

ความชุกของการสูบบุหรี่และปัจจัยที่มีผลต่อพฤติกรรมการสูบบุหรี่ของแรงงานผู้อพยพ  
ชาวพม่าวัยทำงานที่ตำบลมหาชัย จังหวัดสมุทรสาคร ประเทศไทย



สุ ตำนดา ซอ

## สถาบันวิทยบริการ จุฬาลงกรณ์มหาวิทยาลัย

วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาสาขารณศาสตรมหาบัณฑิต

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**PREVALENCE OF CIGARETTE SMOKING AND FACTORS  
INFLUENCING CIGARETTE SMOKING BEHAVIOUR  
AMONG ADULT MYANMAR MIGRANT WORKERS  
IN MAHACHAI SUB-DISTRICT,  
SAMUT SAKHON PROVINCE,  
THAILAND**

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ตุ ด้านคา ซอ: ความชุกของการสูบบุหรี่และปัจจัยที่มีผลต่อพฤติกรรมการสูบบุหรี่ของ  
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การศึกษานี้มีพื้นที่การวิจัยที่ตำบลมหาชัย จังหวัดสมุทรสาคร ประเทศไทย ระหว่าง  
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 เหมาะสม การศึกษานี้มีกลุ่มตัวอย่างจำนวน 347 รายโดยใช้แบบสัมภาษณ์อย่างมีโครงสร้างในการเก็บข้อมูล ซึ่ง  
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 โดยรวมของพฤติกรรมการสูบบุหรี่คือร้อยละ 35.2 โดยแบ่งเป็นร้อยละ 59.2 ในผู้สูบบุหรี่ปัจจุบันเพศชายและร้อยละ  
 8.0 ในผู้สูบบุหรี่ปัจจุบันเพศหญิง ความชุกของการสูบบุหรี่ค่อนข้างสูงในกลุ่มคนวัยทำงานเพศชาย ประมาณ  
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 ข้อมูลเกี่ยวกับกฎหมายเพื่อการควบคุมยาสูบควรให้แรงงานอพยพชาวพม่ารับทราบบุคคลใกล้ชิดที่มีอิทธิพลอย่าง  
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 มื้อสอง ส่วนการให้ Intervention เพื่อการดูแลสิ่งแวดล้อมนั้น ควรมีการทำให้สถานที่ทำงานและบ้านอยู่  
 อาศัยเป็นที่ปลอดบุหรี่

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##5179124853: MAJOR HEALTH SYSTEMS DEVELOPMENT


KEYWORDS: PREVALENCE/ CIGARETTE SMOKING BEHAVIOUR/ ADULT MYANMAR MIGRANT WORKERS / MAHACHAI SUB-DISTRICT / SAMUT SAKHON PROVINCE/ THAILAND

SU THANDA ZAW: PREVALENCE OF CIGARETTE SMOKING AND FACTORS INFLUENCING CIGARETTE SMOKING BEHAVIOUR AMONG ADULT MYANMAR MIGRANT WORKERS IN MAHACHAI SUB-DISTRICT, SAMUT SAKHON PROVINCE, THAILAND, 2009. ADVISOR: PRATHURNG HONGSRANAGON, Ph.D., 93 pp.

A cross-sectional study was carried out in Mahachai Sub-district, Samut Sakhon Province, Thailand from the end of January to the end of February, 2009. Through the use of PRECEDE model, the main purposes of this study were to identify the prevalence of cigarette smoking and the factors influencing cigarette smoking behaviour among adult Myanmar migrant workers aged between 18 to 59 years old in the study site. The factors influencing on cigarette smoking behaviour were predisposing, enabling and reinforcing factors which referred to the fourth phase of the Precede Model. It is the model for health behaviours based on multi-assumptions before designing an appropriate intervention. This study was conducted with 347 samples by using a structured interview questionnaire to gather the data with ethical review COA no.008/2009 issued on 12 January 2009. For data analysis, Chi-square, Fisher's Exact test and Mann-Whitney U test was used.

The results showed that the overall prevalence of cigarettes smoking were 35.2% with 59.2% of male current smokers and 8% of female current smokers. Cigarette smoking prevalence was quite high in adult male. Almost 69.2% of smokers started smoking at age 16-20 years old. Smoking behaviour was significant difference with gender ( $p < 0.001$ ) and ethnicity ( $p < 0.05$ ). Nearly half of the respondents (49%) had moderate knowledge about cigarette smoking and harmful health consequences. There was an association between cigarette smoking behaviour and attitude ( $p < 0.05$ ). In terms of reinforcing factors, there was a relationship between cigarette smoking behaviour and acquainted people of the respondents as well as with a designation of smoke-free workplace and living quarter. In accessibility of cigarettes among current smokers as enabling factor, monthly expenditure for cigarettes was association with smoking behaviour among current smokers ( $p < 0.001$ ).

These results suggested that awareness-building should be implemented for Myanmar migrant workers to change their behaviour and to complete the linkage of knowledge, attitude and practice (KAP). Information about Tobacco Control Laws should be provided to Myanmar migrant workers. The acquainted people, who highly influence on smoking of the respondents, should be informed about smoking hazard and their being the source of smoking. For environmental support intervention, smoke-free workplace and living quarter should be implemented.

Field of Study ... Health Systems Development... Student's Signature.....

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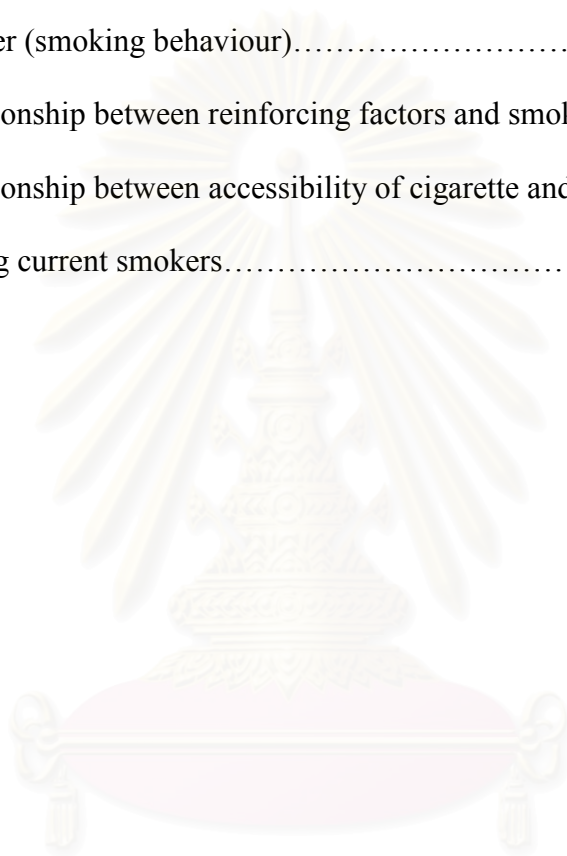
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## LIST OF ABBREVIATIONS

CDC	Centers for Disease Control and Prevention
COPD	Chronic Obstructive Pulmonary Disease
CVD	Cardiovascular Disease
DOH	Department of Health
GMS	Greater Mekong Sub-region
MCH	Maternal and Child Health
NGOs	Non-Government Organizations
PSM	Department of Preventive and Social Medicine
WHO	World Health Organization



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# CHAPTER I

## INTRODUCTION

### 1.1 Background and Rationale

Cigarette smoking is the single most preventable cause of death in the world today (WHO, 2008a). One hundred million people worldwide were killed by tobacco epidemic in the 20<sup>th</sup> century. It will kill one billion of current smokers in 21<sup>st</sup> century (WHO, 2008a). In the world, 1.3 billion people smoke currently. More than 1 billion of them are males and the remainders are females. Some 900 million smokers live in developing countries. Most smokers start smoking before the age of 18 years. Cigarette smoking can cause premature death, disease and disability.

In 2000, there were an estimated 4.8 million smoking-attributable deaths in the world. Deaths of 2.41 million were in developing countries and 2.43 million deaths in industrialized countries. There were 3.84 million global smoking-attributable deaths among men and one million among women. The death of smoking related diseases in developed countries were cardiovascular disease with 1.02 million deaths, Chronic Obstructive Pulmonary Disease (COPD) with 0.31 million deaths, and lung cancer with 0.52 million deaths. In the developing countries, cardiovascular diseases caused 0.67 million deaths, COPD caused 0.65 million deaths, and lung cancer caused 0.33 million deaths (Ezzati, 2004).

In Myanmar, smoking related diseases such as trachea, lung and bronchus cancer were 92.8 per 100,000 population in male, 43 per 100,000 population in

female and lip, oral cavity and pharynx cancer were 47.7/100,000 population in male and 16/100,000 population in female (Tobacco control country profile, 2003).

Total tobacco-attributable deaths from ischaemic heart disease, stroke, chronic obstructive pulmonary disease and other disease were estimated 5.4 million in 2004. If the projection continues, it can rise to 8.4 million in 2030. More than 80% of these deaths can be occurred in developing countries (WHO, 2008b).

### **Cigarette smoking and Myanmar**

In Myanmar, tobacco use has been socially and culturally accepted. Tobacco has been placed in a high level of Myanmar culture as a good thing for social life. Smoking is accepted as a normal behaviour among adult men. As for women, smoking is more common in rural more than urban. When opening market economy in 1990, many tobacco companies came to invest in Myanmar. The cigarettes were sold at a cheaper price. So people can easily access to smoking. Thus, smoking rose rapidly among all ages (Kyaing, 2003).

The sentinel tobacco survey found that overall prevalence of smoking in adult (15 years and older) was 31.1% with the prevalence among males was 42.9% and among females was 21.9%. According to Study of tobacco economic 2001, 22.6% of urban population and 48.7% of rural population among above 15 years old people were current smoker (Kyaing, 2001). In Global Youth Tobacco Study among the 8<sup>th</sup> to the 10<sup>th</sup> grade Myanmar students in year 2004, the prevalence of smoking was 25.4% of males and 5.1% of females. Forty-seven percent of total population (6,100 sampled students) had one or both parents who smoke and 11.1% had most or all friends who smoke (Kyaing, 2004). From this study, we can see that peer pressure and parent smoking are related to youth smoking.



### **Cigarette smoking and Myanmar Migrants in Samut Sakhon, Thailand**

There are an estimate of 2-3 million migrant workers in Thailand because of internal conflict within neighboring countries, economic opportunities and available services in Thailand (GMS Migrant Report, 2006). Over 1.2 million migrants residing in Thailand are Myanmar. Approximate 70.4% of Myanmar migrant workers are registered workers. Samut Sakhon Province has some of the largest number of registered migrants (Howteerakul, 2005). Migrant population from Myanmar consists of Burma, Shan, Mon, Karen, Pa-O and Rakhine. Myanmar migrants deal with the changes of environment, culture and society and many of them migrate without their families. Some migrants enter the country legally and some do enter illegally. As a result, they can not go outside during the holidays because they are afraid of being arrested. They spend their time in their living quarters instead. They get fewer wages than their Thai colleagues and are exposed to noises and odours of seafood processing. These conditions cause Myanmar migrants stress and may lead them to smoke. Smoking is a risk factor for many diseases. According to the study of cigarette, alcohol and physical activity in Myanmar youth, smoking prevalence among 15-24 years age group is 24.9% in Samut Sakhon province (Howteerakul, 2005).

This study investigates smoking behaviour among adult Myanmar migrants (age 18 to 59 years) in Samut Sakhon Province in Thailand. The aim of the study is to identify the prevalence of cigarette smoking among Myanmar migrants and to identify the predisposing, enabling and reinforcing factors which influence cigarette smoking behaviour among Myanmar migrants and is referred to as the educational diagnosis phase of the Precede Model. This particular phase assesses the causes of health behaviour (e.g., smoking). PRECEDE is abbreviated from “Predisposing,

Reinforcing, Enabling Causes in Educational Diagnosis and Evaluation”. It is multi-assumptions model for appropriate intervention for health behavioural change. In this study, predisposing factors include socio-demographic factors, knowledge and attitude regarding smoking. Enabling factor includes accessibility to cigarettes. Reinforcing factors include the influence of the family, peers and employer on one’s smoking behaviour. Identification of these factors may be useful to provide interventions required toward behavioural change as the outcome and to conduct prevention and control measures of smoking among Myanmar migrants in Thailand.

## **1.2 Research Questions**

- What is the prevalence of cigarette smoking among adult Myanmar migrant workers (age 18 to 59 years) in Mahachai Sub-district, Samut Sakhon Province, Thailand?
- What are the factors influencing the cigarette smoking behaviour among adult Myanmar migrant workers in Mahachai Sub-district, Samut Sakhon Province, Thailand?

## **1.3. Research Objectives**

### **1.3.1 General Objective**

- To identify the prevalence of cigarette smoking among Myanmar migrant workers (age 18 to 59 years)
- To identify the factors influencing cigarette smoking behaviour among Myanmar migrant workers (age 18 to 59 years)

### **1.3.2 Specific Objectives**

- To describe the prevalence of cigarette smoking among adult Myanmar migrant workers (the subjects) in Samut Sakhon province, Thailand (study area).
- To determine the predisposing factors that influence the cigarette smoking behaviour of the subjects in the study area.
- To determine the enabling factors that influence the cigarette smoking behaviour of the subjects in the study area.
- To determine the reinforcing factors that influence the cigarette smoking behaviour of the subjects in the study area.
- To determine the relationship between socio-demographic characteristics, knowledge and attitude about cigarette smoking, reinforcing factors, accessibility to cigarette and cigarette smoking behaviour.

### **1.4 Clinical hypothesis**

- There is an association between socio-demographic characteristics of adult Myanmar migrant workers and their cigarette smoking behaviour.
- There is an association between knowledge and attitude about cigarette smoking and cigarette smoking behaviour of adult Myanmar migrant workers.
- There is an association between accessibility to cigarette and cigarette smoking behaviour of adult Myanmar migrant workers.
- There is an association between influence of family, peer and employer and cigarette smoking behaviour of adult Myanmar migrant workers.

### **1.5 Variables of the study**

- Independent variables
  - o Socio-demographic characteristics
  - o Predisposing factors
  - o Enabling factors
  - o Reinforcing factors
- Dependent variables
  - o Cigarette smoking behaviour

### **1.6 Operational definitions**

- Adult Myanmar migrant worker means a person who is age between 18 to 59 years old, Myanmar nationality and migrates from Myanmar to Thailand for working.
- Socio-demographic characteristics of adult Myanmar migrant workers include age, gender, monthly household income, marital status, occupation, education, ethnicity, duration of staying in Thailand, and Thai language skill.
- Age refers to the age of subject at the time of the study.
- Ethnicity refers to social groups with a shared history, sense of identity, geography and cultural roots which may occur despite racial difference. This is classified into Mon, Burma, Karen and other.
- Marital status refers to the legal status of each individual in relation to the marriage laws or customs of Myanmar. This categorized into single, married, divorced, widowed, separated and other.
- Educational level refers to the highest level of education of the subject at the time of the study. It is classified into five groups such as illiterate, primary

education (grade 1 to 5), secondary education (grade 6 to 9), high school level (grade 10 to 11) , and higher education (University).

