SELF-EFFICACY, PERSONALITY AND SMOKING BEHAVIOR AMONG MALE OUTPATIENTS AT PAHOLPOLPAYUHASENA GENERAL HOSPITAL, KANCHANABURI, THAILAND

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ABSTRACT

A cross sectional analytical study was conducted at Paholpolpayuhasena general hospital, Kanchanaburi province to describe smoking behavior and determine the association between self-efficacy, personality types, socio-demographic factors and smoking behavior comprising non-smoker, former smoker, and current smoker among 252 male outpatients. Data were collected through face-to-face interview, using constructed questionnaires. Wilcoxon Sum Rank test was used to ascertain the difference in the degree of Extroversion as well as Introversion among smokers and non-smokers. Chi square test was employed to analyze factors associated with smoking behavior. Multiple logistic regression was further employed to identify factors influencing the acquisition of a particular smoking behavior. The study revealed that the prevalence of smoking among male outpatients was 30.95%. Self-efficacy was found to be significantly associated with smoking behavior. Socio-demographic factors, including patients' age, educational achievement, marital status, occupation, and monthly income were also found to be significantly associated with smoking behavior. The degree of Extroversion and Introversion was not significantly different between a group of smokers and non-smokers. However, Model I from multiple logistic regression analysis indicated that respondents working as laborers were nearly 2.3 times more likely than those who were not to become smokers. Although personality was not a significant determinant, the trend in personality was observable in that those whose personality score was increased 1 unit were 1.013 times more likely to become smokers. Model II indicated that respondents whose self-efficacy towards quitting cigarette smoking was increased 1 unit were 1.391 times more likely to change their smoking behavior from current smokers to ex-smokers. With every 1-unit increase in age, there was a corresponding 1.037-fold increase in the likelihood that their smoking behavior would be converted from smokers to ex-smokers. Respondents who had no or low level of education were 0.259 times less likely to be able to quit smoking. Hence, self-efficacy and personality should be focused in the formulation of anti-smoking interventions at the smoking cessation clinic.

KEY WORDS: SELF-EFFICACY / PERSONALITY / SMOKING BEHAVIOR

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LIST OF ABBREVIATIONS

WHO :	World Health Organization
SEAR :	South East Asia Region
ENT :	Ear Nose Throat
CDC :	Center for Disease Control
MOPH :	Ministry of Public Health
COHB :	Carboryhemoglobin
NIDDM :	Non Insulin Dependent Diabetes Mellitus
AIDS :	Acquired immune deficiency syndrome
TTM :	Transtheoretical Model
ARAS :	Ascending reticular activating system
VB :	Visceral Brain
EPQ-R :	Eysenck's personality questionnaire-Revised
EPQ-L :	Eysenck's personality questionnaire-Lie scale
EPQ-P :	Eysenck's personality questionnaire-Psychoticism
OPD :	Outpatient Department
COPD :	Chronic Obstructive Pulmonary Disorder

CHAPTER 1
INTRODUCTION

1.1 Rationale and justification

1.1.1 Global situation of cigarette smoking:

The world has expressed an unprecedented concern towards the steadily escalating pandemic of cigarette smoking, as it is the single, leading cause of preventable morbidity and mortality worldwide. Approximately, five million deaths each year (the death of one in ten adults) in the world are attributed to cigarette smoking. Globally, there are 650 million smokers, half of whom will eventually develop diseases and die. With the consistent rise of smoking, it is projected that ten million people will be departed, or disabled as a result of smoking-related diseases in 2020(1).

The recent rise in the smoking trend has shifted from the developed world to the developing countries. As a result, the heaviest disease burden due to cigarettes smoking will be in developing countries where 70% of the expected 10 million global deaths would occur. About fifteen billion cigarettes are sold daily or ten million every minute. In other words, tobacco consumption is rising by 3.4% per year; one in three cigarettes are consumed in the developing countries (2).

A huge negative impact of cigarette smoking not only involves tobacco-related morbidity and mortality, but also encompasses the loss in natural resources , the decline in environment, economy, and the change in socio-demographic patterns. All these factors are closely interrelated and will adversely affect the general health of the people, ultimately contributing to the steady increase in both non-communicable and communicable diseases (2).

