KNOWLEDGE, ATTITUDES, AND PRACTICES (KAP) ON ASTHMA AMONG THAI ADULTS: A CASE STUDY IN RATCHABURI PROVINCE, THAILAND

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A Thesis Submitted in Partial Fulfillment of the Requirements
for the Degree of Master of Public Health Program in Public Health

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ความรู้ เจตคติ และการปฏิบัติเรื่องโรคหอบหืดในคนไทยวัยผู้ใหญ่ กรณีศึกษาที่จังหวัดราชบุรี ประเทศไทย

นายยุน จอง กุ

วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาสาธารณสุขศาสตรมหาบัณฑิต
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By	Mr. Yun Jong Gu
Field of Study	Public Health
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ยุน จอง กุ : ความรู้ เจตคติ และการปฏิบัติเรื่องโรคหอบหืดในคนไทยวัยผู้ใหญ่ กรณีศึกษาที่ จังหวัดราชบุรี ประเทศไทย . (KNOWLEDGE, ATTITUDES, AND PRACTICES (KAP) ON ASTHMA AMONG THAI ADULTS: A CASE STUDY IN RATCHABURI PROVINCE, THAILAND) อ.ที่ปรึกษาวิทยานิพนธ์หลัก: ผู้ช่วยศาสตราจารย์ ดร. ประเทือง หงสรานากร, 75 หน้า.

การศึกษาภาคตัดขวางครั้งนี้ดำเนินการที่โรงพยาบาลโพธาราม จังหวัดราชบุรี ประเทศไทย ระหว่างเดือนกุมภาพันธ์ถึงเดือนมีนาคม พ.ศ. 2554 วัตถุประสงค์หลักของการวิจัยคือ เพื่อระบุถึงข้อมูลด้านประชากรของผู้ป่วยนอกที่เป็นโรคหอบหืด และระบุถึงระดับความรู้ เจตคติ และการปฏิบัติเพื่อการป้องกันโรคหอบ หืด และความสัมพันธ์ระหว่างปัจจัยต่างๆ กลุ่มตัวอย่างในการศึกษาครั้งนี้คือผู้ป่วยนอกชาวไทยที่เป็นโรคหอบหืดอายุมากกว่า 18 ปีซึ่งมีจำนวนรวมทั้งสิ้น 441 รายที่ตอบแบบสัมภาษณ์แบบมีโครงสร้างเพื่อการเก็บข้อมูลหลังจากได้รับการผ่านการพิจารณาจริยธรรมแล้ว สำหรับกา รวิเคราะห์ข้อมูลได้ใช้โปรแกรม SPSS version 16 และใช้ Chi-square test เพื่อพรรณาความสัมพันธ์ระหว่างตัวแปรอิสระและการปฏิบัติตนของผู้ป่วยโรคหอบหืด

ผลการศึกษาพบว่า ร้อยละ 55.1 เป็นเพศหญิงและร้อยละ 44.9 เป็นเพศชายร้อยละ 79.6 มีอายุระหว่าง 18-59 ปี มากกว่าครึ่ง (ร้อยละ 54) สมรสแล้ว ร้อยละ 53.1 มีสมาชิกในครอบครัวจำนวน 3-4 คน ร้อยละ 68.3 ได้รับการศึกษาระดับมัธยมศึกษาหรือสูงกว่า ร้อยละ 31.7 จบการศึกษาระดับประถมศึกษาหรือน้อยกว่า ร้อยละ 31.3 ของกลุ่มตัวอย่างเป็นเกษตรกรและร้อยละ 68.7 มิได้ประกอบอาชีพเกษตรกรรม ร้อยละ 42 มีรายได้น้อยกว่า 10,000 บาทต่อเดือนในขณะที่ร้อยละ 54.8 มีรายจ่ายน้อยกว่า 10,000 บาทต่อเดือน ร้อยละ 68.8 มีระยะเวลาของการทนทรมานกับโรคหอบหืดระหว่าง 2-9 ปี และร้อยละ 78.9 ของกลุ่มตัวอย่างเป็นผู้ไม่สูบบุหรี่จากกลุ่มตัวอย่างทั้งหมด ร้อยละ 90 ไม่ได้ใช้เครื่องตรวจสอบ PEF เพื่อควบคุมอาการของโรคหอบหืด กลุ่มตัวอย่างร้อยละ 20.9 มีระดับความรู้เรื่องโรคหอบหืดสูง มีระดับเจต คติระดับต่ำ (ร้อยละ 68.5) และร้อยละ 32.4 มีการปฏิบัติเรื่องโรคหอบหืดระดับสูง ทั้งยังปรากฏความสัมพันธ์ระหว่างความรู้และเจตนคติ ($p<0.001$) ระหว่างความรู้และการปฏิบัติ ($p<0.001$) และระหว่างเจตคติและการปฏิบัติ ($p<0.001$).

การศึกษาครั้งนี้ดำเนินไปด้วยความคาดหวังเพื่อให้ข้อมูลที่ได้สามารถนำมาใช้เป็นข้อมูลฐานเพื่อการศึกษาในอนาคต วงจรที่สมบูรณ์ของความรู้ เจตคติ และการปฏิบัติควรมีเพื่อก่อให้เกิดการป้องกันอาการ ของโรคหอบหืดในคนไทยวัยผู้ใหญ่

สาขาวิชา สาธารณสุขศาสตร์ ลายมือชื่อนิสิต .....

ปีการศึกษา 2553 ลายมือชื่อ อ.ที่ปรึกษาวิทยานิพนธ์หลัก .....

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KEYWORDS: KAP SURVEY/ ASTHMA/ OPD PATIENT/ PHOTARAM HOSPITAL/RATCHABURI PROVINCE/THAILAND

YUN JONG GU: KNOWLEDGE, ATTITUDES, AND PRACTICES (KAP) ON ASTHMA AMONG THAI ADULTS: A CASE STUDY IN RATCHABURI PROVINCE, THAILAND. ADVISOR: ASSISTANT PROFESSOR PRATHURNG HONGSRANAGON.Ph,D., 75 pp.

A cross-sectional study was carried out at Photaram Hospital, Ratchaburi Province, Thailand, from February to March, 2011. The main purposes of this study were to identify asthma OPD patient‘s demographic data, to identify the level of knowledge, attitudes, and practices of preventive behaviors regarding asthma, and to identify the relationship among them. The subjects in the study were asthma OPD Thai adults who were aged over 18 with 441 samples by using a structured interview questionnaire to gather the data with ethical view protocol. For data analysis, SPSS version 16 was used. Descriptive statistics was employed and Chi-square test was used to describe the relationship between independent variables and practice on asthma.

The results showed that 55.1% of the subjects were female and 44.9% were male, majority of the respondents (79.6%) were aged between 18-59. More than half (54.0%) were married, 53.1% were in the range from 3 to 4 in family members. Most of the subjects (68.3%) had secondary school or higher education. Thirty one point seven percent had primary school or lower education. Thirty one point three percent of the subjects were agricultural workers, and 68.7% non-agricultural workers. Forty two percent of the subjects had an income of less than 10,000 baht per month, while 54.8% of the subjects had expenditure less than 10,000 baht per month. Respondent‘s period of suffering from asthma were between 2-9 years (68.8%) and 78.9% of the subjects were non-smokers. Among them, 90.0% did not have a check PEF to control their asthma symptoms. Twenty point nine percent of the subjects had high level of knowledge of asthma, low level of attitude was 68.5%, and 32.4% was high level of practice on asthma. There were association between knowledge and attitude ($p<0.001$), knowledge and practices ($p<0.001$), and attitude and practice ($p<0.001$).

This study was done with the expectation that the information obtained can be used as a baseline data for further studies. More complete cycle of KAP are needed to prevent asthma symptoms among adults in Thailand.

Field of Study:	Public Health	Student‘s Signature:	
Academic Year:	2010	Advisor‘s Signature:	

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LIST OF ABBREVIATIONS

FEV 1:	Forced Expiratory volume in 1 second
GINA;	Global Initiative for Asthma
NAEPP:	National Asthma Education and Prevention Program
OPD :	Out Patient Department
PEF:	Peak Expiratory Flow rate
PWA :	Person with Asthma
PHR :	Photaram Hospital in Ratchaburi province
SPSS :	Statistical Package for the Social Science
WHO :	World Health Organization

CHAPTER I

INTRODUCTION

1.1 Background and Significance of the problem

Asthma is a chronic lung disease characterized by inflammation and spasm of the bronchial airways. It is characterized functionally by the presence of airflow obstruction which is variable over short periods of time. (GINA, 2009)

The airflow obstruction is partially or completely reversible in most patients. Different designations of asthma include bronchial asthma, exercise-induced asthma, drug-induced asthma, occupational asthma, and cardiac asthma (airway narrowing in the setting of congestive heart failure). This discussion focuses primarily on bronchial asthma, a chronic inflammatory disorder of the airways (both the larger "bronchi" and the smaller "bronchioles"), resulting in airflow obstruction and increased sensitivity (responsiveness) of the airways to a variety of stimuli.

Asthma is clinically classified according to the frequency of symptoms, forced expiratory volume in 1 second (FEV_1), and peak expiratory flow rate (PEF). (Yawn, B.P., 2008)

Asthma may also be classified as atopic (extrinsic) or non-atopic (intrinsic), based on whether symptoms are precipitated by allergens (atopic) or not (non-atopic). (Kumar. et al., 2010)

Common symptoms of asthma include wheezing, shortness of breath, chest tightness and coughing. Symptoms are often worse at night or in the early morning, or in response to exercise or cold air. Some people with asthma only rarely experience symptoms, usually in response to triggers, where as other may have marked persistent airflow obstruction.

According to the World Health Organization, Asthma is a worldwide problem with an estimated 300 million affected individuals. The World Health Organization (WHO) has estimated that 15 million disability-adjusted life years are lost annually due to asthma, representing 1% of the total global disease burden. Annual worldwide

deaths from asthma have been estimated at 250,000, and mortality does not appear to correlate with prevalence. (Masoli, M., et al., 2004) The rate of asthma increases as communities adopt western lifestyles and become urbanized. With the projected increase in the proportion of the world's population that is urban from 45% to 59% in 2025, there is likely to be a marked increase in the number of asthmatics worldwide over the next two decades. It is estimated that there may be an additional 300 million persons with asthma by 2025. (Richard, B., 2004)

The number of disability-adjusted life years (DALYs) lost due to asthma worldwide has been estimated to be currently about 15 million per year. Worldwide, asthma accounts for around 1% of all DALYs lost, which reflects the high prevalence and severity of asthma. The number of DALYs lost due to asthma is similar to Asthma affects approximately 7% of the population of the United States and 5% of people in the United Kingdom.

It is estimated that asthma accounts for about 1 in every 250 deaths worldwide. Many of the deaths are preventable, being due to suboptimal long-term medical care and delay in obtaining help during the final attack.

In many areas of the world persons with asthma do not have access to basic asthma medications or medical care. Increasing the economic wealth and improving the distribution of resources between and within countries represent important priorities to enable better health care to be provided.

In 2005 in the United States asthma affected more than 22 million people including 6 million children. It accounted for nearly 1/2 million hospitalizations. (George, R., 2009)

In England, an estimated 261,400 people were newly diagnosed with asthma in 2005; 5.7 million people had an asthma diagnosis and were prescribed 32.6 million asthma-related prescriptions**.**

WHO estimated that there are between 15 and 20 million people with asthma in India.

Mortality however is most common in low to middle income countries (WHO 2007) while symptoms were most prevalent (as much as 20%) in the United Kingdom.

Asthma Bronchial in Thailand is also a common chronic disease with increasing burdens. The prevalence of asthma is estimated more than 4million and asthma affects 6.8% of the adult population in Thailand. (Liwsrisakun, C.C., and Pothirat, C., 2005)

To improve asthma management and outcome, the Thai Thoracic Society initiated the Thai Asthma Guideline in 1994 and revised it in 1997.

After implementation of the Thai Asthma Guideline, an asthma survey study by Boonsawat, Charoenphan and Kiatboonsri (2004) from 2000 to 2001 indicated that asthma was still far from controlled in Thailand.

Only 6.7% of asthma patients use inhaled corticosteroids for controlling asthma which might result in a high rate hospitalization (14.8% per year) and absence frame work (25%). (Boonsawat, W., et al., 2004)

Today, the number of asthmatic patients has increased by 10 percent. In Thailand, it was estimated that the number of asthmatic sufferers is about 3 million and around 1,000 asthma patients die each year. Unfortunately, 70 percent of these patients die because they come to the hospital too late. (Pattaya People. 2010)

The reason patient suffers from a fatal asthma attack is that they do not use the medicines regularly or wrongly use the medication. Asthma is a chronic disease which needs ongoing medical treatment and exercises.

Ratchaburi province is central district and small town in Thailand. Neighboring provinces are (from north clockwise) Kanchanaburi, Nakhon Pathom, Samut Sakhon, Samut Songkhram, and Phetchaburi. In the west it borders Tanintharyi Division of Myanmar. Ratchaburi covers 5,200 square kilometers. It is located 80 kilometers west of Bangkok and borders Burma to the west with the Tanaosi range as a borderline. It has Mea Klong River through the center of town. In Ratchaburi province, Thailand , the total population is 835,231 and among the population in Ratchaburi province aged over 18 years old, both of male and female is 629,491. In the population of aged over 18 years old, male is 308,184, female is 321,307. (Population in Thai Report. 2010)

Some Hospitals in Ratchaburi province, the number of asthma patient was that:

Photaram Hospital: 1,081 asthma patients (as of 27. Jan. 2011)

Banpon Hospital: 955 asthma patients (as of 27. Jan. 2011)

Damnoensaduak Hospital: 655 asthma patients (as of 27. Jan. 2011)

But there has been no mentioning of KAP on asthma in Ratchaburi province, but as a specialist in respiratory lung, the researcher is interested in asthma and Ratchaburi province has been chosen as the study area.

