 0.40	9	15.3
0.41 – 0.80	40	67.8
0.81 – 0.90	9	15.3
More than 1.30	1	1.6
Mean = 0.60, SD = 0.25, Max = 1.88, Min = 0.19		
Fontaine's Stage of disease (n = 212)		
Stage I Asymptomatic	3	1.4
Stage II Intermittent claudication	62	29.3
Stage III Rest pain	14	6.6
Stage IV Ulceration or gangrene	133	62.7
Location of ulcer (n = 133)		
1^{st} -2^{nd} Rt. toe	5	3.8
1^{st} -3^{rd} Rt. toe	3	2.3
1^{st} Lt. toe	26	19.4
1^{st} Rt. toe	30	22.5
1^{st} Rt.& Lt. toe	3	2.3
2^{nd} -3^{rd} Lt. toe	3	2.3
2^{nd} -4^{th} Lt. toe	3	2.3
2^{nd} Rt. toe	2	1.5
3^{rd} Lt. toe	6	4.5
3^{rd} Rt. toe	2	1.5
4^{th} -5^{th} Lt. toe	5	3.8
4^{th} -5^{th} Rt. toe	2	1.5
4^{th} Rt. toe	3	2.3
5^{th} Lt. toe	15	11.2
5^{th} Rt. toe	10	7.5
Dorsum of Lt. foot	2	1.5
Dorsum of Rt. foot	4	3.0
Lt. Heel	4	3.0
Lt. tibia	3	2.3
Rt. Heel	2	1.5
Location of occlusion		
Tibio-Peroneal artery	84	39.6
Femero-Popliteal artery	75	35.4
Aorto-Iliac artery	30	14.2
Ilio-Femeral artery	23	10.8

Smoking History

The smoking history of the patients with PAOD in the study including frequencies, means, and standard deviations are presented in Table 4.3.

Most of participants (36.3%) were ex-smokers, 35.4% were non-smokers, and 28.3% were current smokers. For the current smokers, average smoking was 33.08 years (SD = 11.4) and mean of numbers of smoking was 342.19 (SD = 8.75) packs/year. Whereas, the average smoking of the ex-smokers was 35.22 years (SD = 9.05) and mean of numbers of smoking was 311.16 (SD = 9.22) packs/year. The times of quit smoking varied from 1 month to 300 months (Mean = 99.86, SD = 94.13).

Table 4.3 Smoking history of the sample (n = 212)

Variables	Frequency	%	Range	Mean	SD
Smoking history					
Non-smoker	75	35.4			
Current Smoker	60	28.3			
Ex-Smoker	77	36.3			
Current Smoker					
Year of smoking			15-60	33.08	11.4
Number of smoking (packs/year)			91.25-730	342.19	8.75
Ex-smoker					
Year of ever smoking			15-55	35.22	9.05
Number of ever smoking (packs/year)			91.25-912.50	311.16	9.22
Time of quit smoking (month)			1-300	99.86	94.13

Comorbidities

The comorbidities of the patients with PAOD in the study is presented in Table 4.4.

Almost of the participants (65.1%) were diabetes mellitus, and 60.4% and 31.1% were hypertension and dyslipidemia, respectively. Whereas, 9.0% of participants did not have any comorbidities. Nearly one-third (29.7%) of the participants had two comorbidities, 23.6% of all participants had one comorbidity, and 21.2% of all participants had three comorbidities.

Table 4.4 Comorbidities* of the sample (n = 212)

Variables	Frequency	%
Diabetes mellitus	138	65.1
- Diabetes without end organ damage	132	62.3
- Diabetes with end organ damage	6	2.8
Hypertension	128	60.4
Dyslipidemia	66	31.1
Coronary artery disease	44	20.8
End Stage Renal Disease	23	10.8
Cerebrovascular disease	21	9.9
Arthritis	16	7.5
Chronic Obstructive Pulmonary Disease	13	6.1
Congestive heart failure	6	2.8
Spinal Stenosis	5	2.4
None comorbidities	19	9.0
Summary of numbers of comorbidities		
None comorbidity	19	9.0
One comorbidity	50	23.6
Two comorbidities	63	29.7
Three comorbidities	45	21.2
Four comorbidities	26	12.3
Five comorbidities	9	4.2

(*Answer more than 1 comorbidity)

Descriptive Statistics of the Study Variables

The study variables are age, gender, household income, level of education, medical expense, comorbidities, social support, knowledge about PAOD, depression, fear, and treatment seeking behaviors. For the variables of age, gender, household income, level of education, year of education, medical expense, and comorbidities are aforementioned presented in Table 4.1-4.4.

The average total score of social support in the participants was 44.41 (SD = 7.92). The average score and skewness value indicated that the participants in this study had rather high level of social support (Table 4.5).

Table 4.5 Social Support of the sample (n = 212)

Variables	Possible Range	Actual Range	Mean	SD	Skewness	Kurtosis
Social support from family	4-28	14-28	23.96	2.84		
Social support from friends	4-28	4-22	11.17	4.10		
Social support from special person	4-28	4-28	21.34	4.37		
Total score of social support	0-72	19-60	44.41	7.92	-0.65	0.98

For the knowledge about PAOD, nearly all (94.3%) had never heard about PAOD. Meanwhile, only 12 participants (5.7%) had ever heard about it and 5 of them were known from their families and cousins. In overall, the participants had knowledge about PAOD at quite low level (Mean = 5.67, SD = 3.02, skewness = 0.99) (Table 4.6).

Table 4.6 Knowledge about PAOD of the sample (n = 212)

Variables	Frequency	%	Possible Range	Actual Range	Mean	SD	Skewness	Kurtosis
Did you ever heard about PAOD?								
Yes	12	5.7						
No	200	94.3						
Source of heard about PAOD (n = 12)								
Family	5	41.7						
Health care provider	3	25.0						
Friend	1	8.3						
Broadcast media	3	25.0						
Knowledge about symptoms of PAOD			0-7	0-6	2.55	1.59	0.95	-0.12
Knowledge about risk factors of PAOD			0-5	0-4	1.87	1.13	0.48	-0.52
Knowledge about effects of PAOD			0-4	0-4	1.22	0.78	0.75	0.78
Total score of knowledge about PAOD			0-16	2-12	5.64	3.00	1.00	-0.29

For the depression score was measured by HADS, the mean total score and skewness value indicated that the majority of the participants (75.9%) had normal state. (Mean = 5.47, SD = 4.45, skewness = 1.24) (Table 4.7).

The mean score of fear score was 8.26 (SD = 1.11) with ranged from 4.8 to 10. The mean score and skewness value revealed that the most of the participants in this study had high level of fear (Table 4.7).

Table 4.7 Depression and fear score of the sample (n = 212)

Variables	Frequency	%	Possible Range	Actual Range	Mean	SD	Skewness	Kurtosis
Depression by HADS			0-21	0-19	5.51	4.7	1.22	0.90
Normal (0-7)	161	75.9						
Borderline abnormal (8-10)	19	9.0						
Abnormal (11-21)	32	15.1						
Fear			0-10	4.8-10	8.26	1.11	-0.49	0.53
Fear of unable to control pain			0-10	0-10	5.91	2.86	0.03	-0.78
Fear of loss of function			0-10	2-10	8.86	2.01	-1.79	2.28
Fear of depend on others			0-10	5-10	9.31	1.44	-2.06	3.05
Fear of loss of leg or foot			0-10	3-10	9.30	1.64	-2.39	4.92
Fear of death			0-10	0-10	7.96	2.29	-0.77	-0.21

The first perception of the PAOD symptom that led the participants sought for the strategies to relieve their symptoms were gangrene (33.5%), intermittent claudication (31.6%), ulceration or non-healed ulcer (27.4%), and rest pain (7.5%). More than one fourth of the participants who had ulceration (28.6%) did not know the cause of ulcer. Whereas, 21.8% of them had the ulcer caused from contamination of dirty water (Table 4.8).

Nearly half of the participants (42.5%) used wound dressing themselves as the first treatment approach used for relieving their symptoms, followed by, apply the balm (17.5%), and waited to see symptoms go away (12.7%). For the overall of the treatment approach which each participant used, 46.7% of the participants used totally three treatment approaches, and 29.3% used totally two treatment approaches (Table 4.8).

Table 4.8 Treatment seeking behavior of the sample

Variables	Frequency	%
First perception of the PAOD symptom (n = 212)		
Intermittent claudication	67	31.6
Rest pain	16	7.5
Ulceration or non-healed ulcer	58	27.4
Gangrene	71	33.5
Perception of ulceration's cause (n = 133)		
Unknown	38	28.6
Contamination of dirty water	29	21.8
Touch the hot objects	19	14.3
Fall or stumble on something	15	11.3
Nail cutting/ Nail extraction/ Ingrown toenail	14	10.5
Stab from sharp objects	12	9.0
Insect bite	6	4.5
The first treatment approach used (n = 212)		
Wound dressing by themselves	90	42.5
Apply Balm on the pain area	37	17.5
Waited to see symptoms go away	31	14.6
Tried to relieve pain by change position (from standing to sitting)	17	8.0
Visited the physician at clinic or hospital	13	6.1
Told someone who was nearby	10	4.7
Took pain medication	9	4.2
Used alternative strategies such as massage, acupuncture	5	2.4

Table 4.8 Treatment seeking behavior of the sample (cont.)

Variables	Frequency	%
The second treatment approach used (n = 195)		
Told someone who was nearby	62	31.8
Visited the physician at clinic or hospital	46	23.6
Waited to see symptoms go away	26	13.3
Wound dressing by themselves	18	9.3
Consult with health care provider	13	6.7
Apply Balm on the pain area	10	5.1
Took pain medication	10	5.1
Used alternative strategies such as massage, acupuncture	8	4.1
Told their friends	2	1.0
The third treatment approach used (n = 137)		
Visited the physician at clinic or hospital	95	69.3
Told someone who was nearby	15	10.9
Consult with health care provider	14	10.2
Took pain medication	6	4.4
Used alternative strategies such as massage, acupuncture	3	2.2
Tried to relieve pain by change position	2	1.5
Told their friends	2	1.5
The fourth treatment approach used (n = 34)		
Visited the physician at clinic or hospital	23	67.6
Told someone who was nearby	7	20.6
Consult with health care provider	2	5.9
Used alternative strategies such as massage, acupuncture	2	5.9
The fifth treatment approach used (n = 7)		
Visited the physician at clinic or hospital	7	100
Summary of treatment approach which each sample used (n = 212)		
One treatment approaches used	16	7.5
Two treatment approaches used	62	29.3
Three treatment approaches used	99	46.7
Four treatment approaches used	28	13.2
Five treatment approaches used	7	3.3
Mean = 2.75, SD = 0.89, Min = 1, Max = 5, Skewness = .14, Kurtosis = .12		

The first health care setting which the participants visited for medical treatment were university hospital but other department (22.7%), followed by general hospital (20.3%) and private hospital (17.0%), respectively. For the reason for visiting the first setting, 31.1% were "the hospital was the regular hospital that the patients receive treatment", 25.0% were "had medical insurance with hospital", and 23.1% were "convenience and close to patients' home". The mean of duration from perception of symptom onset to visit the first setting was 95.75 days (SD = 162.63) and the median was 30 days. For diagnosis on the first setting, most of participants (66.5%) were diagnosed related with peripheral arterial occlusive disease. The mean of duration from perception of symptom onset to the first setting diagnosis was 98.75 days (SD = 164.54) and the median was 30 days. The treatment from the first setting were antibiotics administration (both oral and intravenous) (46.0%), debridement and /or wound dressing (44.2%), and referred to other hospital (36.7%). The mean of duration from perception of symptom onset to treatment at the first setting was 98.76 days (SD = 164.54) and the median was 30 days. (Table 4.9)

Table 4.9 The first health care setting (n = 212)

Item	Frequency	%
First Setting		
University hospital but other department	48	22.7
General hospital	43	20.3
Private hospital	36	17.0
Tertiary care hospital	28	13.2
University hospital (Vascular surgery department)	18	8.5
Community hospital	16	7.5
Primary health care setting	16	7.5
Private Clinic	7	3.3
Reasons for visiting the first setting		
The hospital was the regular hospital the patients received	66	31.1
Had medical insurance with hospital	53	25.0
Convenience and close to patients' home	49	23.1
The symptom got worsen	34	16.1
Persuaded by related or friends	6	2.8
Think that symptom related to muscle pain or tendonitis	4	1.9
Duration from perception of symptom onset to visit the first setting (days)		
Mean = 95.75, SD = 162.63, Median = 30, Min = 1, Max = 910		

Table 4.9 The first health care setting (n = 212) (cont.)