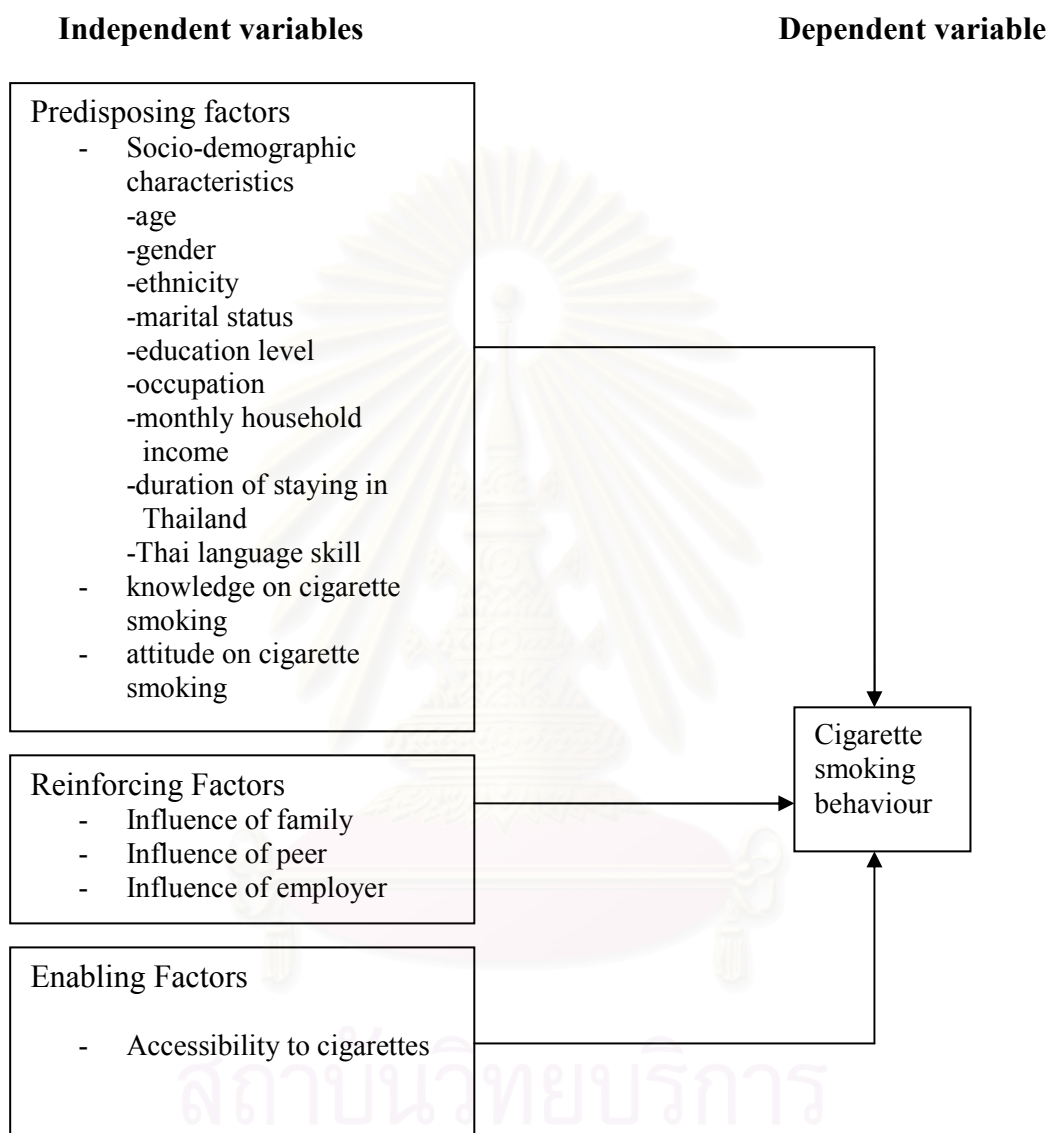
- Occupation refers to the type of job that the subject has to earn at the time of the study. It is classified into seafarer, seafood processing worker, construction worker, general worker, housemaid, and other.
- Monthly household income refers to the amount of money per month getting of the whole household in Thailand.
- Language skill is classified into 4 groups which are cannot speak Thai language, can speak Thai language basically, can speak Thai language fluently but cannot read and write, and fluently in Thai language.
- Knowledge on cigarette smoking means information about hazard of cigarette smoking and Tobacco control Laws known by a person.
- Attitude on cigarette smoking means belief, value and feeling about cigarette smoking
- Predisposing factors are antecedents to behaviour that motivates the behaviour. It includes knowledge, attitude, value, beliefs.
- Enabling factors are the characteristic of the environment that facilitate action and any skill or resource required to attain specific behaviour. It includes accessibility, availability, skills, and laws.
- Reinforcing factors are rewards and punishments following as a consequence of behaviour. They serve to strengthen the motivation for behaviour. It includes family, peer and employer's influence.

- Cigarette smoking behaviour refers to a person's smoking habit including daily, often, and occasional smokers, those who used to smoke but quit now, or non-smoker at the time of study.



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#### 4. Conceptual Framework



**Figure 1: Conceptual Framework**

## CHAPTER II

### LITERATURE REVIEW

#### 2.1 Definition of Prevalence of cigarette smoking

Definition of prevalence of smoking is a standardization of terms and concepts required to monitor the Global tobacco epidemic and comparison between countries.

Any population can be categorized into two groups, smokers and non-smokers.

A. A smoker is a person who smokes any tobacco product either daily or occasionally at the time of the study.

(a) daily smoker is a person who smokes any product at least once a day

(b) an occasional smoker is a person who smokes, but not every day.

Occasional smokers include:

Reducer – a person who used to smoke daily but now do not smoke every day.

Continuing occasional – a person who did not smoke daily, but smoked 100 or more cigarettes and now smoke occasionally.

Experimenter – a person who smoked less than 100 cigarettes and now smoke occasionally.

B. A non-smoker is a person who does not smoke at the time of the study.

(a) Ex-smoker is a person who smoked daily but now does not smoke at all.

(b) Never-smoker is a person who never smokes at all

(c) Ex-occasional smoker is a person who was formerly occasional smoker but never daily smoker who smoked 100 or more cigarettes in his/her lifetime.(WHO,1998)



In this study, smoker is divided into five categories such as daily smoke, often smoke (more than three times a week), occasionally smoke (one to three times a week), quit smoke (ex-smoker) and never smoke.

## 2.2 Calculation of prevalence rate

Smoking prevalence is the percentage of smokers in the total population. Adult smoking is defined as age 18 to 59 years. Formula of referred calculation is shown here below. (WHO, 1998)

$$\text{Prevalence of Smoking} = \frac{\text{Number of smokers in the population at the time of survey}}{\text{Total number of the survey population}} \times 100$$

## 2.3 Cigarette smoking prevalence in South East Asia Region

The smoking prevalence is significantly different between and within countries. The prevalence of smoking in the South East Asia Region ranges between 25.7% and 59.6% in adult men and 1.7% and 28.7% in adult women. Adult smoking prevalence is quite high. (WHO, 1998-2000)

In 2000, smoking prevalence among female age 15 and over in Myanmar was 20% to 29%. About 250 million women in the world were daily smokers. About 22% of women in developed countries and 9% of women in developing countries smoked tobacco. In addition, a great number of women in South East Asia chew tobacco. In Nepal and Bangladesh, smoking prevalence among female was 20% to 29%. In India, Indonesia, Sri Lanka and Thailand, smoking rates were less than 10% (Mackay, 2002).

Probability of smoking among male age 15 and over in Myanmar, 2000, was 40% to 49%. Smoking prevalence for men in Nepal and Thailand was 40% to 49%. In

Cambodia and China, prevalence was 60% and above. Smoking rate in Bangladesh was 50% to 59%. Almost one billion men in the world smoke. About 35% of men are in developed countries and 50% of men are in developing countries (Mackay, 2002).

In 2005, smoking prevalence among male in Myanmar decreased from 40% -49% to 30%-39.9%. The smoking rates of Nepal, Thailand, Bangladesh, Cambodia and China did not changed. China and Cambodia were included in the top ten countries with the highest reported smoking rates for men (Mackay, 2006).

Smoking prevalence for women in Myanmar, 2005 decreased from 20% - 29.9% to below 20%. Prevalence of smoking among females in Nepal, Bangladesh, India and Thailand did not change (Mackay, 2006).

#### **2.4 Cigarette smoking prevalence in Myanmar**

The different departments under Ministry of Health have conducted the several studies over the past few years. The following are the findings of surveys conducted.

The study of Cardio Vascular Disease survey of adults (2,611 persons) within urban and rural areas of Yangon in 1989/90, reported that overall smoking prevalence of urban and rural areas were 58% and 59% respectively (DOH and PSM, 1991).

In 1996, a rapid survey of women above 18 years of age (n=279) in Thalyin Township was conducted. It showed that smoking prevalence for women was about 8.2% in urban areas and 24.8% in rural areas (Kyaing, 2001).

The study of the prevalence trend of smoking among young people in 29 townships of Bago, Magway and Mandalay divisions was carried out in September 1999 conducted by the University of Medicine 1. This study covered the total of 3,856

youths at the age of 15 to 24 years. It reported the prevalence of current smoker as 68% of males and below 6% of females (Oo, 1999).

In the same year, a study on prevalence of smoking among 23,975 persons of the same 29 townships as above revealed that the overall smoking prevalence was over 30% with 50% of males and less than 9% of females. At least one smoker in each household lived in more than 80% of households visited (Naing, 1999).

In year 2000, Institute of Medicine 1 conducted the cross-sectional study on prevalence of current smokers in the above townships. It showed that the current smoking prevalence was 55.4% in 3,059 persons (PSM, 2000).

In the year 2000, Maternal and Child Health (MCH) section of the Department of Health conducted the adolescent reproductive health survey. In this study, 68.8% of male had ever experienced smoking in their life and 56.3% were current smokers. In female adolescents, 8.8% had experienced smoking and 1.4% was current smokers (DOH, 2000).

In 2001, Myanmar Sentinel Tobacco Use Prevalence Study was conducted in two sentinel townships reported overall prevalence of current smoking in adult (15 years and above) was 31.1% with the prevalence among males was 42.9% and those among females was 21.9% (Kyaing, 2001).

According to Study of Tobacco Economic 2001, approximate 22.6% of urban population and 48.7% of rural population above 15 years old were current smokers (Kyaing, 2001).

According to the Global Youth Tobacco Study among the 8<sup>th</sup>, 9<sup>th</sup> and 10<sup>th</sup> grade students in Myanmar year 2004, about one in four students tried tobacco and one third of the students were currently using some forms of tobacco at the time of the

survey with sampled population of 6,100. The prevalence of smoking was 25.4% of males and 5.1% of females which were identified as current smokers including smokeless tobacco. About 47% of total population had one or more parents who smoked and 11.1% had most or all friends who smoked (Kyaing, 2004). From this survey, one learns that peer pressure and parent smoking are related to youth smoking.

### **2.5 Health problem and cigarette smoking-attributable diseases**

Cigarette smoking harms nearly every organ of the body, causing many diseases and reducing the health of smokers themselves. Cigarette smoking produces health problem among smokers including cough, shortness of breath, tiredness, decrease the smoker's sense of smell and taste, develop poor circulation with cold hand and feet and premature wrinkles (Smoking information on healthline). Smoking can cause cancers of the bladder, oral cavity, pharynx, larynx, esophagus, cervix, kidney, lung, pancreas, stomach, and acute myeloid leukemia. Smoking causes coronary heart disease and stroke. It can cause reducing circulation by narrowing the blood vessels. Cigarette smoking is related with chronic obstructive pulmonary disease (COPD). It causes many adverse reproductive and early childhood effects, including an increased risk for infertility, preterm delivery, still birth, low birth weight, and sudden infant death syndrome (SIDS). Postmenopausal women who smoke have lower bone density than women who do not. They also have an increased risk for hip fracture than never smoker ones (CDC, 2008).

Smoking related diseases kill one in ten adults globally. By 2030, if the current trends keep going on, smoking will kill one in every six people. Half of long-

term smokers will die from tobacco. In tobacco smoke itself, more than 4,000 toxic or carcinogen chemicals have been found. Nearly 99% of British women did not know about the link between smoking and cervical cancer which showed in one British study. One survey found that 60% of Chinese adults did not know that smoking can cause lung cancer and 96% were not aware that smoking can cause heart disease (WHO, 2002). Therefore, the author tries to identify the knowledge and attitude regarding the health hazards of smoking among adult Myanmar migrants in this study.

## **2.6 Myanmar migrants in Samut Sakhon Province**

Samut Sakhon is a harbor town which is also called as Mahachai (The Great Victory). Samut Sakorn is administratively divided into 3 districts, Muang Samut Sakorn, Krathum Baen, and Ban Phaco. The districts are subdivided into 40 communes and 288 villages. Local Thai people always calls Muang Samut Sakhon district in the name Mahachai. Muang Samut Sakhon is divided into 18 sub districts. Mahachai is one of the sub districts in Muang Samut Sakhon. It is a major fishing port and also the biggest producer of brine salt. The town is located 28 kilometers from Bangkok. There are many seafood processing factories dotting around (Samut Sakhon Wikipedia).

Thousands of Myanmar migrants move to Mahachai temporally or permanently for their survival. There is the largest Myanmar migrant population there. Most of them work in seafood, prawn, fish and fish-canning factories and some work in construction sites.

The 2004 registration recorded 616,106 Myanmar migrants with work permit living in the country. In that year, 67,799 Myanmar migrants issued work permit in

Samut Sakhon (GMS Migration Report, 2006). The Labor Rights Promotion Networks (LPN) projected that there are 200,000 Myanmar migrants workers in Samut Sakhon (Free News, May 11, 2007).

## **2.7 PRECEDE-PROCEED Model**

The objective of this study is to identify the factors influencing the smoking behaviour among adult Myanmar migrants. The author identifies these factors based on the 4th phase of Precede Model from Green's Precede-Proceed Model.

The Precede-Proceed Model gives a comprehensive structure of assessing health and quality of life needs and for designing, implementing and evaluating health promotion and other public health programs to meet those needs. PRECEDE is an acronym for Predisposing, Reinforcing, Enabling, Constructs in Educational Diagnosis and Evaluation. PROCEED is an acronym for Policy, Regulatory, Organizational Constructs in Educational and Environmental Development. (Green,1991).

PRECEDE model is a series of planned assessment to assist the development of the public health programs. It consists of five phases. Phase-one consists of determining the quality of life or social problems and needs of a given population. Phase-two includes identifying the health determinants of these problems and needs. Phase-three involves analyzing the behaviour and environmental factors that link to the health problems. In phase-four, the factors that predispose, reinforce and enable the behaviors and life styles are identified. Phase-five includes administrative and policy assessment (Green, 1991).

PROCEED Model guides the implementation and evaluation of the programs designed using Precede Model. It contains four phases. Phase-six involves implementation of the program. Phase-seven consists of process evaluation. Phase-eight includes the impact evaluation to measure the program effectiveness in terms of intermediate objectives and changes in predisposing, reinforcing and enabling factors. The last phase comprises an outcome evaluation to measure change in term of overall objectives and changes in health and social benefits or the quality of life. PRECEDE and PROCEED functions are a continuous cycle. Information gathered in PRECEDE guides to develop the goals and objectives of the programs in the implementation phase of PROCEED. The same information gives criteria to measure the success of the program in the evaluation phase of PROCEED.

In PRECEDE model, Green described that health promotion program can change the environment and behaviour (e.g., smoking) by using the educational strategies. These educational strategies should focus on the three important factors that play key roles in changing the behaviour and environment. These factors are

- predisposing factors
- enabling factors
- reinforcing factors

Predisposing factors are antecedents to behavioural change that provide the motivation for the behaviour. They include individual or population knowledge, attitudes, beliefs, values, and perceptions that facilitate or hinder motivation for change (Green, 1991). In this study, predisposing factors such as socio-demographic characteristics of adult Myanmar migrants, knowledge and attitude about smoking among adult Myanmar migrants are explored.

Enabling factors are antecedents to behavioural or environmental change that allow a motivational or environmental policy to be realized. It includes accessibility, availability, skills, and laws that can help or hinder the behavioural changes as well as the environmental factors (Green, 1991). This study explores the accessibility to cigarettes as enabling factors.

Reinforcing factors are factors following behaviour that provide the continuing reward or punishment as a consequence of behaviour. It consists of social support, peer influences and advice and feedback by health care providers (Green, 1991). This study examines the influence of family, peers and employers as reinforcing factors.

## **2.8 Related studies**

### **2.8.1 Socio-demographic factors**

#### **Age**

The study of smoking pattern and socio-demographic factors in 4,414 Chinese rural male residents in 2003, found that smoking prevalence of male smoker age 25 years and above increased more than those under 25 years (Yang, 2008). In another study of smoking behaviour among more than 20,000 persons in Taiwan, 2001, reported that smoking rate rose with age (Wen et al., 2001).