1.2 Research question

1) What are the demographic characteristics, level of knowledge, and level of attitudes of asthma Thai adults in Ratchaburi Province, Thailand?

2) How do the asthma patients in Ratchburi province perform their preventive behaviors regarding asthma symptoms?

3) Do the demographic characteristics, level of knowledge, level of attitudes, associate with the level of practices on asthma Thai adults in Ratchaburi Province?

1.3 Purpose of the study

To describe the preventive behaviors regarding asthma symptom, and to determine the association among demographic characteristics, level of knowledge, level of attitudes, with level of practices asthma among Thai adults in Ratchaburi Province, Thailand.

1.4 Research Objectives

1.4.1 General Objective

To study the level of knowledge, attitudes and practices on asthma among Thai adults in Ratchaburi Province, Thailand and the relationship among them.

1.4.2 Specific Objectives

1) To study the distribution of asthma patient in respect to their demographic characteristics at Photaram Hospital.

2) To study the level of knowledge, level of attitudes, and level of practices on asthma Thai adults at Photarma Hospital in Ratchaburi Province, Thailand.

3) To determine the association among demographic characteristics, level of knowledge, level of attitudes, with level of practices on asthma Thai adults at Photaram Hospital in Ratchaburi Province, Thailand.

After approval of thesis, a letter issued by College of Public Health Sciences, Chulalongkorn University, was sent to a number of health facilities in Ratchaburi province, namely, Ratchaburi Hospital, Bangpae Hospital, Photaram Hospital, Bann Pong Hospital, and Damneon Saduak Hospital. However, only the Photaram Hospital in Ratchaburi province responded promptly for research data collection. Due to time constraints, data collection was only possible at Photaram Hospital, in Ratchaburi province, Thailand.

1.5 Operational terms:

1) Asthma OPD patients mean those patients visiting asthma clinic at Photaram Hospital at the time author collected the data.

2) Demographic characteristics include patient‘s gender, age, marital status, educational level (the highest obtained), occupation, number of family members, monthly household income, monthly household expenditure, family history of asthma, years of having asthma, smoking behaviors and smoking years.

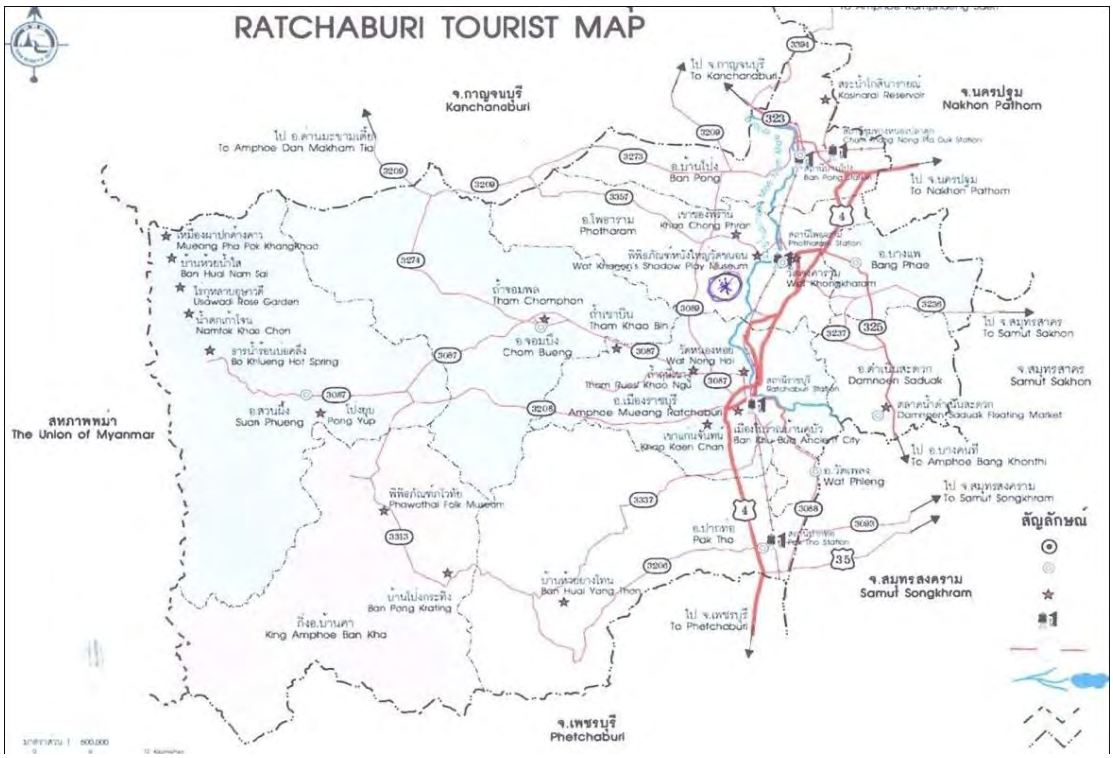
3) Knowledge about preventive behaviors of asthma means Thai asthma adult patients‘ knowledge on asthma in general.

4) Attitudes about preventive behaviors regarding asthma means patients‘ attitudes on asthma in general.

5) Practices of preventive behaviors regarding asthma means patients‘ practices on asthma in general.

1.6 Map of Ratchaburi Province

Figure 1 showed the map of Ratchaburi province



Source: Ratchaburi Province from Wikipedia, the free encyclopedia accessed on 30th April, 2011

1.7 Conceptual framework

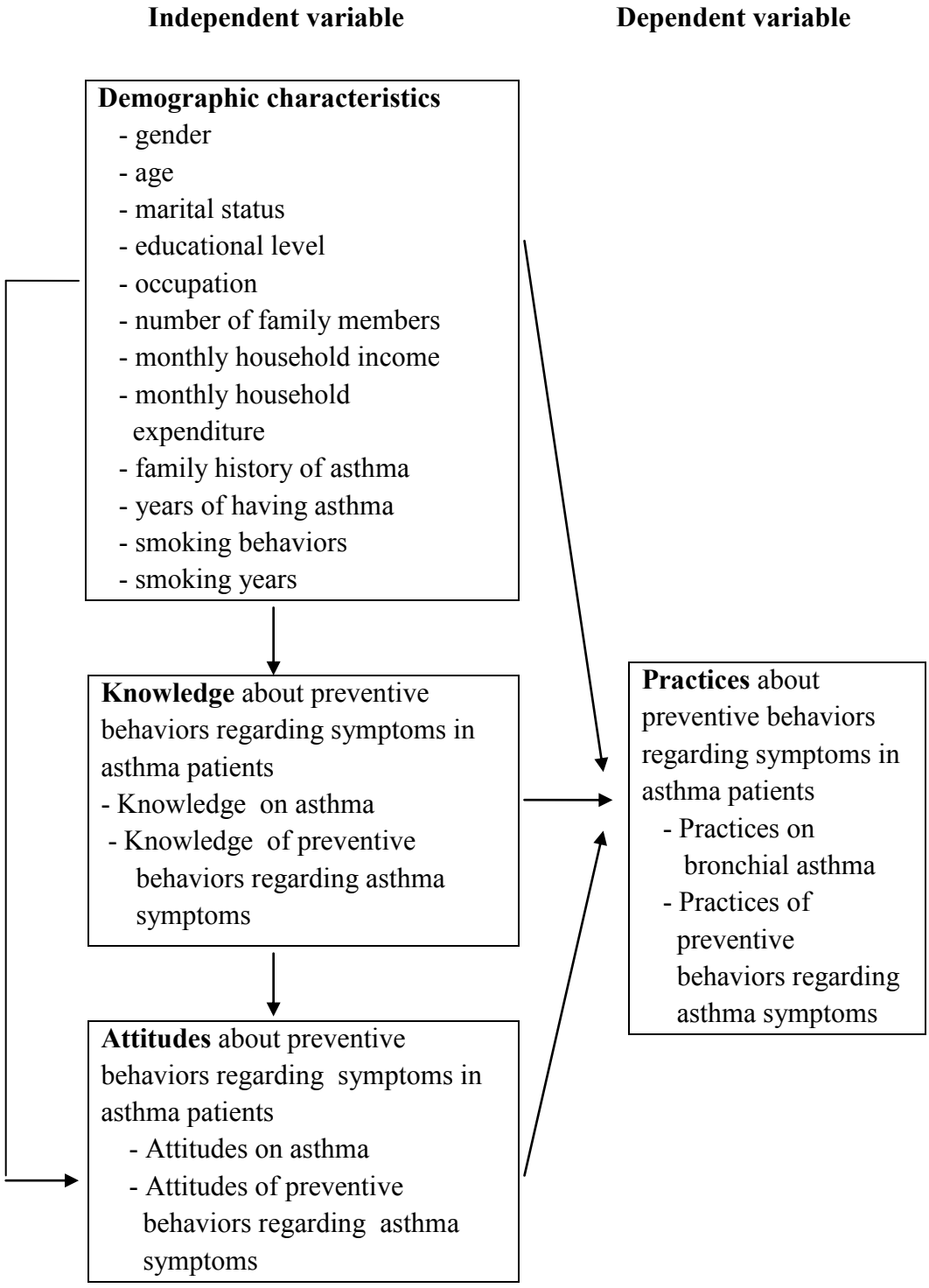


Figure 2: conceptual framework

CHAPTER II

LITERATURE REVIEW

2.1 Definition of asthma

Asthma is a chronic (long-term) lung disease that inflames and narrows the airways. Asthma causes recurring periods of wheezing, chest tightness, shortness of breath, and coughing. The coughing often occurs at night or early in the morning.

2.2 Clinical classification of asthma

Asthma is clinically classified according to the frequency of symptoms, forced expiratory volume in 1 second (FEV_1), and peak expiratory flow rate (PEF). (Barbara, P Y., 2008)

Table 1. Clinical classification of asthma

Severity	Symptom frequency	Night time symptoms	%FEV1 of predicted	FEV1 Variability
intermittent	<1 per week	≤2 per month	≥80%	<20%
Mild persistent	>1 per week	>2 per month	≥80%	20–30%
Moderate persistent	but <1 per day	> 1 per week	60–80%	>30%
Severe Persistent	Throughout the day	Frequent (often,7/week)	< 60%	< 60%

Source: Barbara, P.Y., (2008). Factors accounting for asthma variability: achieving optimal symptom control for individual patients. Primary Care Respiratory Journal 17, 3: 138-147

Asthma may also be classified as atopic (extrinsic) or non-atopic (intrinsic), based on whether symptoms are precipitated by allergens (atopic) or not (non-atopic). (Kumar., et. al., 2010)

2.3 Pathogenesis of Asthma

Bronchoconstriction

In asthma, the dominant physiological event leading to clinical symptoms is airway narrowing and a subsequent interference with airflow. In acute exacerbations of asthma, bronchial smooth muscle contraction(bronchoconstriction) occurs quickly

to narrow the airways in response to exposure to a variety of stimuli including allergens or irritants.

Allergen-induced acute bronchoconstriction results from an IgE-dependent release of mediators from mast cells that includes histamine, leukotrienes, and prostaglandins that directly contract airway smooth muscle (Busse, W.W., et al 2001).

Airway edema

As the disease becomes more persistent and inflammation more progressive, other factors further limit airflow. These include edema, inflammation, mucus hypersecretion and the formation of inspissated mucus plugs, as well as structural changes including hypertrophy and hyperplasia of the airway smooth muscle. These latter changes may not respond to usual treatment.

Airway hyperresponsiveness

Airway hyperresponsiveness—an exaggerated bronchoconstrictor response to a wide variety of stimuli—is a major, but not necessarily unique, feature of asthma. The degree to which airway hyperresponsiveness can be defined by contractile responses to challenges with methacholine correlates with the clinical severity of asthma. The mechanisms influencing airway hyperresponsiveness are multiple and include inflammation, dysfunctional neuroregulation, and structural changes; inflammation appears to be a major factor in determining the degree of airway hyperresponsiveness. Treatment directed toward reducing inflammation can reduce airway hyperresponsiveness and improve asthma control.

2.4 Asthma Evaluation

Asthma affects persons of all ages. A researcher studied there were 1106 patients studied and 496 patients (44.9%) had positive and 610 (55.1%) were not. The prevalence of asthma has been increasing worldwide. In the 2009, 300 million people worldwide were affected by asthma leading to approximately 250,000 deaths per year (Fanta, M.D.,and Christopher, H., 2009) and It is estimated that asthma has a 7-10% prevalence worldwide. **(**Lazarus, S.C., 2010)

Mortality however is most common in low to middle income countries, while symptoms were most prevalent (as much as 20%) in the United Kingdom, Australia, New Zealand, and Republic of Ireland; they were lowest(as low as 2–3%) in Eastern Europe, Indonesia, Greece, Uzbekistan, India, and Ethiopia.(WHO 2007)

While asthma is more common in affluent countries, it is by no means a restricted problem; the WHO estimate that there are between 15 and 20 million people with asthma in India. Asthma affects approximately 7% of the population of the United States and 5% of people in the United Kingdom.