Item	Frequency	%
Diagnosis on the first setting		
Diagnosis related with peripheral arterial occlusive disease	143	66.5
Infected wound	58	27.0
Muscle strain	7	3.3
Unable DPA pulse palpation	3	1.4
Cellulitis	2	0.9
Neuropathic pain	2	0.9
Duration from perception of symptom onset to the first setting diagnosis (days)		
Mean = 98.75, SD = 164.54, Median = 30, Min = 1, Max = 910		
Treatment from the first setting		
Antibiotics (both oral and intravenous)	99	46.0
Debridement and/or wound dressing	95	44.2
Referred to other hospital	79	36.7
Radiology (CTA, Segmental pressure, Toe pressure)	67	31.2
Admitted to hospital	56	26.0
Consulted vascular specialist	45	21.2
Medication for improving blood circulation	42	19.5
Analgesic for muscle pain	29	13.5
Amputation of toes	20	9.3
Plan for amputation	10	4.7
Vascular surgery and/or bypass graft	4	1.9
Duration from perception of symptom onset to treatment at the first setting (days)		
Mean = 98.76, SD = 164.54, Median = 30, Min = 1, Max = 910		

There were 194 patients with PAOD visited the second health care setting. Most of these visited university hospital (vascular surgery department) (68.1%), followed by university hospital but other department (10.8%) and tertiary care hospital (8.2%), respectively. For the reason for visiting the second setting, 67.5% were "doctor referred to the better setting / the first setting did not have capability", 19.1% were "the symptom got worsen", and 6.7% were "someone told to change hospital". The mean of duration from perception of symptom onset to visit the second setting was 125.15 days (SD = 178.14) and the median was 60 days. For diagnosis on the second setting, most of participants (90.7%) were diagnosed related with peripheral arterial occlusive disease. The mean of duration from perception of symptom onset to the second setting diagnosis was 126.03 days (SD = 177.84) and the median was 61 days. The treatment from the second setting were radiology i.e. CTA, Segmental

pressure, toe pressure (68.4%), medication for improving blood circulation (51.1%), and antibiotics administration (both oral and intravenous) (42.8%). The mean of duration from perception of symptom onset to treatment at the second setting was 129.11 days (SD = 179.86) and the median was 63.5 days. (Table 4.10)

Table 4.10 The second health care setting (n = 194)

Item	Frequency	%
Second Setting		
University hospital (Vascular surgery)	132	68.1
University hospital but other department	21	10.8
Tertiary care hospital	16	8.2
Private hospital	13	6.7
General hospital	8	4.1
Community hospital	4	2.1
Reasons for visiting the second setting		
Doctor referred to the better setting/ the first setting did not have capability	131	67.5
The symptom got worsen	37	19.1
Someone told to change hospital	13	6.7
Had medical insurance with hospital	7	3.6
The hospital was the regular hospital the patients receive	6	3.1
Duration from perception of symptom onset to visit the second setting (days)		
Mean = 125.15, SD = 178.14, Median = 60, Min = 10, Max = 917		
Diagnosis on the second setting		
Diagnosis related with peripheral arterial occlusive disease	176	90.7
Infected wound at legs or feet	9	4.6
Cellulitis	6	3.1
Chronic venous insufficiency	3	1.6
Duration from perception of symptom onset to the second setting diagnosis (days)		
Mean = 126.03, SD = 177.84, Median = 61, Min = 10, Max = 917		

Table 4.10 The second health care setting (n = 194) (cont.)

Item	Frequency	%
Treatment from the second setting		
Radiology (CTA, Segmental pressure, Toe pressure)	132	68.4
Medication for improving blood circulation	99	51.1
Debridement and/or wound dressing	83	42.8
Antibiotics (both oral and intravenous)	71	36.6
Admitted to hospital	71	36.6
Referred to other hospital	38	19.6
Amputation of toes	23	11.9
Consulted vascular specialist	21	10.8
Plan for vascular surgery and/or bypass graft	16	8.2
Plan for amputation	11	5.7
Vascular surgery and/or bypass graft	3	1.6
Duration from perception of symptom onset to treatment at the second setting (days)		
Mean = 129.11, SD = 179.86, Median = 63.5, Min = 10, Max = 917		

There were 62 patients with PAOD who visited the third health care setting. Most of these visited university hospital (vascular surgery department) (90.3%), and tertiary care hospital (9.7%). For the reason for visiting the third setting, 79.0% were “doctor referred to the better setting / the second setting did not have capability”, 14.5% were “had financial problem”, and 6.5% were “patients requested to move to the other hospital because did not trust in health care provider at the current hospital”. The mean duration from perception of symptom onset to visit the third setting was 115.82 days (SD = 225.55) and the median was 41 days. For diagnosis on the third setting, most of participants (96.8%) were diagnosed related with peripheral arterial occlusive disease. The mean of duration from perception of symptom onset to the third setting diagnosis was 115.82 days (SD = 225.55) and the median was 41 days. The treatment from the third setting were radiology i.e. CTA, Segmental pressure, toe pressure (77.4%), admitted to the hospital (66.1%), and debridement and/or wound dressing (54.8%). The mean of duration from perception of symptom onset to treatment at the third setting was 116.15 days (SD = 225.44) and the median was 41 days. (Table 4.11)

Table 4.11 The third health care setting (n = 62)

Item	Frequency	%
Third Setting		
University hospital (Vascular surgery department)	56	90.3
Tertiary care hospital	6	9.7
Reasons for visiting the third setting		
Doctor referred to the better setting/ the second setting did not have capability	49	79.0
Financial problem	9	14.5
Patients requested to move to the other hospital because did not trust in health care provider at the current hospital	4	6.5
Duration from perception of symptom onset to visit the third setting (days)		
Mean = 115.82, SD = 225.55, Median = 41, Min = 14, Max = 947		
Diagnosis from the third setting		
Diagnosis related with peripheral arterial occlusive disease	60	96.8
Cellulitis	2	3.2
Duration from perception of symptom onset to the third setting diagnosis (days)		
Mean = 115.82, SD = 225.55, Median = 41, Min = 14, Max = 947		
Treatment from the third setting		
Radiology (CTA, Segmental pressure, Toe pressure)	48	77.4
Admitted	41	66.1
Debridement and/or wound dressing	34	54.8
Medical for improving circulation	30	48.4
Antibiotics	25	40.3
Plan for vascular surgery and/or bypass	9	14.5
Referred to other hospital	6	9.7
Plan for amputation	4	6.5
Amputated	2	3.2
Duration from perception of symptom onset to treatment at the third setting (days)		
Mean = 116.15, SD = 225.44, Median = 41, Min = 14, Max = 947		

There were 6 patients with PAOD visited the fourth health care setting. All of these visited university hospital (vascular surgery department) (100%). For the reason for visiting the third setting, 66.7% were “doctor referred to the better setting / the third setting did not have capability”, and 33.3% “had financial problem”. The mean of duration from perception of symptom onset to visit the fourth setting was 39.67 days (SD = 4.13) and the median was 40.50 days. For diagnosis on the fourth setting, all of participants (100%) were diagnosed related with peripheral arterial occlusive disease. The mean of duration from perception of symptom onset to the fourth setting diagnosis was 39.67 days (SD = 4.13) and the median was 40.50 days.

The treatment from the fourth setting were radiology i.e. CTA, Segmental pressure, toe pressure (100%), debridement and/or wound dressing (100%), medication for improving blood circulation (100%), antibiotics administration (both oral and intravenous), and admitted to the hospital (66.7%). The mean of duration from perception of symptom onset to treatment at the fourth setting was 39.67 days (SD = 4.13) and the median was 40.50 days. (Table 4.12)

Table 4.12 The fourth health care setting (n = 6)

Item	Frequency	%
Fourth Setting		
University hospital (Vascular surgery department)	6	100.0
Reasons for visiting the fourth setting		
Doctor referred to the better setting/ the first setting did not have capability	4	66.7
Financial problem	2	33.3
Duration from perception of symptom onset to visit the forth setting (days)		
Mean = 39.67, SD = 4.13, Median = 40.50, Min = 34, Max = 45		
Diagnosis from the fourth setting		
Diagnosis related with peripheral arterial occlusive disease	6	100.0
Duration from perception of symptom onset to the fourth setting diagnosis (days)		
Mean = 39.67, SD = 4.13, Median = 40.50, Min = 34, Max = 45		
Treatment from the fourth setting		
Radiology (CTA, Segmental pressure, Toe pressure)	6	100.0
Debridement and/or wound dressing	6	100.0
Medication for improving blood circulation	6	100.0
Antibiotics	6	100.0
Admitted to the hospital	4	66.7
Duration from perception of symptom onset to treatment at the forth setting (days)		
Mean = 39.67, SD = 4.13, Median = 40.50, Min = 34, Max = 45		

For the prehospital delay time, the duration of prehospital delay time varied from 1 days to 910 days (Mean = 95.75, SD = 162.63). More than half (52.8%)

of participants had duration less than 30 days and nearly 20% had duration more than 90 days. The frequency distribution including mean and standard deviation of the prehospital delay time was presented in Table 4.13.

Table 4.13 The prehospital delay time of the sample (n = 212)

Variables	Frequency	%
Prehospital delay time (days)		
Less than 30 days	112	52.8
31 – 60 days	34	16.1
61 – 90 days	25	11.8
More than 90 days	41	19.3
Mean = 95.75, SD = 162.63, Median = 30, Max = 910, Min = 1, Skewness = 3.10, Kurtosis = 10.40		
Log-transformation of prehospital delay time		
Mean = 1.56, SD = 0.62, Max = 2.96, Min = 0.00, Skewness = 0.5, Kurtosis = 0.04		

Moreover, the hospital time is the duration between the time that patients arrived at the initial health care settings and the time that they received proper care from vascular specialists. In this study, the duration of hospital time varied from 1 days to 342 days (Mean = 33.50, SD = 49.18). Nearly 70% of participants had duration less than 30 days and approximate 5% had duration more than 90 days. The frequency distribution including mean and standard deviation of the hospital time was presented in Table 4.14.

Table 4.14 The hospital time of the sample (n = 212)

Variables	Frequency	%
Hospital time (days)		
Less than 30 days	147	69.3
31 – 60 days	40	18.9
61 – 90 days	14	6.6
More than 90 days	11	5.2
Mean = 33.50, SD = 49.18, Median = 18.50, Max = 342, Min = 1, Skewness = 4.02, Kurtosis = 21.00		

Part II: The result of tests of the assumptions underlying the statistical analysis

To analyze the relationships between gender, income, and source of medical expense and the prehospital delay time, these variables which were nominal scale level were recoded to dummy variables.

For dummy variables, the reference group of gender was female. Income was categorized into 2 groups: income less than 10,000 baht per month and income more than 10,000 baht per month, while income more than 10,000 baht per month as the reference group. The reference group of source of medical expense was universal coverage.

The assumptions were tested before using multiple regression analysis included testing for normal distribution, linear relationships, homoscedasticity, and multicollinearity.

Normality testing

Skewness and kurtosis were performed to test the normal distribution of the study variables. Skewness values of normal distribution should be ranged from +1 to -1, and kurtosis values of normal distribution should be not beyond +1.96 and -1.96 (Munro, 2000; Tabachnick & Fidell, 1996). In this study, the skewness values of all independent variables ranged from -0.49 to 1.00 except depression was 1.22 (moderate

right skewness), and the kurtosis values ranged from -0.87 to 0.98. The majority of the skewness and kurtosis of the variables in this study suggested that the distribution in the normal range. Moreover, the outcome for the study was the prehospital delay time, a logarithmic transformation was used in this analysis as the data were severe right skewed and high peaked of kurtosis (Table 4.13).

Linear relationships testing and Homoscedasticity

The residuals values were plotted, which fell close to the line of normal probability (Appendix J). Homoscedasticity was assessed by the residual scatterplots. The distribution of the residual variables around the zero axis showed that this assumption was not violated (Appendix J).

Multicollinearity testing

When intercorrelations among the variables are too high, multicollinearity occurs. The collinearity were examined by using the tolerance value, variance inflation factor (VIF), and correlation matrix (Hair, Anderson, Tatham, & Black, 1998). If the tolerance values are less than .10, it indicates a high collinearity. The two variables are redundant when the correlation matrix exceeds .85. The variables may be redundant with the others when the VIF > 10.

In this study, the correlation coefficients for all independent variables ranged from .01 to .69 (Appendix K). The highest correlation was between income less than 10,000 baht/month and year of education. Furthermore, the indicators for multicollinearlity of the study variables showed that the tolerance values ranged from .83 to 1.00; and the value for VIF ranged from 1.00 to 1.18 (Appendix L). The tolerance value and VIF values indicated no evidence of multicollinearity.

In summary, the preliminary analysis including the normality testing, linearlity testing, and multicolinearity testing of the data in this study was not violated the assumption for Multiple Regression Analysis.