According to World Health Organization report, the direct annual cost of treating diseases caused by tobacco use in Egypt is estimated at US $ 545.5 million. In China, one study from the mid-1990s estimated the direct and indirect health costs of amoking at US $ 6.5 billion per year. About 5% of all deforestation in developing countries where tobacco is grown was due to tobacco cultivation, leading to environmental degradation, as evident by more than1400 square kilometers of indigenous woodlands in South Africa disappear annually to supply fuel wood for tobacco curing (3).

1.1.2 Harmful substances and Tobacco –related diseases

A General surgeons Report 1979, concluded that smokers have a 70% higher chance of dying than non-smokers, and that the mortality rate were 1.7 times higher in the former group. This ratio would certainly increase according to the number of years a smoker smokes (4).

Cigarette smoke is composed of a large number of different substances that affect many parts of the body. Cigarette “tar” – a short name for the condensed solid particles in smoke – contains about 4,000 known chemicals, including poisons, and 50 cancer-causing substances. Many have been linked to disease. Some of the chemicals and poisonous gases in cigarette smoke are: arsenic, acetone (used in paint stripper and nail polish remover), ammonia, carbon monoxide, cyanide, mercury, nicotine, lead. Heart and circulatory disease, lung and other cancers, emphysema and chronic bronchitis have been linked with a number of these substances (5).

Smoking-related diseases are responsible for as much as 90% of all cases of lung cancer, 75% of chronic bronchitis, emphysema and 25% of heart disease in men under 65 years, as well as for a number of other types of cancer, pregnancy complications and more frequent respiratory ailments in children from smoking families. Smoking –related diseases account for 7% of all deaths in Chile and Ecuador, and 24% in Venezuela, 30% in Cuba, 10% in France, 17% in Canada, 15-20% in the United Kingdom and up to 35% among White South-Africans. Smoking is also strongly linked with diabetes mellitus, osteoporosis, and psoriasis (6,7)

1.1.3 Regional and national prevalence of smoking

Studies across all the regions in the world show that it is the poor and the poorest who tend to smoke the most in both developed and developing countries, and who bear most of the disease burden. Currently, there are an estimated 1.3 billion smokers worldwide, 84% of whom live in developing and transitional economy countries (3). In developed countries, 35% of men and 22% of women smoke, while in developing countries, 50% of men and 9% of women are smokers. Women in developing countries are clearly potential markets for the tobacco industry. A recent increase in female smoking prevalence has been reported in Cambodia, Malaysia, and Bangladesh (3).

The 11 countries – Bangladesh, Bhutan, Democratic People's Republic of Korea, India, Indonesia, Maldives, Myanmar, Nepal, Sri Lanka, Thailand and Timor – comprising the WHO South-East Asia Region (SEAR) are inhabited by 1.536 billion people (in 2000) comprising about 25.35% of the world population of the least. In regard to tobacco consumption, SEAR has some unique problems. The people in the region are used to both smoke and smokeless tobacco consumption. Smokeless tobacco or the so-called "spit tobacco" includes two forms of tobacco: **1) snuff** which is a fine-grain tobacco that often comes in teabag-like pouches that users "pinch" or "dip" between their lower lip and gum; **2) chewing tobacco** which comes in shredded, twisted, or "bricked" tobacco leaves that users put between their cheek and gum. Four countries of the region – India, Indonesia, Bangladesh and Thailand – are among the top 20 tobacco-producing countries in the world (2).

Tobacco prevalence in most countries of the Region has increased in the past decade. In Bangladesh, the overall prevalence increased from 37% to 41%. In Indonesia, it increased from 28.6% in 1990, to 31.9% in 1998. In India, it increased from 19.5% in 1993-94, to 20.5% in 1998-99, and the latter is argued to be under-reported. In Sri Lanka and Thailand, although slight decline in the prevalence of tobacco use has been noticed, the prevalence is still high. Unfortunately, most increases in tobacco prevalence are accounted for by an increasing number of women tobacco consumers (8).