Asthma causes 4,210 deaths per year in the United States. In 2005 in the United States asthma affected more than 22 million people including 6 million children. It accounted for nearly 1/2 million hospitalizations.

In England, an estimated 261,400 people were newly diagnosed with asthma in 2005; 5.7 million people had an asthma diagnosis and were prescribed 32.6 million asthma-related prescriptions.

In Japan, Asthma prevalence among children in Japan was approximately 1% during the 1960s,rising to approximately 6% today, in the same time period, asthma prevalence among adults has risen from less than 1% to approximately 3%. (Makino, S., et al., 2003)

In Thailand, disability-adjusted life year for asthma per 100,000 inhabitants was about 200-250 in 2004.

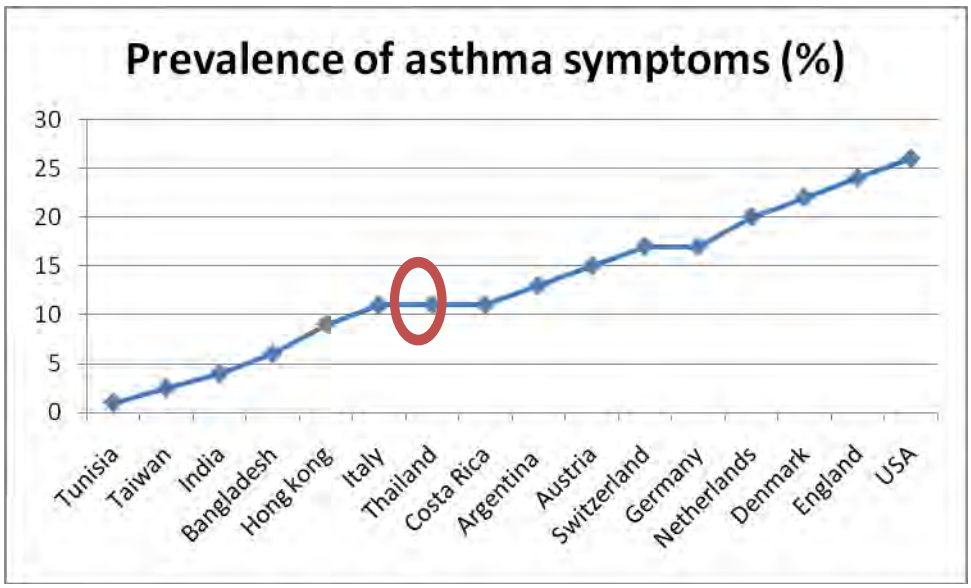


Figure 3: Global Burden of asthma Ranking of the Prevalence of Current Asthma Symptoms in Adults by Country (in 20- to 44-year-old adults)
Source: Global Burden of asthma report 2004.

In Thailand, prevalence of asthma symptoms was about 11%. In Thailand, bronchial Asthma is also a common chronic disease with increasing burdens. The prevalence of asthma is estimated more than 4million and asthma affects 6.8% of the adult population in Thailand. (Liwsrisakun, C.C., and Pothirat,C., 2005)

To improve asthma management and outcome, the Thai Thoracic Society initiated the Thai Asthma Guideline in 1994 and revised it in 1997. After implementation of the Thai Asthma Guideline, an asthma survey study by Boonsawat et al from 2000 to 2001 indicated that asthma was still far from controlled in Thailand. Only 6.7% of asthma patients use inhaled corticosteroids for controlling asthma, which might result in a high rate hospitalization (14.8%/year) and absence from work (25%).(Boonsawat, W.W., et al., 2004)

Today, the number of asthmatic patients has increased by 10 percent. In Thailand, it was estimated that the number of asthmatic sufferers is about 3 million and around 1,000 asthma patients die each year. Unfortunately, 70 percent of these patients die because they come to the hospital too late. (Pattaya people News. 2010)

Generally, asthma is brought on by an allergy to dust, pollen, or even seafood. The allergy has different presenting symptoms, depending on the heal

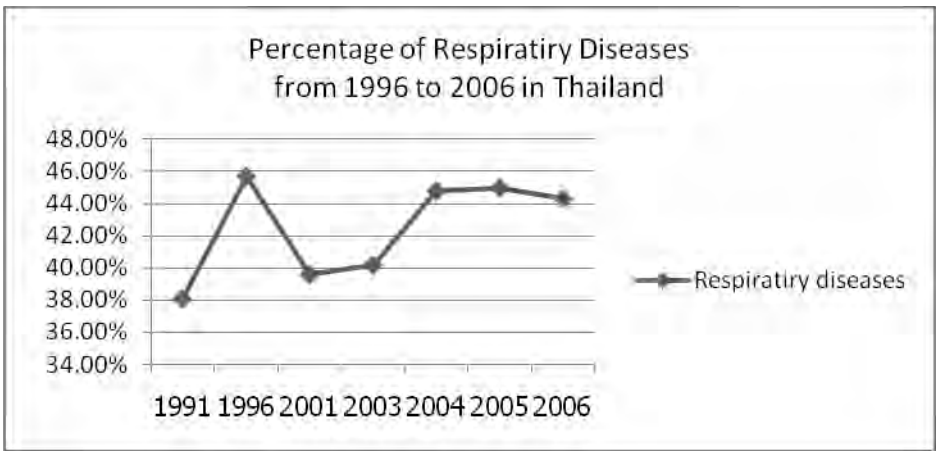


Figure 3: Percentage of Respiratory Diseases from 1996 to 2006 in Thailand
Source: Health and Welfare Report National Status Office of Thailand 2006.
Thai Health Profile 2005-2007, 165.

that person. Some people who have severe symptoms will die from this illness. The cause of asthma is contraction of the bronchus and much sputum production, which causes the difficulty in breathing and wheezing. The patient gets progressively tired especially when he/she exhales. However, when the brochospasm becomes worse, there is little noise when the patient breathes. This is why the person may have a fatal asthma attack because they cannot breathe and does not get medical treatment in time.

The reason the patient suffers from a fatal asthma attack is that they do not use the medicines regularly or wrongly use the medication. The other reason is that the bronchus (airway) of that patient becomes hyper-sensitive. As asthma is a respiratory illness, most of the patients may suffer from colds, sinusitis, bronchial infections and have a high risk of inter current diseases. Asthma is a chronic disease which needs ongoing medical treatment and exercises. These two things can increase immunity against the illness. The patients have to strictly follow the advice from the doctor and must not forget to take their medicines and inhalers. The aerosol inhalers are divided into two types: one is used to prevent the symptoms, while the other is used when the patient suffers from an asthma attack.

Causes of asthma

The exact cause of asthma isn't known. Researchers think a combination of factors (family genes and certain environmental exposures) interact to cause asthma to develop, most often early in life. These factors include:

- An inherited tendency to develop allergies, called atopy
- Parents who have asthma
- Certain respiratory infections during childhood
- Contact with some airborne allergens or exposure to some viral infections in infancy or in early childhood when the immune system is developing

If asthma or atopy runs in your family, exposure to airborne allergens (for example, house dust mites, cockroaches, and possibly cat or dog dander) and irritants (for example, tobacco smoke) may make your airways more reactive to substances in the air you breathe.

2.6 Risk factor of asthma

Asthma affects people of all ages, but it most often starts in childhood. In the United States, more than 22 million people are known to have asthma. Nearly 6 million of these people are children.

Young children who have frequent episodes of wheezing with respiratory infections, as well as certain other risk factors, are at the highest risk of developing asthma that continues beyond 6 years of age. These risk factors include having allergies, eczema (an allergic skin condition), or parents who have asthma.

Among children, more boys have asthma than girls. But among adults, more Women have the disease than men. Most, but not all, people who have asthma have allergies.

Some people develop asthma because of exposure to certain chemical irritants or industrial dusts in the workplace. This is called occupational asthma.

2.7 Signs and Symptoms of asthma

Common asthma symptoms include:

- Coughing.
- Wheezing.
- Chest tightness.
- Shortness of breath.

2.8 Diagnosis of asthma

The diagnosis is usually made based on the pattern of symptoms (airways obstruction and hyperresponsiveness) and/or response to therapy (partial or complete reversibility) over time.(Lemanske, R.,F., and Busse, W.W., 2009)

The British Thoracic Society determines a diagnosis of asthma using a ‗response to therapy' approach. If the patient responds to treatment, then this is considered to be a confirmation of the diagnosis of asthma. The response measured is the reversibility of airway obstruction after treatment. Airflow in the airways is measured with a peak flow meter or spirometer, and the following diagnostic criteria are used by the British Thoracic Society: (Pinnock, H., and Shah, R., 2007)

- ≥20% difference on at least three days in a week for at least two weeks;
- ≥20% improvement of peak flow following treatment, for example:
- 10 minutes of inhaled β-agonist (e.g., salbutamol);
- six weeks of inhaled corticosteroid (e.g., beclometasone);
- 14 days of 30 mg prednisolone.
- ≥20% decrease in peak flow following exposure to a trigger.

In contrast, the US National Asthma Education and Prevention Program (NAEPP) uses a ‗symptom patterns' approach.(Ruchi, S., et al., 2007)

Their guidelines for the diagnosis and management of asthma state that a diagnosis of asthma begins by assessing if any of the following list of indicators is present. While the indicators are not sufficient to support a diagnosis of asthma, the

presence of multiple key indicators increases the probability of a diagnosis of asthma.(National Asthma Education and Prevention Program. (Ruchi S. et al . 2007.)

Spirometry is needed to establish a diagnosis of asthma.(National Asthma Education and Prevention Program. (Ruchi, S., et al., 2007)

2.9 Management of Asthma

A specific, customized plan for proactively monitoring and managing symptoms should be created. Someone who has asthma should understand the importance of reducing exposure to allergens, testing to assess the severity of symptoms, and the usage of medications. The treatment plan should be written down and adjusted according to changes in symptoms.

The most effective treatment for asthma is identifying triggers, such as cigarette smoke, pets, or aspirin, and eliminating exposure to them. If trigger avoidance is insufficient, medical treatment is recommended. Medical treatments used depends on the severity of illness and the frequency of symptoms. Specific medications for asthma are broadly classified in to fast acting and long acting. Bronchodilators are recommended for short-term relief of symptoms.

In those with occasional attacks, no other medication is needed. If mild persistent disease is present (more than two attacks a week), low-dose inhaled glucocorticoids or alternatively, an oral leukotriene antagonist or a mast cell stabilizer is recommended. For those who suffer daily attacks, a higher dose of inhaled glucocorticoid is used. In a severe asthma exacerbation, oral glucocorticoids are added to these treatments.

Lifestyle modification

Avoidance of triggers is a key component of improving control and preventing attacks. The most common triggers include: allergens, smoke (tobacco and other), air pollution, non selective beta-blockers, and sulfite-containing foods.(Thomson, N.C., et al., 2005).

Medications

Medications used to treat asthma are divided into two general classes: quick-relief medications used to treat acute symptoms; and long-term control medications used to prevent further exacerbation.

Fast acting

- Short acting beta2-adrenoceptor agonists (SABA), such as salbutamol (salbuterol USAN) are the first line treatment for asthma symptoms.

- Anticholinergic medications, such as ipratropium bromide provide

addition benefit when used in combination with SABA in those with moderate or severe symptoms. Anticholinergic bronchodilators can also be used if a person cannot tolerate a SABA.(Self, T., et al. 2009)

Older, less selective adrenergic agonists, such as inhaled epinephrine, have similar efficacy to SABAs.(Rodrigo, G.J., 2006)

- They are however not recommended due to concerns regarding excessive

cardiac stimulation.

Long term control

- Glucocorticoids are the most effective treatment available for long term control. Inhaled forms are usually used except in the case of severe persistent disease, in which oral steroids may be needed.Inhaled formulations may be used once or twice daily, depending on the severity of symptoms.

- Long acting beta-adrenoceptor agonists (LABA) have at least a 12-hour effect. They are however not to be used without a steroid due to an increased risk of severe symptoms.(Cates, C.J., et al., 2009)

- In December 2008, members of the FDA's drug-safety office recommended withdrawing approval for these medications in children. Discussion is ongoing about their use in adults.

- Leukotriene antagonists (such as zafirlukast) are an alternative to inhaled glucocorticoids, but are not preferred. They may also be used in addition to inhaled glucocorticoids but in this role are second line to LABA.

- Mast cell stabilizers (such as cromolyn sodium) are another non-preferred alternative to glucocorticoids.

2.10 Knowledge of asthma

One of the studies in Turkeyr described that 20 patients‘ asthma symptoms disappeared after they received 3 months of low-dose inhaled corticosteroid therapy using PEF. (Baser, S., et al., 2007)

Study of impact of an asthma education programme on patients‘ knowledge, inhaler technique and compliance to treatment, in Singapore, subjects showed improvement in their knowledge that steroid inhaler is to be used daily as preventive therapy. ($p<0.001$).