Part III: Stepwise multiple regression analysis to identify the best factors influencing prehospital delay time (log-transformed)

A stepwise multiple regression analysis was performed to identify the best model to predict which factors influencing prehospital delay time in patients with PAOD.

Treatment seeking behavior was entered first, followed by gender: male. In Step 3, was entered social support, and, followed by fear, depression, and income less than 10,000 baht per month in step 4, 5, and 6, respectively. Finally, source of medical expense: self-pay was entered in step 7.

Treatment seeking behavior showed a positively significant association with prehospital delay time in the first step of the model (Step 1), where participants with several treatment seeking behaviors delayed longer than participants do with few treatment seeking behaviors.

Gender: male showed positively significant association with prehospital delay time in all steps of the model (Step 2-7). It meant that males had longer prehospital delay time than females.

Social support showed weak but positively significant association with prehospital delay time in all steps of the model (Step 3-7), where high level of social support had prehospital time longer than low level of social support.

Fear showed weak but negatively significant association with prehospital delay time in all steps of the model (Step 4-7). It meant that the patients with high level of fear had shorter prehospital time than the patients with low level of fear.

Depression showed weak but negatively significant associations with prehospital delay time in all steps of the model (Step 5-7). The low scores of depression were more prehospital delay time than high score of depression.

Income less than 10,000 baht per month showed positively significant association with prehospital delay time in all steps (step 6-7). It meant that patients with income less than 10,000 baht per month had longer prehospital time than the patients with income more than 10,000 baht per month.

Finally, source of medical expense: self-pay showed negatively significant association with prehospital delay time in step 7. It meant that the patients who self-

pay for medical expense had prehospital time shorter than other sources of medical expense i.e. universal coverage, social security, and reimbursement.

The model with seven significant variables explained 41% of the variance in prehospital delay time (Table 4.15).

Table 4.15 Coefficients of stepwise multiple regression analysis

Model	Variable	R^2	Adjust R^2	SE_{est}	R^2 change	Coefficients b	B	t
1	Constant	.18	.17	.56	.18***	.76		6.08***
	SEEK					.29	.42	6.71***
2	Constant	.27	.26	.53	.09***	.48		3.67***
	SEEK					.31	.44	7.48***
	Male					.39	.31	5.16***
3	Constant	.32	.31	.52	.05***	-.40		-1.54
	SEEK					.34	.49	8.37***
	Male					.38	.30	5.24***
	Social support					.02	.23	3.90***
4	Constant	.36	.34	.50	.04***	.34		1.01
	SEEK					.35	.51	8.88***
	Male					.37	.29	5.25***
	Social support					.02	.26	4.55***
	Fear					-.108	-.19	-3.41***
5	Constant	.37	.36	.50	.01*	.45		1.35
	SEEK					.37	.54	9.28***
	Male					.30	.24	4.02***
	Social support					.02	.24	4.06***
	Fear					-.10	-.17	-3.06***
	Depression					-.02	-.16	-2.47**
6	Constant	.39	.38	.49	.02**	.22		.65
	SEEK					.35	.51	8.86***
	Male					.37	.29	4.70***
	Social support					.02	.26	4.45***
	Fear					-.09	-.16	-2.83**
	Depression					-.03	-.20	-3.14**
	Income less than 10,000 baht per month					.22	.17	2.61**
7	Constant	.41	.39	.48	.02*	.22		.65
	SEEK					.33	.48	8.08***
	Male					.33	.26	4.17***
	Social support					.02	.26	4.58***
	Fear					-.08	-.14	-2.48*
	Depression					-.03	-.21	-3.30***
	Income less than 10,000 baht per month					.24	.19	2.89**
	Self-pay					-.30	-.13	-.2.21*

Seek = Treatment seeking behavior

* Significant level < .05, ** Significant level < .01, ***Significant level < .001

Hypothesis Testing

The hypothesis of this study is that internal stimuli in terms of sociodemographic characteristics and clinical characteristics, environmental stimuli in terms of social support, knowledge about PAOD, depression and fear, and treatment-seeking behaviors will have an influence prehospital delay among patients with PAOD.

The hypothesis testing in the study was employed by the stepwise method of multiple regression. The result revealed that there were eight significant factors and two interactive effects influence prehospital delay time.

Internal stimuli in terms of sociodemographic characteristics which included gender, age, education, income, and medical expense showed that male had a standardized coefficient significantly positive on prehospital delay time ($\beta = .26$, $p < .001$), income less than 10,000 baht had a standardized coefficient significantly positive on prehospital delay time ($\beta = .19$, $p < .01$) and source of medical espense: self-pay had a standardized coefficient significantly negative on prehospital delay time ($\beta = -.30$, $p < .05$).

Environmental stimuli in terms of social support showed a standardized coefficient significantly positive effect on prehospital delay time ($\beta = .26$, $p < .001$).

Emotional representation in terms of fear had a standardized coefficient significantly negative on prehospital delay time ($\beta = -.14$, $p < .05$). Depression had a standardized coefficient significantly negative on prehospital delay time ($\beta = -.21$, $p < .001$).

Coping and appraisal in terms of treatment seeking behavior. Treatment seeking behavior had a standardized coefficient significantly positive on prehospital delay time ($\beta = .48$, $p < .001$).

The predicted model explained 41% of the variance in prehospital delay time.

Summary

Data were analyzed by using SPSS program. The result from stepwise multiple regression analysis showed the best factors influence prehospital delay time. The findings indicated that the seven significant factors including gender: male, income less than 10,000 baht per month, source of medical expense: self-pay, social support, depression, fear, and treatment seeking behavior were the best determinants of prehospital delay. Gender: male, income less than 10,000 baht per month, social support, and treatment seeking behavior were associated with prolong prehospital time whereas, depression, fear, and sources of medical expense: self-pay were associated with short prehospital time. The model with interaction effect explained 41% of the variance in prehospital delay time.

CHAPTER V
DISCUSSION

The purpose of this chapter is to answer the research question of this study. The research question is "What are the factors influencing prehospital delay time among patients with PAOD?"

The results revealed that the factors which can be predicted prehospital delayed time were gender: male, income less than 10,000 baht per month, source of medical expense: self-pay, social support, depression, fear and treatment seeking behaviors. The results can be discussed as follows.

Prehospital delay time among patients with peripheral arterial occlusive disease (PAOD)

In the present study, the duration of prehospital delay time varied from 1 days to 910 days (Mean = 95.76, SD = 162.62) and the median prehospital delay time was 30 days. More than half (52.8%) of patients had duration less than 30 days and nearly one-fifth had duration more than 90 days (Table 16). While, the median of duration from perception of symptom onset to visit the first setting was 30 days which was similar to Sawangphong (2009) indicating that the first visit time was 30 days.

It was found that only 8.5% of patients visited university hospitals in vascular surgery department as the first health care setting, whereas nearly one-forth of patients visited university hospital but other department (Table 12). Furthermore, nearly half (48.5%) of patients visited other government health care setting lower than university hospitals which corresponded with Sawangphong's study (2009). It might be that they had the health care insurance or so called universal coverage with the hospitals and had medical history with those hospitals. Interestingly, more than half of patients (66.5%) were diagnosed with peripheral arterial occlusive disease at the first setting indicating that physicians and/or health care professionals might have had

growing concern about PAOD symptoms (Coen D.A. Stehouwer, et al., 2011) while 27% of patients were diagnosed with an infected wound which the physicians diagnosed from presenting symptom.

For the patients who had prolong prehospital time, most of them were stage 2 intermittent claudication because they did not know the signs and symptoms of PAOD which corresponded with the score of knowledge about PAOD showed that patients had low level of knowledge about PAOD symptoms (Mean = 2.55, SD = 1.59) (Table 10) and they misunderstand that was muscular or joint pain, or as part of the general aging process (Coen D.A. Stehouwer, et al., 2011; Treat-Jacobson, et al., 2002) that led the patients endure pain for 3 years. In all settings, nearly half of the patients got amputation and/ or had plans for revascularization (bypass or angiography) because of digit gangrene and/or ulceration. Similar to other study findings (Bailey, et al., 2003; Cambou, et al., 2010; Sawangphong, 2009; Willigendael, et al., 2004), most of patients with PAOD came to hospital with a catastrophic stage of disease.

Hypothesis Testing Result

The hypothesis of this study was that internal stimuli in terms of sociodemographic characteristics (i.e. gender, age, education, income, and medical expense) and clinical characteristics, environmental stimuli in terms of social support, knowledge of PAOD, depression and fear, and treatment-seeking behaviors will influence prehospital delay among patients with PAOD.

According to stepwise multiple regressions to determine the best model for predicting the prehospital delay time in patients with PAOD. The result revealed that gender: male, income less than 10,000 baht per month, source of medical expense: self-pay, social support, depression, fear, and treatment seeking behaviors had a significant predictability of 41.0% ($p<.05$) towards the prehospital delay time (Table 18). As for age, year of education, comorbidity, knowledge about PAOD they had no predictability towards the prehospital delay time. The most important independent predictors were treatment seeking behavior ($\beta = 0.48$), gender: male ($\beta = 0.26$), social support ($\beta = 0.26$), fear ($\beta = -0.14$), depression ($\beta = -0.21$), income less than 10,000

baht per month (β = 0.24), and source of medical expense: self-pay (β = -0.13), respectively.

Treatment seeking behavior explained as the first predictor 18.0% (R^2 change = .18) of the variance with significance ($p < .001$) in prehospital delay time and had positive relationship (Table 18). This indicated that patients with PAOD, who had several treatment seeking behaviors, they were likely to have prolong prehospital delay time. The first perception of the PAOD symptom that led the patients sought for the strategies to relieve their symptoms were gangrene (33.5%), intermittent claudication (31.6%), ulceration or non-healed ulcer (27.4%), and rest pain (7.5%). More than one fourth of the patients who had ulceration (28.6%) did not know the cause of ulcer. Whereas, 21.8% of them thought that the ulcer was caused by contamination with dirty water (Table 11) that was the results of mega flooding which covered wide areas in Thailand between September to December 2011. Regarding the results, they did not realize or recognize the importance of their symptoms, they assumed that pain with walking was a normal part of the aging process (Treat-Jacobson, et al., 2002). Furthermore, in this study, the average knowledge score about PAOD of patients was quite low in all domains (Table 9), which indicated patients did not know the cause of their symptoms and they did not concern about the consequence of PAOD. For these reason the patients tried to control the symptoms by themselves before seeking treatment from health care professionals that led them delayed to visit hospital. The self-treatment that patients used in this study was numerous. Their strategies included “wound dressing by themselves”, “apply the balm on pain area”, “wait to see symptom go away”, or “tried to relieve pain by change position”. This finding was consistent with previous studies that have reported that treatment seeking behavior has strong related to prehospital delay time (Ingela Johansson, Strömberg, & Swahn, 2004; Lovlien, Schei, & Hole, 2007). Other chronic illnesses have shown similar results to these findings (Chimbanrai, Fungladda, Kaewkungwal, & Silachamroon, 2008; McKinley, Moser, & Dracup, 2000; Munir, et al., 2009; Okeke & Okeibunor, 2010) that when the symptom of the disease manifested, the first choice was self-care and then the symptom or problem persists or becomes worse, they sought care from health care professionals. Thus, if patients have knowledge and

concern about PAOD, they will not loss time for seeking manner to control their symptoms. It can decrease prehospital time in patients with PAOD.

When, the second predictor, gender: male, was added, it can be explained increase 9% (R^2 change = .09) of the variance with significance ($p < .001$) in prehospital delay time and had positive relationship (Table 18). It meant that patients with PAOD with male had prolonged prehospital delay time. It can be explained that males have a higher pain threshold and pain tolerance than female (Chesterton, et al., 2003) and may have believed that the pain is something that must be endured if they are expressed about the pain is a sign of weakness. The possible consequence of these reasons may be lead to longer delay time after the symptom manifestation. However, the finding was contradiction to Leng and colleagues (2000) who studied about femoral atherosclerosis in males and females population found that males with plaque had more increasingly odds of leg pain than females with plaque (OR=2.9). It led to males seeking treatment earlier than females. The result did not congruent with Egorova's study (2010) and Vouyouka's study (2010) who found that females seek medical treatment when they have more advanced stage that lead to amputation as a first priority of treatment. Research study (Pitsavos, et al., 2006) also indicated that if the symptom manifested in women, they would be used coping strategies to minimize the symptom which contribute to delay for medical treatment.