#### **Gender**

From the study on prevalence of smoking among 23,975 persons in Myanmar, 1999, found that smoking pattern among males was more common than females. The study of social influences and attitude and beliefs in 2,471 Latino youth, 2000,



reported that there is significant different between gender and smoking status ( $p < 0.01$ ) (Chalela, 2007)

### **Educational level**

Educational level of subjects has highly significant effect on the tobacco use. The study of prevalence and pattern of smoking in Delhi, 1985-86, revealed that men with no education were 1.8 times more likely to be smokers than men with college education, while women with no education had more chance to be smokers than women with high education (Narayan, 1996). Similarly, Kunst et al, 2002 stated that smoking rate was higher in low educated adults (Pärna, 2005).

### **Income**

The sentinel prevalence study of tobacco use in Myanmar, 2001, revealed that higher income groups were more likely to be smokers than lower income groups (Kyaing, 2001). In the same way, the study of smoking pattern and socio-demographic factors among Chinese rural males found that subjects with higher annual income were more likely to be smokers than those with low income (Yang, 2008)

### **Marital Status**

The study of socio-economic differences in smoking in Estonia found that both gender being divorced, widowed or separated had a significant relationship with a high smoking prevalence (Pärna, 2005). Similarly, the other study showed that people who were married or divorced / widowed were 2.43 and 1.63 times respectively more likely to smoke than those who were unmarried (Yang, 2008). Sajid Ali, 2006 found that married men were more likely to smoke than unmarried men.

## **Occupation**

The study in China revealed that the farmers were more likely to smoke than the other workers such as floating worker and non-farm related workers ( $p < 0.01$ ) (Yang, 2008). The research in Pakistan found that occupations of the subjects had a significant association with smoking behaviour. Laborers and shopkeepers were more likely to be smoker than the farmers (Ali, 2006).

## **Ethnicity**

Smoking prevalence varies between ethnic groups. In England, in 1999, Black Caribbean, Bangladeshi, and Irish men and women had high smoking prevalence rate but Chinese men and women are less likely to smoke (Erens et al. 2001). The study of smoking among adults in the United States found that in ethnic populations, American Indians/ Alaska Natives (39.7%) had the higher prevalence than Asians (11.7%) and Hispanics (16.4%) (CDC, 2005). There are no literature reviews that reveal the relationship between ethnicity of Myanmar and smoking behaviour. As such, in this study, the author studies the ethnicity of Myanmar migrants as a socio-demographic characteristic.

### **2.8.2 Knowledge regarding cigarette smoking**

The study in Myanmar revealed that knowledge of health hazards of smoking and smoking status which was highly significant for ever smokers and current smokers ( $p < 0.001$ ). Consequently, knowledge of health hazards of tobacco was also significantly associated with the use of ever user of smokeless tobacco ( $p < 0.05$ ) (Kyaing, 2001). The study of determinants for smoking behaviour among teenagers in Indonesia showed that medium and high knowledge regarding harmful effects of

smoking was inversely associated to current smoking. In this study, an awareness that there would be harmful consequences to smoking even if a person exercised or was healthy, was related with the lower chances of being smoker ; and perceiving that smoking cessation is not difficult, was associated with the higher chance of smoking (Martini and Suliotyowati, 2005). The study of cigarette smoking among Myanmar youth workers in Mae Sot described that the workers smoked anywhere they wanted to smoke although they knew the laws ban in public places (The, 2006).

### **2.8.3 Attitude regarding cigarette smoking**

Prabandari, Y.S. conducted the study of health education on the effects of smoking for senior high school students by senior high school teachers in Indonesia. This study found that health education by the teacher had a small effect on smoking. Knowledge increased after education and increased knowledge and positive attitudes caused the smoking decreased (Djutaharta, 2003). The study of smoking behaviour and attitudes among 1,534 adult Saudi Nationals found that attitudes were significantly associated with smokers ( $p < 0.05$ ) (Saeed, 1996).

### **2.8.4 Accessibility to cigarettes**

Easily accessibility to cigarettes was related to smoking behaviour among teenagers which was found in the study of determinants for smoking behaviour among teenagers in Indonesia (Martini, 2005). Nunthapol, 2003 conducted the study of factors relating to cigarettes smoking behaviour of the conscripts in Adison port, Saraburin province and found that the convenience for buying cigarettes and getting cigarettes from others were associated with smoking behaviour. The other study found

that one who had purchased tobacco products for family members was more likely to using tobacco products (Sreemareddy, 2007).

### **2.8.5 Influence of family members, peers and employers**

The study of the determinants for smoking behaviour among teenagers revealed that having the family members who smoke increased the likelihood of being a smoker among teenagers (Martini, 2005). Similarly, the sentinel study of tobacco use in Myanmar found that parental tobacco use was significantly associated with tobacco use ( $p < 0.05$ ) (Kyaing, 2001).



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## CHAPTER III

### RESEARCH METHODOLOGY

#### 3.1 Research Design

Cross-sectional study was used to describe the prevalence of cigarette smoking among adult Myanmar migrant workers (age 18-59 years) and the factors influencing cigarette smoking behaviour among these adult Myanmar migrant workers.

#### 3.2 Study Area

- Mahachai Sub-district in Samut Sakhon Province in Thailand.

#### 3.3 Study Period

- From at the end of January to the end of February, 2009.

#### 3.4 Study Population

The study population for this study was adult Myanmar migrant workers (age 18-59 years) both males and females who reside in Mahachai Sub-district, Samut Sakhon Province, Thailand.

#### 3.5 Sample size

Sample size in this research was calculated by the following formula that was stated by Daniel W.W. (p. 189):

$$n = \frac{Z^2 pq}{d^2}$$

n = sample size

Z = standard value for 95% confidence interval = 1.96

d = error allowance = 0.05

$p$  = the proportion of targeted population who had cigarette smoking behaviour

= 31.1% = 0.311 (prevalence of cigarette smoking among adults (age 15 years and above) in Myanmar is 31.1%) (Kyaing, 2001)

$q = 1 - p = 1 - 0.311 = 0.689$

$$n = \frac{Z^2 pq}{d^2}$$

$$n = \frac{(1.96)^2 (0.311) (0.689)}{(0.05)^2}$$

$$= 329.3$$

Sample size = 329

Sample collected = 347

### 3.6 Sampling technique

Multistage sampling method was used to collect the subjects.

First stage – Thailand is divided into 75 provinces which are categorized into 5 groups of provinces by location/region. (Wikipedia, Thailand). Samut Sakhon province was selected purposively from 75 provinces because it is one connecting points receiving migrant labour from Myanmar from Tak, Kanchanaburi, and Ranong provinces and transferring out for employment throughout Thailand and outside Thailand and communities of migrants from Myanmar in Samut Sakhon are so crowded.

Second stage – There are 3 districts in Samut Sakhon province. Muang district (Muang Samut Sakhon) was collected randomly from these districts. Local Thai people always calls Muang Samut Sakhon district in the name Mahachai.

Third stage – There are 18 sub-districts in Muang district. Mahachai is one of the sub-districts. In Mahachai, there are 32 communities. One community was selected randomly and all adult Myanmar migrant workers (age 18 to 59 years) in that community had an equal chance to be selected.

**Inclusion criteria** applied in this study is as follows:

- Adult Myanmar migrant workers who are between age 18 – 59 years both males and females
- They can speak Burmese language fluently.
- They are willing to participate in this survey.

**Exclusion criteria** applied in this study is as follows:

- Those adult Myanmar migrant workers who are not willing to participate in this survey.

### **3.7 Measurement tools**

The data was collected by using a structured interview questionnaire with ethical review COA no. 008/2009 issued on 12 January 2009. There were 68 questions in my questionnaire. These questions could be answered within 20-30 minutes because this type of questions was multiple choice questions and it was easy to understand.

The questionnaire consisted of 5 parts described as follows:

- **Part 1** General characteristics such as age, gender, ethnicity, marital status, education, occupation, monthly household income, duration of staying in Thailand and Thai language skill, and cigarette smoking behaviour.

- **Part 2** Knowledge questions regarding cigarette smoking behaviour

It included 18 questions and the 2<sup>nd</sup>, 5<sup>th</sup>, 11<sup>th</sup>, 12<sup>th</sup> and 18<sup>th</sup> of the questions were false questions and the others were true questions (the 1<sup>st</sup>, 3<sup>rd</sup>, 4<sup>th</sup>, 6<sup>th</sup>, 7<sup>th</sup>, 8<sup>th</sup>, 9<sup>th</sup>, 10<sup>th</sup>, 13<sup>th</sup>, 14<sup>th</sup>, 15<sup>th</sup>, 16<sup>th</sup> and 17<sup>th</sup>). The score was 1 for correct answer and 0 for incorrect answer and don't know. The highest score was 18 and the lowest was 0.

The cutting point of knowledge and attitude was categorized into three groups according to Bloom's classification (Bloom, 1956). The cutting point of knowledge was categorized into three levels:

- High knowledge : > 80% of total scores
- Moderate knowledge: 60-80% of total scores
- Low knowledge : < 60% of total scores

- **Part 3** Attitude questions regarding cigarette smoking behaviour

It consisted of 15 questions and 1<sup>st</sup>, 4<sup>th</sup>, 5<sup>th</sup>, 7<sup>th</sup>, 8<sup>th</sup>, 11<sup>th</sup>, 12<sup>th</sup>, 13<sup>th</sup>, 14<sup>th</sup> and 15<sup>th</sup> were negative questions and the others 2<sup>nd</sup>, 3<sup>rd</sup>, 6<sup>th</sup>, 9<sup>th</sup> and 10<sup>th</sup> were positive questions.

Scores given were below:

For positive questions,		For negative questions,	
Choices	Scores	Choices	Scores
Agree	3	Agree	1
Uncertain	2	Uncertain	2
Disagree	1	Disagree	3

The cutting point of attitude was categorized into three levels:

- High attitude : > 80% of total scores



- Moderate attitude : 60-80% of total scores
- Low attitude : < 60% of total scores
- **Part 4** Questions about the influence of family, peer and employers on cigarette smoking behaviour
- **Part 5** Questions about accessibility to cigarettes or tobacco product.

### 3.8 Validity Test

The structured interview questionnaire was checked by three experts for the accuracy and clarity of the questionnaire.

### 3.9 Reliability Test

The pre-test was conducted with 30 samples at Khao San Road, Bangkok. Cronbach's alpha coefficient was used to test the reliability of the questionnaire. Cronbach's alpha coefficient was 0.75.

### 3.10 Data collection

Data was collected by face-to-face interview with the subjects. Questionnaire was translated into Burmese Language.

The researcher contacted with the staff from Non Government Organization in Samut Sakhon in order to explain the objectives of the study to the subjects. The assistance of volunteers who are working in Non Government Organization was gained to meet with Myanmar migrant workers. These research assistants, who live in Mahachai sub-district, are voluntary health workers. They are Myanmar nationality

and can speak Burmese language fluently. Four research assistants was trained how to collect data and interview for seven days.

The migrants work in the morning and afternoon. So the researcher/ research assistants visited their accommodation in the evening and interviewed them who were met with inclusion criteria. All subjects were interviewed with the same questionnaire. After interviewing, the check on the items of the questionnaire was done by the researcher/ assistant researcher.

### **3.11 Data Analysis**

For Data analysis, Statistical Package of Social Science software was used. Followings were the statistics in use:

Descriptive statistics: the socio-demographic characteristics and general information was presented by frequency, percentage, mean and standard deviation.

Inferential statistics: the relationship between the independent variables and the dependent variable was presented by the use of:

1. Pearson's Chi – square test and Fisher's Exact test for the relationship test between two categorical variables.
2. Mann-Whitney U test for the relationship test between continuous variable and dichotomous variable.

### **3.12 Ethical Consideration**

- The research proposal was submitted to Ethical Committee of Chulalongkorn University. COA no. 008/2009 issued on 12 January 2009 was received by the researcher.

- Before interviewing, the subjects were explained on the purpose of the study. They signed on the consent form. In case they were not willing to participate in this study, they could deny at any time with no impact on them whatsoever. The name of the subjects was not recorded and their given information kept confidentially. Data used for academic purpose only.

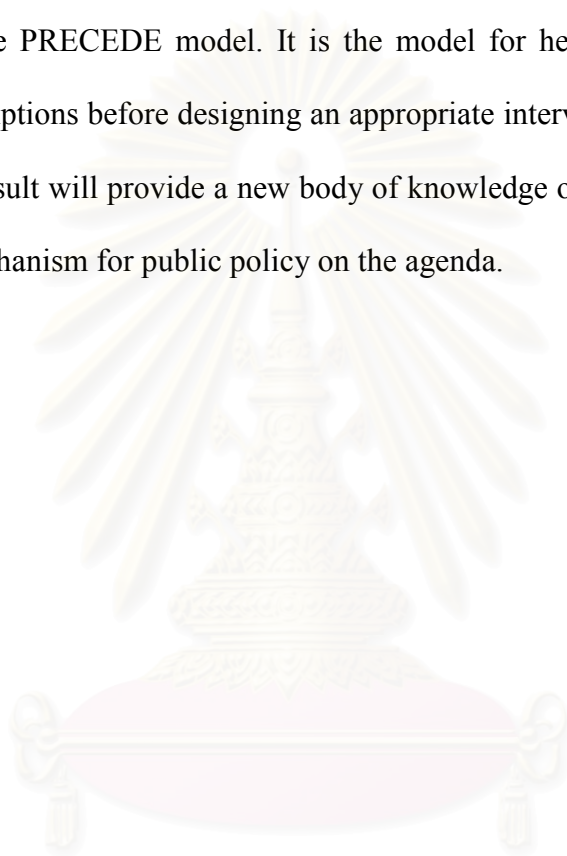
### **3.13 Limitation**

- The study used cross-sectional design in order to study the prevalence of cigarette smoking behaviour among adult Myanmar migrant workers in the study area and to identify the factors that influence cigarette smoking behaviour among the subjects. This study did not attempt to establish any cause – effect relationship.
- There might be some bias in this study due to the issue of time constraint and thus the quantitative study was employed in order to identify the factors influencing on cigarette smoking behaviour of the subjects. In order to keep balance in focus, the qualitative study should also be included.
- This study conducted with the subjects who are adult Myanmar migrant workers in Mahachai sub-district, Samut Sakhon province. As such, the results of the study could not represent the whole Myanmar migrant worker population in Thailand.

### **3.14 Expected Benefit and Application**

An identification of the factors influencing cigarette smoking behaviour of the subjects may be useful to provide interventions required towards behavioural change and to conduct prevention and control measures of cigarette smoking

among Myanmar migrant workers in Thailand. When the subjects participated in this project, they got more information about the complications of cigarette smoking that they did not know before. The researcher identified the predisposing, reinforcing and enabling factors which counted as the fourth educational diagnosis phase of the PRECEDE model. It is the model for health behaviours based on multi-assumptions before designing an appropriate intervention. It is expected that the study result will provide a new body of knowledge on the issue and a possible driving mechanism for public policy on the agenda.



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## **CHAPTER IV**

### **RESULTS**

This chapter is divided into two parts. First part includes the distribution of socio-demographic characteristics, prevalence of cigarette smoking behaviour, knowledge and attitude, influence of family, peer and employer and accessibility to cigarette among adult Myanmar migrant workers. Second part contains the relationship between socio-demographic characteristics, knowledge and attitude about smoking, reinforcing factors, accessibility to cigarette and cigarette smoking behaviour.

Total number of subjects in this study was 347. The respondents in this study were adult Myanmar migrant workers age between 18 to 59 years who are residing in Mahachai Sub-district, Samut Sakhon Province, Thailand.

#### **Part I: Descriptive Findings**

##### **4.1 Socio-demographic characteristics of adult Myanmar migrant workers**

Table- I shows that the socio-demographic characteristics of adult Myanmar migrant workers (n=347) such as age, gender, ethnicity, marital status, education, occupation, monthly household income, duration of stay in Thailand and Thai language skill.

##### **Age**

The age of all respondents were ranged from 18 to 59 years which was one of the selection criteria. The mean age of respondents was 28.76 years, median was 28

years and SD was 7.829. Most of respondents (24.5%) were age group between 25 to 29 years. The age groups of  $\leq 19$  years and  $\geq 40$  years were 9.8% and 10.1% respectively.