According to the National Statistical office, Office of the Prime minister of Thailand, males smoke more than females. In 1986, the percentage of male smokers was 57.6, compared to 4.8% females. Both male and female smoking has declined over the years and by 1999, the proportion of male smokers was 44.1% compared to 2.6% of females. But the gap between male and female has widened in the last 10 years. In 1986, the percentage of male smokers was 12 times that of female smokers. This was increased to 18.2 times in 1996 and 17 times in 1999. Data are summarized in Table 1 (6).

Table 1 Estimated smoking prevalence trends by sex in population aged 15 or more and males' intensity of smoking compared to females, 1986-1999

	Smoking prevalence(%)			
Year	**Both sexes**	**males**	**females**	**males' intensity compared to females**
1986	30.9	57.6	4.8	12.0
1991	29.8	56.0	4.4	12.7
1996	25.5	49.2	2.7	18.2
1999	22.9	44.1	2.6	17.0

Source: National Statistical Office of Thailand, Office of the Prime minister

According to statistical data from the Ministry of Public Health, Department of Health regarding the prevalence of smoking among people aged above 11 years old in 76 provinces in Thailand, it was found that the smoking prevalence in Kanchanaburi province was estimated at 20%. This figure is among the provinces with high smoking prevalence, 20%-30%, with the highest smoking prevalence (30%) found in Tak province (9).

1.1.4 The significance of self-efficacy and personality on smoking behavior

It has been firmly established in several studies that the interrelation between biological and psychological factors has exerted its influences on smoking behavior (10, 11, 13). Elaborated by the social learning theory's perspectives, smoking is difficult to modify because of its ability to provide immediate reinforcement. Nicotine from an inhaled cigarette reaches the brain in seven seconds (twice as fast as intravenous administration from the arm). Furthermore, the habit is tremendously overlearned: at ten puffs per cigarette, the pack-a-day smoker gets more than 70,000 nicotine "shots" in a year—a frequency which is unmatched by any other form of drug taking (10). While most smokers recognize that sustained smoking can lead to a variety of unpleasant disorders, ranging from bronchitis to lung cancer, the substantially far-reaching aversive impacts of smoking are however delayed. Therefore, these insidious effects of smoking are perceived by smokers to have less influence over ongoing smoking behavior than the influence of other risk behaviors with immediate negative consequences (11).

This implies that the underlying determinants playing the roles in the initiation and continuation of cigarette smoking are unlikely to be influenced by simplistic variable such as knowledge regarding cigarette's adverse effect of cigarettes, or even the availability of cigarettes but rather are attributed the underlying psychological factors. It has been postulated that these psychological factors exert their exceedingly prominent control over other such auxiliary factors as knowledge and availability of cigarettes. This complex process consequently engenders the acquisition and continuation of a particular smoking behavior. These psychological factors encompass self-efficacy and personality.

A recent study conducted by the Institute for Population and social research , Mahidol university, has pointed out that despite the fact that most smokers are well cognizant of the adverse consequences of cigarette smoking and that the accessibility and availability of cigarettes are occasionally difficult to attain, smoking habit still unabatedly persist among smokers (12).

This conclusion corroborates the above-mentioned assumption that the psychological factors are underlying and most plausible determinants of smoking behavior. Furthermore, various studies have provided evidence that smoking is related to socio-cultural and psychological factors, such as age, education, financial status, social stressors, anxiety or mood disorders, misuse of other substances and personality types (Extroversion, psychoticism, neuroticism) as well (13, 14, 15, 33).

The foregoing premise has also been robustly substantiated by Bandura's social cognitive theory (1997). It suggested a multifaceted causal structure guiding regulation of action. Self-efficacy, one's perception of the ability to successfully perform a given behavior, is a key component of the theory, influencing choice of action and motivation to persist in an activity. Resistance self-efficacy is one's perception of the ability to successfully resist engaging in an activity. According to Bandura (1982, 1997), low resistance self-efficacy predicts substance use and abuse, including cigarette smoking. People who feel vulnerable to social and stressful stimuli are likely to take up cigarette smoking habit (10).