The third predictor, social support, is added the variance of explaining increase 5% (R^2 change = .05) with significance in prehospital delay time and had positive relationship ($p < .01$) (Table 17). The results of this study suggest that patients with PAOD with high perceived social support are more likely to have a long prehospital delay than patients with PAOD with low perceived social support. This study is consistent with other studies which have reported that social support is positively related to prehospital delay time significantly (Lovlien, et al., 2007). Because of person who was source of social support did not have knowledge or the information about PAOD, they were likely to use self-medication more than medical treatment which led the patients had increase prehospital time. Regarding the social support subscales, patients with PAOD in this study had high-perceived social support from family and special person, except perceived social support from friends had low level. It can be explained that majority of the patients were elderly may have problem

of mobility and need help for transportation that may cause them have to stay at home and they cannot communicate (Treat-Jacobson, et al., 2002) or visit their friends that may cause them perceived social support from friends in low level. In addition, patients with PAOD in this study, the majority lived with partner and close family members are more likely to give love and support to them. Moreover, in Thai family context, son/daughter have to take care their father/mother or anyone who love and respect in old age. Most of patients with PAOD are elderly when they tell their family members about their symptoms and severity, they will find out any strategies to relieve their symptoms (Panchoowong, et al., 2008; Sawangphong, 2009). The findings are congruent with other studies which have indicated that social support from spouse or family member had more prolonged prehospital delay than social support from friend or colleague at work (Kaur, Lopez, & Thompson, 2006; Perkins-Porras, Whitehead, Strike, & Steptoe, 2009). It can be assumed that the non-relative is more likely perceived the seriousness of the symptom and will encourage the patient to seek medical treatment than the relative. The findings is consistent with systematic review related to prehospital delay in AMI, reported that sharing experience of symptoms with significant others or coworkers helped the patients evaluate the seriousness of the symptom and then led the patients seek medical care (Khraim & Carey, 2009).

Fear as the fourth predictor which can be explained increase 4% (R2 change = .04) of the variance with significance ($p < .001$) in prehospital delay time and had negative relationship (Table 18). It meant that the patients with high level of fear had shorter prehospital time than the patients with low level of fear. This may be because most of them had disease severity in stage 3 and 4, which they faced with many terrible symptoms of PAOD such as pain at rest, unhealed ulcer, or gangrene. Regarding the each fear subscale, (i.e. fear of loss of function, fear of depend on others, fear of loss of leg or foot, and fear of death), patients with PAOD in this study had a high level, except fear of unable to control pain had moderate level. Other studies have shown similar results from interviews with patients with PAOD such as fear of loss of function, fear of depend on others, fear of amputation, and fear of death (Treat-Jacobson, et al., 2002; Wann-Hansson, Hallberg, Klevsgฺrd, et al., 2005). Thus, the findings in this study reflect the fact that patients with PAOD encounter a lot of fear during prehospital time. The result of this study is congruent with the study of

Dubayova and colleagues (2010) which found that patients with AMI who evaluated symptoms as life-threatening or hazardous and causing a feeling of 'panic' and 'death anxiety' associated with short prehospital delay time. It can be explain that most of patients (68.4%) (Table 5) had severe symptoms that threaten to their daily life that led the patients visit any health care settings to treat their terrible symptoms. That is why 'fear' was one of the predictor for prehospital delay time in current study.

Depression, is added as the fifth predictor the variance of explaining increase 1% (R^2 change = .01) with significance in prehospital delay time and had negative relationship (Table 18). It means that patients with PAOD who had depression symptom had short time of prehospital delay. This finding was not consistent with the study of Johansson et al. (2011) and Sullivan et al. (2009) who found that heart failure patients with depression had a significantly longer prehospital delay than patients without depression and had significantly associated with intention to wait before seeking medical treatment that led to prolong prehospital delay time. The different findings may be due to majority of patients with PAOD (76%) had normal state of mental and average score of HADS also in normal state (Mean =5.51, SD =4.7) (Table 10) which led the patients try to seek whatever treatment to control their symptoms including health care provider instead intention to wait or do nothing. However, nearly one-fourth of the patients (24%) were borderline and abnormal state of depression. Percentage of patients with PAOD with depressive symptoms in this study were similar to those reported in other studies (Arseven, et al., 2001; Grenon, et al., 2012; Smolderen, et al., 2009). Arseven and colleagues (2001) reported that the prevalence of patients with PAOD with depression by using Geriatric Depression Scale Short Form (GDS-S) was 24% and also reported that patients with more severe PAOD had more depressive symptom. Smolderen and colleagues (2009) reported that depressive symptom, which measured by HADS, was present in 30% of the patients with PAOD and related with leg symptoms (i.e. intermittent claudication, atypical exertional leg pain and rest pain). Grenon and colleagues (2012) reported that approximately 12% of patients with PAOD had depressive symptoms and most of them were younger and female which depressive symptom were measured by Patient Health Questionnaire. According to the literatures, it can be summarized that depression among patients with PAOD as a state of mood but not a depression trait

that the patients suffered from PAOD sympstoms for a while and it led the patients had depressive mood (Grenon, et al., 2012; Wattanakit, Williams, Schreiner, Hirsch, & Folsom, 2005). In other words, depressive mood in this study as the effect of patients suffer from PAOD symptoms. Thus, the results in this study provide information on depression in Thai patients with PAOD which health care professionals should be concerned and screened when the patients visit the hospitals to enhance secondary prevention.

Income less than 10,000 baht per month explained as the sixth predictor 2% (R^2 change = .02) in prehospital delay time and had positive relationship ($p < .01$) (Table 18). The findings indicated that patients with PAOD with income less than 10,000 baht per month had longer prehospital time than the patients with income more than 10,000 baht. In current study, more than half of patients (59%) had household income less than the average national monthly family household income which figures by the National Statistical Office (2011). The finding was correspondent to the study of Morrissey et al. (2007), and Nguyen & Henry's study (2010). They reported that patients with PAOD with low income led to receive delay in treatment, which contributed to limb amputation. Furthermore, rate of treatment by leg amputation to be higher in the low-income bracket (Eslami, et al., 2007).

Finally, source of medical expense: self-pay explained as the seventh predictor and increase 2% (R2 change = .01) in prehospital delay time and had negative relationship ($p < .05$) (Table 18). It can be explained that patients with self-pay for medical expense had prehospital time shorter than patients who had universal coverage. Because of they can decide and select immediately which health care settings appropriate to treat their symptoms. According to the interviewing, all of patients with PAOD who self-pay for medical expense also had universal coverage or social security insurance but they did not use it because they had ever used universal coverage or social security to access the health care settings but they took long time to wait for appropriate treatment and/ or referred to appropriate setting until they had more severe of symptoms. That why they had to decide to self-pay to quick access for proper treatment.

In this study, age, education, medical expense: reimbursement and social security, clinical characteristic, and knowledge about PAOD were not significant predictor of prehospital delay time. These variables were discussed as followed.

For the age, in this study, was not a significant predictor of prehospital delay time. The finding incorresponded with Sawangphong (2009) which reported that older patients with PAD had shorter first diagnosis time than younger patients that lead to early PAD treatment. Moreover, most of the studies about prehospital delay time in other chronic illness indicated that older people experienced longer delay in seeking medical attention compared to younger people (H.L. Nguyen, Saczynski, Gore, & Goldberg, 2008). However, some studies which studied about prehospital delay time in acute myocardial infarction reported that age had no relationship with the decision when to seek treatment (Ingela Johansson, et al., 2004; Krairatchareon, 2006). Thus, further research is needed to confirm this finding.

In this study, year of education was also not significant predictor of prehospital delay. The finding was inconsistent with Ferguson and colleagues (2010) who studied the linkage between socio-economic deprivation and rates of major lower limbs amputation performed for PAD. They reported that low education level seemed to be linked to progress of disease to catastrophic stage. Furthermore, it was found that patients with PAOD with low (OR = 1.57, 95% CI = 1.03 – 2.37) and median (OR = 1.58, 95%CI = 1.20 – 2.08) education had higher odds for suffering from PAD symptoms when compared to patients with high education (Kröger, et al., 2009). It can be assumed that low education level had prehospital delay time longer than high education level. Focusing at patients with acute myocardial infarction, the low education level had prehospital delay time longer than high education level (K. Dracup, et al., 1997; Kathleen Dracup & Moser).

Moreover, medical expense: reimbursement and social security, were also not significant predictor of prehospital delay time when compared with universal coverage. The social health protection in Thailand has three groups, the reimbursement for government officers, social security for private employees and universal health coverage for general Thai citizen. Currently, National Health Security Office ("Annual Report 2010," 2011) reported that nearly of all Thai citizen (99.36%) had their insurances. It also showed that the populations with poor utilized medical

services than the rich. It can be showed that universal coverage can help the poor population and improve equality of access to health care and the redistribution of income. In this study, nearly half of the patients (46.2%) (Table 4) had universal coverage for medical expense, it seemed that not everyone had problems accessing treatment from a physician but, in reality, some of all do not have enough money for living expense and transportation to receive treatment in the better hospital. They might be wait to see the symptom go away and/or until the symptom got worsen that caused patients had prolong prehospital time. For patients with PAOD who had social security, they had problems with standard medical treatment when compared with reimbursement. They had limitation to access to treatment in the better health care setting. Due to patients with social security had obligation with the specific hospital, it was necessary condition that they could not go to any health care setting until the physicians had decided that they were essential to treat in the better hospitals. The findings did not concur with the Giacovelli and colleagues' study (2008) which found that patients with PAOD without insurance had worse access to vascular care and had high rate of limb threatening ischemia that tended to have limb amputation after revascularization. Moreover, the study among vascular surgery patients including patients with PAOD found that patients with uninsurance had less likely to receive optimal treatment than patients with insurance (Yeh, et al., 2010).

Clinical characteristics also did not significantly predict prehospital delay time in this study. The findings are incongruent with study of Ali et. al., (2011) and Saczynski et. al., (2009) which found that comorbidities disease; especially, diabetes and hypertension, as factors for prehospital dalay time due to less sensitivity to pain. The present study, this factor did not predict prehospital delay time, it may be due to these comorbidities are chronic diseases require for continuing treatment. It can be explained that these patients are already in the health care system due to other health problems (Sawangphong, 2009).

Even though, most of the patients (80%) had lower scores of knowledge about PAOD. In current study found that, knowledge about PAOD revealed no significant predictor of prehospital delay time in this study. Which was agreement with research of Sawangphong (2009) who found knowledge of PAOD is not correlated with the time since the PAOD symptoms start until diagnosis. The possible

explanation is that most of patients (67.4%) visited physician when the PAOD-related symptoms (i.e. rest pain, ulceration, and gangrene) were appeared and interrupted their living (Sawangphong, 2009). Therefore, knowledge about PAOD did not relate with prehospital time. According to the result of this study, knowledge about PAOD among patients with PAOD had quite low level and main source of knowledge was not from health care personnel. Therefore, health care personnel should be educated patients who had risk factors to encourage them have awareness about symptoms of PAOD and modified risk factors that they have.

Results of this study supported the use of self-regulation theory as theoretical framework for the study of factors influencing prehospital delay time. The internal stimuli in this study i.e. gender, income, and medical expense and the environmental stimuli: social support related to prehospital delay time. These factors were triggers of the process to label and interpret the PAOD symptoms including intermittent claudication, rest pain or gangrene. For the representation stage, only depression and fear which were emotional representation related to prehospital delay time, whereas, knowledge about PAOD as cognitive representation did not related to prehospital delay time. Finally, treatment seeking behavior as coping associated with prehospital delay time. Patients tried several strategies to relive symptom because they wanted to back to normal state. In sum, the self-regulation theory was a very useful framework for understanding prehospital delay time among patients with PAOD.

CHAPTER VI
CONCLUSION

This chapter presents the conclusions of the study and discusses the findings implication and recommendations of the research.

Summary of the Study

The purposes of this study were 1) to describe the relationships between socio-demographic characteristics and clinical characteristics (as internal stimuli), social support (as environmental stimuli), knowledge of PAOD, depression and fear, and treatment-seeking behaviors with prehospital delay time among patients with PAOD; and 2) to predict prehospital delay time among patients with PAOD from socio-demographic characteristics and clinical characteristics (as internal stimuli), social support (as environmental stimuli), knowledge of PAOD, depression and fear, and treatment-seeking behaviors. The hypothesis of this study was that socio-demographic characteristics and clinical characteristics (as internal stimuli), social support (as environmental stimuli), knowledge about PAOD, depression and fear, and treatment- seeking behaviors will have an influence on prehospital delay time among patients with PAOD.

Sampling by convenience selection was conducted to identify the samples of 212 patients with PAOD. The inclusion criteria were new cases diagnosed with PAOD or diagnosis with PAOD during 4 months preceding the study; full cognition of their illness and ability to communicate in spoken and written Thai. Patients with acute PAOD and patients with arterial occlusion from others causes, including traumatic vascular disorders, inflammation, or embolism were excluded from the study. Data collection was conducted at the outpatient department of university hospitals in Bangkok, namely, Siriraj hospital, Ramathibodi hospital, and Phramongkutklao hospital, from December 2011 to July 2012.