The subjects also showed an improved level of knowledge about symptoms of asthma being caused by swelling/narrowing of airways ($p<0.001$) and that a peak flow meter is used for monitoring asthma ($p=0.004$). (Prabhakaran, L., et al., 2006)

The study done in the pediatric chest clinic of King Chulalongkorn Memorial Hospital, Bangkok, Thailand stated that sufficient knowledge of asthma in age between 5-17 years old was 53.2% after education on asthma. (Nuanchan, P., 2007)

2.11 Attitude of asthma

One of the studies in imperial county described that the majority (N=26 or 61.9%) reported doing a trial of beta-agonists. Spirometry and peak flow measurement were the most widely used diagnostic tests for initial evaluation (N=22 or 52.4% for each procedure). A trial of daily peak expiratory flow rate (PEFR) monitoring was used less frequently (N=14, 33.3%). (Paula, K., 2004)

Also, in this article, The respondents reported that during follow-up office visits they most often monitored the following: symptoms of wheeze and cough (N=38, 90.5%); beta2-agonist use (N=33, 78.6%); loss of work/school days due to asthma (N=32, 76.2%); frequency of disturbed sleep due to asthma symptoms (N=29, 69%); activity levels (N=28, 66.7%); and direct observation of inhaler technique

(N=22, 52.4%). Office peak flow measurement and review of peak flow diary were less frequently monitored at 47.6% (N=20) and 42.9% (N=18), respectively.

And half (N=21) of the providers reported that they often used peak flow or pulmonary function tests (PFT) for acutely symptomatic patients, while 16.7% (N=7) reported sometimes using those tests and 21.4% (9) rarely used them. Two (4.8%) never used either peak flow or PFT for symptomatic patients, and one (2.4%) reported that peak flow or PFT were not available.

All providers (N=39, 92.9%) reported prescribing a corticosteroid inhaler to some of their patients with moderate or severe asthma. (Paula, K., 2003)

The study of predicting patient attitudes to asthma medication described that patient attitudes to regular asthma medication are not related to general anxieties and dislikes about asthma, nor to the potential for asthma control as judged by the best function ratio. Patients were not always consistent in their attitude to inhaled steroids in general, nor to their own named inhaled steroid in particular. A general cluster of antimedication attitudes existed, independent of whether the medication was for prophylaxis or relief. Attitudes to asthma medication may be helpful in predicting patient behavior.

And better understanding of attitudes to asthma medication should be helpful in encouraging good patient adherence to treatment. (Osman, L.M.,1993)

2.12 Prevention of asthma

Anti-inflammatory medications are often called preventers as they help to control the underlying inflammation in the airways associated with asthma. They are sometimes classified as "long-term control medication". This is confusing as "long-acting control medication" also includes long-acting reliever medications which have a different way of working. Preventers are taken daily whether asthma symptoms occur or not.

A common mistake is for asthmatics to stop taking their preventer when they have fewer symptoms. Their asthma slowly worsens again, the need for relievers

increases and this can result in a serious, uncontrolled asthma attack. Never stop your preventive medication without consulting your doctor. It is current medical practice for anyone who uses a bronchodilator more than 3 - 4 times a week to take a preventer medication.

There are three types of preventers: Steroids can be inhaled or taken in a pill form and are the most commonly prescribed preventers. They are the most effective anti-inflammatory drugs available and are considered an essential treatment for moderate to severe asthmatics.

Non-steroidal Preventers (cromolyn & nedocromil) are commonly prescribed as a long-term asthma drug in asthma patient or very mild asthmatics. They are also sometimes prescribed to take prior to exercise or allergy exposure. They have very mild side-effects.

Anti-Leukotrines are oral medications which work by blocking leukotrienes, powerful chemicals that are involved in the inflammatory process associated with asthma. They have recently been introduced, so their exact drug treatment role is still being determined.

Currently, asthma can't be prevented. However, asthma patient can take steps to control the disease and prevent its symptoms.

- Learn about asthma and how to control it.
- Follow asthma action plan. (For a sample plan, go to the National Heart, Lung, and Blood Institute's Asthma Action Plan.)
- Use the medicines as doctor prescribes.
- Identify and try to avoid things that make asthma worse (asthma triggers).

CHAPTER III

RESEARCH METHODOLOGY

3.1 Study design

The study design was cross-sectional study concerning knowledge, attitudes, and practices of preventive behaviors regarding symptoms in asthma OPD patients at Photaram Hospital in Ratchaburi province, Thailand.

3.2 Target Population

The study population was asthma Thai adults (aged over 18 years old) both male and female in Ratchaburi province.

3.3 Study period

From February 25 to March 15, 2011.

3.4 Sample size

The sample size was calculated by the formula (Daniel, W.W., 2005) below:

$$n = \frac{Z^2_{\alpha/2}\,(p \times q)}{d^2}$$

n = minimum sample size

$Z^2_{\alpha/2}$ = critical value for 95% confidence level=1.96

d = error allowance=0.05

p = There was no mentioning prevalence of asthma Thai adults in Ratchaburi province, Thailand=50%=0.5

q = 1- p= 1- 0.5= 0.5

From above formula,

$$n = \frac{Z^2_{\alpha/2}\,(p \times q)}{d^2}$$

$$n = \frac{(1.96\times1.96)\,(0.5\times0.5)}{(0.05)^2}$$

n = 384

sample size = 384

Required sample size = 422 (after adding of 10% missing data and season variation)

441 samples was collected.

According to his statement (p.189), ―We make use of the fact that one-half the desired interval, *d*, may be set equal to the product of the reliability coefficient and the standard error. Assuming that random sampling and conditions warranting approximate normality of the distribution of p leads to the flowing formula for n (sample size) when sampling is with replacement, when sampling is from an infinite population, or when the sampled population is large enough to make use of the finite population correction unnecessary".

In this study, *p* was set at 0.50, due to the assumption that half of the study population has the knowledge about the study topic and the other half has not. As a result, total required randomized sampling was about 422 respondents, when allowing for error size of not more than + or – 5% (Raosoft, 2004). After gathering the data collection, the total collected samples were 441.

3.5 Sampling techniques

Non-random sampling was applied in this study. Asthma OPD patients within inclusion criteria at Asthma Clinic at Photaram Hospital took part in the study during the period of data collection until the number reached 441 sample size.

Inclusion criteria:

Asthma OPD patients visiting Asthma Clinic at Photaram Hospital. The patients were already diagnosed as having asthma and aged over 18 years old, both male and female, and were willing to be respondents for the questionnaire used in this study.

Exclusion criteria

- the patients who were in COPD
- the interviewers have known COPD patients from the medical record of Potharam Hospital.
- those who had mental problems

3.6 Study area

The study area was at Photaram Hospital in Ratchaburi province.

3.7 Variables

Independent variables

1. Demographic and characteristic background
2. Knowledge about preventive behaviors regarding asthma management
3. Attitudes about preventive behaviors regarding asthma management

Dependent variable

Practice of preventive behaviors regarding asthma OPD patients at Photaram Hospital.

3.8 Validity and Reliability

Validity Test

The questionnaire had been check by three experts for validity test and they are from Ratchaprachasamasai Institute, Ministry of Public Health, Thailand. The names of three experts are:

1. Thanapat Boonkrong, M.D,
2. Ariyatat Eiamudomsuk, M.D, and
3. Yaowanit Samana (nurse).

Reliability Test

After the proposal examination, with the approval of Thesis Committee, the questionnaire was first pre-tested for the reliability at Suburb Bangkok for 20 sets.

The Cronbach‘s Alpha score for knowledge part was 0.810, for attitudes part was 0.810, and for practice part was 0.922 in pre-test.

3.9 Measurement Tools

The data was collected by using the structured questionnaire which was translated from English to Thai language by a native Thai. The structured questionnaire includes 4 parts.

Part 1 – Demographic and socioeconomic background:

This section included items such as gender, age, marital status, educational level (the highest degree obtained), occupation, number of family member, monthly household income, monthly household expenditure, family history of asthma, years of having asthma/periods suffered from asthma, smoking behaviors and smoke years.

Part 2 – Knowledge about preventive behaviors regarding symptoms in Asthma.

For part two on knowledge about preventive behaviors regarding symptoms in asthma patients, there were a total of 19 questions and the 12nd question was negative question and the rests were positive questions. Four of them were knowledge items on asthma in general and the rest were knowledge on self-asthma-care for asthma patients in particular. The explanation of the scoring is that: right means the statement is correct. Wrong means the statement is not correct. Do not know means the respondent does not know about the statement.

The cut-off point of knowledge, attitude, and practice was categorized into three groups according to be used the ~~“r~~ange” technique. The cutting point of knowledge was categorized into three parts: low level, middle level, and high level.

The score was 1 for right answer (for reverse reply, right became 0 score) and 0 for wrong answer (for reverse reply, wrong became 1 score) and do not know (for

reverse reply, do not know became 1 score). The highest score was 19 and the lowest was 0.

Choice offered are _right', _wrong', _do not know' = 3

Formula of range = 19 divided by 3 = about 6.0

The cut-off point would come like:

High knowledge level was noted between 14-19 score, between 7-13 score was noted as middle level of knowledge, and between 0-6 was also noted as low level of knowledge.

Part 3 – Attitudes about preventive behaviors regarding asthma symptoms

It included 10 questions and the 1th, 2th, 6th, 7th, and 9th were negative questions and the others were positive questions. Scores given for attitude were below:

For positive statements		**For negative statements**	
Choices	Scores	Choices	Scores
Agree	2	Agree	0
Not certain	1	Not certain	1
Disagree	0	Disagree	2

The cut-off point of attitude was divided into three levels:

Less than 6 of total score was noted as low level of attitude. The score within 7-13 refers to middle level of attitude, while 14-20 of total score was noted as high level of attitude. The explanation of the scoring was that: agree means the respondent totally agrees with the statement. Not certain means the respondent is not sure with the statement. Disagree means the respondent absolutely disagrees with the statement.

Part 4 – Practices about preventive behaviors regarding asthma symptoms

In part four on practice, it included 11 questions and there was no negative question. Three of them were practice items on asthma in general and the rest were practices on self-asthma-care for asthma patients in particular. Scoring criteria was as follows:

Often got 2 scores, occasionally got 1 scores, and rarely got 0 score.

The total score for grouping worked as follows:

Between 0-7 equals low level

Between 8-15 equals middle level

Between 16-22 equals high level

3.10 Method of Data Collection

The collection of data was conducted from February 2011 to March 2011. The structured questionnaire was used to collect data and these questionnaires were translated into Thai. The data was also collected by using face-to-face interview with subjects. The data was collected by four research assistants who live in Tambol Ban Luank, Photaram district, Ratchaburi province. Four research assistants were trained about this study including objectives, questionnaires, selection of participants, technique how to approach participants and face-to-face interview method was given to interviewers.

1) A letter issued by the College of Public Health Sciences, Chulalongkorn University, to a number of health facilities in Ratchaburi province, namely,

1. Ratchaburi Hospital,
2. Bangpae Hospital,
3. Photaram Hospital,
4. Bann Pong Hospital,
5. Damneon Saduak Hospital.

However, right after the ethics permission was obtained, only Photaram Hospital in Ratchaburi province responded promptly for research data collection. Due to time constraints, data collection was only possible at this hospital.

2) Questionnaires were distributed to asthma OPD patients at Photaram hospitals in Ratchaburi province by non-random sampling method with inclusion criteria as stated.

3) The respondents were informed of research purpose and were asked for their consent (by signing on the consent form) to participate in the research.

4) It was worth noting that the respondents were informed of the research ethics, namely, all respondents were informed about research purpose and their right to participate and to withdraw anytime as they wish. Such withdrawal had no impact on their treatment at Photaram Hospitals. Their data were also kept with confidentiality.

5) If the respondents agreed to join, they made a mark and filled-in the space provided on the questionnaire.

6) The data was also collected by using face-to-face interview with subjects.

7) Due to the fact that the author is a Korean who have no Thai language competency, not only the questionnaire was translated in Thai, but also four Thai research assistants was equipped in this study, so as to be able to answer any questions the respondents might have while filling-in the questionnaire. The time per one set of questionnaire was about 20 minutes for 52 question items.

3.11 Data Analysis

For data analysis, SPSS version 16 (licensed for Chulalongkorn University) program was used in two steps:

1. Descriptive statistics: demographic characteristics, level of knowledge, attitudes and practices was presented by frequency, percentage, mean and standard deviation.

2. Inferential statistics: the relation between independent variables and dependent variables was presented by the use of Chi-square test.

3.12 Ethical Consideration

According to the approval of Ethics Committee of Chulalongkorn University, this study was done. Signed informed consents as well as oral informed consents were taken from all the participants. Participants were informed about the general nature of the study as well as any potential harm or risk that the study may cause. They were assured of confidentiality, and they were also told that they can be withdrawn from the study if they can not participate. They were also informed that the data will not be used for other purposes besides academic and presentation will be anonymous.

3.13 Limitation

This study was done among asthma Thai adults at Photaram Hospital in Ratchaburi province only so that the results of the study cannot be generalized to the overall situation of whole asthma Thai adults in Ratchaburi province, Thailand.

3.14 Expected Benefits

The study provided baseline information about knowledge, attitudes and practices on asthma among Thai adults. In addition, further study can be done depending on the data of this study. Health promotion program can also be implemented depending on the study results.

CHAPTER IV

RESULTS

This chapter is divided into three parts. The first part includes the distribution of demographic characteristics in asthma Thai adults in Ratchaburi province, Thailand.

The second part consists of the relationship between socio-demographic characteristics and KAP on asthma. Last part includes the distribution of relationship between knowledge and attitude, knowledge and practices, attitude and practices on asthma.

The respondents in the study were Thai adults who are the aged over 18 years in asthma OPD patients at Photaram Hospital in Ratchaburi province, Thailand. Total number of subjects in the study was 441.