It has been suggested by previous studies that personality differences could be important in the initiation and cessation of smoking (14, 15). There is evidence in the literature of relationships between personality dimensions such as Extroversion, Psychoticism and smoking status as suggested by Eysenck's theory of personality (34, 35).

Nevertheless, there is an important limitation in the existing studies. They have been conducted mainly in occidental countries in which the types and even the extent of each personality trait are different from those in the oriental countries due to divergent social and cultural context (14). Moreover, the previous studies regarding self-efficacy and smoking behavior focus mainly on the role of self-efficacy on the initiation and cessation of cigarette smoking. Rarely has there been a study directed at ascertaining the influence of self-efficacy on the maintenance or continuation of cigarette smoking.

Therefore, it is highly justifiable for this study to be conducted to address the not-thoroughly-answered questions derived from the previous studies.

1.1.5 The rationale for selecting the male outpatients as target population

Male population is the group of greatest concern in terms of magnitude of the smoking prevalence, since studies from virtually all sources unanimously conclude that the average number of male smokers is 12-20 times that of the female Counterparts (6). A Baseline survey regarding smoking behavior among residents in Thamuang district, Kanchanaburi province, an area under direct responsibility of the hospital in which this research was conducted, revealed that the proportion of male smokers was completely different from that of the female smokers: 95.2% and 4.8% respectively (12). Hence, the priority must inevitably be given to male population.

The nature of Asian society in which males are family's breadwinners, and assume reverence as well as respect from the rest of the family has played a great role in the way of life the family should adopt. The patriarchal society especially in Asian countries has made males a perfect target population for this study due to the fact that they will serve as a good role model for the rest of the family, specifically for the new generations to follow the ideology of not getting involved with smoking if suitable and effective anti-smoking campaign is generated and properly instituted to modify the behavior of the male smokers who are the leader of the family.

With regard to outpatients as a target population, evidently they are already at risk for diseases because of the underlying causes they possess. To make matters worse, the risk for any disease or the severity of the manifested diseases will be dramatically increased in dose –dependent manner if they are found to be smokers. Hence, it is imperative to cut down on such preventable risk factor as smoking to benefit the prognosis or progress of the diseases.

The general hospital in which this study was conducted is the largest one with highest medical capability in Kanchanaburi province. Therefore, the resultant anti-smoking plan or interventions from thorough research will contribute significantly

and comprehensively to a wide range of patients and their relatives, given the fact that there are approximately 1000 outpatients per day. Furthermore, the appropriate anti-smoking programs to be launched at this hospital will complement with the already established anti-smoking clinic to serve the general people, patients, and provide the ingenuity to other hospitals in the lower tier in the region.

1.2 Scope of the study

The study was conducted on male outpatients at Paholpolpayuhasena general hospital in Kanchanaburi province. There were seven different examination rooms in the Out patient department, namely Orthopedic, medical, surgery, ENT (Ear , Nose, Throat), ophthalmologic, psychiatric, and dental examination rooms. The scope of this study was aimed at delineating the maintenance stage of smoking to ascertain the relationship between self-efficacy, personality types (Extroversion, Introversion) and smoking behavior as illustrated by the following diagram.