This study employed the following instruments for data collection 1) Demographic record form; 2) Medical history record form; 3) Perceived social support scale; 4) The knowledge about PAOD questionnaire; 5) The Hospital Anxiety and Depression Scales; 6) The visual analog fear scale; 7) Treatment seeking behavior questionnaire and 8) The sequence of time interview form. Content validity of the measurement tools were evaluated by experts in the field related to PAOD, which were modified by some expert advices. Reliability of the instruments in this study were tested with the samples and the coefficient of confidence ranged from .54 to .93. Data analysis employed SPSS 17.0 for descriptive data, and to answer the research question by using multiple regression analysis

The sample was 212 patients with PAOD. The age of the participants ranged from 40 to 89 years with a mean of 66.03 years (SD = 12.56). Most of the participants were men (59.9%), while 40.1% were women. Half of participants (51.9%) graduated elementary school, and average years of education were 8.13 (SD = 4.94). One-third of the participants (34.9%) reported a household income less than 5,000 baht per month. Nearly half of the participants (46.2%) had universal coverage for medical expense, 37.7% had reimbursement, and 8.5% and 7.6% had social security and self-payment, respectively.

Based on the Fontaine's stage of disease, 62.8% of all participants were stage IV ulceration or gangrene, 29.2% were stage II intermittent claudication, and 6.6% and 1.4% were stage III rest pain and stage I asymptomatic, respectively. Almost of the participants (62.3%) were diabetes mellitus without end organ damage, and 60.4% and 31.1% were hypertension and dyslipidemia, respectively. Whereas, 8.9% of participants did not have any comorbidities.

The participants in this study had relatively high social support. The average total score of social support in the participants was 44.41 (SD = 7.92). Nearly all (94.3%) had never heard about PAOD. The participants had knowledge about PAOD at quite low level (Mean = 5.64, SD = 3.00). The depression score was measured by HADS, the majority of the participants (75.9%) had normal state of mood or showed depressive disorder. (Mean = 5.51, SD = 4.70). Most of the participants in this study had high level of fear with mean score of fear was 8.26 (SD = 1.11).

The first perception of the PAOD symptom that led the participants sought for the strategies to relieve their symptoms were gangrene (33.5%), intermittent claudication (31.6%), ulceration or non-healed ulcer (27.4%), and rest pain (7.5%). More than one fourth of the participants who had ulceration (28.6%) did not know the cause of ulcers. Whereas, 21.8% of them thought that the ulcers caused from athlete's foot. Nearly half of the participants (42.5%) used wound dressing themselves as the first treatment seeking behavior for relieving their symptoms, followed by, apply the balm on the pain area (17.5%), and waited to see symptoms go away (12.7%). For the overall of treatment seeking behaviors which each subject used, 46.7% of the participants used totally three treatment seeking behaviors, and 29.3% used totally two treatment seeking behaviors.

The duration of prehospital delay time varied from 1 days to 910 days (Mean = 95.75, SD = 162.63). More than half (52.8%) of participants had duration less than 30 days and nearly 20% had duration more than 90 days.

The finding relevant for the research question in this study was as follows.

What are the factors influencing prehospital delay among patients with PAOD?

The stepwise multiple regression analysis indicated that gender: male, income less than 10,000 baht per month, source of medical expense: self-pay, social support, depression, fear, and treatment seeking behaviors were the best factors influence prehospital delay. Gender, income less than 10,000 baht per month, social support, and treatment seeking behavior had significant positive on prehospital delay time. Whereas, fear, depression, and source of medical expense: self-pay, had significant negative on prehospital delay time. The model with seven predictors explained 41.0% of the variance in prehospital delay time.

Implications and Recommendations

The implication and recommendations of this study are focused on the implication for nursing practice, and the recommendations for further studies.

Implications for Nursing Practice

The findings of this study will expand knowledge of nursing and healthcare personnel about the importance of developing and creating the context for effective nursing practice. The nursing intervention may be aimed at increasing awareness of PAOD symptom among patients who have specific risk factors to decrease prehospital time because of waste the time for seeking treatment. Moreover, the results of this study can be used as a foundation for development of nursing intervention to help patients decide on the appropriate action in a state of limb-threatened such as critical limb ischemia.

In providing care, clinical practice guideline (CPG) should be developed to incorporate screening of PAOD in patients who have specific risk factors with or without peripheral wound, peripheral pulses should be assessed. In addition, nurses who working at the diabetes clinic, hypertension clinic, and dyslipidemia clinic should be trained for performing ABI measurement for early detection. Moreover, increasing the knowledge of nurse about particular risk factors and detection skill for PAOD symptoms, which not only provides a warning to healthcare personnel that the patient has the possibility that it may be PAOD. But also to strengthen the education and counseling programs are designed to help patients with risk reduction and health promotion.

The result in this study indicated that knowledge in regard to PAOD of the studied patients was relatively low. Patients did not know about the symptoms, risk factors, and effects of PAOD which resulting in more seeking behaviors on various treatment in order to release their symptoms. Accordingly, they delayed their appropriate hospital care. The campaign on providing information regarding PAOD signs and symptoms, risk factors, and appropriate treatment should be encouraged.

In addition, depression among patients with PAOD should be concerned. According to the results of the study, patients with PAOD suffered from PAOD symptoms that led the patients had depressive symptom. Therefore, health care professionals should be concerned and screened when the patients visit the hospitals to enhance secondary prevention.

Recommendation for Further Studies

1. In this study aimed to study in patient's delay alone, if any similar study should be conducted in dealing with health system delay in order to identify diagnosis delay and treatment delay and quality of services, and to determine factors associated with health system delay.

2. Future study should be conducted in comparison between early PAOD diagnosis group and delay PAOD diagnosis group to explore which factors affect time to PAOD diagnosis in both groups.

Limitation of the Study

This cross-sectional design had some limitations. Regarding to the interviewing when asked them to recall back to the memory of the initial symptoms, while some samples were treated in hospital for several days before the interview, and some samples were hospitalized in other hospitals before they were referred to the appropriate hospital. As a result, the estimation of the time might be difficult. Moreover, the patients could not refer the feeling of fear or depression at the stage of having initial problem, especially for older patients, who were the majority of the samples in this study.

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APPENDICES

APPENDIX A
LIST OF EXPERTS I

The validity of research instrument (English Version) was assessed by five consulting experts:

1. Mary Kay Flynn, DNSc, RN, CCRN
   School of Nursing, Grand Canyon University
   Phoenix, Arizona

2. Diane K. Dressler, MSN, RN, CCRN
   Clinical Assistant Professor,
   Marquette University College of Nursing, Wisconsin

3. Vicki J Coombs, PhD, RN, FAHA
   Senior Vice President, Spectrum Clinical Research Inc., Maryland.
   Adjunct Faculty, Johns Hopkins University School of Nursing, Maryland

4. Robyn Strauss, ACNS, BC, MSN, WCC
   Clinical Nurse Specialist, Nursing Department,
   Surgical Nursing, Hospital of the University of Pennsylvania

5. Sharon Kay Christman, PhD, RN
   Associate Professor, Department of Nursing,
   Cedarville University, Ohio

LIST OF EXPERTS II

The validity of research instrument (Thai Version) was assessed by five consulting experts:

1. Assoc. Prof. Suvimol Kimpee, M.Ed.
   Department of Surgical Nursing
   Faculty of Nursing, Mahidol University

2. Dr.Kessiri Wongkongkam, Ph.D.
   Department of Surgical Nursing
   Faculty of Nursing, Mahidol University

3. Miss SiriphornSawangphong, M.N.S., R.N.
   Division of Surgical Nursing, Department of Nursing,
   Siriraj Hospital

4. Miss Rattana Thangrod, M.N.S., R.N.
   Special Laboratory Unit, Division of Surgical Nursing,
   Department of Nursing,
   Siriraj Hospital

5. Assist. Prof. Chumpol Wongwanit, M.D.
   Division of Vascular Surgery
   Department of Surgery
   Faculty of Medicine Siriraj Hospital, Mahidol University

APPENDIX B
DEMOGRAPHIC RECORD FORM

คำชี้แจง ให้ผู้วิจัยสัมภาษณ์กลุ่มตัวอย่างแล้วบันทึกข้อมูล โดยการทำเครื่องหมายถูก (□) ลงใน □ หน้าข้อความที่ตรงกับคำตอบของกลุ่มตัวอย่างหรือเติมข้อความลงในช่องว่างที่กำหนด

1. เพศ

□ ชาย

□ หญิง

2. อายุ.....ปี

3. สถานภาพสมรส

□ โสด

□ คู่

□ ม่าย

□ หย่า

□ แยกกันอยู่

4. ระดับการศึกษา

□ ไม่ได้เรียน

□ ประถมศึกษา

□ มัธยมศึกษา

□ ปวช. / ปวส. / อนุปริญญา

□ ปริญญาตรี หรือสูงกว่า

□ อื่นๆ ระบุ.....

5. จำนวนปีทั้งหมดที่ศึกษา.....ปี

6. อาชีพ

☐ ประกอบธุรกิจส่วนตัว

☐ รับจ้าง

☐ เกษตรกรรม

☐ รับราชการ

☐ ไม่ได้ประกอบอาชีพ

☐ อื่นๆ ระบุ.....

7. จังหวัดที่อยู่ในปัจจุบัน.....

8. รายได้เฉลี่ยต่อเดือน

☐ น้อยกว่า 5,000 บาท

☐ 5,001- 10,000 บาท

☐ 10,001 - 15,000 บาท

☐ 15,001- 20,000 บาท

☐ มากกว่า 20,000บาท

9. รายได้เพียงพอต่อค่าใช้จ่ายในการดำรงชีวิตหรือไม่

☐ รายได้ไม่เพียงพอต่อค่าใช้จ่ายในครอบครัว

☐ รายได้เพียงพอต่อค่าใช้จ่ายในครอบครัวแต่ไม่เหลือเก็บ

☐ รายได้เพียงพอต่อค่าใช้จ่ายในครอบครัวและมีเหลือเก็บ

10. ค่าใช้จ่ายในการรักษาพยาบาล

☐ จ่ายเองทั้งหมด

☐ เบิกจากต้นสังกัด

☐ บัตรประกันสุขภาพ หรือ 30 บาท

☐ ประกันสังคม

☐ อื่นๆ ระบุ.....

APPENDIX C
MEDICAL HISTORY RECORD FORM

คำชี้แจง ให้ผู้วิจัยสัมภาษณ์กลุ่มตัวอย่างแล้วบันทึกข้อมูล โดยการทำเครื่องหมายถูก (✓) ลงใน ☐ หน้าข้อความที่ตรงกับคำตอบของกลุ่มตัวอย่างหรือเติมข้อความลงในช่องว่างที่กำหนด

1. ค่า ABI .....วันที่ทำการตรวจวัด.....
2. Fontaine's Stage of disease
   - ☐ Stage I Asymptomatic
   - ☐ Stage II Intermittent claudication: Location…….
     - ☐ Compensate
     - ☐ Decompensate
   - ☐ Stage III Rest pain: Location…….
   - ☐ Stage IV Ulceration or gangrene: Location…….
3. ตำแหน่งที่มีการอุดตันของหลอดเลือด.....
4. โรคประจำตัวหรือโรคร่วม
   - ☐ โรคกล้ามเนื้อหัวใจขาดเลือด (Myocardial Infarction)
   - ☐ ภาวะหัวใจล้มเหลว (Congestive heart failure)
   - ☐ โรคหลอดเลือดสมอง (Cerebrovascular disease)
   - ☐ โรคเบาหวาน (Diabetes) ที่ควบคุมระดับน้ำตาลด้วยยาหรือ insulin
   - ☐ โรคเบาหวานที่มีการทำลายอวัยวะส่วนปลาย (Diabetes with end organ damage) ได้แก่ retinopathy, neuropathy, nephropathy
   - ☐ โรคความดันโลหิตสูง (Hypertension)
   - ☐ ภาวะไขมันในเลือดสูง (Dyslipidemia)
   - ☐ โรคข้ออักเสบ (Artritis)
   - ☐ Spinal Stenosis
   - ☐ อื่นๆ ระบุ.....
5. ประวัติการสูบบุหรี่
   - ☐ ไม่สูบ
   - ☐ สูบ สูบ.....ปี วันละ.....มวน ☐ เคยสูบมา.....ปี วันละ.....มวน แต่เลิกสูบแล้ว.....เดือน