Part 1

4.1 Demographic characteristics of asthma Thai adults

Table 2 shows the socio-demographic characteristics of asthma Thai adult such as age, gender, numbers of family member, marital status, educational level (highest degree obtained), occupation, , monthly household income, monthly household expenditure, family history of asthma, years of having asthma, smoking behaviors and smoking years. A total of 441 respondents with asthma who live in Ratchaburi province, Thailand were interviewed with structured questionnaire.

Age

The mean age of the participants was 40.89 years, SD was 19.57. Twenty-eight point six percent of the participants were the age group between 18-24 years and 25.6% were the age group between 25-39 years. Twenty-five point four percent of the participants were between40-59 years and 20.4% were the age group of >60 years respectively.

Gender

Among all the respondents, 55.1% were female and 44.9% were male.

Family members

More than half (53.1%) of respondents were in the range from 3 to 4 in family members and 39.0 % were in more than 5, while 7.9% were in less than 2 family members.

Marital Status

Among all the respondents, more than half of the respondents were married (54.0%) and non- married (single, widowed, divorced, and separated) were 46.%.

Educational

Most of the respondents (68.3%) had secondary school or higher education. 31.7% had primary school or lower education.

Occupation

Regarding the occupation, 31.3% of subjects were agricultural worker, non-agricultural workers were 303(68.7%).

Monthly household income and household expenditure

Total monthly household income ranged from 1,200 Bahts to 95,000 bahts. Mean household income was 20,605.33 Bahts, and SD was 16,057.33.

Forty two percent of the subjects had less than 10,000 Baht per month, 39.0% of them had a household income from 1,001to 30,000 Baht, and 19.0% had more than 30,000 Baht. While more than half (54.8%) of the subjects had less than 10.000 Baht per month, 37.9% had a household expenditure from 10,001 to 30,000 Baht, and 7.3% had more than 30,000 Baht.

Family History of asthma

Respondent‘s period of family history of asthma, 2-9 years were 68.8% and ≤1 year were 15.9 %, and 15.2% were > 9 years.

Smoking behaviors

Almost all respondents (78.9%) were non- smoker, and smoker were only 21.1%.

Smoking years

Among 93 smokers, smokers of less than 5 years were 28.0%, 41.9 % were 6 to 9 years, and more than 9 years of smoking were 30 %.

Table 2: Distribution of asthma Thai adult by demographic characteristics (n=441)

Socio-demographic Characteristics	Frequency	Percentage
Age (n= 441)		
18-24 years	126	28.6
25-39 years	113	25.6
40-59 years	112	25.4
>60 years	90	20.4
Mean=40.89 SD= 19.57		
Gender (n= 441)		
Male	198	44.9
Female	243	55.1
Family Member (n=441)		
small family (1-2)	35	7.9
middle family (3-4)	234	53.1
large family (≥5)	172	39.0
Marital Status (n= 441)		
Married	238	54.0
Non-married	203	46.0
Education (n= 441)		
Primary school or lower	140	31.7
Secondary school or higher	301	68.3
Occupation (n= 441)		
Agricultural worker	138	31.3
public sector employee	27	6.1
private sector employee	69	15.6
business owner	57	12.9
student	88	20.0
housekeeper	44	10.0
retied person	18	4.1

Monthly Household Income (n= 441)	185	42.0
≤ 10,000 Bahts	172	39.0
10,001-30,000 Bahts	84	19.0
>30,000 Bahts		
Mean =20605.33		
SD = 16,057.33		
Range = 1,200 –95,000		
Monthly Household expenditure (n= 441)		
≤ 10,000 Bahts	242	54.8
10,001-30,000 Bahts	167	37.9
>30,000 Bahts	32	7.3
Mean =15,867.82		
SD = 12,715.02		
Range = 1,000 –94,000		
Family History of Asthma (n= 441)		
≤ 1years	70	15.9
2-9years	304	68.8
>9 years	67	15.2
Smoking Behavior (n= 441)		
Non-smoker	348	78.9
Smoker	93	21.1
Smoking Years(n=441)		
≤ 5	26	28.0
6-9	39	41.9
>9	28	30.0

4.2 Level of Knowledge on asthma in Thai adults

The results as shown in Table 3 state that the numbers and percentage of asthma Thai adult who answered each question about knowledge of asthma. Among them, 46.0% of participants could answer correctly the statement –You know that asthma is a problem that does not go away" and 64.4% of participants could answer correctly the statement –One of asthma symptoms is to wake up at midnight because of cough or dyspnea". The rest of questions were answered correctly by more than 70% of the participants.

Table 3. Number and percentage of asthma Thai adult who answered correctly to each question (n=441)

No	**Knowledge Statement**	**Frequency of respondents answered correctly**	**Percentage**
1	Asthma is a chronic inflammatory disease of the airways.	437	99.1
2	Asthma is characterized by variable and recurring.	402	91.2
3	The major cause of asthma is an allergy and infection	411	93.2
4	The cause of asthma is still unknown.	391	88.7
5	The most common method of monitoring asthma is to check PEF(peak expiratory flow rate).	403	91.4
6	One way to control asthma symptoms is to take prednisone.	389	88.2
7	One of asthma symptoms is to wake up at midnight because of cough or dyspnea.	284	64.4
8	If asthma is not well treated can not work.	365	82.8
9	Checking PEF (peak expiratory flow rate) can prevent asthma symptoms.	369	83.7
10	Smoking is bad for patient to control the asthma symptoms.	383	86.8
11	Patient can control asthma themselves.	388	88.0
12*	Dust is not important for asthma patient.	309	70.1
13	Main medicaments to control asthma are Bronchodilators and corticosteroids.	381	86.4
14	You know the cause of your asthma.	291	66.0

15	Knowing what causes your asthma symptoms is an important step to controlling your asthma.	361	81.9
16	You know that asthma is a problem that does not go away.	203	46.0
17	Asthma is required constant monitoring, even when you are feeling well.	356	80.7
18	PEF (peak expiratory flow rate) can be an important part of your asthma management plan.	360	81.6
19	Taking care of yourself every day is an important component to managing your asthma.	377	85.5

* Negative statement

Table 4 revealed the knowledge level of asthma Thai adult who participated in the study. The score range of subjects for the total of 19 questions was 4 to 19, and the mean was 15.18. Thirty point one percent of the participants had low level of knowledge about asthma, 49.0% had middle level of knowledge as well as 20.9% had high level of knowledge on asthma.

Table 4: Distribution of the respondents towards the group of asthma knowledge

knowledge Level	**Frequency**	**Percentage**
Low	133	30.1
Middle	216	49.0
High	92	20.9
Total	441	100.0
Mean 15.18 SD 3.487		

4.3 Level of attitudes on asthma in Thai adults

Table 5 stated the percentage of attitude about preventive behaviors regarding asthma. Thirty one point seven percent of participants agreed that checking PEF (peak expiratory flow rate) every day is not possible. Twenty eight point eight percent of the respondents also agreed that checking one‘s PEF daily to prevent

asthma is such a waste of time. Also 64.9% agreed that it is easy to use the medicines to control asthma oneself.

Next, 63.5% disagreed that taking medicine every day is not easy. Moreover, 88.0% of respondents agreed that patient‘s self-asthma-care is possible and 83.2% agreed that healthy lifestyle can help patients a lot. At last, 43.8% of respondents agreed that self–care for asthma is the duty of physicians, not the patients.

Table 5: Percentage of respondents‘ attitude on asthma (n=441)

No	Attitude Statement	Agree		Uncertain		Disagree	
		n	%	n	%	n	%
1*	Checking PEF (peak expiratory flow rate) every day is not possible.	140	31.7	62	14.1	239	54.2
2*	Taking medicine every day is not easy.	100	22.7	61	13.8	280	63.5
3	Patient‘s self-asthma-care is possible.	388	88.0	41	9.3	11	2.5
4	Healthy lifestyle can help patients a lot.	367	83.2	66	15.0	8	1.8
5	Strictly adhere to doctor‘s advice on asthma treatment is worth doing.	376	85.3	43	9.8	22	5.0
6*	Checking one‘s PEF daily to prevent asthma is such a waste of time.	127	28.8	215	48.8	99	22.4
7*	Exercise is disgraceful behavior.	196	44.4	160	36.3	85	19.3
8	Checking your PEF to control asthma is not a boring concept.	171	38.8	178	40.4	92	20.9
9*	Self-care of asthma is the duty of physicians, not the patients.	193	43.8	83	18.8	165	37.4
10	According to the PEF, it is easy to use the medicines to control asthma oneself.	286	64.9	125	28.3	30	6.8

* Negative statement

Table 6 revealed the attitude level of asthma Thai adult who participated in the study. More than half (68.5%) of participants had low level of attitude, 10.0% of participants had middle level of attitude while 21.5% had high level of attitude.

Table 6: Distribution of the respondents towards the group of asthma attitudes

Attitudes Level	**Frequency**	**Percentage**
Low	302	68.5
Middle	44	10.0
High	95	21.5
Total	441	100.0
Mean 11.13 SD 3.263		

4.4 Level of practices on asthma in Thai adults

Table 7 stated the percentage of practice preventive behaviors regarding asthma. Ninety percent of participants answered that they never measure PEF (peak expiratory flow rate) as recommended by doctor. For 87.5% of respondents also answered that they never have a checked PEF to control asthma symptoms. Also 94.5% of respondents never have constant monitoring PEF, even when they are feeling well. Then 93.2% answered that they had medicines as recommended by doctor. Moreover, 74.6% of participants answered that they live always at clean and tidy house.

Table 7: Percentage of respondents‘ practices on asthma

No	Statement	Always/ Often		Occasio-nally		Rarely/ Never	
		n	%	n	%	n	%
1	You measure your PEF (peak expiratory flow rate) as recommended by your doctor.	8	1.8	36	8.2	397	90.0
2	You have medicines as recommended by your doctor.	411	93.2	29	6.6	1	0.2
3	You have a checked PEF to control asthma symptoms.	4	0.9	51	11.6	386	87.5
4	You have medicines to control asthma symptoms.	395	89.6	44	10.0	2	0.5

5	You live at clean and tidy house.	329	74.6	103	23.4	9	2.0
6	You avoid pungent odour or unpleasant smell.	281	63.7	150	34.0	10	2.3
7	You avoid the cause of your asthma.	290	65.8	130	29.5	21	4.8
8	You control the cause of asthma symptoms.	254	57.6	154	34.9	33	7.5
9	You have constant monitoring PEF, even when you are feeling well.	2	0.5	22	5.0	395	94.5
10	You have an exercise daily.	219	49.7	168	38.1	54	12.2
11	You reduce the stress in your life.	228	51.7	181	41.0	32	7.3

In table 8, the score range of the subjects for the total of 11questions was 6 to 22, and the mean was 18.24. High level of practices of preventive behaviors regarding asthma was 32.4%, middle level was 30.6%, and low level was 37.0%.

Table 8: Distribution of the respondents towards the group of asthma practices

Practices Level	**Frequency**	**Percentage**
Low	163	37.0
Middle	135	30.6
High	143	32.4
Total	441	100.0
Mean 17.37 SD 3.687		

Part 2

4.5 Relationship between demographic characteristics and KAP on asthma

The relationship between socio-demographic characteristics and KAP on asthma was determined by the use of Chi-square test. The level of statistical significant was 0.05.

4.5.1 Relationship between demographic characteristics and knowledge on asthma

As presented in the table 9, there was a significant association between age, marital status, occupation, monthly household income, monthly household expenditure, family history of asthma and knowledge on asthma respectably (p-values< 0.05). There was no significant association relationship between gender, education, family member, , smoking behaviors, and smoking years and knowledge on asthma respectively (p-value >0.05).

Table 9. Relationship between demographic characteristics and knowledge on asthma(n=441)

Demographic characteristics	Knowledge						χ^2	p-value
	Low		Middle		High			
	N	%	n	%	n	%		
Age							13.94	.03*
≤24 years	30	23.8	77	61.1	19	15.1		
25 – 39 years	34	30.1	47	41.6	32	28.3		
40-59 years	32	28.6	60	53.6	20	17.9		
>60 years	37	41.1	32	35.6	21	23.3		
Gender							2.432	.296
Male	62	31.3	99	50.0	37	18.7		
Female	61	25.1	127	52.3	55	22.6		
Marital Status							11.248	.004*
Single	50	24.6	121	59.6	32	15.8		
Married	73	30.7	105	44.1	60	25.2		
Education							3.283	.194
Primary school or lower	45	32.1	63	45.0	32	22.9		
Secondary school or higher	78	25.9	163	54.2	60	19.9		
Occupation							40.261	.001*
Agricultural worker	41	32.0	52	40.6	35	27.3		
Non - Agricultural worker (public sector employee , private sector employee business owner, student, housekeeper, retied person)	82	26.2	174	55.6	57	18.2		

Family Member							6.108	.191
1-2	7	20.0	16	45.7	12	34.3		
3-4	67	27.5	126	51.6	41	16.8		
>5	49	28.5	84	48.8	39	22.7		
Monthly Household Income							83.401	.001*
<10,001	30	16.2	130	70.2	25	13.6		
10,001-30,000	42	34.1	80	35.4	50	54.3		
>30,000	51	60.8	16	19.0	17	20.2		
Monthly Household Expenditure							84.914	.001*
<10,001	38	15.7	171	70.7	33	13.6		
10,001-30,000	72	43.1	42	25.1	53	31.7		
>30,000	13	40.6	13	40.6	6	18.8		
Family History of Asthma							17.096	.002*
<2	21	30.0	25	35.7	24	34.3		
2-9	83	27.3	172	56.6	49	16.1		
>9	19	28.4	29	43.2	19	28.4		
Smoking Behavior							.035	.983
Non smoker	97	27.9	179	51.4	72	20.7		
Smoker	26	28.0	47	50.5	20	21.5		
Smoking Years(n=93)							5.071	.535
≤ 5	10	38.5	12	46.1	4	15.4		
6-9	11	28.2	17	34.6	11	28.2		
>9	5	17.9	18	64.3	5	17.9		

* *p-value* < 0.05

4.5.2 Relationship between demographic characteristics and attitude on asthma

As presented in the table 10, there was a significant association between age, occupation, monthly household income, family history of asthma, and attitude respectably (p-values< 0.05). There was no significant association relationship between gender, marital status, education, numbers of family member, monthly

household expenditure, smoking behavior, smoking years, and attitude (p-values> 0.05).