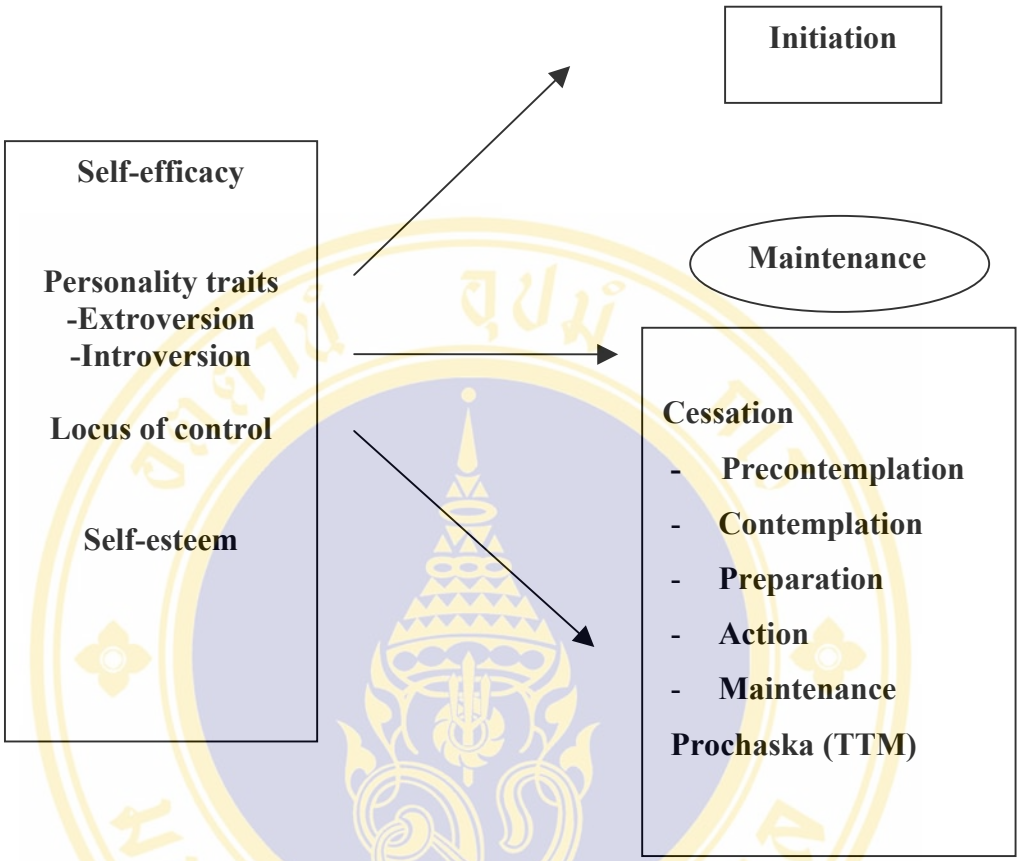


Figure 1 Psychological factors and several stages of smoking

Several psychological factors have been elucidated by various studies that they influence or even predict the smoking behavior throughout all the three stages of smoking behavior: Initiation, Maintenance, and Cessation (10, 11, 15, 16).

1.3 Limitation of study

The study population consists of only male study subjects from the hospital. The hospital-based study is bound to have selection bias, making the generalization to the general, larger population difficult.

1.4 Research questions

1. What is the smoking behavior among male outpatients at Paholpolpayuhasena hospital?

2. Is there a relationship between self-efficacy and smoking behavior at maintenance stage among male outpatients at Paholpolpayuhasena hospital?

3. Is there a relationship between Personality types (Extroversion, Introversion) and smoking behavior among male outpatients at Paholpolpayuhasena hospital?

4. Is there a relationship between socio-demographic characteristics and smoking behavior among male outpatients at Paholpolpayuhasena hospital?

1.5 General objectives

1. To describe smoking behavior among male outpatients at Paholpolpayuhasena hospital

2. To study the relationship between self-efficacy, personality types (Extroversion and Introversion), socio-demographic factors and smoking behavior comprising non-smoker, former smoker, and current smoker among male outpatients at Paholpolpayuhasena hospital.