APPENDIX D
MULTIDIMENSIONAL SCALE OF PERCEIVED SOCIAL SUPPORT

คำชี้แจง: กรุณาอ่านคำถามอย่างละเอียด เสร็จแล้วระบุว่า**<u>คุณรู้สึกอย่างไรต่อข้อความแต่ละข้อความที่แสดงข้างล่างนี้</u>** ในการตอบคำถาม ให้วงกลมรอบหมายเลขที่ตรงกับความเห็นของคุณมากที่สุด

ทำเครื่องหมายวงกลมเลข **1** หากคุณรู้สึก **ไม่เห็นด้วยที่สุด**

ทำเครื่องหมายวงกลมเลข **2** หากคุณรู้สึก **ไม่เห็นด้วยอย่างมาก**

ทำเครื่องหมายวงกลมเลข **3** หากคุณรู้สึก **ไม่เห็นด้วยเล็กน้อย**

ทำเครื่องหมายวงกลมเลข **4** หากคุณรู้สึก **มีความเห็นเป็นกลาง**

ทำเครื่องหมายวงกลมเลข **5** หากคุณรู้สึก **เห็นด้วยเล็กน้อย**

ทำเครื่องหมายวงกลมเลข **6** หากคุณรู้สึก **เห็นด้วยอย่างมาก**

ทำเครื่องหมายวงกลมเลข **7** หากคุณรู้สึก **เห็นด้วยที่สุด**

1. ฉันมีคนพิเศษที่คอยให้ความช่วยเหลือ เมื่อยามที่ฉันต้องการ	1	2	3	4	5	6	7
2. ฉันมีคนพิเศษที่ ฉันสามารถแบ่งปันความสุขและความทุกข์ใ	1	2	3	4	5	6	7
3. ครอบครัวของฉันพยายามอย่างจริงจังที่จะช่วยฉัน	1	2	3	4	5	6	7
4.ฉันได้รับการช่วยเหลือทางด้านจิตใจและกำลังใจที่ฉันต้องกา จากครอบครัวของฉัน	1	2	3	4	5	6	7
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12. ฉันสามารถพูดปัญหาของฉันกับเพื่อนของฉันได้	1	2	3	4	5	6	7

APPENDIX E

THE KNOWLEDGE ABOUT PERIPHERAL ARTERIAL OCCLUSIVE DISEASE QUESTIONNAIRE

ท่านเคยได้ยินเกี่ยวกับโรคหลอดเลือดแดงอุดตันหรือไม่

☐ ไม่เคย

☐ เคย จาก

☐ บุคคลในครอบครัว ☐ เพื่อน

☐ บุคลากรทางสุขภาพ ☐ รายการทางโทรทัศน์ หรือวิทยุ

☐ อ่านหนังสือหรือนิตยสารทางสุขภาพ

คำชี้แจง กรุณา วงกลม หมายเลข “1” หากคุณคิดว่าข้อความเหล่านี้เป็นอาการ ปัจจัยเสี่ยง และผลกระทบที่เกิดจากโรคหลอดเลือดแดงส่วนปลายอุดตัน และวงกลม “0” หากคุณคิดว่าข้อความเหล่านี้ไม่ได้เป็นอาการ ปัจจัยเสี่ยง และผลกระทบที่เกิดจากโรคหลอดเลือดแดงส่วนปลายอุดตัน

	ไม่ใช่	**ใช่**
อาการของโรคหลอดเลือดแดงส่วนปลายอุดตัน		
1.ในระยะแรกของการเกิดโรค จะมีอาการปวดขาขณะเดิน ซึ่งอาการปวดจะหายไปเมื่อนั่งพักหรือหยุดเดิน	0	1
2.ขนที่ขาร่วง	0	1
.	0	1
.	0	1
.	0	1
ปัจจัยเสี่ยงของโรคหลอดเลือดแดงส่วนปลายอุดตัน		
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.	0	1
ผลกระทบที่เกิดจากโรคหลอดเลือดแดงส่วนปลายอุดตัน	0	1
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16		

APPENDIX F
THE HOSPITAL ANXIETY AND DEPRESSION SCALE (DEPRESSION DOMAIN)

คำชี้แจง กรุณาอ่านข้อความแต่ละข้อ และทำเครื่องหมายถูก (✓) ในช่องคำตอบที่ใกล้เคียงกับความรู้สึก ของท่าน ในช่วง 1 สัปดาห์ที่ผ่านมา มากที่สุด และกรุณาตอบทุกข้อ

1. ฉันรู้สึกเพลิดเพลินใจกับสิ่งต่างๆ ที่ฉันเคยชอบได้
   ( ) เหมือนเดิม
   ( ) ไม่มากเท่าแต่ก่อน
   ( ) มีเพียงเล็กน้อย
   ( ) เกือบไม่มีเลย
2. ฉันสามารถหัวเราะและมีอารมณ์ขันในเรื่องต่างๆ ได้
   ( ) เหมือนเดิม
   ( ) ไม่มากนัก
   ( ) มีน้อย
   ( ) ไม่มีเลย

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APPENDIX G
THE VISUAL ANALOG FEAR SCALE

คำชี้แจง: ให้คุณนึกถึงภาวะโรคของคุณที่เป็นอยู่ ในช่วงเดือนที่ผ่านมา และในแต่ละข้อคำถามให้ทำเครื่องหมาย X บนมาตรวัดที่ใช้ตัวเลขสื่อระดับของความรู้สึกกลัว โดยมีระดับคะแนนตั้งแต่ 0 ถึง 10 ซึ่งตำแหน่งปลายสุดทางซ้ายมือซึ่งตรงกับหมายเลข 0 หมายถึงไม่มีความรู้สึกกลัวเลย และจะเพิ่มขึ้นเมื่อเลื่อนไปทางขวามือ หรือหมายเลขเพิ่มขึ้น โดยตำแหน่งปลายสุดทางขวามือ ซึ่งตรงกับหมายเลข 10 หมายถึง มีความรู้สึกกลัวมากที่สุด

1. กลัวอาการปวดที่ไม่สามารถควบคุมได้

0 1 2 3 4 5 6 7 8 9 10
ไม่กลัว กลัวมากที่สุด

2. กลัวการสูญเสียการทำหน้าที่ เช่น การเดิน

0 1 2 3 4 5 6 7 8 9 10
ไม่กลัว กลัวมากที่สุด

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APPENDIX H
THE TREATMENT SEEKING BEHAVIOR INTERVIEW FORM

คำชี้แจง ผู้วิจัยสัมภาษณ์กลุ่มตัวอย่างเกี่ยวกับพฤติกรรมการแสวงหาการรักษา แล้วบันทึกข้อมูลลงในกระดาษ

ดิฉันมีความสนใจที่จะศึกษาว่าผู้ป่วยโรคหลอดเลือดแดงส่วนปลายอุดตันมีพฤติกรรมการแสวงหาทางการรักษาอย่างไรเมื่อผู้ป่วยรับรู้ว่าเริ่มมีอาการแสดงของโรคหลอดเลือดแดงส่วนปลายอุดตัน (อาการปวดกะเผลก หรือ intermittent claudication, อาการปวดขณะพัก, เกิดแผลขาดเลือด หรือเนื้อเยื่อเน่าตาย) แนวคำถามดังกล่าวจะเป็นแนวทางในการที่ให้ผู้ป่วยเล่าเรื่องราวต่างๆ เกี่ยวกับพฤติกรรมการแสวงหาการรักษาที่ได้ประสบมา

1. อาการเริ่มแรกของโรคหลอดเลือดแดงส่วนปลายอุดตันที่ท่านเป็นเป็นอย่างไร (อาการปวดกะเผลก หรือ intermittent claudication, อาการปวด

2. ตั้งแต่ท่านรับรู้ว่ามีอาการแสดงผิดปกติที่เกี่ยวข้องกับโรคหลอดเลือดแดงส่วนปลายอุดตัน ท่านใช้วิธีการใดเป็นวิธีการแรก ในการบรรเทาหรือรักษาอาการดังกล่าว

ตัวอย่างพฤติกรรมการแสวงหาการรักษา
1.พยายามหาวิธีการผ่อนคลาย
2.สวดมนต์ภาวนาให้อาการที่เป็นอยู่หายไป
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13. ใช้การแพทย์ทางเลือก เช่น การนวด การฝังเข็ม การประคบ รับประทานยาสมุนไพร เป็นต้น
14. วิธีการอื่นๆ ระบุ.....

3. วิธีการที่ท่านเลือกมีความถี่ของการใช้มากน้อยเพียงใด (จำนวนครั้งต่อวัน ต่อสัปดาห์ ต่อเดือน)

4. วิธีการที่ท่านเลือกใช้มีประสิทธิภาพมากน้อยเพียงใด (อาการหายไป, บรรเทาลง, เป็นมากกว่าเดิม)

5. หลังจากวิธีการแรกแล้ว ท่านเลือกใช้วิธีการใดอีก

6. สัมภาษณ์โดยใช้คำถามที่ 2-5 ไปจนกระทั่งผู้ป่วยตอบครอบคลุมทุกวิธีการที่ผู้ป่วยเลือกใช้

APPENDIX I
THE SEQUENCE OF TIME INTERVIEW FORM

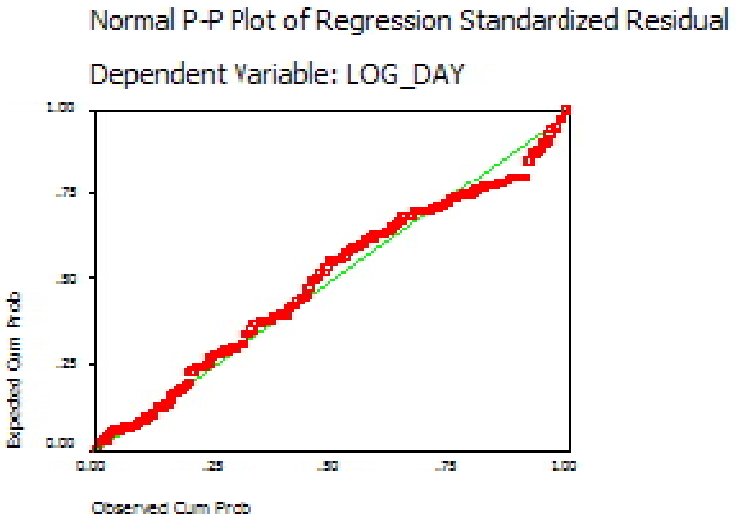
คำชี้แจง ผู้วิจัยสัมภาษณ์กลุ่มตัวอย่างเกี่ยวกับลำดับการเข้ารับบริการสุขภาพ แล้วบันทึกข้อมูลลงในแบบบันทึก

ดิฉันมีความสนใจที่จะศึกษาว่าผู้ป่วยโรคหลอดเลือดแดงส่วนปลายอุดตันแต่ละรายมีลำดับการเข้ารับบริการสุขภาพอย่างไร เมื่อผู้ป่วยรับรู้ว่าเริ่มมีอาการแสดงของโรคหลอดเลือดแดงส่วนปลายอุดตัน (อาการปวดกะเผลก หรือ intermittent claudication, อาการปวดขณะพัก, เกิดแผลขาดเลือด หรือเนื้อเยื่อเน่าตาย) แนวคำถามดังกล่าวจะเป็นแนวทางในการที่ให้ผู้ป่วยเล่าเรื่องราวต่างๆ เกี่ยวกับลำดับการเข้ารับบริการสุขภาพที่ได้ประสบมา