Table 10. Relationship between demographic characteristics and attitude on asthma(n=441)

Demographic characteristics	Attitude						χ^2	p-value
	Low		Middle		High			
	n	%	n	%	n	%		
Age							16.202	.013*
≤24 years	92	73.0	15	11.9	19	15.1		
25 – 39 years	70	61.9	13	11.5	30	26.6		
40-59years	75	66.9	9	8.0	28	25.1		
>60 years	65	72.2	7	7.8	18	20.0		
Gender							4.878	.087
Male	139	70.2	19	9.6	40	20.2		
Female	163	67.1	25	10.3	55	22.6		
Marital Status							4.725	.0.94
Single	143	70.4	28	13.8	32	15.8		
Married	159	66.8	16	6.7	63	26.5		
Education							.936	.626
Primary school or lower	86	61.4	21	15.5	33	23.6		
Secondary school or higher	216	71.7	23	7.6	62	20.7		
Occupation							36.422	.001*
Agricultural worker	72	52.2	18	13.0	48	34.8		
Non - Agricultural worker **(**public sector employee, private sector employee, business owner, student, housekeeper, retied person**)**	230	75.9	26	8.6	47	15.5		
Family Member							6.291	.178
1-2	14	40.0	8	22.9	13	37.1		
3-4	165	70.5	24	10.3	45	19.2		
>5	123	71.5	12	6.9	37	21.5		

Monthly Household Income							15.273	.004*
<10,001	142	76.8	21	11.4	22	11.8		
10,001-30,000	107	62.2	17	9.9	48	27.9		
>30,000	53	63.1	6	7.1	25	29.8		
Monthly Household Expenditure							7.319	.120
<10,001	179	73.9	23	9.5	40	16.6		
10,001-30,000	107	64.2	15	8.9	45	26.9		
>30,000	16	50.0	6	18.8	10	31.2		
Family History of Asthma							70.354	.001*
<2	34	48.6	6	8.6	30	42.9		
2-9	241	79.3	33	10.9	30	9.8		
>9	27	40.3	5	7.5	35	52.2		
Smoking Behavior							4.884	.559
Non-smoker	234	67.2	36	10.3	78	22.5		
Smoker	68	73.1	8	8.6	17	18.3		
Smoking years(n=93)							4.884	.559
≤ 5	23	88.5	0	.0	3	11.5		
6-9	32	82.1	1	2.6	6	15.3		
>9	24	85.7	0	.0	4	14.3		

* *p-value* < 0.05

4.5.3. Relationship between demographic characteristics and practice on Asthma

As presented in the table 11, there was a significant association between gender, occupation, monthly household income, monthly household expenditure, family history of asthma and practice on asthma respectably (p-values< 0.05).

There was no significant association relationship between age, marital status, education, numbers of family member, smoking behavior, smoking years and practice on asthma respectably (p-values > 0.05).

Table 11. Relationship between demographic characteristics and practice on asthma(n=441)

Demographic characteristics	Practice						χ^2	p-value
	Low		Middle		High			
	n	%	n	%	n	%		
Age							7.889	.246
≤24 years	54	42.9	35	27.8	37	29.3		
25 – 39 years	32	28.3	39	34.5	42	37.2		
40-59years	44	39.3	29	25.9	39	34.8		
>60 years	33	36.7	32	35.6	25	27.7		
Gender							9.611	.008*
Male	72	36.4	74	37.4	52	26.2		
Female	91	37.4	61	25.2	91	37.4		
Marital status							1.774	.412
Single	80	39.4	56	27.6	67	33.0		
Married	83	34.9	79	33.1	76	32.0		
Education							3.148	.207
Primary school or lower	60	42.8	40	28.6	40	28.6		
Secondary school or higher	103	34.2	95	31.6	103	34.2		
Occupation							54.686	.001*
Agricultural worker	42	32.8	44	34.4	42	32.8		
Non-agricultural worker (public sector employee, private sector employee, business owner, student, housekeeper, retied person)	121	38.6	91	28.9	102	32.5		
Family member							7.085	.131
1-2	8	22.9	14	40.0	13	37.1		
3-4	93	39.7	61	26.1	80	34.2		
>5	62	36.0	60	34.9	50	29.1		

Monthly Household Income							37.641	.001*
<10,001	81	43.8	37	20.0	67	36.2		
10,001-30,000	39	22.7	71	41.3	62	36.0		
>30,000	43	51.2	27	32.1	14	16.7		
Monthly Household Expenditure							22.687	.001*
<10,001	100	41.3	52	21.5	90	37.2		
10,001-30,000	53	31.7	67	40.1	47	28.1		
>30,000	10	31.3	16	50.0	6	18.7		
Family History of Asthma							19.708	.001*
<2	16	22.9	28	40.0	26	37.1		
2-9	129	42.4	76	25.0	99	32.6		
>9	18	26.9	31	46.3	18	26.8		
Smoking behavior							3.452	.178
Non smoker	121	34.8	111	31.9	116	33.3		
Smoker	42	45.2	24	25.8	27	29.0		
Smoking years(n=93)							6.757	.344
≤ 5	11	42.3	10	38.5	5	19.2		
6-9	18	46.1	9	23.1	12	30.8		
>9	13	46.4	5	17.9	10	35.7		

* *p-value* < 0.05

Part 3

4.6 Association between knowledge and attitudes, knowledge and practices, attitudes and practices preventive behaviors regarding Asthma

The relationship between demographic characteristics and KAP on asthma was determined by the use of Chi-square test. The level of statistical significant was 0.05. The results were shown in Table 12,13, and table 14.

4.6.1 Association between knowledge and attitudes on asthma

As presented in table 12, there was a significant association between knowledge and attitudes of preventive behaviors regarding asthma (p< 0.001).

In subjects with high level of knowledge had high level of attitudes at 41.3% and had low level attitudes at 52.2%. On the other hand, in subjects with low level of knowledge had high level of attitudes at 8.9% and had low level of attitudes at 85.4%.

Table 12: Association between knowledge and attitudes on asthma

Knowledge status	**Attitudes status**				χ^2	**p-value**
	Low	Middle	high	Total		
	No(%)	N(%)	N(%)	N(%)		
Low	105(85.4)	7(5.7)	11(8.9)	123(100.0)		
Middle	169(74.8)	11(4.9)	46(20.3)	226(100.0)		
High	48(52.2)	6(6.5)	38(41.3)	92(100.0)	76.507	.000
Total	322(68.5)	24(10.0)	95(21.5)	441(100.0)		

4.6.2 Association between knowledge and practices on asthma

As presented in table 13, there was a significant association between knowledge and practices of preventive behaviors regarding asthma (p< 0.001). In subjects with high level of knowledge had high level of practice at 45.7% and had low level practice at 13.0%. On the other hand, in subjects with low level of knowledge had high level of practice at 9.0% and had low level of practices at 65.4%.

Table 13. Association between knowledge and practices on asthma

Knowledge status	**Practices status**				χ^2	**p-value**
	Low	Middle	high	Total		
	No(%)	N(%)	N(%)	N(%)		
Low	87(65.4)	34(25.6)	12(9.0)	133(100.0)		
Middle	64(29.6)	63(29.1)	89(41.2)	216(100.0)		
High	12(13.0)	38(41.3)	42(45.7)	92(100.0)	111.07	.000
Total	163(37.0)	135(30.6)	143(32.4)	441(100.0)		

4.6.3 Association between attitudes and practices on asthma

As presented in the table 14, there was a significant association between attitudes and practices of preventive behaviors regarding asthma ($p< 0.001$). In subjects with high level of attitudes had high level of practices at 43.1% and had low level of practice at 18.9%. On the other hand, in subjects with low level of attitudes had high level of practices at 27.8% and had low level of practices at 44.1%.

Table 14. Association between attitudes and practices on asthma

Attitudes	**Practices status**				χ^2	**p-value**
	Low	Middle	high	Total		
	No(%)	N(%)	N(%)	N(%)		
Low	133(44.1)	85(28.1)	84(27.8)	302(100.0)		
Middle	12(27.3)	14(31.8)	18(40.9)	44(100.0)		
High	18(18.9)	36(37.9)	41(43.1)	95(100.0)	56.419	.000
Total	163(32.5)	135(31.4)	143(36.1)	441(100.0)		

CHAPTER V

DISCUSSION, CONCLUSION AND RECOMMENDATION

5.1 Discussion

The main purpose of this study was to identify asthma OPD patient‘s demographic data; to identify the level of knowledge, level of attitudes, and level of practices of preventive behaviors regarding asthma; and to identify the relationship among them at Ratchaburi province, Thailand. The participants in the study were asthma OPD Thai adults who were aged over 18 years old.

General characteristics: Regarding the general characteristics, more than half, 55.1% were female and 44.9% were male. The rate of gender in asthma among Qatari population was 607 females (54.9 %) and 499 males (45.1%). (Bener A, 2004) The rates of gender in asthma were similar between Thai population and Qatari population as in the current study, there were 55.1% female and 44.9% male.

Regarding age, majority of the respondents (79.6%) were aged between 18-59 year. This prevalence of age in asthma in Thailand showed that it is the same as the article of Morbidity and Mortality Weekly Report, 2011, where asthma affects persons of all ages.

More than half (54.0%) of the subjects were married, 53.1% of respondents were in the range from 3 to 4 in family members. Most of subjects (68.3%) secondary school or higher education. Thirty one point seven percent had primary school or lower education. Thirty one point three percent of the subjects were agricultural workers, and non-agricultural (student, private and public sector employee, housekeeper, and retied person) were 68.7%. Forty two percent of the subjects had an income less than 10,000 baht per month, while 54.8% of the subjects had expenditure less than 10,000 baht per month. The subject‘s period of suffering from asthma was between 2-9 years for 68.8% and 78.9% of subjects were non-smoker.

The findings of study showed that 90.0% of the participants did not measure PEF (peak expiratory flow rate) as recommended by their doctors. Eighty seven point

five percent of the subjects did not have a checked PEF to control asthma symptoms, and 94.5% of the subjects did not have constant monitoring PEF even when they were feeling well. This result indicated that most of asthma patients (90%) in Ratchaburi province did not know how to use PEF and they did not have a check PEF to control asthma symptoms. Today, the PEF is used for asthma patients to control the asthma symptoms by doctors and by patients themselves worldwide. It is absolutely necessary for asthma patient to check the lung function to control asthma. Doctors or nurses should help asthma patients by producing a tailored-made self-management plan with PEF and show the patients how to use it to control asthma at home. (Glaucia, N.T., 2010) If the asthma patient check the lung function with PEF and control the symptoms of asthma by doctor and nurse, asthma patients should get better quality of life.

This study also showed that the mean of knowledge was 15.18(79.9%). Twenty point nine percent of the participants had high level of knowledge about asthma, low level of attitude (68.5%), and low level of practice was 37.0%. The study done in the Pediatric Chest Clinic of King Chulalongkorn Memorial Hospital, Bangkok, Thailand, stated that sufficient knowledge of asthma in age between 5-17 years old was 53.2% after giving an education on asthma. (Nuanchan Prapphal. et al. 2007) In comparison, the knowledge level of asthma adults at Photaram Hospital was much higher than the knowledge of patients aged between 5 to 17 years old in the Pediatric Chest Clinic of King Chulalongkorn Memorial Hospital, Bangkok, Thailand.

Out of all demographic characteristics data, there was a significant association between age and knowledge($p < 0.03$); marital status and knowledge($p < 0.004$); occupation and knowledge($p < 0.001$); monthly household income and knowledge ($p < 0.001$); monthly household expenditure and knowledge ($p < 0.001$); and years of suffering from asthma and knowledge ($p < 0.002$). There was a significant association between age and attitude ($p < 0.01$); occupation and attitude ($p < 0.001$); monthly household income and attitude ($p < 0.004$); and years of suffering from asthma and attitude ($p < 0.001$). There was a significant association between gender and practice ($p < 0.008$); occupation and practice($p<0.001$); monthly household income and

practice ($p < 0.001$); monthly household expenditure and practice ($p < 0.001$); and years of suffering from asthma and practice ($p < 0.001$).

This result showed that asthma practices level in female was higher than in male. It means that female has more time to go to the hospitals than male, and try to control the asthma symptoms more than male. Therefore, they have more KAP of preventive behaviors regarding asthma than males. This result is consistent with the finding of the study in Iran in which a significant association was found between gender and practices on self-care. (Kaldi, A.R., 2005)

The findings of the current study showed that occupation had statistically significant association with knowledge, attitudes, and with practice preventive behaviors regarding asthma respectably ($p<0.001$). Out of 441 subjects, agricultural worker was 138 (31.3%), while public sector employee was 6.1%, private sector employee was 15.6%, business owner was 12.9%, student was 20.0%, housekeeper was 10.0% and retied person was 4.1%.