1.6 Specific objectives

1. To describe smoking behavior among male outpatients at Paholpolpayuhasena hospital

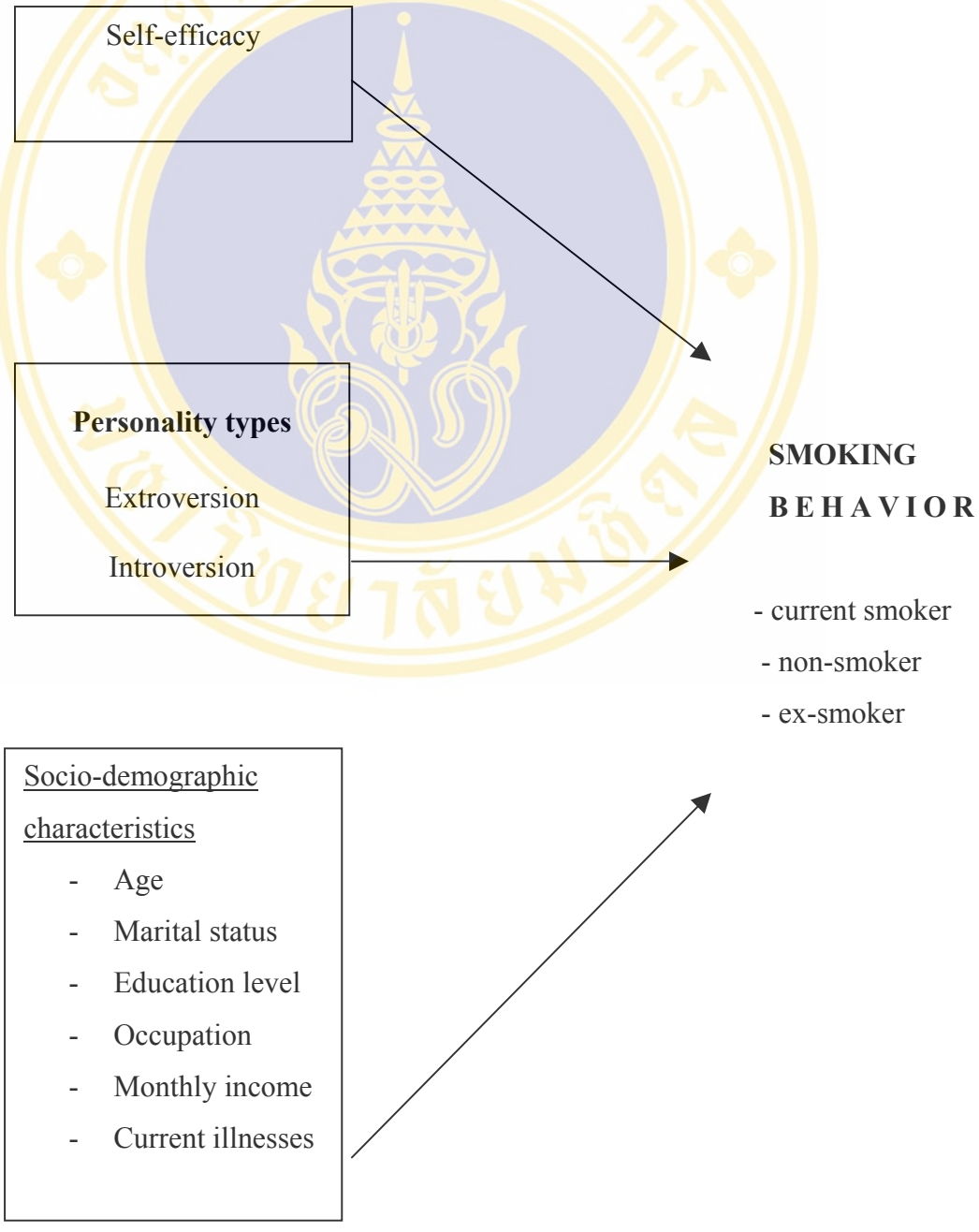
2. To determine the relationship between self-efficacy and smoking behavior among male outpatients at Paholpolpayuhasena hospital

3. To ascertain the relationship between personality types (Extroversion and Introversion) and smoking behavior among male outpatients at Paholpolpayuhasena hospital

4. To determine the relationship between socio-demographic factors and smoking behavior

5. To identify factors influencing the acquisition of a particular smoking behavior among male outpatients at Paholpolpayuhasena hospital

1.7 Conceptual framework



1.8 Variables and Operational definition

1.8.1 Outcome variable(s):

1. Smoking behavior: referred to three different groups of patients categorized according to their smoking behavior:

1.1 Smoker category included:

1.1.1 Current smokers: were patients who at present smoke regularly or occasionally regardless of the number of cigarette they smoke per day or per month

1.1.2 Ex-smokers were those patients who had previously smoked, but decided to quit smoking, and had completely stopped smoking.

1.2 Non-smokers were patients who had never smoked before in their entire life

1.8.2 Independent variables

1. Socio-demographic factors included:

1.1 Age of patients must be equal to or above 18 years old

1.2 Monthly income referred to monthly income earned from all sources and by both the patients and their spouses if they were married.