### **Gender**

Among the adult Myanmar migrant workers, 53% of respondents were male whereas 47.0% were female.

### **Ethnicity**

Concerning the ethnicity of the respondent, most respondents were Burma (68.3%), 23.6% of the respondents were Mon, 6.6% were Karen and the remaining 1.4% was other ethnicity.

### **Marital Status**

Regarding marital status, half of the respondents were married (49.9%), 37.8% were single, 7.8% were separated, 2.3% were divorced and 2.3% were widowed.

### **Education**

Regarding the educational status, 4.6% of the respondents had no schooling experience, 29.1% had primary education, 34.9% had secondary education and 29.4% had high school education. Only 2% had higher education.

### **Occupation**

The majority of the respondents (67.7%) were seafood processing workers, 12.7% were general workers, 5.8% were seafaring workers, 3.5% were construction workers and 2.0% were housemaid. The remaining 8.4% were tailor, barber, seller, factory worker and machinist.

**Monthly household income (Baht)**

Total monthly household income ranged from 2,000 Baht to 12,000 Baht. Mean household income was 5,349.86 Baht, median was 5,000 Baht and SD was 1,610.79. Most of the respondents (53.9%) had monthly household income of 4,001-6,000 Baht, 28.0% and 13.3% had monthly household income of  $\leq 4,000$  Baht and 6,001-8,000 Baht respectively. Few of them (4.9%) had more than 8,001 Baht per month.

**Duration of stay in Thailand**

Duration of stay in Thailand ranged from 1 month to 25 years. Mean of staying in Thailand was 4.65 years, median was 3.5 years and SD was 3.589. Most of the respondents (46.7%) were staying in Thailand for 1 to 3 years. 30.0% of the migrant workers were residing for 4 to 7 years and 15% of them were residing for 8 to 10 years. The remaining 4.3% and 4.0% were residing less than 1 year and above 10 years respectively.

**Thai language skill**

Regarding the Thai language skill, half of the respondents (50.7%) can speak Thai language basically, 31.4% of the respondents can not speak Thai language and 17.3% can speak fluently but can not read and write. Only 0.6% can read and write Thai language.

Table 1: Distribution of adult Myanmar migrant workers by socio-demographic characteristics (n=347)

Characteristics	Frequency (n=347)	Percentage
<b>Age (n=347)</b>		
≤ 19 years	34	9.8
20 – 24 years	79	22.8
25 – 29 years	85	24.5
30 – 34 years	66	19.0
35 – 39 years	48	13.8
≥ 40 years	35	10.1
Mean = 28.76, SD = 7.829, Median = 28.0		
Range = 18 – 56		
<b>Gender (n=347)</b>		
Male	184	53.0
Female	163	47.0
<b>Ethnicity (n=347)</b>		
Burma	237	68.3
Mon	82	23.6
Karen	23	6.6
Other* (Dawei, Pao, Kayar)	5	1.4
<b>Marital status (n=347)</b>		
Single	131	37.8
Married	173	49.9
Divorced	8	2.3
Widowed	8	2.3
Separated	27	7.8
<b>Education (n=347)</b>		
Illiterate	16	4.6
Primary education	101	29.1
Secondary education	121	34.9
High school level	102	29.4
Higher education	7	2.0



Table 1: (Continued) Distribution of adult Myanmar migrant workers by Socio-demographic characteristics (n=347)

Characteristics	Frequency (n=347)	Percentage
<b>Occupation (n=347)</b>		
Seafaring worker	20	5.8
Seafood processing worker	235	67.7
Construction worker	12	3.5
General worker	44	12.7
Housemaid	7	2.0
Other* (Babysitter, barber, factory worker, machinist, seller, tailor)	29	8.4
<b>Monthly household income (Baht) (n=347)</b>		
≤ 4,000	97	28.0
4,001-6,000	187	53.9
6,001-8,000	46	13.3
≥ 8,001	17	4.9
Mean=5,349.86, SD=1,610.790, Median=5,000.00		
Range = 2,000-12,000		
<b>Duration of stay in Thailand (n=347)</b>		
<1 year	15	4.3
1-3 years	162	46.7
4-7 years	104	30.0
8-10 years	52	15.0
>10 years	14	4.0
Mean=4.65, SD=3.589, Medium=3.50		
Range = 1 month – 25 years		
<b>Thai language skill (n=347)</b>		
Cannot speak Thai language	109	31.4
Can speak Thai language basically	176	50.7
Can speak Thai language fluently but cannot read and write	60	17.3
Communicate fluently in Thai language	2	0.6

#### 4.2 Prevalence of cigarette smoking behaviour

Table 2 shows the smoking behaviour and prevalence of cigarette smoking. From the table, 35.2% of the total respondents were current smokers. Ex-smokers were 2.3% and non-smokers were 62.5%. 59.2% of male respondents were current smokers, ex-smokers were 3.8% and 37% of them were non-smokers. In female, 91.4% of the respondents were non-smokers and only 8% were current smokers.

Table 2: Prevalence of cigarette smoking behaviour (n=347)

	Current smoker		Ex-smoker		Non-smoker	
	N	%	N	%	N	%
Over all prevalence	122	35.2	8	2.3	217	62.5
male	109	59.2	7	3.8	68	37.0
female	13	8.0	1	0.6	149	91.4

#### 4.3 Predisposing factors of cigarette smoking behaviour among adult Myanmar migrant workers

Table 3 describes the predisposing factors of cigarette smoking behaviour among adult Myanmar migrant workers. Among  $\leq 19$  years age group, 20.6% of migrant workers were daily smoker and 70.6% of them were non-smoker. Daily smokers of age group 20-24 years were 22.8%, often smokers were 1.3%, occasional smokers were 8.9%, ex-smokers were 1.3% and the remaining 65.8% were non-smoker. Among age groups of 25-29 years, daily smokers were 29.4% and half of them were non-smokers. Among  $\geq 40$  years age group, half of the respondents were daily smokers and 40% of them were non-smokers.

Regarding the gender, 44.6% of male respondents were daily smokers and 37.0% of them were non-smokers. In female, most of the respondents (91.4%) were non-smokers and only 7.4% were daily smokers.

In ethnicity, 60.8% of Burma migrant workers were non-smokers, 26.2% of them were daily smokers, the remaining 1.7% and 8.4% were often smokers and occasional smokers respectively. Half of Mon migrant workers (58.5%) were non-smokers and 35.4% of these workers were daily smokers. Among Karen and other ethnicity such as Dawei, Pao, Kayar, most of the respondents were non-smokers.

Most of single (59.5%) were non-smokers, 26.7% smoked daily, 1.5% smoked often, 9.9% smoked occasionally and the rest (2.3%) were ex-smokers. In married respondents, 28.9% were daily smokers and 62.4% were non-smokers. 25.0% of divorced respondents, 12.5% of widowed respondents, 22.2% of separated respondents were daily smokers respectively.

According to educational level, 56.2% of illiterate respondents were daily smokers and 37.5% of these respondents were non-smokers. 27.7% of the respondents with primary education smoked daily and 67.3% of these respondents had never smoked at all. 24.0% of the respondents with secondary education, 26.5% of the respondents with high school level and 14.3% of higher education were daily smokers.

In occupation, 65.0% of seafarers were daily smoker and only 15% of seafarers were non-smoker. 67.2% of seafood processing workers were non-smokers and only 23.0% of these workers were daily smokers. Among seafood processing workers, 1.7% of the respondents smoked often, 5.5% of the respondents smoked occasionally and 2.3% of them smoked formerly. 41.7% of construction workers, 31.8% of general workers, 14.3% of housemaids and 24.1% of other workers such as babysitter, barber, factory workers, machinist, seller and tailor, were daily smokers.

Regarding monthly household income, most of the respondents were non-smokers. 47.1% of the respondents, who had earned above 8,001 baht per month, were daily smokers. 26.8% of the respondents who had monthly household income of  $\leq 4,000$  Baht, 23.0% of the migrants who had income of 4,001 baht – 6,000 baht and 37.0% of the respondents who had income of 6,001 baht – 8,000 baht were daily smokers.

Most of the respondents (69.1%), who were staying in Thailand for 1 to 3 years, were non-smoker and only 18.5% of them were daily smokers. 40.0% of respondents who were staying in Thailand less than one year were daily smokers.

In Thai language skill, 24.8% of the respondents who cannot speak Thai language, 25.0% of the respondents who can speak basically and 36.7% of the respondents who can speak fluently but cannot read and write, were daily smokers. There were only two persons who can communicate fluently and one of these persons smoked daily.

At the knowledge level, 21.2% of low knowledge respondents smoked daily, 8.5% smoked occasionally and 68.6% never smoked at all. 30.6% of moderate knowledge respondents smoked daily and 28.8% of high knowledge respondents also smoked daily.

At the attitude level, half of the low attitude respondents (57.1%) were daily smokers. Most of the high attitude respondents (67.0%) were non-smokers and only 23.4% of high attitude respondents were daily smokers.

Table 3: Distribution of adult Myanmar migrant workers by predisposing factors

(n=347)

Predisposing factor	Cigarette smoking behaviour				
	Daily smoker	Often smoker	Occasional smoker	Ex-smoker	Never smoke at all
Age group	N (%)	N (%)	N (%)	N (%)	N (%)
≤19	7 (20.60)	0 (0.00)	3 (8.80)	0 (0.00)	24 (70.60)
20-24	18 (22.80)	1 (1.30)	7 (8.90)	1 (1.30)	52 (65.80)
25-29	25 (29.40)	0 (0.00)	8 (9.40)	3 (3.50)	49 (57.60)
30-34	14 (21.20)	1 (1.50)	2 (3.00)	2 (3.00)	47 (71.20)
35-39	12 (25.00)	3 (6.20)	1 (2.10)	1 (2.10)	31 (64.60)
≥40	18 (51.40)	0 (0.00)	2 (5.70)	1 (2.90)	14 (40.00)
<b>Gender</b>					
Male	82 (44.60)	5 (2.70)	22 (12.00)	7 (3.80)	68 (37.00)
Female	12 (7.40)	0 (0.00)	1 (0.60)	1 (0.60)	149 (91.40)
<b>Ethnicity</b>					
Burma	62 (26.20)	4 (1.70)	20 (8.40)	7 (3.00)	144 (60.80)
Mon	29 (35.40)	1 (1.20)	3 (3.70)	1 (1.20)	48 (58.50)
Karen	2 (8.70)	0 (0.00)	0 (0.00)	0 (0.00)	21 (91.30)
Other	1 (20.00)	0 (0.00)	0 (0.00)	0 (0.00)	4 (80.00)
<b>Marital status</b>					
Single	35 (26.70)	2 (1.50)	13 (9.90)	3 (2.30)	78 (59.50)
Married	50 (28.90)	3 (1.70)	8 (4.60)	4 (2.30)	108 (62.40)
Divorced	2 (25.00)	0 (0.00)	0 (0.00)	0 (0.00)	6 (75.00)
Widowed	1 (12.50)	0 (0.00)	0 (0.00)	0 (0.00)	7 (87.50)
Separated	6 (22.20)	0 (0.00)	2 (7.40)	1 (3.70)	18 (66.70)
<b>Educational level</b>					
Illiterate	9 (56.20)	0 (0.00)	1 (6.20)	0 (0.00)	6 (37.50)
Primary education	28 (27.70)	0 (0.00)	4 (4.00)	1 (1.00)	68 (67.30)
Secondary education	29(24.00)	3 (2.50)	7 (5.80)	5 (4.10)	77 (63.60)
High school level	27(26.50)	2 (2.00)	10 (9.80)	2 (2.00)	61 (59.80)

Table 3: (Continued) Distribution of adult Myanmar migrant workers by predisposing factors (n=347)

Predisposing factor	Cigarette smoking behaviour				
	Daily smoker	Often smoker	Occasional smoker	Ex-smoker	Never smoke at all
Occupation	N (%)	N (%)	N (%)	N (%)	N (%)
Seafarer	13 (65.00)	0 (0.00)	4 (20.00)	0 (0.00)	3 (15.00)
Seafood processing worker	54 (23.00)	4 (1.70)	13 (5.50)	6 (2.60)	158 (67.20)
Construction worker	5 (41.70)	0 (0.00)	0 (0.00)	1 (8.30)	6 (50.00)
General worker	14 (31.80)	1 (2.30)	5 (11.40)	1 (2.30)	23 (52.30)
Housemaid	1 (14.30)	0 (0.00)	0 (0.00)	0 (0.00)	6 (85.70)
Other* (Babysitter, barber, factory worker, machinist, seller, tailor)	7 (24.10)	0 (0.00)	1 (3.40)	0 (0.00)	21 (72.40)
<b>Monthly household income group (Baht)</b>					
≤ 4,000	26 (26.80)	3 (3.10)	5 (5.20)	1 (1.00)	62 (63.90)
4,001-6,000	43 (23.00)	0 (0.00)	16 (8.60)	6 (3.20)	122 (65.20)
6,001-8,000	17 (37.00)	2 (4.30)	2 (4.30)	1 (2.20)	24 (52.20)
≥ 8,001	8 (47.10)	0 (0.00)	0 (0.00)	0 (0.00)	9 (52.90)
<b>Duration of staying in Thailand (years)</b>					
<1	6 (40.00)	0 (0.00)	2 (13.30)	1 (6.70)	6 (40.00)
1 - 3	30 (18.50)	2 (1.20)	16 (9.90)	2 (1.20)	112 (69.10)
4 - 7	34 (32.70)	0 (0.00)	2 (1.90)	4 (3.80)	64 (61.50)
8 - 10	19 (36.50)	2 (3.80)	3 (5.80)	1 (1.90)	27 (51.90)
>10	5 (35.70)	1 (7.10)	0 (0.00)	0 (0.00)	8 (57.10)
<b>Thai language skill</b>					
Cannot speak Thai language	27 (24.80)	1 (0.90)	7 (6.40)	1 (0.90)	73 (67.00)
Can speak Thai language basically	44 (25.00)	3 (1.70)	15 (8.50)	7 (4.00)	107 (60.80)
Can speak Thai language fluently but cannot read and write	22 (36.70)	1 (1.70)	1 (1.70)	0 (0.00)	36 (60.00)
Communicate fluently in Thai language	1 (50.00)	0 (0.00)	0 (0.00)	0 (0.00)	1 (50.00)
<b>Knowledge level</b>					
Low knowledge	25 (21.20)	1 (0.80)	10 (8.50)	1 (0.80)	81 (68.60)
Moderate knowledge	52 (30.60)	2 (1.20)	7 (4.10)	5 (2.90)	104 (61.20)
High knowledge	17 (28.80)	2 (3.40)	6 (10.20)	2 (3.40)	32 (54.20)
<b>Attitude level</b>					
Low attitude	4 (57.10)	0 (0.00)	1 (14.30)	0 (0.00)	2 (28.60)
Moderate attitude	26 (38.80)	1 (1.50)	8 (11.90)	0 (0.00)	32 (47.80)
High attitude	64 (23.40)	4 (1.50)	14 (5.10)	8 (2.90)	183 (67.00)

The knowledge about cigarette smoking included 18 questions and the score was 1 for correct answer and 0 for incorrect answer and do not know answer. Knowledge score was categorized into high, moderate and low knowledge level. If the total score of knowledge was more than 14.4 (80% of total score), the person was noted as having high knowledge level. Between 10.8 and 14.4 (60%-80% of total score) was noted as moderate knowledge and less than 10.8 (60% of total score) was noted as low knowledge. The range of knowledge score was 0 to 18.

The results as shown in Table 4 reveals that the number and percentage of adult Myanmar migrant workers who answered correctly to each question about knowledge of cigarette smoking. Among the respondents, 30.8% could answer correctly the statement that cigarette smoking can cause bladder cancer. 31.4% could answer correctly the statement that cigarette contain more than 4,000 toxic or carcinogenic substances. 42.7% answered correctly about cigarette smoking in pregnant woman doesn't cause disturbance on the physical and mental development of born child. 43.8% answered correctly the statement that cigarette smoking in pregnant women can't affect on her pregnancy status. The statement that cigarettes contain tar and nicotine was answered correctly by 41.2% of the respondents. 46.1% of the migrant workers could answered correctly about cigarettes can be advertised by Thai mass media. 49.0% of the respondents answered correctly the statement that cigarette smoking does not cause brown colored teeth. The rest of the questions could be answered correctly by more than 50.0% of the respondents.