In the group of agricultural worker, the level of knowledge was higher than the other occupations. That is to say those who are agricultural workers have better knowledge level than others. Due to working outside as a farmer, the agricultural workers had more asthma symptoms in frequency and went to the hospital more than other occupations. Those who are more serious and go often to the hospital should get more knowledge of the disease than the others.

There was a significant association between knowledge and attitudes of preventive behaviors regarding asthma ($p < 0.001$). This result is consistent with the finding of the study in USA in which a significant association was found between knowledge and attitudes (Richard Beasley. 2004). In the study, there was a significant association between knowledge and practices of preventive behaviors regarding asthma ($p < 0.001$). This result is consistent with the finding of the study by Rubin in which a significant association was found between knowledge and practices. (Rubin. , et al., 1989)

There was a significant association between attitudes and practices of preventive behaviors regarding asthma ($p < 0.001$). This result is also consistent with

the findings of the study in Iran in which a significant association was found between attitude and practice of pregnant women about Oral and Dental Care. (Eftekharalsadat Hajikazemi. et al., 2008).

According to the learning gained from this study outcome, in the complete cycle, an awareness linking KAP together should be established to prevent the symptoms of asthma and to improve the quality of life of asthma patients. If this complete cycle can be more achieved, asthma patients will get better quality of life.

5.2 Conclusions

From the findings, it can be summarized with an implication for future research as follows:

1. **Female** samples had better practices and better self-care for asthma by nature than male ones as they have asthma symptom to visit to Photaram Hostital during day time since they have more conditions to cause asthma symptoms because of working in the external environment as a agricultural workers. When compared to non-agricultural worker (housekeepers, students, and private and public sector employees), these agricultural workers had better practices level of preventive behaviors regarding asthma than the other groups.

2. The subjects with more period suffered from asthma had good knowledge, attitude and good practice level of preventive behaviors regarding asthma than ones with less period suffered from asthma. This study result might reveal the fact that people may need more periods to have good attitudes and practice.

Therefore, if that is the case, from an early stages, proactive intervention should be done right after the diagnosis. For instance, it may be necessary to give asthma patients education, attitudes, and practices comprehensibly to prevent asthma symptoms, and also to improve the quality of life of asthma patients.

5.3 Recommendations

5.3.1 Recommendation in academic terms:

1. It is expected that with training on KAP and awareness-building by Photaram Hospital personnel to the patients, as a more complete cycle of health

prevention/promotion campaign, the level of practice of preventive behaviors regarding asthma may be positively impacted. Information-education-communication (IEC) strategy may serve as a bridge between patients and health service providers.

The principle of learning should be employed, active participation and attitudes theory (on self-esteem) and principles of interpersonal communication can not at all be neglected.

2. An awareness for concerned stakeholders to care for health in order to promote life well-being which will lead to higher productivity of Thai population, national economic growth, and happiness of the Thai people, should also be motivated.

3. Future research should also be conducted at some other asthma clinics or some other asthma departments in order to gain the overall complete picture of such particular asthma patients in their responding population, and future research should be conducted in other respiratory diseases of self-care like COPD, Chronic Bronchitis, and Emphysema OPD patients as well.

5.3.2 Recommendation in operational terms:

In line with Primary Health Care for health prevention and promotion, an implementation for effective self-care program can encourage community participation by taking into account area-based problem, ranging from local characteristics, local felt needs, local cultures, local history and background, and local resources, in order to achieve Health For All National Goals for time to come. It is important to enhance people vision of health prevention and promotion, involved costs and benefits, in order to promote the practice of self-care at home. The Thai government should promote health and life well-being so as to save not only cost in medical treatment for these diseases but also to gain good productive and quality citizens of the nation.

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APPENDICES

APPENDIX A

Pre-test results

Reliability Statistics

After the proposal examination, with the approval of Thesis Committee, pre test was done for questionnaire reliability at Sudrub of Bangkok for 20sets.

The result were that personal resource Questionnaire which employs to measure knowledge contains 19 items had Cronbach‘s alpha=0.810.

To measuring Attitude contains 10 items had Cronbach‘s alpha =0.803. and practice level contains 11 item had Cronbach‘s alpha=0.922. After the Thesis Committee‘s approval, the questionnaire was used in actual field.

1. Knowledge

Reliability Statistics

Cronbach's Alpha	N of Items
.810	19

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
k1	10.44	14.379	.681	.785
k2	10.39	14.722	.646	.789
k3	10.39	14.722	.646	.789
k4	11.00	17.294	-.198	.832
k5	10.94	15.820	.201	.812
k6	10.61	14.958	.403	.801
k7	10.61	15.193	.339	.805
k8	10.72	15.977	.129	.818
k9	11.06	15.938	.224	.810
k10	10.33	15.059	.641	.792
k11	10.56	14.144	.656	.785
k12	10.56	15.556	.256	.810
k13	10.67	14.824	.428	.799
k14	10.83	15.559	.243	.811
k15	10.50	14.382	.623	.788
k16	10.78	15.477	.257	.810
k17	10.39	14.958	.562	.793
k18	10.83	14.618	.496	.795
k19	10.39	15.428	.397	.802

2. Attitude

Reliability Statistics

Cronbach's Alpha	N of Items
.810	10

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
a1	13.75	16.092	-.149	.853
a2	14.10	11.358	.664	.770
a3	14.15	11.187	.789	.753
a4	14.25	11.461	.864	.749
a5	14.35	11.713	.864	.752
a6	13.65	13.713	.339	.809
a7	14.30	11.484	.888	.747
a8	14.25	12.618	.575	.783
a9	13.55	14.471	.222	.818
a10	13.60	16.042	-.139	.844

3. Practice

Reliability Statistics

Cronbach's Alpha	N of Items
.922	11

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
p1	17.90	37.042	.526	.922
p2	18.60	36.779	.544	.921
p3	17.85	33.503	.779	.910
p4	18.15	32.450	.814	.908
p5	18.45	34.261	.854	.907
p6	18.55	36.787	.612	.918
p7	18.40	36.674	.645	.917
p8	18.25	34.303	.755	.911
p9	17.70	35.274	.666	.916
p10	18.25	35.461	.691	.915
p11	18.40	35.621	.696	.914

APPENDIX B

Time Schedule

Procedure	Time Frame (Months)									
	Aug-10	Sep-10	Oct-10	Nov-10	Dec-10	Jan-11	Feb-11	Mar-11	Apr-11	May-18
1. Literature review										
2. Writing thesis proposal										
3. Submission for proposal exam										
4. Ethical consideration from Chulalongkorn University(CPHS)										
5. Pretest questionnaires										
6. Field preparation and data collection										
7. Data analysis										
8. Thesis writing										
9. Final thesis exam										
10. Submission of article for publication										
11. Submission of thesis										

APPENDIX C

Inform consent form

Address ……

Date …….

Code number of the participant ……

I who have signed here below agree to participate in this research project

Title "Knowledge, attitudes, and practices (KAP) on asthma among Thai adults: a case study in Ratchaburi province, Thailand"

Principal researcher's name: **Mr. Yun Jong Gu**

I am a Master's degree candidate at the College of Public Health Sciences, Chulalongkorn University. Though I am a Korean by nationality, I have with me today my Thai research assistant who can answer your question about this research if you may have.

The thesis content is to learn about your preventive behaviors regarding asthma in asthmatic patient. As you are one of the asthma OPD patients, who are visiting today the asthma Clinic at Photaram Hospital, I would then like to ask for your consent and permission to take part in this study of mine.

If you agree to join, you will first sign your name at the ~~–~~Name of the Subject" shown below. Then you will go into 4 sections of questionnaire with a total of 51items. This should take about 20-30 minutes to fill-in. They are first the part of general information or information about your demographic and socioeconomic background. The second part is your knowledge about preventive behaviors regarding Asthma, followed with your attitudes and your practices on the same issue regarding asthma.

The aim of this study is to give us information on the preventive behaviors regarding asthma in asthma OPD patient population at this Hospital so that the health professionals at this Hospital can learn about it and plan their health promotion activities for their asthma OPD patients accordingly.

Your provided information will be kept confidential and will be used for academic purpose only. I can assure you that all of your personal information will not appear on the report. You can withdraw from this research at any time you wish and there will absolutely be no effect on *y*our treatment at this Hospital. There is no cost for joining us. In case of further enquiry, please do not hesitate to talk to my Thai research assistant and thank you very much for taking part in this study.

If I am not treated as indicated in the patient‘s information sheet, I can report to the Ethics Review Committee for Research Involving Human Research Subjects, Health Science Group, Chulalongkorn University (ECCU). Institute Building 2, 4 th Floor, Soi Chulalongkorn 62, Phyathai Rd., Bangkok 10330, Thailand, Tel: 0-2218-8147 Fax: 0-2218-8147 E-mail: eccu@chula.ac.th.

I have also received a copy of patient‘s information sheet and an informed consent form.

Signature	Signature
……..……	……
(Mr. Yun Jong Gu)	(……..……)
Researcher	Participant

Signature

……..……

(……..……)

Witness

APPENDIX D

Questionnaire in English

Questionnaire on "knowledge, attitudes, and Practices (KAP) on asthma among Thai adults: a case study In Ratchaburi province, Thailand"

By Mr. Yun Jong Gu

The college of Public health Sciences, Chulalongkorn University, 2010

Part 1: General information

Instruction: The following questions are about your demographic information.

Please mark X in the parenthesis ( ) for the only one answer that fits yourself.

Please also write down in the bank space where provided.

1. Gender

   A. ( ) Male

   B. ( ) Female

2. Age……(Years old)

3. Marital status

   A. ( ) Single

   B. ( ) Married

   C. ( ) Widowed

   D. ( ) Divorced

   E. ( ) Separated

   F. ( ) Other

4. Educational level(the highest obtained)

   A. ( ) Primary level

   B. ( ) Secondary level

   C. ( ) Lower Vocational School

D. ( ) Higher Vocational School

E. ( ) A bachelor‘s degree

F. ( ) Other

5. Occupation

A. ( ) Agricultural worker

B. ( ) Public sector employee

C. ( ) Private sector employee

D. ( ) Business owner

E. ( ) Student

F. ( ) Housekeeper

G. ( ) Retired person

H. ( ) Other.

6. How many people live in your household?.people

7. Monthly household income.(Baht)

8. Monthly household expenditure.(Baht)

9. Family history of Asthma

A. ( ) Yes

B. ( ) No.

10. How many years do you have asthma?

A. ( ) ≤1 Years

B. ( ) 2- 9 Years

C. ( ) >10 Years

11. Do you smoke?

A. ( ) Yes

B. ( ) No

12. If they smoke and say ―Yes", How many years have you smoked?

A. ( ) 5 Years≤

B. ( ) 6-9 Years

C. ( ) >10 Years

Part 2: Knowledge about asthma.

Instruction: The following questions are about your Knowledge on preventive behaviors regarding asthma. Please mark X in the column for the one best answer only.

Right means the statement is correct.

Wrong means the statement is not correct.

Please do your best to decide if the question is right or wrong. If you cannot decide, you may answer ***Do not know.***

Item	Statement	Right	Wrong	Do not know
1	Asthma is a chronic inflammatory disease of the airways.			
2	Asthma is characterized by variable and recurring.			
3	The major cause of asthma is an allergy and infection			
4	The cause of asthma is still unknown.			
5	The most common method of monitoring asthma is to check PEF(peak expiratory flow rate).			
6	One way to control asthma symptoms is to take prednisone.			
7	One of asthma symptoms is to wake up at midnight because of cough or dyspnea.			
8	If asthma is not well treated, cannot work.			
9	Checking PEF (peak expiratory flow rate) can prevent asthma symptoms.			
10	Smoking is bad for patient to control the asthma symptoms.			
11	Patient can control asthma themselves.			
12 #	Dust is not important for asthma patient.			
13	Main medicaments to control asthma are Bronchodilators and corticosteroids.			
14	You know the cause of your asthma.			
15	Knowing what causes your asthma symptoms is an important step to controlling your asthma.			
16	You know that asthma is a problem that does not go away.			
17	Asthma is required constant monitoring, even when you are feeling well.			
18	PEF (peak expiratory flow rate) can be an important part of your asthma management plan.			
19	Taking care of yourself every day is an important component to managing you asthma.			

 # reverse answer

Part 3: Attitudes about asthma

Instruction: The following questions are about your Attitudes on preventive behaviors regarding asthma. Please mark X in the column for the one best answer only.

Agree means you totally agree with the statement.

Not certain means you are not sure with the statement.

Disagree means you absolutely disagree with the statement.

Item	Statement	Agree	Not certain	Disagree
1 #	Checking PEF (peak expiratory flow rate) every day is not possible.			
2 #	Taking medicine every day is not easy.			
3	Patient‘s self-asthma-care is possible.			
4	Healthy lifestyle can help patients a lot.			
5	Strictly adhere to doctor‘s advice on asthma treatment is worth doing.			
6 #	Checking one‘s PEF daily to prevent asthma is such a waste of time.			
7 #	Exercise is disgraceful behavior.			
8	Checking your PEF to control asthma is not a boring concept.			
9 #	Self-asthma –care is the duty of physicians, not the patients.			
10	According as the PEF, it is easy to use the medicines to control asthma one‘s self.			