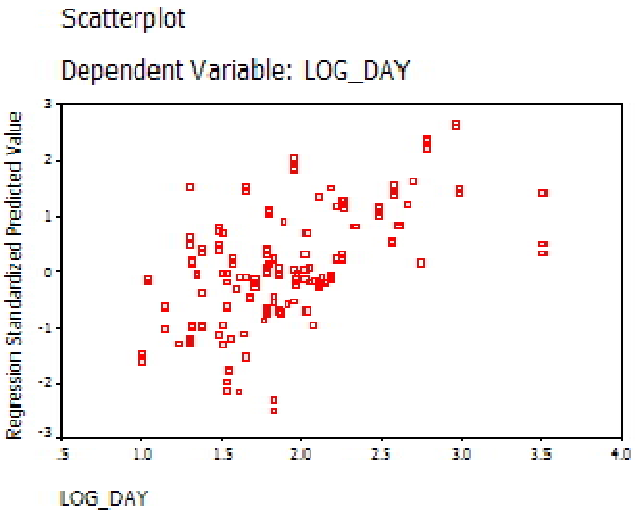
1. เมื่อรู้ว่าอาการผิดปกติดังกล่าว มีความจำเป็นต้องได้รับการรักษาจากสถานบริการสุขภาพ สถานบริการสุขภาพแห่งแรกที่ท่านไปรับบริการคือที่ไหน เพราะเหตุใด
2. ระยะเวลาตั้งแต่มีอาการจนถึงเข้ารับบริการที่สถานบริการทางสุขภาพแห่งแรก เป็นเวลากี่วัน หรือกี่เดือน
3. การวินิจฉัยที่ได้รับจากสถานบริการทางสุขภาพแห่งแรกคืออะไร
4. ระยะเวลาตั้งแต่มีอาการจนถึงได้รับการวินิจฉัยที่สถานบริการทางสุขภาพแห่งแรก เป็นเวลากี่วัน หรือกี่เดือน
5. การรักษาหรือบริการที่ได้รับจากสถานบริการทางสุขภาพแห่งแรกเป็นอย่างไร
6. ระยะเวลาตั้งแต่มีอาการจนถึงได้รับการรักษาจากสถานบริการทางสุขภาพแห่งแรก เป็นเวลากี่วัน หรือกี่เดือน
7. ท่านเข้ารับการรักษาจากสถานบริการทางสุขภาพแห่งแรก ทั้งหมดกี่ครั้ง
8. ช่วงเวลาทั้งหมดที่ท่านใช้บริการจากสถานบริการทางสุขภาพแห่งแรก นานเท่าไร
9. มีเหตุผลอย่างไรในการเปลี่ยนแปลงสถานบริการทางสุขภาพเป็นแห่งใหม่
10. สถานบริการสุขภาพต่อไป ที่ท่านไปรับบริการคือที่ไหน เพราะเหตุใด
11. สัมภาษณ์โดยใช้คำถามที่ 2-10 ไปจนกระทั่งผู้ป่วยตอบครอบคลุมสถานบริการสุขภาพที่ผู้ป่วยเลือกใช้
12. สำหรับเวลาที่ใช้ในการศึกษาเพื่อเป็นระยะเวลา Prehospital delay time คือเวลาที่ระบุไว้ในลำดับที่ 1

ลำดับที่	สถานบริการทางสุขภาพ	ระยะเวลาตั้งแต่มีอาการ-เข้ารับบริการ (วัน)	การวินิจฉัย	ระยะเวลาตั้งแต่มีอาการ-ได้รับการวินิจฉัย (วัน)	การรักษาหรือบริการที่ได้รับ	ระยะเวลาตั้งแต่มีอาการ-ได้รับการรักษา (วัน)
1	☐ คลินิก ☐ ศูนย์บริการสาธารณสุข ☐ โรงพยาบาล..... เหตุผล					
2	☐ คลินิก ☐ ศูนย์บริการสาธารณสุข ☐ โรงพยาบาล..... เหตุผล.....					
3	☐ คลินิก ☐ ศูนย์บริการสาธารณสุข ☐ โรงพยาบาล..... เหตุผล					
4	☐ คลินิก ☐ ศูนย์บริการสาธารณสุข ☐ โรงพยาบาล..... เหตุผล					

APPENDIX J
TESTING FOR LINEAR RELATIONSHIPS AND HOMOSCEDASTICITY



Linear relationship testing



Homoscedasticity testing

APPENDIX K
THE CORRELATION MATRIX AMONG ALL VARIABLES

	Gender:male	Age	Education	Income<10,000	Self pay	Reimburse	Social security	Comorbid	Social support	Knowledge	Depression	Fear	Seeking	Log_day
Gender:male	1													
Age	-.35**	1												
Education	.34**	-.62**	1											
Income<10,000	-.42**	.54**	-.69**	1										
Self pay	-.21**	.13	-.12	.13	1									
Reimburse	.14*	.05	.25**	-.20**	-.22**	1								
Social security	.07	-.27**	.26**	-.19**	-.09	-.24**	1							
Comorbid	.04	.20**	-.05	-.00	.21**	.19**	-.08	1						
Social support	.04	-.16*	.29**	-.24**	.09	-.20**	-.06	.05	1					
Knowledge	-.05	.06	-.04	.02	-.04	-.01	-.11	.11	.08	1				
Depression	-.38**	.28**	-.45**	.45**	.03	-.12	-.12	-.13	-.21**	-.15*	1			
Fear	-.03	-.29**	.16*	-.05	.13	-.06	.09	-.04	-.16*	-.09	.13	1		
Seeking	-.08	.00	-.26**	.25**	-.22**	-.11	.05	-.12	-.21**	-.13	.24**	.06	1	
Log_day	.27**	-.12	.01	.03	-.38**	.07	.07	-.02	.14*	-.02	-.19**	-.13	.42**	1

APPENDIX L
MULTICOLLINEARLITY TESTING

	Collinearity Statistics	
	Tolerance	VIF
Dummy of gender: male	.994	1.006
AGE	1.000	1.000
Year of education	.932	1.073
Income less than 10,000	.936	1.069
Self-pay	.951	1.052
reimbursement	.987	1.013
Social Security	.998	1.002
Sum of comorbidity	.986	1.015
Social support	.957	1.045
Knowledge about PAOD	.983	1.017
Depression	.942	1.062
Fear	.996	1.004
Treatment seeking behavior	.828	1.183

APPENDIX M

THE INSTITUTIONAL REVIEW BOARDS (IRBS)

2 PRANNOK Rd. BANGKOKNOI
BANGKOK 10700
Tel. (662) 4196405-6
FAX (662) 4196405

MAHIDOL UNIVERSITY
Since 1888

Siriraj Institutional Review Board

Certificate of Approval

COA no. Si 687/2011

Protocol Title : Factors Influencing Prehospital Delay among Patients with Peripheral Arterial Disease

Protocol number : 633/2554(EC3)

Principal Investigator/Affiliation : Mrs. Tidarat Vasaroangrong
Faculty of Medicine Ramathibodi Hospital, Mahidol University

Research site : Faculty of Medicine Siriraj Hospital

Approval includes :

1. SIRB Submission Form
2. Informed Consent Form
3. Questionnaire
4. Case Record Form
5. Principle Investigator's curriculum vitae

Approval date : December 27, 2011

Expired date : December 26, 2012

This is to certify that Siriraj Institutional Review Board is in full Compliance with International Guidelines For Human Research Protection such as the Declaration of Helsinki, the Belmont Report, CIOMS Guidelines and the International Conference on Harmonization in Good Clinical Practice (ICH-GCP).

(Prof. Jarupim Soongswang, M.D.)
Chairperson

December 28, 2011
date

(Clin. Prof. Udom Kachintorn, M.D.)
Dean of Faculty of Medicine Siriraj Hospital

- 5 JAN 2012
date

คณะแพทยศาสตร์โรงพยาบาลรามาธิบดี มหาวิทยาลัยมหิดล
๒๗๐ ถนนพระราม ๖ แขวงทุ่งพญาไท เขตราชเทวี กทม. ๑๐๔๐๐
โทร. ๐-๒๓๕๔-๗๒๗๕, ๐-๒๒๐๑-๑๒๙๖ โทรสาร ๐-๒๓๕๔-๗๒๓๓

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Documentary Proof of Ethical Clearance
Committee on Human Rights Related to Research Involving Human Subjects
Faculty of Medicine Ramathibodi Hospital, Mahidol University

MURA2011/520

Title of Project	Factors Influencing Prehospital Delay among Patients with Peripheral Arterial Disease
Protocol Number	ID 10-54-39
Principal Investigator	Mrs. Tidarat Vasaroangrong
Official Address	Department of Nursing Faculty of Medicine Ramathibodi Hospital Mahidol University

The aforementioned project has been reviewed and approved by the Committee on Human Rights Related to Research Involving Human Subjects, based on the Declaration of Helsinki.

Signature of Secretary Committee on Human Rights Related to Research Involving Human Subjects	..... Prof. Duangrurdee Wattanasirichaigoon, M.D.
Signature of Chairman Committee on Human Rights Related to Research Involving Human Subjects	..... Prof. Boonsong Ongphiphadhanakul, M.D.
Date of Approval	November 7, 2011

คณะอนุกรรมการพิจารณาโครงการวิจัย กรมแพทย์ทหารบก

317 ถนนราชวิถี เขต ราชเทวี กรุงเทพฯ 10400

รหัสโครงการ Q020q/54_Exp

ชื่อโครงการวิจัย : ปัจจัยที่มีอิทธิพลต่อการเข้ารับการรักษาโรงพยาบาลล่าช้าในผู้ป่วยโรคหลอดเลือดแดงส่วนปลายอุดตัน
[Factors Influencing Prehospital Delay among Patients with Peripheral Arterial Disease.]

เลขที่โครงการวิจัย : -

ชื่อหัวหน้าโครงการวิจัย : นางธิดารัตน์ วศะรงรอง

สังกัดหน่วยงาน : สาขาวิชาการพยาบาล มหาวิทยาลัยมหิดล

เอกสารรับรอง :
1. แบบรายงานการส่งโครงร่างการวิจัยครั้งแรก
2. โครงร่างการวิจัยฉบับภาษาไทย
3. แบบบันทึกข้อมูล
4. ประวัติผู้วิจัย
5. เอกสารชี้แจงข้อมูลและหนังสือแสดงความยินยอม
6. แบบวัดความรู้,แบบวัดความวิตก,แบบวัดความกลัว

วันที่รับรองให้ทำการวิจัย : 3 พฤศจิกายน 2554

วันสิ้นสุดการรับรอง : 2 พฤศจิกายน 2555

ขอรับรองว่าโครงการดังกล่าวข้างต้นได้ผ่านการพิจารณาเห็นชอบโดยสอดคล้องกับแนวปฏิญญา เฮลซิงกิ และ แนวปฏิบัติ ICH GCP จากคณะอนุกรรมการพิจารณาโครงการวิจัย กรมแพทย์ทหารบก

.....

พันเอกหญิง เยาวนา ธนะพัฒน์

ประธานคณะอนุกรรมการพิจารณาโครงการวิจัย พบ.

.....

พันเอกสหพล อนันต์นำเจริญ

เลขานุการคณะอนุกรรมการพิจารณาโครงการวิจัย พบ

APPENDIX N
INFORMED CONSENT FORM

หนังสือแสดงเจตนายินยอมเข้าร่วมการวิจัย

วันที่..... เดือน..... พ.ศ.....

ข้าพเจ้า.....อายุ.....ปี อาศัยอยู่บ้านเลขที่.....

ถนน.....ตำบล.....อำเภอ .....

จังหวัด.....รหัสไปรษณีย์.....โทรศัพท์ .....

ขอแสดงเจตนายินยอมเข้าร่วมโครงการวิจัย เรื่องปัจจัยที่มีอิทธิพลต่อการมาโรงพยาบาลล่าช้าในผู้ป่วยโรคหลอดเลือดแดงส่วนปลายอุดตัน

ชื่อผู้วิจัย นางธิดารัตน์ วศะรงรอง

สถานที่วิจัย หน่วยตรวจโรคผู้ป่วยนอก แผนกศัลยศาสตร์หลอดเลือด อาคารผู้ป่วยนอก ชั้น 3 , ตึกสยามินทร์ ชั้น 1 แผนกศัลยศาสตร์

สถานที่ทำงาน ภาควิชาการพยาบาลพื้นฐานและบริหารการพยาบาล วิทยาลัยพยาบาล สภากาชาดไทย หมายเลขโทรศัพท์ที่ติดต่อได้ 089-7544194

ผู้สนับสนุนทุนวิจัย ไม่มี

ระยะเวลาที่จะทำวิจัย 12 เดือน

โครงการวิจัยนี้ทำขึ้นเพื่อ ศึกษาเกี่ยวกับ ปัจจัยที่มีอิทธิพลต่อการมาโรงพยาบาลล่าช้าในผู้ป่วยโรคหลอดเลือดแดงส่วนปลายอุดตัน

ประโยชน์ที่คาดว่าจะได้รับจากการวิจัย คือได้รับรู้และเข้าใจถึงปัจจัยที่มีอิทธิพลต่อการมาโรงพยาบาลล่าช้าของผู้ป่วยโรคหลอดเลือดแดงส่วนปลายอุดตัน ซึ่งข้อมูลที่ได้จากการวิจัยจะเป็นประโยชน์ต่อการวางแผนการรักษาผู้ป่วยโรคนี้ต่อไปในอนาคต

ข้าพเจ้าได้รับเชิญให้เข้าร่วมการวิจัยนี้เพราะ ข้าพเจ้าเป็นผู้ที่ได้รับการวินิจฉัยว่าเป็นโรคหลอดเลือดแดงส่วนปลายอุดตันในช่วงสามเดือนที่ผ่านมา มีสติสัมปชัญญะสามารถจดจำประวัติการเจ็บป่วยและการรักษาของตนเองได้ และสามารถสื่อสารด้วยภาษาไทยได้ และไม่มีประวัติเกี่ยวกับการเกิดโรคหลอดเลือดแดงอุดตันชนิดเฉียบพลัน และหลอดเลือดอุดตันจากสาเหตุอื่น ได้แก่ลิ่มเลือด การอักเสบของหลอดเลือด หรือ การบาดเจ็บของหลอดเลือด