Table 4: Number and percentage of adult Myanmar migrant workers who answered correctly to each question (n=347)

No	Knowledge Statement	Frequency of respondents answered correctly	Percent
1	Smoking cigarettes can cause respiratory disease.	333	96.0
* 2	Cigarette smoking does not cause brown colored teeth.	170	49.0
3	Cigarette smoking can affect the people who live around the smoker.	329	94.8
4	People, who inhale the tobacco smoke that permeates any environment, can cause lung cancer.	294	84.7
* 5	If someone smokes without inhaling, it can't affect on their body.	193	55.6
6	Cigarette smoking can cause lung cancer.	327	94.2
7	Cigarette smoking can cause larynx cancer.	226	65.1
8	Cigarette smoking can cause mouth cancer.	222	64.0
9	Cigarette smoking can cause bladder cancer.	107	30.8
10	Cigarette smoking can cause ischaemic heart disease.	289	83.3
* 11	Cigarette smoking in pregnant woman doesn't cause disturbance on the physical and mental development of born child.	148	42.7
* 12	Cigarette smoking in pregnant woman can't affect on her pregnancy status.	152	43.8
13	Cigarette contains more than 4,000 toxic or carcinogenic substances.	109	31.4
14	Cigarettes contain tar and nicotine.	143	41.2
15	Nicotine in cigarettes can cause addiction.	244	70.3
16	Cigarette smoking in general public places is prohibited by Thai Law.	316	91.1
17	Selling cigarettes to minors (under 18 years children) is banned by Thai law.	312	89.9
* 18	Cigarettes can be advertised by Thai mass media.	160	46.1

\* False statement

Table 5 reveals that the knowledge level of the respondents about cigarette smoking behaviour. Nearly half of the respondents (49.0%) had moderate knowledge, 34.0% had low knowledge and only 17.0% had high knowledge.



Table 5: Distribution of the respondents toward the group of cigarette smoking knowledge score (n=347)

Knowledge level	Frequency	Percent
Low knowledge (<10.8)	118	34.0
Moderate knowledge (10.8 – 14.4)	170	49.0
High knowledge (>14.4)	59	17.0
Total	347	100.0

The attitude about cigarette smoking behaviour consisted of 15 questions. It included positive and negative questions. For positive questions, the score was given 3 for agree, 2 for uncertain and 1 for disagree. For negative questions, the score was given 3 for disagree, 2 for uncertain and 1 for agree. Attitude score was categorized into three groups such as high attitude, moderate attitude and low attitude. The score <60% of total score (<27) refers to low attitude. The score >80% of total score (>36) refers to high attitude. The score within 60-80% (27 – 36) refers to moderate attitude.

Table 6 shows that the percentage of the respondent's attitude towards each question regarding cigarette smoking behaviour. 53.9% of the respondents disagreed that smoking attributable disease can be easily cured. 93.7% agreed that cigarette smoking is bad habit. 94.8% agreed that cigarette smoking is dangerous not only to smokers but also to the persons near the smokers. 52.4% of the migrant workers disagreed that smoking attributable diseases won't appear if smoker does exercise regularly. 53.3% of the respondents disagreed that cigarette smoking can relieve stress. 98.0% agreed that children should not smoke cigarettes. Nearly half of the respondents (49.9%) disagreed that cigarette smoking makes one easier in socialization. 74.1% of the respondents disagreed that cigarette smoking makes one work more smoothly. 93.1% had positive attitude about other people should be

prohibited from cigarette smoking. Nearly 100% agreed that parents should prohibit the cigarette smoking of their children. 46.7% disagreed that cigarette smoking can increase a person's concentration. 62.0% disagreed that the person who smokes cigarette is more attractive than others. 80.7% of the respondents disagreed that there is no benefit when quit cigarette smoking. 62.0% disagreed that any smokers can have their smoking cessation without obstacle. Lastly, 61.1% disagreed that smoking a few cigarettes won't damage one's health.

Table 6: Percentage of respondents' attitude towards each question about cigarette smoking (n=347)

No	Attitude Statement	Agree		Uncertain		Disagree	
		N	%	N	%	N	%
1*	Smoking-attributable disease can be easily cured.	75	21.6	85	24.5	187	53.9
2	Cigarette smoking is bad habit.	325	93.7	8	2.3	14	4
3	Cigarette smoking is dangerous not only to smokers, but also to the persons near the smokers.	329	94.8	9	2.6	9	2.6
4*	Smoking-attributable diseases won't appear if smoker does exercise regularly.	66	19	99	28.5	182	52.4
5*	Cigarette smoking can relieve stress.	65	18.7	97	28	185	53.3
6	Children should not smoke cigarettes	340	98.0	4	1.2	3	0.9
7*	Cigarette smoking makes one easier in socialization.	103	29.7	71	20.5	173	49.9
8*	Cigarette smoking makes one work more smoothly.	29	8.4	61	17.6	257	74.1
9	Other people should be prohibited from cigarette smoking.	323	93.1	9	2.6	15	4.3
10	Parents should prohibit the cigarette smoking of their children.	343	98.8	2	0.6	2	0.6
11*	Cigarette smoking can increase a person's concentration.	112	32.3	73	21	162	46.7
12*	The person who smokes cigarettes is more attractive than others.	43	12.4	89	25.6	215	62.0
13*	There is no benefit when quit cigarette smoking.	42	12.1	25	7.2	280	80.7
14*	Any smokers can have their smoking cessation without obstacle.	54	15.6	78	22.5	215	62.0
15*	Smoking a few cigarettes won't damage one's health.	77	22.2	58	16.7	212	61.1

\* Negative statement

According to the table 7, it shows attitude level of the respondents for this research. Most of the respondents (78.7%) had high attitude, 19.3% had moderate attitude and only 2.0% had low attitude.

Table 7: Distribution of the respondents toward the group of smoking attitude score (n=347)

Attitude level	Frequency	Percent
Low attitude (<27)	7	2.0
Moderate attitude (27 – 36)	67	19.3
High attitude (>36)	273	78.7
Total	347	100.0

#### **4.4 Reinforcing factors of cigarette smoking behaviour among adult Myanmar migrant workers**

In this study, reinforcing factors included 12 questions concerning the smoking status of parent and family members such as sister, brother and other relatives who live with together, close friends' smoking and relationship between them, smoke-free living and working place and employer smoking condition. Table 8 describes that 51.7% of the respondents had the father who smoke cigarettes. 22.5% of the respondents had the mother smoking. Half of the respondents (51.0%) had family member smoking. 64.6% of the migrant workers had smoke-free home. More than half of the respondents (62.0%) had close friends who smoke cigarettes. Among the respondents who had close friend smokers, 23.9% of the respondents had 1 to 4 close friend smokers, 20.2% had 5 to 8 friend smokers, 9.5% had 9 to 12 friend smokers and 8.4% had more than 13 close friend smokers. 26.5% of the respondents answered that friends urge to smoke cigarettes. 34.6% of the migrants answered that friends offer cigarettes. 34.6% of all respondents answered that they will smoke

cigarette when offering cigarette. 20.2% of the migrant workers had difficulty to refuse cigarette smoking. 39.5% of the migrant workers answered that employer smoke cigarette. Most of the respondents (83.0%) had smoke-free work place.

Table 8: Distribution of adult Myanmar migrant workers by reinforcing factors (n=347)

Reinforcing factors	Frequency (n=347)	Percent
<b>Father smokes cigarettes</b>		
Yes	198	57.1
No	149	42.9
<b>Mother smokes cigarettes</b>		
Yes	78	22.5
No	269	77.5
<b>Family members smoke cigarettes</b>		
Yes	177	51.0
No	170	49.0
<b>Designate smoke free home</b>		
Yes	224	64.6
No	123	35.4
<b>Close friends smoke cigarettes</b>		
Yes	215	62.0
No	132	38.0
<b>Number of close friend smoker</b>		
1 – 4	83	23.9
5 – 8	70	20.2
9 – 12	33	9.5
≥ 13	29	8.4
No close friend smoker	132	38.0
<b>Friends urge to smoke cigarette</b>		
Yes	92	26.5
No	255	73.5
<b>Friends offer cigarette</b>		
Yes	174	50.1
No	173	49.9
<b>Smoking when being offered cigarette</b>		
Yes	120	34.6
No	227	65.4

Table 8: (Continued) Distribution of adult Myanmar migrant workers by reinforcing factors (n=347)

Reinforcing factors	Frequency (n=347)	Percent
<b>Difficulty to refuse</b>		
Yes	70	20.2
No	277	79.8
<b>Employer smokes cigarettes</b>		
Don't know	8	2.3
Yes	137	39.5
No	202	58.2
<b>Designate smoke-free work place</b>		
Yes	288	83.0
No	59	17.0

Table 9 shows that the distribution of number and percentage between smoking behaviour and reinforcing factors among adult Myanmar migrant workers. 35.9% of the respondents within the father smoke cigarettes were daily smokers and only 15.4% within the father does not smoke cigarettes were daily smokers. In the same way, 42.3% within the mother smoke cigarettes were daily smokers and 37.3% within family members smoke cigarettes were daily smokers. 44.7% of the respondents who had not smoke free home were daily smokers. Regarding close friends smoking cigarettes, 41.4% of the migrant workers were daily smokers. Nearly half of the respondents, (44.6%) answered that friends urge to smoke cigarette, were daily smokers. Among the adult workers who answered that friends offer cigarette, 45.4% were daily smokers. More than 50% of the adult workers who responded that they will smoke when offering cigarette, were daily smokers (76.7%). In difficulty to refuse cigarette smoking, 31.4% were daily smokers, 1.4% was often smoker, 12.9% were occasional smokers and 2.9% were ex-smokers respectively. 38.0% of the

respondents, who had employer cigarette smoking, were daily smokers. 37.3% had no smoke-free work place were daily smokers.

Table 9: Distribution of number and percentage between smoking behaviour and reinforcing factors among adult Myanmar migrant workers (n=347)

Reinforcing factor	Cigarette smoking behaviour				
	Daily smoker	Often smoker	Occasional smoker	Ex-smoker	Never smoke at all
<b>Father smokes cigarettes</b>	N (%)	N (%)	N (%)	N (%)	N (%)
Yes	71 (35.90)	3 (1.50)	12 (6.10)	4 (2.00)	108 (54.50)
No	23 (15.40)	2 (1.30)	11 (7.40)	4 (2.70)	109 (73.20)
<b>Mother smokes cigarettes</b>					
Yes	33 (42.30)	1 (1.30)	3 (3.80)	2 (2.60)	39 (50.00)
No	61 (22.70)	4 (1.50)	20 (7.40)	6 (2.20)	178 (66.20)
<b>Family members smoke cigarettes</b>					
Yes	66 (37.30)	3 (1.70)	9 (5.10)	5 (2.80)	94 (53.10)
No	28 (37.30)	2 (1.20)	14 (8.20)	3 (1.80)	123 (72.40)
<b>Designate smoke-free home</b>					
Yes	39 (17.40)	3 (1.30)	14 (6.20)	7 (3.10)	161 (71.90)
No	55 (44.70)	2 (1.60)	9 (7.30)	1 (0.80)	56 (45.50)
<b>Close friends smoke cigarettes</b>					
Yes	89 (41.40)	5 (2.30)	21 (9.80)	8 (3.70)	92 (42.80)
No	5 (3.80)	0 (0.00)	2 (1.50)	0 (0.00)	125 (94.70)
<b>Friends urge to smoke cigarettes</b>					
Yes	41 (44.60)	1 (1.10)	10 (10.90)	5 (5.40)	35 (38.00)
No	53 (20.80)	4 (1.60)	13 (5.10)	3 (1.20)	182 (71.40)
<b>Friends offer cigarettes</b>					
Yes	79 (45.40)	5 (2.90)	20 (11.50)	6 (3.40)	64 (36.80)
No	15 (8.70)	0 (0.00)	3 (1.70)	2 (1.20)	153 (88.40)
<b>Smoking when being offered cigarette</b>					
Yes	92 (76.70)	5 (4.20)	23 (19.20)	0 (0.00)	0 (0.00)
No	2 (0.90)	0 (0.00)	0 (0.00)	8 (3.50)	217 (95.60)
<b>Difficulty to refuse</b>					
Yes	22 (31.40)	1 (1.40)	9 (12.90)	2 (2.90)	36 (51.40)
No	72 (26.00)	4 (1.40)	14 (5.10)	6 (2.20)	181 (65.30)

Table 9: (Continued) Distribution of number and percentage between smoking behaviour and reinforcing factors among adult Myanmar migrant workers (n=347)

Reinforcing factor	Cigarette smoking behaviour				
	Daily smoker	Often smoker	Occasional smoker	Ex-smoker	Never smoke at all
	N (%)	N (%)	N (%)	N (%)	N (%)
<b>Employer smokes cigarettes</b>					
Don't know	2 (25.00)	1 (12.50)	0 (0.00)	0 (0.00)	5 (62.50)
Yes	52 (38.00)	2 (1.50)	7 (5.10)	5 (3.60)	71 (51.80)
No	40 (19.80)	2 (1.00)	16 (7.90)	3 (1.50)	141 (69.80)
<b>Designate smoke-free work place</b>					
Yes	72 (25.00)	4 (1.40)	16 (5.60)	7 (2.40)	189 (65.60)
No	22 (37.30)	1 (1.70)	7 (11.90)	1 (1.70)	28 (47.50)

#### 4.5 Enabling factors of cigarette smoking behaviour among adult Myanmar migrant workers (Current smokers only)

The accessibility of cigarette is one of the important factors of smoking. It consisted of the eight questions whether easy to get cigarette or not, available at nearby working and living place, the way of getting cigarette, expenditure for cigarettes, place of buying cigarette and type of cigarette. The results are shown in Table 10.

Adult Myanmar migrant workers responded that cigarettes can be got easily (82.0%). The availability of cigarette nearby working and living place was 85.2% and 96.7% respectively. Most of the respondents (95.9%) bought cigarettes from shop and only 4.1% got cigarettes from friends. 68.0% of the respondents bought cigarette by stick. Mean of monthly expenditure for cigarette was 342.87 baht, median was 300 baht and SD was 272.013. Maximum expenditure was 1,300 baht. 40.2% of respondents spent less than 200 baht per month for cigarette, 29.5% had monthly expenditure of 201 – 400 baht and 30.3% spent more than 401 baht per month. Most

of the respondents bought cigarettes from groceries (94.3%). 70.5% of the respondents preferred to smoke cigarettes and only 8.2% smoked hand-rolled cigarettes.

Table 10: Distribution of adult Myanmar migrant workers (current smokers only) by enabling factors (n=122)

<b>Enabling factors</b>	<b>Frequency</b>	<b>Percent</b>
<b>Is it easy to get cigarettes?</b>		
Yes	100	82
No	22	18
<b>Are the cigarettes sold nearby your working place?</b>		
Yes	104	85.2
No	18	14.8
<b>Are the cigarettes sold nearby your living place?</b>		
Yes	118	96.7
No	4	3.3
<b>How do you get cigarettes?</b>		
I buy it from a shop.	117	95.9
My friends give it to me.	5	4.1
<b>How do you buy cigarettes?</b>		
I buy in a pack.	28	23
I buy stick.	83	68
I have never bought it by myself.	2	1.6
Other* (buy a packet of cigar powder)	9	7.4
<b>Monthly expenditure for cigarette</b>		
≤ 200 Baht	49	40.2
201-400 Baht	36	29.5
≥ 401 Baht	37	30.3
Mean=342.87, Medium=300, SD=272.013, Range=0 – 1,300 Baht		
<b>Place of buying cigarettes</b>		
Mini-market	3	2.5
Supermarket	1	0.8
Groceries	115	94.3
Other*(Buy from convenient place)	1	0.8
I don't buy my own cigarettes	2	1.6
<b>Type of cigarettes</b>		
Cheroot	26	21.3
Hand-rolled cigarette	10	8.2
Imported cigarette	86	70.5



#### **4.6 Distribution of smoking status among smokers (Answered by ex-smoker and current smoker) (n=130)**

In this part, smoking status and related variable included the number of smoking cigarette per day, age of start smoking, reason of smoking, health problem concerning cigarette smoking and reason of quit smoking. The results are shown in Table 11.