 # reverse answer

Part 4: Practices about asthma

The following questions are about your practices in preventive behaviors regarding asthma. Please mark X in the column for the one best answer only.

Always or often means you practice the statement more than one-half of your available time.

Occasionally means you practice the statement between one-half to one-third of your available time.

Rarely/never means you practice the statement less than one-third of your available time.

Item	Statement	Always/ Often	Occasio nally	Rarely/ Never
1	You measure your PEF (peak expiratory flow rate) as recommended by your doctor.			
2	You have medicines as recommended by your doctor.			
3	You have a checked PEF to control asthma symptoms.			
4	You have medicines to control asthma symptoms.			
5	You live at clean and tidy house.			
6	You avoid pungent odour or unpleasant smell.			
7	You avoid the cause of your asthma.			
8	You control the cause of asthma symptoms.			
9	You have constant monitoring PEF, even when you are feeling well.			
10	You have an exercise daily.			
11	You reduce the stress in your life.			

APPENDIX E

Questionnaire in Thai

แบบสอบถาม

ส่วนที่ 1 : ข้อมูลทั่วไปของผู้ตอบแบบสอบถาม

คำชี้แจ้ง : ข้อคำถามต่อไปนี้เป็นข้อมูลส่วนตัวเกี่ยวกับผู้ตอบแบบสอบถาม

โปรดทำเครื่องหมาย ✓ ลงในวงเล็บ ( ) ที่กำหนดให้หรือเติมคำตอบลงในช่องว่างให้สมบูรณ์ตามความเป็นจริง

1. เพศ

( ) 1.1 ชาย ( ) 1.2 หญิง

2. อายุ……ปี

3. สถานภาพสมรส

( ) 3.1 โสด ( ) 3.2 แต่งงานแล้ว

( ) 3.3 สามี/ภรรยา เสียชีวิต ( ) 3.4 หย่าร้าง

( ) 3.5 แยกกันอยู่ ( ) 3.6 อื่นๆ (ระบุ .....)

4. ระดับการศึกษา (ชั้นสูงสุด)

( ) 4.1 ประถมศึกษาหรือต่ำกว่า ( ) 4.2 มัธยมศึกษา (ตอนต้น)

( ) 4.3 ปวช./มัธยมศึกษาตอนปลาย ( ) 4.4 ปวส./อนุปริญญา

( ) 4.5 ปริญญาตรีหรือสูงกว่า ( ) 4.6 อื่นๆ (ระบุ.....)

5. อาชีพ

( ) 5.1 เกษตรกร ( ) 5.2 รับราชการ

( ) 5.3 พนักงานเอกชน ( ) 5.4 ธุรกิจส่วนตัว

( ) 5.5 นักเรียน/นักศึกษา ( ) 5.6 แม่บ้าน/พ่อบ้าน

( ) 5.7 เกษียณอายุ ( ) 5.8 อื่นๆ (ระบุ.....)

6. จำนวนสมาชิกในครอบครัว.....คน

7. รายได้รวมของสมาชิกในครอบครัวต่อเดือน…….บาท

8. รายจ่ายของครอบครัวต่อเดือน…….บาท

9. คุณมีประวัติครอบครัวของการป่วยด้วยโรคหอบหืด

( ) 9.1 มี ( ) 9.2 ไม่มี

10. คุณเจ็บป่วยด้วยโรคหอบหืดมานานเท่าไหร่

( ) 10.1 1 ปีหรือน้อยกว่า ( ) 10.2 2-9 ปี ( ) 10.3 10 ปีขึ้นไป

11. คุณสูบบุหรี่หรือไม่

( ) 11.1 สูบ (ถามต่อในข้อ ( ) 11.2 ไม่สูบ (ถามต่อในส่วนที่

12. คุณสูบบุหรี่มานานเท่าไหร่

( ) 12.1 5 ปีหรือน้อยกว่า ( ) 12.2 6-9 ปี ( ) 12.2 10 ปีขึ้นไป

ส่วนที่ 2 : ความรู้เกี่ยวกับโรคหอบหืด

คำชี้แจ้ง : ข้อคำถามต่อไปนี้จะเป็นข้อคำถามเกี่ยวกับความรู้เกี่ยวกับพฤติกรรมการป้องกันเกี่ยวกับโรคหอบหืด โปรดทำเครื่องหมาย ✓ ในช่องว่างสำหรับข้อคำถามที่คุณคิดว่าถูกต้องหรือไม่ถูกต้องหากไม่สามารถตัดสินใจเกี่ยวกับข้อคำถามนั้น ๆ ให้บันทึกเป็นไม่ทราบ

ข้อ	ข้อความ	ถูก	ผิด	ไม่ทราบ
1	โรคหอบหืดเป็นโรคอักเสบเรื้อรังในระบบทางเดินหายใจ			
2	โรคหอบหืดมาจากหลายสาเหตุและสามารถเกิดขึ้นซ้ำได้			
3	สาเหตุหลักของโรคหอบหืดคือ อาการแพ้และการติดเชื้อ			
4	สาเหตุแท้จริงของการเกิดโรคหอบหืดยังไม่ทราบแน่ชัด			
5	วิธีการติดตามตรวจสอบผู้ป่วยโรคหอบหืด คือ การใช้เครื่องเป่าเพื่อวัดปริมาตรความจุของปอด			
6	วิธีการหนึ่งในการควบคุมโรคหอบหืดคือทานยา prednisolone (ยาต้านภูมิแพ้ชนิดหนึ่ง)			
7	อาการอย่างหนึ่งของโรคหอบหืด คือ ตื่นขึ้นกลางดึก เพราะไอ และหายใจลำบาก (dyspnea)			
8	ถ้าการรักษาอาการหอบหืดไม่ดีพอ คนเราจะไม่สามารถทำงานได้			
9	การเช็คด้วยเครื่องเป่าเพื่อวัดปริมาตรความจุของปอดสามารถป้องกันการเกิดโรคหอบหืดได้			
10	การสูบบุหรี่จะส่งผลเสียในการควบคุมโรคหอบหืด			
11	ผู้ป่วยที่เป็นโรคหอบหืดสามารถควบคุมโรคได้ด้วยตัวเอง			
12 #	ฝุ่นละอองไม่เป็นปัญหาสำคัญของคนไข้โรคหอบหืด			
13	ยาหลักที่ใช้ในการควบคุมโรคหอบหืด คือ ยาขยายหลอดลม และสารสเตียรอยด์เคอติโคสเตียรอยด์			
14	คุณทราบสาเหตุที่ทำให้คุณเป็นโรคหอบหืด			
15	การที่คุณทราบถึงสาเหตุของการเกิดโรคหอบหืดของตัวเอง เป็นขั้นตอนที่สำคัญในการควบคุมโรคหอบหืดของตัวคุณ			
16	คุณรู้ว่าโรคหอบหืด คือโรคที่รักษาไม่หายขาด			
17	โรคหอบหืดจำเป็นต้องมีการติดตามเฝ้าระวังอย่างต่อเนื่องแม้ผู้ป่วยรู้สึกปกติแล้ว			
18	เครื่องเป่าเพื่อวัดปริมาตรความจุของปอดเป็นส่วนสำคัญในการจัดการวางแผนของโรคหอบหืด			
19	การดูแลเอาใจใส่ตัวเองทุกวันเป็นส่วนสำคัญในการจัดการโรคหอบหืด			

 # ข้อคำถามเชิงลบ

ส่วนที่ 3 : ทัศนคติของท่านเกี่ยวกับโรคหอบหืด

คำชี้แจ้ง : ข้อคำถามต่อไปนี้จะเป็นข้อคำถามเกี่ยวกับทัศนคติเกี่ยวกับพฤติกรรมการป้องกันเกี่ยวกับโรคหอบหืด

โปรดทำเครื่องหมาย ✓ ในช่องว่างของข้อคำถามที่ตรงกับความคิดเห็นของคุณมากที่สุดเพียงหนึ่งตัวเลือกโดย

เห็นด้วย หมายถึง เห็นด้วยกับข้อคำถามนั้น

ไม่แน่ใจ หมายถึง ไม่มั่นใจกับข้อคำถามนั้น

ไม่เห็นด้วย หมายถึง ไม่เห็นด้วยกับข้อคำถามนั้น

ข้อ	ข้อความ	เห็นด้วย	ไม่แน่ใจ	ไม่เห็นด้วย
1 #	การเช็คเครื่องเป่าเพื่อวัดปริมาตรความจุของปอดทุกวันเป็นสิ่งที่เป็นไปไม่ได้			
2 #	การทานยาทุกวันไม่ใช่เรื่องง่าย			
3	การเอาใจใส่โรคหอบหืดด้วยตัวผู้ป่วยเองเป็นสิ่งที่เป็นไปได้			
4	การมีรูปแบบการใช้ชีวิตให้มีสุขภาพดีอยู่เสมอสามารถช่วยผู้ป่วยโรคหอบหืดได้มาก			
5	การทำตามคำแนะนำของแพทย์ในการรักษาโรคหอบหืด เป็นสิ่งที่มีคุณค่าควรแก่การกระทำ			
6 #	การเช็คด้วยเครื่องเป่าเพื่อวัดปริมาตรความจุของปอดทุกวันเพื่อการป้องกันโรคหอบหืดเป็นเรื่องเสียเวลา			
7 #	การออกกำลังกายเป็นเรื่องน่าเขินอาย			
8	การใช้เครื่องเป่าเพื่อวัดปริมาตรความจุของปอดเพื่อควบคุมโรคหอบหืดเป็นเรื่องที่ไม่น่าเบื่อ			
9 #	การดูแลเอาใจใส่โรคหอบหืดเป็นหน้าที่ของแพทย์ ไม่ใช่ผู้ป่วย			
10	ตามหลักของเครื่องเป่าเพื่อวัดปริมาตรความจุของปอดเป็นการง่ายที่จะใช้ยาเพื่อควบคุมโรคหอบหืดด้วยตนเอง			

ข้อคำถามเชิงลบ

ส่วนที่ 4: การปฏิบัติตนต่อโรคหอบหืด

คำชี้แจ้ง : ข้อคำถามต่อไปนี้จะเป็นข้อคำถามเกี่ยวกับการปฏิบัติตนเกี่ยวกับพฤติกรรมการป้องกันเกี่ยวกับโรคหอบหืด

โปรดทำเครื่องหมาย ✓ ในช่องว่างของข้อคำถามที่ตรงกับพฤติกรรมหรือการปฏิบัติตนของคุณมากที่สุดเพียงหนึ่งตัวเลือก โดย

เสมอๆ / บ่อย หมายถึง คุณสามารถปฏิบัติตามข้อคำถามนั้นได้เกินครึ่งหนึ่ง

เป็นครั้งคราว หมายถึง คุณสามารถปฏิบัติตามข้อคำถามนั้นได้ไม่ถึงครึ่งหนึ่งแต่ต้องมากกว่าหนึ่งในสาม

แทบจะไม่ / ไม่เคย หมายถึง คุณสามารถปฏิบัติตามข้อคำถามนั้นได้น้อยกว่าหนึ่งในสาม

ข้อ	ข้อความ	เสมอๆ/ บ่อย	เป็นครั้งคราว	แทบจะไม่/ ไม่เคย
1	คุณวัดด้วยเครื่องเป่าเพื่อวัดปริมาตรความจุของปอดตามคำแนะนำของแพทย์			
2	คุณทานยาตามที่แพทย์สั่ง			
3	คุณตรวจสอบค่าเครื่องเป่าเพื่อวัดปริมาตรความจุของปอดเพื่อควบคุมโรคหอบหืด			
4	คุณทานยาสำหรับการควบคุมโรคหอบหืด			
5	คุณอาศัยอยู่ในบ้านที่สะอาดและเป็นระเบียบ			
6	คุณหลีกเลี่ยงกลิ่นฉุนและกลิ่นไม่พึงประสงค์			
7	คุณหลีกเลี่ยงสาเหตุที่ก่อให้เกิดโรคหอบหืด			
8	คุณได้ควบคุมสาเหตุที่ทำให้เกิดอาการของโรคหอบหืด			
9	คุณได้ติดตามตรวจสอบด้วยเครื่องเป่าเพื่อวัดปริมาตรความจุของปอดเสมอๆ แม้คุณรู้สึกเป็นปกติดี			
10	คุณออกกำลังกายเป็นประจำทุกวัน			
11	คุณลดความเครียดในชีวิตคุณ			

APPENDIX F

Budget

No	Activities	Unit	Price (Baht)	Unit (Number)	Total (Baht)
1	Pre-testing -photocopy -Stationery	 Questionnaire Set	 7.00 500/set	 40 500/set	 280 500
2	*Data collection* -Photocopy -Interviewers per diem (four research assistants) - Transportation (author and four research assistants)	 Questionnaire Person Trip/day	 7.00 300 200	 450 4 persons/ 20days 5persons/ 30days	 3,150 24,000 30,000
3	Document Printing -Paper Printing -Photocopy -Stationery -Binding Paper (Exam) -Bing Paper (Submit)	 Page Page Set Set Set	 5/page 1/page 500/set 300/set 200/set	 600pages 600pages 1set 3set 6set	 3.000 600 500 900 1,200
				Total	65,130*

Note: World Health Organization Funding

VITAE

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Award/grant/fellowship:	WHO fellowships