จะมีผู้เข้าร่วมการวิจัยนี้ทั้งสิ้นอย่างน้อย 149 คน

หากข้าพเจ้าตัดสินใจเข้าร่วมการวิจัยแล้วจะมีขั้นตอนการวิจัยดังต่อไปนี้ คือตอบแบบสอบถามซึ่งมีทั้งหมด 8 ส่วน ได้แก่ 1) แบบสอบถามข้อมูลส่วนบุคคล 2) แบบบันทึกข้อมูลเกี่ยวกับโรคและโรคร่วม 3) แบบวัดความช่วยเหลือทางสังคมแบบพหุมิติ 4) แบบวัดความรู้เกี่ยวกับโรคหลอดเลือดแดงส่วนปลายอุดตัน 5) แบบวัดภาวะซึมเศร้า 6) มาตรวัดความกลัวในผู้ป่วยโรคหลอดเลือดแดงส่วนปลายอุดตัน 7) แบบสอบถามพฤติกรรมการแสวงหาการรักษา และ 8) แบบสัมภาษณ์ลำดับการรับบริการสุขภาพในสถานบริการ ใช้เวลาประมาณ 45 นาทีในการตอบแบบสอบถาม

ความเสี่ยงที่อาจจะเกิดขึ้นเมื่อเข้าร่วมการวิจัย เนื่องจากโครงการนี้เป็นเพียงการตอบแบบสอบถามเพราะฉะนั้นความเสี่ยงที่ร้ายแรงอาจจะไม่มี นอกจากจะรบกวนเวลาที่เป็นส่วนตัวของข้าพเจ้าและอาจทำให้ข้าพเจ้าอึดอัดใจที่จะตอบคำถามบางข้อ

หากข้าพเจ้าไม่เข้าร่วมในโครงการวิจัยนี้ ข้าพเจ้าก็จะได้รับการตรวจเพื่อการวินิจฉัย และรักษาโรคของข้าพเจ้าตามวิธีการที่เป็นมาตรฐาน โดยไม่มีผลจากโครงการวิจัยครั้งนี้

หากมีข้อข้องใจที่จะสอบถามเกี่ยวข้องกับการวิจัย สามารถติดต่อได้ที่ผู้วิจัย คือ นางธิดารัตน์ วศะรงรอง เบอร์โทรศัพท์ 089-7544194

ในการเข้าร่วมวิจัยนี้ข้าพเจ้าไม่ต้องรับผิดชอบค่าใช้จ่ายใดๆ ทั้งสิ้น

หากมีข้อมูลเพิ่มเติมทั้งด้านประโยชน์และโทษที่เกี่ยวข้องกับการวิจัยนี้ ผู้วิจัยจะแจ้งให้ทราบโดยรวดเร็วไม่มีการปิดบัง

ข้อมูลส่วนตัวของข้าพเจ้าจะถูกเก็บรักษาไว้ ไม่เปิดเผยต่อสาธารณะเป็นรายบุคคล แต่จะรายงานผลการวิจัยเป็นข้อมูลส่วนรวม ข้อมูลของข้าพเจ้าเป็นรายบุคคลอาจมีคณะบุคคลบางกลุ่มเข้า

มาตรวจสอบได้ เช่น ผู้ให้ทุนวิจัย, สถาบัน หรือองค์กรของรัฐที่มีหน้าที่ตรวจสอบ, คณะกรรมการจริยธรรมฯ เป็นต้น

ข้าพเจ้ามีสิทธิ์ถอนตัวออกจากโครงการวิจัยเมื่อใดก็ได้ โดยไม่ต้องแจ้งให้ทราบล่วงหน้า และการไม่เข้าร่วมการวิจัยหรือถอนตัวออกจากโครงการวิจัยนี้จะไม่มีผลกระทบต่อการบริการและการรักษาที่สมควรจะได้รับแต่ประการใด

หากข้าพเจ้า ได้รับการปฏิบัติไม่ตรงตามที่ได้ระบุไว้ในเอกสารชี้แจงผู้เข้าร่วมการวิจัย ข้าพเจ้าจะสามารถติดต่อกับประธานคณะกรรมการจริยธรรมการวิจัยในคน หรือผู้แทน ได้ที่ สำนักงานคณะกรรมการจริยธรรมการวิจัยในคน ตึกอดุลยเดชวิกรม ชั้น 5 ร.พ.ศิริราช โทร (02) 419-7000 ต่อ 6405

ข้าพเจ้าได้ทราบถึงสิทธิ์ที่ข้าพเจ้าจะได้รับข้อมูลเพิ่มเติมทั้งทางด้านประโยชน์และโทษจากการเข้าร่วมการวิจัย และสามารถถอนตัวหรืองดเข้าร่วมการวิจัยได้ทุกเมื่อ โดยจะไม่มีผลกระทบต่อการบริการและการรักษาพยาบาลที่ข้าพเจ้าจะได้รับต่อไปในอนาคต และยินยอมให้ผู้วิจัยใช้ข้อมูลส่วนตัวของข้าพเจ้าที่ได้รับจากการวิจัย แต่จะไม่เผยแพร่ต่อสาธารณะเป็นรายบุคคล โดยจะนำเสนอเป็นข้อมูลโดยรวมจากการวิจัยเท่านั้น

โดยข้าพเจ้าได้รับทราบข้อมูลของโครงการข้างต้นตลอดจนข้อดี ข้อเสีย ที่ได้รับจากการเข้าร่วมโครงการในครั้งนี้ และข้าพเจ้ายินยอมที่จะเข้าร่วมในโครงการดังกล่าว จึงลงลายมือชื่อไว้

ลงชื่อ.....ผู้เข้าร่วมการวิจัย / ผู้แทนโดยชอบธรรม/ วันที่.....

(.....)

ลงชื่อ.....ผู้ให้ข้อมูลและขอความยินยอม/หัวหน้าโครงการวิจัย/วันที่.....

(.....)

ในกรณีผู้เข้าร่วมการวิจัยอ่านหนังสือไม่ออกผู้ที่อ่านข้อความทั้งหมดแทนผู้เข้าร่วมการวิจัยคือ

.....

จึงได้ลงลายมือชื่อไว้เป็นพยาน

ลงชื่อ..... พยาน/ วันที่.....

(.....)

APPENDIX O

PERMISSION LETTER FOR MEASUREMENTS

RE: ขออนุญาตใช้แบบสอบถามค่ะ

Pitakpol Boonyamalik <pitakpolb@hotmail.com>

Mon 4/18/2011 10:36 AM

To: TIDARAT PANCHOOWONG;

Cc: สำนักงาน จิตเวชนครราชสีมา <jvkorat@yahoo.com>;

You replied on 4/18/2011 10:46 AM.

ยินดีครับ สถานที่ติดต่ออยู่ข้างล่างครับ
พิทักษ์พล

ดร.นพ.พิทักษ์พล บุณยมาลิก

ผู้อำนวยการ
โรงพยาบาลจิตเวชนครราชสีมาราชนครินทร์
86 ถนนช้างเผือก ต.ในเมือง
อ.เมือง จ.นครราชสีมา 30000
โทรศัพท์ 044 342 678
โทรสาร 044 342 677
มือถือ 085 250 6661

From: g5137716@student.mahidol.ac.th
To: pitakpolb@hotmail.com
Subject: ขออนุญาตใช้แบบสอบถามค่ะ
Date: Mon, 18 Apr 2011 03:20:30 +0000

เรียน ดร.นพ.พิทักษ์พล บุญยมาลิก

ดิฉันนางธิดารัตน์ วศะรงรอง นักศึกษาพยาบาลหลักสูตรปริญญาเอก มหาวิทยาลัยมหิดล ขณะนี้อยู่ระหว่างการพัฒนาโครงร่างดุษฎีนิพนธ์ เรื่อง Factors influencing prehospital delay among patients with peripheral arterial disease มีความประสงค์ขออนุญาตใช้แบบสอบถาม Multi-dimensional scale of perceived social support ฉบับที่อาจารย์แปลเป็นภาษาไทยค่ะ ดิฉันจึงขออนุญาตผ่าน e-mail นี้ก่อน และจะทำเรื่องอย่างเป็นทางการอีกครั้งค่ะ

ด้วยความเคารพ
Tidarat Vasaroangrong (Panchoowong)
Doctoral Nursing Student
Mahidol University

RE: Permission use "Perceived social support"

Zimet, Gregory D <gzimet@iupui.edu> Fri 7/1/2011 9:31 PM

To: TIDARAT PANCHOOWONG;

MSPSS refs.doc 41 KB PreviewMSPSS.doc 33 KB PreviewMSPSS - Tha~.docx 14 KBPreview

Dear Tidarat Vasaroangrong,

You have my permission to use the Multidimensional Sclae of Perceived Social Support (MSPSS) in your research and to translate it into Thai. I have attached a copy of the scale and a document listing several articles that report on the psychometric properties of the MSPSS. Please also see attached an abstract describing the factor structure of a Thai language version of the MSPSS. You may want to contact the authors about using their translation, if it would be helpful to you.

Best regards,
Greg Zimet

==========

Gregory D. Zimet, PhD
Professor of Pediatrics & Clinical Psychology
Section of Adolescent Medicine
Indiana University School of Medicine
Health Information & Translational Sciences
410 W. 10th Street, HS 1001
Indianapolis, IN 46202
USA
Phone: +1-317-274-8812
Fax: +1-317-274-0133
e-mail: gzimet@iupui.edu

From: TIDARAT PANCHOOWONG [g5137716@student.mahidol.ac.th]
Sent: Friday, July 01, 2011 2:19 AM
To: Zimet, Gregory D
Subject: Permission use "Perceived social support"

Dear Professor Gregory Zimet,

My name is Tidarat Vasaroangrong. I'm a pre-doctoral student from Nursing Faculty Mahidol University, Thailand. Now I'm developing my dissertation; Factor influencing prehospital delay in patients with peripheral arterial disease.

Then I'm interested in " the Perceived social support scale" for measuring social support that may cause prehospital delay in patient.

I would like to ask for permission using "the Perceived social support scale", translate into Thai and apply for appropriate in population's situation and population's characteristic then use in my dissertation.

Thank you for your kindness,
Tidarat Vasaroangrong (Panchoowong)
Doctoral Nursing Student
Mahidol University

ภาควิชาจิตเวชศาสตร์
คณะแพทยศาสตร์โรงพยาบาลรามาธิบดี
๒๗๐ พระรามที่ ๖ ราชเทวี กทม. ๑๐๔๐๐

ที่ พิเศษ HADS
วันที่ ๓๐ ธันวาคม ๒๕๕๔
เรื่อง อนุญาตให้นำแบบสอบถาม Hospital Anxiety and Depression Scale ฉบับภาษาไทย ไปใช้

เรียน ประธานคณะกรรมการบริหารหลักสูตรปรัชญาดุษฎีบัณฑิต
อ้างถึง หลักสูตรปรัชญาดุษฎีบัณฑิต สาขาวิชาการพยาบาล โรงเรียนพยาบาลรามาธิบดี ที่ ศธ ๐๕๑๗.๐๖๗/ปร.ด.๓๒๗ ลงวันที่ ๒๗ เมษายน ๒๕๕๔

ตามหนังสือที่อ้างถึงแจ้งว่า นางธิดารัตน์ วศะรงรอง นักศึกษาหลักสูตรปรัชญาดุษฎีบัณฑิต สาขาการพยาบาล (หลักสูตรนานาชาติ และหลักสูตรร่วมกับมหาวิทยาลัยในต่างประเทศ) มีความประสงค์ขออนุญาตนำแบบสอบถาม Hospital Anxiety and Depression Scale ฉบับภาษาไทย ไปใช้ทำวิทยานิพนธ์ เรื่อง "Factors Influencing Prehospital Delay among Patients with Peripheral Arterial Disease" ความละเอียดทราบแล้วนั้น

ผมยินดีอนุญาตให้นำแบบสอบถาม Hospital Anxiety and Depression Scale ไปใช้ ในการวิจัยดังกล่าว และโปรดแจ้งผลการใช้ด้วย

จึงเรียนมาเพื่อทราบ

ขอแสดงความนับถือ

(ผู้ช่วยศาสตราจารย์ธนา นิลชัยโกวิทย์)

โทรศัพท์ ๐๒-๒๐๑-๑๒๗๕
โทรสาร ๐๒-๓๕๔-๗๒๙๙

"มุ่งเรียนรู้ คู่คุณธรรม นำสู่คุณภาพ"

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