Mean of smoking cigarette per day was 6.04, median was 5 and SD was 3.34. Maximum number of cigarette was 20. Most of the smokers (46.2%) smoked 1 to 4 cigarettes per day, 31.5% smoked 5 to 9 cigarettes per day and 22.3% smoked more than 10 cigarettes per day.

The average age to start smoking was 19.33 years, median was 19 years and SD was 3.34. Most of the respondents (69.2%) had smoking experience at the age from 16 to 20 years. About 23.1% started to smoke at the age above 21 years. Only 7.7% started to smoke at the age from 10 to 15 years.

Regarding reason of smoking, 16.2% of smokers smoked cigarettes due to loneliness, 33.8% smoked because of persuasion by friends, 8.5% of smokers answered due to family problem, 12.3% was because of parental smoking, 17.7% smoked due to stress and finally 21.5% of smokers responded because of other reasons (addict from trying cigarette smoking, like cigarette, to get more idea, want to smoke cigarette, want to try cigarette smoking).

In health problem, 69.2% of smokers felt coughing due to smoking, 32.3% answered feeling of not getting enough air, 56.9% of smokers suffered from tiredness, 11.5% of smokers answered premature wrinkles and 4.6% felt decrease sense of smell and taste because of cigarette smoking. 5.4% of the smokers felt other health

problems such as dizziness because of smoking, pain in chest and some didn't feel anything due to occasional smoker, didn't notice about health problem.

About 67.7% of the smokers had desired to quit smoking and some smokers (32.3%) had no desire to quit smoking.

About 52.3% of smokers, who had desired to quit smoking, stopped smoking due to family members do not like smoking, 25.0% quitted smoking to save money, only 1.1% decided to quit smoking because of difficulty to buy cigarette. 48.9% of smokers, who had desired to quit smoking, tried to quit smoking by getting advice from health care providers. About 29.5% answered due to warning pictures on cigarette packages. 10.2% of smokers, who had desire to quit, answered due to other reasons like smoking affect to health, afraid to get disease, don't want to smoke, society does not accept public smoking and want to quit smoking.

Table 11: Frequency distribution of smoking behaviour and related variables among smokers (Answered by ex-smoker and current smoker only) (n=130)

Variables	Number(n = 130)	Percent
<b>Cigarette smoking behaviour (n = 347)</b>		
Daily smoker	94	27.1
Often smoker	5	1.4
Occasional smoker	23	6.6
Ex-smoker	8	2.3
Never smoke at all	217	62.5
Answered by ex-smoker and current smoker only(n=130)		
<b>Number of smoking cigarette per day</b>		
1 – 4	60	46.2
5 – 9	41	31.5
10+	29	22.3
Mean=6.04, Median=5, SD=4.717, Range= 1 – 20		
<b>Age of start smoking (years)</b>		
10 – 15	10	7.7
16 – 20	90	69.2
≥ 21	30	23.1
Mean=19.33, Median=19, SD=3.34, Range= 10 – 35		

Table 11: (Continued) Frequency distribution of smoking behaviour and related variables among smokers (Answered by ex-smoker and current smoker only) (n=130)

Variables	Number (n=130)	Percent
<b>Reason of smoking</b>		
<b>Loneliness</b>		
Answer	21	16.2
Not answer	109	83.8
<b>Persuasion by friends</b>		
Answer	44	33.8
Not answer	86	66.2
<b>Family problem</b>		
Answer	11	8.5
Not answer	119	91.5
<b>Parental smoking</b>		
Answer	16	12.3
Not answer	114	87.7
<b>Stress</b>		
Answer	23	17.7
Not answer	107	82.3
<b>Other reason*</b> (addict from trying cigarette smoking, like cigarette, to get more idea, want to smoke cigarette, want to try cigarette smoking)		
Answer	28	21.5
Not answer	102	78.5
<b>Health problems because of cigarette smoking (n=130)</b>		
<b>Coughing</b>		
Answer	90	69.2
Not answer	40	30.8
<b>Feeling of not getting enough air</b>		
Answer	42	32.3
Not answer	88	67.7
<b>Tiredness</b>		
Answer	74	56.9
Not answer	56	43.1
<b>Premature wrinkles</b>		
Answer	15	11.5
Not answer	115	88.5

Table 11: (Continued) Frequency distribution of smoking behaviour and related variables among smokers (Answered by ex-smoker and current smoker only) (n=130)

Variables	Number (n=130)	Percent
<b>Decrease sense of smell and taste</b>		
Answer	6	4.6
Not answer	124	95.4
<b>Other health problem*</b> (dizziness because of smoking, don't feel anything due to occasional smoker, don't notice about health problem, pain in chest)		
Answer	7	5.4
Not answer	123	94.6
<b>Have you ever tried to quit smoking (n=130)</b>		
Yes	88	67.7
No	42	32.3
<b>Reason of quit smoking (n=88)</b>		
<b>Family members don't like smoking</b>		
Answer	46	52.3
Not answer	42	47.7
<b>Save money (n=88)</b>		
Answer	22	25.0
Not answer	66	75.0
<b>Difficulty to buy cigarettes (n=88)</b>		
Answer	1	1.1
Not answer	87	98.9
<b>Advice from health care provider (n=88)</b>		
Answer	43	48.9
Not answer	45	51.1
<b>Warning pictures on cigarette packages (n=88)</b>		
Answer	26	29.5
Not answer	62	70.5
<b>Other reasons of quit smoking* (n=88)</b> (smoking affect to health, afraid to get disease, don't want to smoke, society does not accept public smoking, want to quit smoking by herself)		
Answer	9	10.2
Not answer	79	89.8

**Part II: Relationship between socio-demographic characteristics, knowledge and attitude about smoking, reinforcing factors, accessibility to cigarette and cigarette smoking behaviour.**

**4.7 Relationship between socio-demographic characteristics and cigarette smoking behaviour**

The relationship between socio-demographic characteristics and cigarette smoking behaviour was determined by Chi-square test and Mann-Whitney U test. The level of statistical significant is  $<0.05$ . The result is shown in Table- 12.

**Gender**

The gender of the respondents was compared with the smoking and non-smoking. The result shows that there was highly significant difference between gender and cigarette smoking behaviour ( $p<0.001$ ). Among male respondents, 59.2% of male smoked currently and 40.8% of the respondents did not smoked currently. In female, only 8% smoked currently and 92% was non-smoker. Male smoking was higher than female smoking.

**Ethnicity**

Among Mon migrant workers, current smoker was highest with 40.2%. Current smoker of other ethnicity (Karen, Pao, Dawei and Kayar) was lowest with 10.7%. Mon significantly smoked more than Burma and other ethnicity ( $p=0.015$ ).

**Marital status**

The result shows that there was no significant difference between marital status and cigarette smoking behaviour ( $p\text{-value}=0.324$ ). 38.2% of single respondents and 35.3% of married respondents were current smokers. 25.6% of other group including separated, widowed and divorced respondents smoked currently.

**Educational level**

Respondent's educational level and cigarette smoking behaviour was compared in this study. The result shows that there was no significant difference between these two variables ( $p$ -value=0.771). Among illiterate and primary educated workers, 35.9% was current smoker. 32.3% of secondary educated workers and 37.6% of high school and higher educated workers smoked currently.

**Occupation**

The result reveals that there was no significant difference between occupation and cigarette smoking behaviour ( $p$ -value=0.674). 34.5% of seafood processing workers including seafaring worker smoked currently and 37% of other workers such as construction worker, general worker, housemaid, babysitter, barber, factory worker, machinist, seller and tailor, were current smokers.

**Thailand Language skill**

In terms of Thai language skill, there was no significant difference Thai language skill and cigarette smoking behaviour ( $p$ -value=0.557). 32.1% of the respondents who cannot speak Thai language and 35.2% who can speak Thai language basically smoked currently. 40.3% who can speak Thai language fluently but cannot read and write and who can communicate fluently in Thai language smoked currently.

Age, monthly household income and duration of staying in Thailand were compared with cigarette smoking behaviour. However, there were no significant difference between age, monthly household income, duration of staying in Thailand and cigarette smoking behaviour.

Table 12: Relationship between Socio-demographic characteristics and cigarette smoking behaviour (n=347)

Characteristics	Current Smoker		Non-smoker		$\chi^2$	P-value
	N	%	N	%		
<b>Gender</b>					99.635	<0.001
Male	109	59.20	75	40.80		
Female	13	8.00	150	92.00		
<b>Ethnicity</b>					8.401	0.015
Burma	86	36.30	151	63.70		
Mon	33	40.20	49	59.80		
Other*( Karen, Pao, Dawei and Kayar)	3	10.70	25	89.30		
<b>Marital status</b>					2.251	0.324
Single	50	38.20	81	61.80		
Married	61	35.30	112	64.70		
Separated/Widowed/Divorced	11	25.60	32	74.40		
<b>Educational level</b>					0.771	0.68
Illiterate + Primary education	42	35.90	75	64.10		
Secondary education	39	32.20	82	67.80		
High school level + Higher education	41	37.60	68	62.40		
<b>Occupation</b>					0.178	0.674
Seafood processing worker	88	34.50	167	65.50		
Other occupation	34	37.00	58	63.00		
<b>Thai language skill</b>					1.17	0.557
Cannot speak Thai language	35	32.10	74	67.90		
Can speak Thai language basically	62	35.20	114	64.80		
Can speak Thai language fluently but cannot read and write + fluently in Thai language	25	40.30	37	59.70		

Table 12: (Continued) Relationship between Socio-demographic characteristics and cigarette smoking behaviour (n=347)

Variable	N	Median	Mean Rank	Mann-Whitney U test	P-value
<b>Age (years)</b>				12583.50	0.20
Current smoker	122	28	183.36		
Non-smoker	225	28	168.93		
<b>Monthly household income (Baht)</b>				13121.00	0.493
Current smoker	122	5,100	178.95		
Non-smoker	225	5,000	171.32		
<b>Duration of staying in Thailand (years)</b>				12423.50	0.143
Current smoker	122	4	184.67		
Non-smoker	225	3.08	168.22		

#### 4.8 Relationship between knowledge and attitude about cigarette smoking and cigarette smoking behaviour

Table 13 shows that the relationship between knowledge and attitude about smoking and cigarette smoking behaviour. The relationship between knowledge and attitude about smoking and cigarette smoking behaviour was determined by Mann-Whitney U test. Mann-Whitney U test was used because knowledge and attitude scores were not normal distribution. These scores were tested whether normal distribution or not by one sample Kolmogorov-Smirnov test.

Regarding knowledge about smoking, there was no significant difference between knowledge and cigarette smoking behaviour (p-value=0.207). Mean rank for current smoker was 183.18 and for non-smoker was 169.02.

Attitude about smoking was compared with cigarette smoking behaviour. The result shows that there was significant difference between attitude and cigarette smoking behaviour (p-value=0.002). Mean rank for current smoker was 151.83 and



for non-smoker was 186.02. Mean rank of non-smoker was higher than current smoker. From this result, non-smokers had higher attitude score than current smokers.

Table 13: Knowledge and attitude comparison between non-smoker and current smoker (smoking behaviour) (n=347)

Variable	N	Median	Mean Rank	Mann-Whitney U test	P-value
<b>Knowledge</b>				12604.50	0.207
Current smoker	122	12	183.18		
Non-smoker	225	12	169.02		
<b>Attitude</b>				11020.50	0.002
Current smoker	122	38	151.83		
Non-smoker	225	40	186.02		

#### 4.9 Relationship between reinforcing factors and smoking behaviour

Table 14 shows that the relationship between reinforcing factors and smoking behaviour.

In father smoking, there was very highly significant difference between father smoking and smoking behaviour (p-value<0.001). The proportion 43.4% of the respondents who had father smoking, were current smoker. The proportion of the respondents who had father smoking was higher than that of the respondents who had not father smoking.

The result shows that there was significant difference between mother smoking and smoking behaviour (p-value=0.015). 47.4% of the respondents has mother smoking were current smoker. There was very highly significant difference between family members' smoking and smoking behaviour (p-value=0.001). 44.1% of the surveyed respondents, who had family member smoking, smoked currently. There was very highly significant difference between smoke-free home and smoking

behaviour ( $p\text{-value}<0.001$ ). 53.7% of the respondents, who had no smoke-free home, were current smokers.

When close friend smoking was compared with smoking status, there was very highly significant difference between these two variables ( $p\text{-value}<0.001$ ). 53.5% of the respondents, who had close friend smokers, were current smokers. Among the respondents who had no close friend smokers, current smoker was lowest in no close friend smokers with 5.3%. The current smoker was highest in more than 13 close friend smokers with 72.4%.

There was very highly significant difference between friends urge to smoke cigarettes and smoking behaviour ( $p\text{-value}<0.001$ ). 56.5% of the respondents who was urged by friends to smoke cigarette, were current smokers. Friend offering cigarette was compared with smoking behaviour. There was very highly significant difference between friend offering cigarette and smoking behaviour ( $p\text{-value}<0.001$ ). Among the respondents who had friends offering cigarettes, current smoker was 59.8%.

The comparison of smoking when offering cigarettes with smoking behaviour shows that there was very highly significant difference between smoking when offering cigarettes and smoking behaviour ( $p\text{-value}<0.001$ ). All respondents who answered that smoking will be done when offering cigarette were current smokers. There was no significant difference between difficulty to refuse when giving cigarette and smoking behaviour ( $p\text{-value}=0.054$ ).

Regarding employer smoking, there was significant difference between employer smoking and smoking behaviour ( $p\text{-value}=0.005$ ). 44.5% of the respondents, who had employer smoking, were current smokers and 29% who had not

employer smoking were non-smokers. There was significant difference between smoke-free work place and smoking behaviour (p-value=0.009). Among the respondents without smoke-free work place, half of the respondents (50.8%) smoked currently.

Table 14: Relationship between reinforcing factors and smoking behaviour (n=347)

Reinforcing factor	Current Smoker		Non-smoker		$\chi^2$	P-value
	N	%	N	%		
<b>Father smokes cigarettes</b>					13.021	<0.001
Yes	86	43.40	112	56.60		
No	36	24.20	113	75.80		
<b>Mother smokes cigarettes</b>					5.976	0.015
Yes	37	47.40	41	52.60		
No	85	31.60	184	68.40		
<b>Family members smoke cigarettes</b>					11.794	0.001
Yes	78	44.10	99	55.90		
No	44	25.90	126	74.10		
<b>Designate smoke-free home</b>					27.362	<0.001
Yes	56	25.00	168	75.00		
No	66	53.70	57	46.30		
<b>Close friends smoke cigarettes</b>					81.197	<0.001
Yes	115	53.50	100	46.50		
No	7	5.30	125	94.70		
<b>Number of close friend smoker</b>					99.681	<0.001
1 – 4	31	36.90	53	63.10		
5 – 8	44	62.90	26	37.10		
9 -12	19	57.60	14	42.40		
≥13	21	72.40	8	27.60		
No close friend smoker	7	5.30	124	94.70		
<b>Friends urge to smoke cigarettes</b>					23.804	<0.001
Yes	52	56.50	40	43.50		
No	70	27.50	185	72.50		
<b>Friends offer cigarettes</b>					90.579	<0.001
Yes	104	59.80	70	40.20		
No	18	10.40	155	89.60		

Table 14: (Continued) Relationship between reinforcing factors and smoking behaviour (n=347)

Reinforcing factor	Current Smoker		Non-smoker		$\chi^2$	P-value * Fisher's Exact T
	N	%	N	%		
<b>Smoking when being offered cigarettes</b>						<0.001*
Yes	120	100.00	0	0.00		
No	2	0.90	225	99.10		
<b>Difficulty to refuse</b>					3.726	0.054
Yes	32	45.70	38	54.30		
No	90	32.50	187	67.50		
<b>Employer smoke cigarette</b>					8.047	0.005
Yes	61	44.50	76	55.50		
No and not know	61	29.00	149	71.00		
<b>Designate smoke-free work place</b>					6.868	0.009
Yes	92	31.90	196	68.10		
No	30	50.80	29	49.20		

#### 4.10 Relationship between accessibility of cigarette and smoking behaviour among current smokers (n=122)

Table 15 shows that the relationship between accessibility of cigarette and smoking behaviour among current smokers. The relationship between accessibility of cigarette and smoking behaviour was determined by Chi-square test and Mann-Whitney U test.

Accessibility of cigarette was very highly significant difference with monthly expenditure of cigarette among current smokers (p-value <0.001). Mean rank for daily smoker was 73.34 and for often and occasional smokers was 22.09. Median monthly expenditure of cigarette was 300 baht for daily smoker and 90 baht for often and occasional smokers. Daily smokers expand money for cigarettes more than often and occasional smokers. However, easy to get cigarette, availability of cigarette

nearby working and living place, ways of getting cigarettes, ways of buying cigarettes, place of buying cigarettes and type of cigarettes did not related with smoking status among current smokers.

Table 15: Relationship between accessibility of cigarette and smoking behaviour among current smokers (n=122)

Accessibility of cigarette	Daily smoker		Often and occasional smoker		X <sup>2</sup>	P-value
	N	%	N	%		
<b>Is it easy to get cigarettes?</b>					0.284	0.594**
Yes	78	78.00	22	22.00		
No	16	72.70	6	27.30		
<b>Are the cigarettes sold nearby your working place?</b>						0.558*
Yes	81	77.90	23	22.10		
No	13	72.20	5	27.80		
<b>Are the cigarettes sold nearby your living place?</b>						0.226*
Yes	92	78.00	26	22.00		
No	2	50.00	2	50.00		
<b>How do you get cigarettes?</b>						0.323*
I buy it from a shop	91	77.80	26	22.20		
My friends give it to me	3	60.00	2	40.00		
<b>How do you buy cigarette?</b>					0.193	0.661**
I buy per stick.	63	75.90	20	24.10		
Other* (Buy per pack, never bought it by myself, buy a packet of cigar powder)	31	79.50	8	20.50		
<b>Place of buying cigarettes</b>						0.197*
Groceries	90	78.30	25	21.70		
Other* (Mini-market, supermarket, I don't buy my own cigarette, buy convenient place	4	57.10	3	42.90		
<b>Type of cigarette</b>					1.14	0.286**
Imported cigarette	64	74.40	22	25.60		
Cheroot and hand-rolled cigarette (make it by myself)	30	83.30	6	16.70		

\* Fisher's Exact Test

\*\* Chi-square Test

Table 15: (Continued) Relationship between accessibility of cigarette and smoking behaviour among current smokers (n=122)

Variable	N	Median	Mean Rank	Mann-Whitney U test	P-value
<b>Monthly Expenditure for cigarettes (Baht)</b>				212.50	<0.001
Daily smoker	94	300	73.24		
Often smoker and Occasional smoker	28	90	22.09		

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## CHAPTER V

### DISCUSSION, CONCLUSION AND RECOMMENDATION

#### 5.1 Discussion

The main purpose of this research was to identify the prevalence of cigarette smoking and factors influencing cigarette smoking behaviour among adult Myanmar migrant workers in Mahachai Sub-district, Samut Sakhon Province, Thailand. The participants in this study were adult Myanmar migrant workers within the age of 18-59 years. This study was done with the expectation of that the information of this study can be used to provide interventions required towards behavioural change and to conduct prevention and control measures of smoking among Myanmar migrant workers in Thailand.

The overall prevalence of current smoking among adult Myanmar migrant workers was 35.2% with the prevalence among males was 59.2% and among females was 8%. It was noted that the cigarette smoking prevalence was increased among Myanmar migrant in Thailand as compared to Myanmar in which overall prevalence was 31.1% with the prevalence among males was 42.9% but smoking prevalence of female migrants was decreased as compared to Myanmar (21.9%) in 2001 (Kyaing, 2001). Male smoking prevalence among adult migrants was more than the male smoking prevalence rate in Thailand and Nepal (40 - 49%) but female smoking prevalence was nearly the same with female smoking prevalence in Thailand, Sri Lanka, India and Indonesia (< 10%) (Mackay, 2002). From this study, prevalence of smoking among adult Myanmar migrant workers was quite high.

In this study, gender and ethnicity was significant relationship with smoking behaviour. Although the rate of global male tobacco use decline slowly, female tobacco use is still increasing. Today, 250 million female worldwide are daily smokers. If this trend will continue, 20% of female population will be smokers by 2025 (WHO, 2007). In this study, the proportion of male smoking was 59.2% and female was 8%. Male smoking was more common than female. Generally, although smoking is considered as bad behaviours in Myanmar society, smoking among men is accepted as a normal behaviour for adult men. As for women, smoking is blemish. This is due to the social restriction on smoking. It withholds the female smoking. It was consistent with the study done in Myanmar (Naing, 1999) and among Latino youth (Patrica, 2007).

Ethnicity was relationship with smoking behaviour. 36.3% of Burma migrants and 40.2% of Mon migrant workers were current smokers. Mon migrant workers smoked more than the other ethnicity. In Myanmar, tobacco use has been accepted as a social norm for many decades. There is a long-practiced habit of providing cheroots or cigarettes to guests at wedding and donation ceremonies (Kyaing, 2003). This habit is more common in rural area than urban in Myanmar. Health information about smoking cannot access completely and rules and regulation about smoking has not enforced widely in rural. Most of Mon migrants came from rural areas compared with Burma. So smoking rate of Mon migrants was higher than other ethnic groups. It was consistent with the study done in England showed that smoking prevalence varies between ethnic groups (Erens et al., 2001).

As for Marital status, there was no significant relationship between marital status and smoking behaviour. But the percentage of current smoking was high in



single respondents. Single Myanmar migrants could use their money as they like and lived with friends. Married migrant workers lived with their wives who don't like the smoking of their husbands. In Myanmar culture, husbands had to give income to their wives so they could not use their money as they like. It was consistent with the previous study done in Mae Sot which showed that there was no significant difference between marital status and smoking status (The, 2006).

Previous study done in Delhi (Narayan, 1996) and in Estonia (Pärna, 2005) showed that no education had more chance to be smokers than high education. In this study, there was no statistically significant relationship between educational level and smoking status. But it was consistent with the study done among Myanmar migrants in Mae Sot showed that there was no relationship between educations and smoking (The, 2006).

In occupation, there was no significant relationship with smoking behaviour. The finding was consistent with the study done in Samut Sakhon (Howteerakul, 2005) and in Mae Sot (The, 2006). But it was not consistent with the study in China (Yang, 2008) and in Pakistan (Sajid, 2006) in which occupation of the subjects had a significant association with smoking behaviour.

Half of the respondents can speak basically and 31.4% can not speak Thai language. Only few percentages were fluent in Thai language. It was similar with the study done among Myanmar migrants in Phang Nga in which most of the respondents can communicate basically and only few percentages were fluent in Thai language (Soe, 2007). Cigarette smoking was 32.1% in respondents who cannot speak Thai language, 35.2% in respondents who can speak basically and 40.3% in respondents who were fluent in Thai language. It was observed that smoking did not show the

difference between groups of language skill. The study revealed that there was no significant relationship between Thai language skill and smoking behaviour.

Regarding the age, all the respondents were age group between 18-59 years old. The average age was 28.76 and the majority of the respondents were distributed in age group between 20-39 years (80.1%). But there was no statistically significant relationship between age and smoking behaviour. Mean rank of age among current smokers (183.36) was higher than that of non-smokers (168.93). The findings from the study in Taiwan (Wen et al., 2001) and Chinese rural male residents (Yang, 2008) found that smoking rate rose with age.

Most of the study showed that income was significant difference with smoking behaviour. In this study, mean rank of income among current smokers (178.95) was higher than that of non-smoker (171.32). Smoking rate found in the respondents whose income was 8,001 baht and greater than 8,001 baht per month (47.1%) was higher than those whose income was 4,000 baht and less than 4,000 baht per month (35.1%). But there was no statistically significant relationship between monthly household income and smoking behaviour. The findings of the study done in Myanmar (Kyaing, 2001) and in China (Yang, 2008) revealed that higher income groups were more likely to be smokers than lower income groups.

Regarding to the knowledge of the respondents, nearly half of the respondents (49%) had moderate knowledge, 34% had low knowledge and only 17% had high knowledge. The study done in Myanmar revealed that the knowledge of health hazards of smoking and smoking status was highly significant difference for ever smokers and current smokers (Kyaing, 2001). Another study done in Indonesia showed that medium and high knowledge regarding harmful effects of smoking was

inversely associated to current smoking (Martini, 2005). In this study, there was no significant relationship between knowledge and smoking status. Although most of the respondents (>90%) knew that cigarette smoking can cause respiratory disease, lung cancer and heart disease and cigarette smoking in public places is prohibited by Thai Law, they tended to smoke cigarettes due to loneliness, family problems and being persuaded by friends. From this study, we knew that only knowledge is not enough to change smoking behaviour and need community awareness and perception about hazards of smoking and tobacco control laws.

Regarding the attitude of the respondents, there was significant difference between attitude and smoking behaviour. Mean rank of attitude score (186.02) among non-smokers was higher than that of current smokers (151.83). The respondents who had high score about positive and negative statements of attitude questions seemed to be those non-smokers. The respondents who had low score about positive and negative statements of attitude questions seemed to be the smokers (Reference table-13). It was consistent with the study done in Indonesia (Djutaharta, 2003) and in Saudi Arabia (Saeed, 1996) which found that attitudes were significantly associated with smokers.

Many studies stated that there was significant relationship between parental smoking and smoking behaviour. The sentinel study of tobacco use in Myanmar revealed that the parental tobacco use was significantly associated with tobacco use (Kyaing, 2001). In this study, parental and family members such as sister, brother and other relatives who live together with the respondents smoking was significant relationship with smoking status. Most of the respondents had close friend smokers. The more close friend smokers the respondents had, the more chance for the

respondents to be smokers. Alternatively, the respondent who was a smoker may be more likely to choose other smokers as friends. This study revealed that having an employer who smoked cigarettes and having no smoke-free workplace was more likely to be smoking in respondents.

Previous study done in Indonesia (Martini, 2005) and in Thailand (Sreemareddy, 2007) stated that easy accessibility to cigarette was related to smoking behaviour. The study done in United States revealed that lower price of cigarette, higher availability of cigarette promotion and greater level of advertising were related with the smoking uptake (Slater et al., 2007). But in this study, there was no significant difference between accessibility of cigarette and smoking behaviour because only the accessibility of cigarette among current smokers was asked in this study. Most of the respondents, who get easy access to cigarettes and who had an availability to get cigarette due to being nearby working and living places, were daily smokers. Majority of the smokers bought cigarette by single roll from groceries which was more convenient to purchase. Daily smokers had more expenditure for cigarettes than often and occasional smokers.

From this study, we found that the average age of start smoking was 19 years and majority of the smoking respondents smoked 1-4 cigarettes per day (46.2%). Most of the respondents mentioned that they smoked cigarette due to persuasion by friends and other reasons such as addict from trying to smoke cigarette, getting more idea, like cigarette etc. They also answered that they felt tiredness and had coughing due to smoking. More than half of the respondents tried to quit smoking and most of them wanted to quit smoking because family members of the respondents don't like smoking and health care providers give advice about hazards of smoking.

Regarding the hypothesis test, (1) there was association between gender and ethnicity in socio-demographic characteristics and cigarette smoking behaviour. (2) In knowledge and attitude, there was association between attitude about cigarette smoking and cigarette smoking behaviour of adult Myanmar migrant workers. (3) There was association between monthly expenditure of cigarette in accessibility of cigarette and cigarette smoking behaviour of current smokers. (4) There was association between influence of family, peer and employer and cigarette smoking behaviour of adult Myanmar migrant workers.

## **5.2 Conclusion**

This research was a cross-sectional study to explore the prevalence of smoking and factors influencing the smoking behaviour among 347 adult Myanmar migrant workers in Mahachai Sub-district, Samut Sakhon Province, Thailand. Quantitative data were collected from the end of January to the end of February, 2009. General characteristics, knowledge and attitude about smoking, reinforcing factors and enabling factors in accordance to PRECEDE model were examined in order to find out the factors influencing on adult Myanmar migrant workers' smoking in Mahachai Sub-district.

This study stated that smoking was quite high among adults. Overall smoking prevalence were 35.2% with 59.2% of males and 8% of females. Although female smoking prevalence in world is increasing, smoking prevalence among female Myanmar migrants is low in this study. Regarding the predisposing factors, male smoking and Mon migrants' smoking were common. While 49.0% of the respondents possessed moderate knowledge about cigarette smoking and its harmful health

consequences, there was no relationship between knowledge and cigarette smoking behaviour. On the other hand, cigarette smoking behaviour associated with attitude on cigarette smoking. Improving knowledge will be less effective if there was no environmental support, community participation and policy support. To change the cigarette smoking behaviour, awareness-building is important to complete the linkage of knowledge, attitude and practice. Affective interventions are needed to control and reduce smoking prevalence in all population. Non-Government Organizations (NGOs), health authorities and staffs from Ministry of Public Health, authorities from Ministry of Interior, migrant health officers and volunteers and communities should collaborate with each other to implement that intervention in all population. In terms of reinforcing factors, there was a relationship between cigarettes smoking behaviour and acquainted people of the respondents such as peer, parent, family members and employers, as well as with a designation of smoke-free work place and living place. In fact, environmental characteristics i.e. family, peer group, role model of young and workplace, is important role to regulate the smoke-free workplace and home and to reduce the smoking prevalence of the respondents. For accessibility to cigarette market among current smokers as enabling factors, monthly expenditure on cigarette purchase had an association with cigarette smoking behaviour.

### **5.3 Recommendation**

#### **For Policy and Government Laws**

- The responsible persons should check regularly to the shops selling cigarettes to the minors (under 18 years old children).

- Awareness-building should be implemented for Myanmar migrant workers to change their behaviour and to complete the linkage of knowledge, attitude and practice (KAP).
- Information about Tobacco Control Laws should be provided to Myanmar migrant workers.
- For environmental support intervention, smoke-free workplace and living quarter should be implemented to reduce exposure to second-hand smoking.

#### **For Community**

- Health education and health promotion program related to smoking should be implemented for Myanmar migrant workers by the Ministry of Public Health of Thailand and other NGOs.
- Support from health personnel, community support groups and friends is needed to help the people who want to quit. More than half of the respondents desire to quit so the cessation program should be provided for them.
- The acquainted people, who high influence on smoking of the respondents, should be informed about smoking hazard and their being the source of smoking.

#### **For Further Research**

- Further study should be conducted to explore the accessibility of cigarette of both smoker and non-smoker.
- This study had limitation by time constraint. Qualitative study or in-depth interview should be conducted to get more reliable and meaningful results.

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**APPENDICES**

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## APPENDIX A

### Patient/Participant Information Sheet

Name of the project ภาษาไทยคือ ความชุกของการสูบบุหรี่และปัจจัยที่มีผลต่อพฤติกรรมการสูบบุหรี่ของแรงงานผู้อพยพชาวพม่าวัยทำงานที่เขตมหาชัย จังหวัดสมุทรสาคร ประเทศไทย (Thai)  
 or.....**Prevalence of cigarette smoking and factors influencing cigarette smoking behaviour among adult Myanmar migrant workers in Mahachai Sub-district, Samut Sakhon Province, Thailand** .....(English)  
 Name of principal investigator.... **Ms. Su Thanda Zaw**.....  
 Address... **Room-718, 521/3-4 Soi Sriyuthaya 2-4, Sriyuthaya Road, .....**  
**.....Prayatai District, Rajthavee, Bangkok 10400**.....  
 Office telephone...**02-218-8193**..... Home telephone.....  
 Mobile.....**084-699-7002**..... Email address...**szmoon3@gmail.com**

To the attention of all research participants:

You are one of the volunteers who are invited to take part in the research title  
**“Prevalence of cigarette smoking and factors influencing cigarette smoking behaviour among adult Myanmar migrant workers in Mahachai Sub-district, Samut Sakhon Province, Thailand”**

- (1) This research is about “how many adult Myanmar migrant workers in Samut Sakhon Province smoke cigarettes and what makes them continue their cigarette smoking?”
- (2) The research objectives are:
  - 2.1 To study the number of cigarette sticks consumed by adult Myanmar migrant workers in Samut Sakhon Province.
  - 2.2 To study what things make them still smoke their cigarettes.
- (3) The research subjects are male and female adult Myanmar migrant workers (aged 18-59 years) in Mahachai Sub-district, Samut Sakhon Province, Thailand, who can speak Burmese language fluently and are willing to participate in this research project (Study population and inclusion criteria). The total number of research subjects is 360.

There are 3 districts in Samut Sakhon province. Mahachai district (Muang Samut Sakhon) is collected purposively from these districts. Local Thai people always call Muang Samut Sakhon District in the name Mahachai. There are 18 sub districts in Muang district. Mahachai is one of the sub districts. In Mahachai, there are 32 communities. Communities will be selected randomly and all adult Myanmar migrant workers (age 18 to 59 years) in that communities have an equal chance to be selected. If the subject is not enough in one community, another commune will be selected until the subject numbers meet the required target.

The researcher will contact with the staff from Non Government Organization in Samut Sakhon. The assistance of volunteers who are working

in Non Government Organization will be gained to meet with Myanmar migrant workers. These research assistants, who live in Mahachai district, are voluntary health workers. They are Myanmar nationality and can speak Burmese language fluently. They will be trained how to collect data and interview for seven day.

The researcher/assistant researcher will administer face-to-face interview with the subjects by using questionnaire which was translated into Burmese Language. The migrants work in the morning and afternoon. So the researcher/assistant researcher will visit their accommodation in the evening and interview them who are met with inclusion criteria.

You are included in this research because you are one of the adult Myanmar migrant workers residing in Mahachai Sub-district. Once you accept the invitation to join the research project, you will be explained by the researcher/assistant researcher about the purpose of the study and the project through this sheet (Participant information sheet) which the subjects can keep one copy for themselves. In case they are not willing to participate in this study, they can deny at any time with no impact on them whatsoever. The name of the subjects will not be recorded and their given information will be kept confidentially. Upon your voluntary participation, you will be requested to sign on the informed consent form which one copy will be for you.

(4) You will be asked to fill-out the questionnaire which covers general information, cigarette smoking pattern, knowledge about cigarette smoking, attitudes on cigarette smoking, influence on cigarette smoking, and accessibility to cigarettes (Part 1 to the end). Your information will be kept confidential and the presentation of research result will be in an overall picture only. In some cases, after the interview, you may be asked for some more information by the researcher/assistant researcher.

(5) You will have no risks when take part in this project. The interview time will take about 20-30 minutes. There are 68 questions in my questionnaire. These questions can be answered within 20-30 minutes because this type of questions is multiple choice questions and it is easy to understand.

(6) Your participation in this research project is **voluntary** and you have the right to **refuse** this participation or to **withdraw** at any given time with no harm on your benefit.

(7) In case you have any inquiry or need further information, please contact the research at all time. Should the researcher have any additional information which may benefit or may harm regarding the research project, the researcher will inform you immediately so that the research subjects may review if they are still voluntary to take part in the research project. In this project, there is no harmful effect on the subjects. There is benefit for the subjects. Identification of the things making the migrant workers still smoke their cigarettes can be useful to conduct prevention and control measures of cigarette smoking among Myanmar migrant workers. When the subjects



participate in this project, they will get more information about the complications of cigarette smoking that they did not know before.

(8) Should you be treated not according to the patient/participation information sheet, you may make a complaint at of the Ethical Review Committee for Research Involving Human Research Subjects, Health Science Group, Chulalongkorn University, 4<sup>th</sup> floor, Institute Building 2, Soi Chulalongkorn 62, Payathai Road, Patumwan District, Bangkok 10330, telephone: 02-218-8147 facsimile 02-218-8147 or email address: [eccu@chula.ac.th](mailto:eccu@chula.ac.th)

(9) You do not need to pay for taking part in the research. There is no the payment for transportation, compensation for time wasted or souvenirs in this project.

(10) If the subjects do not have clear knowledge about the research project and answer the questions incorrectly, the researcher will explain thoroughly the questions by using layman term and give the correct answer sheet and some knowledge about cigarette smoking after interviewing.

(11) Total subjects are expected to be 360 adult Myanmar migrant workers in Mahachai District, Samut Sakhon Province, Thailand.

Thank you very much for your kind cooperation.

Principal investigator name.....Ms. Su Thanda Zaw.....

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## APPENDIX B

### Informed Consent Form

Name of research project ภาษาไทยคือ ความชุกของการสูบบุหรี่และปัจจัยที่มีผลต่อพฤติกรรม  
การสูบบุหรี่ของแรงงานผู้อพยพชาวพม่าวัยทำงานที่เขตมหาชัย จังหวัดสมุทรสาคร ประเทศไทย  
(Thai) or... **Prevalence of cigarette smoking and factors influencing  
cigarette smoking behaviour among adult Myanmar migrant workers in  
Mahachai Sub-district, Samut Sakhon Province, Thailand** .....(English)  
Number of the research subject.....**360**.....

I, who sign here below on this informed consent form, have been  
**clearly explained with satisfaction** from the researcher whose name  
is.....**Ms. Su Thanda Zaw**.....address....**Room-718,  
521/3-4 Soi Sriyuthaya 2-4, Sriyuthaya Road, Prayatai District,  
Rajthavee, Bangkok 10400**.....telephone...**084-699-7002**.....  
regarding the research objective (s) and steps in the research, including  
risk/danger and benefit which occur from this research project.

I take part in this research project with **willingness** and I have the **right**  
to withdraw from this research project at any time according to my will with  
no need to give reason. This withdrawal will not impact me by all means.

I have been certified that the researcher will treat me according to the  
patient/participant information sheet and my data will be **kept confidential**.

I am willing to take part in this research project under the above stated  
conditions as appear in the patient/participant information sheet.

I have received one copy of the patient/participant information sheet  
and this informed consent form already.

.....  
Place/date

.....  
Name of research subjects

.....  
Place/date

.....  
( )

.....  
Principal researcher

.....  
Place/date

.....  
( )

.....  
Witness

## APPENDIX C

### Questionnaire

**Questionnaire on “Prevalence of Cigarette Smoking and Factors Influencing Cigarette Smoking Behaviour among Adult Myanmar Migrant Workers in Mahachai Sub-district Samut Sakhon Province, Thailand”**

**By Ms Su Thanda Zaw**

**The College of Public Health Sciences, Chulalongkorn University, 2009.**

**No: -----**

**Interviewer: -----**

**Part 1: General information**

Instruction: The following questions are about your demographic information. Please mark X in the parenthesis ( ). Please also write down in the blank space where provided.

1. Your age \_\_\_\_\_ years \_\_\_\_\_ months.
2. What is your gender?  
 1. Male                       2. Female
3. What is your ethnicity?  
 1. Burma                       2. Mon  
 3. Karen                       4. Other (please specify) \_\_\_\_\_
4. What is your marital status?  
 1. Single     2. Married  
 3. Divorced    4. Widowed  
 5. Separated    6. Other (please specify) \_\_\_\_\_
5. What is your educational level?  
 1. Illiterate  
 2. Primary education (Grade 1 to 5)  
 3. Secondary education (Grade 6 to 9)  
 4. High school level (Grade 10 to 11)  
 5. Higher education (University)
6. What is your occupation?  
 1. Seafarer                       2. Seafood processing worker  
 3. Construction worker     4. General worker  
 5. Housemaid                       6. Other (please specify) \_\_\_\_\_
7. What is your monthly household income?  
       \_\_\_\_\_ Baht per month.

8. How long have you been staying in Thailand?  
 \_\_\_\_\_years \_\_\_\_\_months.
9. How is your Thai language skill?  
 1. cannot speak Thai language  
 2. can speak Thai language basically  
 3. can speak Thai language fluently but cannot read and write  
 4. fluently in Thai language

### Cigarette smoking Pattern

10. What is your cigarette smoking behaviour?  
 1. Daily smoker  
 2. Often smoker ( more than three times a week)  
 3. Occasional smoker ( one to three times a week)  
 4. Used to smoke formerly but now do not smoke at all.  
 5. Never smoke at all (please go to knowledge question)
11. How many cigarettes do you smoke per day during the day you smoke?  
 \_\_\_\_\_ sticks
12. When did you start smoking?  
 \_\_\_\_\_ year of age.
13. Why do you smoke? (can reply more than one item)  
 1. Loneliness                       2. Persuasion by friends  
 3. Family problem                       4. Parental smoking  
 5. Stress                                       6. Other (please specify) \_\_\_\_\_
14. What kind of health problem do you feel because of cigarette smoking?  
 1. Coughing                       2. Feeling of not getting enough air  
 3. Tiredness                       4. Premature wrinkles  
 5. Decrease sense of smell and taste  
 6. Other (please specify) \_\_\_\_\_
15. Have you ever tried to quit smoking?  
 1. Yes                                       2. No
16. If you have quit smoking or tried to quit smoking, why do you want to quit smoking? (can reply more than one item)  
 1. Family members don't like smoking  
 2. Save money  
 3. Difficulty to buy cigarettes  
 4. Advice from health care provider  
 5. Warning pictures on cigarette packages  
 6. Other (please specify) \_\_\_\_\_.

## Part 2: Knowledge about cigarette smoking

Instruction: The following questions are about your knowledge on cigarette smoking.

Please mark X in the column for the one best answer only.

True means the statement is correct.

False means the statement is not correct.

Please do your best to decide if the question is true or false. If you cannot decide, you may answer “Not know”.

No.	Statement	True	False	Not know
1.	Smoking cigarettes can cause respiratory disease.			
*2.	Cigarette smoking does not cause brown colored teeth.			
3.	Cigarette smoking can affect the people who live around the smoker.			
4.	People, who inhale the tobacco smoke that permeates any environment, can cause lung cancer.			
*5.	If someone smokes without inhaling, it can't affect on their body.			
6.	Cigarette smoking can cause lung cancer.			
7.	Cigarette smoking can cause larynx cancer.			
8.	Cigarette smoking can cause mouth cancer.			
9.	Cigarette smoking can cause bladder cancer.			
10.	Cigarette smoking can cause ischaemic heart disease.			
*11.	Cigarette smoking in pregnant woman can't affect on her pregnancy status.			
*12.	Cigarette smoking in pregnant woman doesn't cause disturbance on the physical and mental development of born child.			
13.	Cigarettes contain more than 4,000 toxic or carcinogenic substances.			
14.	Cigarettes contain tar and nicotine.			
15.	Nicotine in cigarettes can cause addiction.			
16.	Cigarette smoking in general public places is prohibited by Thai law.			
17.	Selling cigarettes to minors (under 18 years children) is banned by Thai law.			
*18.	Cigarettes can be advertised by Thai mass media.			

**Part 3: Attitudes on cigarette smoking.**

Instruction: The following questions are about your attitudes on cigarette smoking.

Please mark X in the column for the one best answer only.

*Agree* means you totally agree with the statement.

*Uncertain* means you are not sure with the statement.

*Disagree* means you absolutely disagree with the statement.

No.	Statement	Agree	Uncertain	Disagree
*1.	Smoking related diseases can be easily cured.			
2.	Cigarette smoking is bad habit.			
3.	Cigarette smoking is dangerous not only to smokers, but also to the persons near the smokers.			
*4.	Smoking-attributable diseases won't appear if smoker does exercise regularly.			
*5.	Cigarette smoking can relieve stress and anxiety.			
6.	Children should not smoke cigarettes.			
*7.	Cigarette smoking makes one easier in socialization.			
*8.	Cigarette smoking makes one's work more smoothly.			
9.	One should prohibit others from cigarette smoking			
10.	Parents should prohibit the cigarette smoking of their children.			
*11.	Cigarette smoking can increase one's concentration.			
*12.	In your opinion, the person who smokes cigarettes is more attractive than others.			
*13.	There is no benefit when quit cigarette smoking.			
*14.	Any smokers can have their smoking cessation with no obstacle.			
*15.	Smoking a few cigarettes won't damage one's health.			

**Part 4: Influences on your cigarette smoking**

Instruction: The following questions are about influences on your cigarette smoking.

Please mark X in the parenthesis.

17. Does your father smoke cigarettes?  
 1. Yes       2. No
18. Does your mother smoke cigarettes?  
 1. Yes       2. No
19. Do your other family members smoke cigarettes?  
 1. Yes       2. No
20. Does your family designate your home as smoke-free home?  
 1. Yes       2. No
21. Do your close friends smoke cigarettes?  
 1. Yes       2. No  
If yes, specify the number of smoker \_\_\_\_\_
22. Do your friends urge you to smoke cigarettes?  
 1. Yes       2. No
23. Have your friend ever offered you a cigarette?  
 1. Yes       2. No
24. Will you smoke when your friend offers you a cigarette?  
 1. Yes       2. No
25. Is it difficult for you to refuse to smoke when your friend offers you a cigarette?  
 1. Yes       2. No
26. Does your employer smoke cigarettes?  
 1. Yes       2. No
27. Do you have smoke-free work place?  
 1. Yes       2. No

**(The ones who do not smoke finish here and thank you)**

### Part 5: Accessibility to cigarettes

Instruction: The following questions are about accessibility to cigarettes. Please mark X in the parenthesis.

28. Is it easy to get your cigarettes if you want to?  
 1. Yes             2. No
29. Are the cigarettes sold nearby your working place?  
 1. Yes             2. No
30. Are there cigarettes sold near your living place?  
 1. Yes             2. No
31. When you smoke, how do you get your cigarettes usually?  
 1. I buy them from a shop             2. My friends give it to me  
 3. I get it from family members             4. I ask someone to buy them  
 5. Other (please specify) \_\_\_\_\_
32. How do you buy your cigarettes?  
 1. I buy in a pack             2. I buy per stick  
 3. I buy in a carton             4. I have never bought it by myself.  
 5. Other (please specify) \_\_\_\_\_
33. How much money do you spend for cigarettes per month?  
 1. I have never bought any cigarettes of my own.  
 2. \_\_\_\_\_ Baht per month.
34. Where do you buy cigarettes? (Describe your usual place)  
 1. Minimarts             2. Supermarket  
 3. Groceries             4. Other (please specify) \_\_\_\_\_  
 5. I don't buy my own cigarettes.
35. Which type of cigarettes do you smoke usually?  
 1. Cigarette from Myanmar (cheroots)  
 2. Hand-rolled cigarette (Make it by myself)  
 3. Imported cigarette

**Thank you very much for taking part in this time research.**



## APPENDIX D

### Budget

No	Activities	Unit	Price (baht)	Unit (number)	Total budget (baht)
1	Pre-testing				
	Photocopy	Quest.	6	6x30	180
2	Data collection				
	Photocopy Quest.	Quest.	6	6x370	2,220
	Interviewers per diem	person	200/day	4prx14days	11,200
	Accommodation	person	500/day	500x14days	7,000
	Transportation cost	Trip/day	200/day	200x14days	2,800
	Data collection process			subtotal	23,400
3	Document printing				
	Paper + printing	Page	5/page	800 pages	4,000
	Photocopy (exam + final submit)	Page	0.5/page	12x400	2,400
	Stationary	Set	400/set	1	400
	Binding Paper (exam)	Set	150/set	6	900
	Binding Paper (submit)	Set	200/set	6	1,200
	Thesis document process			subtotal	8,900
				Grand total	32,300

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## APPENDIX E

### Time Schedule

Project procedure	Time frame (month)									
	Aug-08	Sep-08	Oct-08	Nov-08	Dec-08	Jan-09	Feb-09	Mar-09	Apr-09	May-09
1.Literature review										
2. Writing thesis proposal										
3. Submission for proposal exam										
4. Proposal exam										
5.Ethical consideration from Chulalongkorn University (CPHS)										
6.Pretest questionnaires										
7. Field preparation and data collection										
8. Data analysis										
9. Thesis and article writing										
10. Final thesis exam										
11. Submission of article for publication									(one week before the exam date)	
12. Submission of thesis										(before 10 May 09)

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