1.3 Education level referred to the level of educational achievement or the highest level of education that the respondents attained. It was classified into 8 categories:

- No education
- Primary school
- Secondary school
- High school
- Vocational school
- Diploma
- Bachelor's degree and above
- Others

1.4 Occupation referred to occupations that were the main source of respondents' income or the major occupations with which respondents spent most of the time. It was categorized into various classes as follows

- Government and state enterprise officials
- Laborer and wager
- Unemployed
- Office worker
- Others

1.5 Current illnesses referred to type of diseases that prompted patients to use services at the hospital. It was categorized into 3 classes.

- Related symptoms: were the symptoms of diseases the prognosis of which was directly affected by cigarette smoking, for instance productive cough.

- Related diseases: were diseases the prognosis of which was directly affected by cigarette smoking such as Chronic obstructive pulmonary disorder (COPD).

- Unrelated symptoms and diseases: were symptoms or diseases the prognosis of which was not directly affected by cigarette smoking such as Musculo-skeletal disorders.

2. Self-efficacy:

It referred to patients' beliefs about their capabilities to produce designated levels of performance in cigarette smoking cessation, which exercised influence over the change in smoking behavior, affecting their lives. Self-efficacy beliefs determined how people feel, think, motivate themselves and behave. In this study, it specifically focused on the patients' beliefs about their capability, or confidence in the pursuit of quitting smoking. Self-efficacy was measured by self-efficacy scales in constructed questionnaires based on Bandura's social cognitive theory.

3. Personality types:

It referred to the complex of biological and psychological attributes that characterized individual adaptive and decision –making behavior in the tendency of the acquisition of a particular smoking behavior: non-smokers, ex-smokers, current

smokers. Personality types in this study were categorized into two types: Extroversion and Introversion as based on Eysenck's personality theory. The typical extravert craved excitement, was willing to take risks, was sociable, liked parties, was carefree and easygoing, and may be aggressive. On the other hand, the introvert was introspective, retiring, bookish, prudent, emotionally controlled, passive, and reliable. The Extroversion-introversion dimension was composed of varying degrees of four major traits: sociability, liveliness, impulsiveness, and jocularity. Eysenck's personality inventory was employed to identify the type of patients' personality.

1.9 Research Hypotheses

1. There is an association between Self-efficacy and smoking behavior among male outpatients at Paholpolpayuhasena hospital
2. There is an association between Personality types (Extroversion and Introversion) and smoking behavior among male outpatients at Paholpolpayuhasena hospital
3. There is an association between Socio-demographic characteristics comprising age, age at initiation of smoking, marital status, monthly income, occupation, education level, current diseases, and smoking behavior among male outpatients at Paholpolpayuhasena hospital

1.10 Implications and expected outcomes from the study

The results from this study will be utilized in the process of formulating the effective anti-smoking interventions customized to patients with different types of illnesses as well as the general public in the region. With the advent of technology and newly established smoking-cessation clinic at Paholpolpayuhasena general hospital, Kanchanburi province, the results from this study will serve as an indispensable background information to generate network of smokers and ex-smokers in order to ascertain the underlying causes of smoking in other aspects of life that involve psychological factors. For deeper understanding of these factors, it warrants in-depth research to solve the problems, obstacles, and challenges the patients and general

public in the region have now faced. The essential merits obtained from the study's findings are the new insight regarding the significant roles of psychological factors, namely personality and self-efficacy, on the acquisition of smoking behavior. These psychological factors, which exert their prominent influence over other such distal factors as knowledge about health hazards of smoking, or the availability of cigarettes, will serve as a basis for the development of proper approaches for smoking cessation. The approaches and interventions to be implemented at the smoking cessation clinic will not only encompass reinforcing the core knowledge about hazards of smoking, but they will be mainly geared towards enhancing the deeper understandings of smoking behavior by taking into consideration the substantial impact of psychological factors. Eventually, the anti-smoking or smoking cessation interventions can be adapted as a guideline in patients' counseling due to the fact that resultant factors studied would allow physicians or other health personnel to be able to pinpoint and appreciate the depth of the problems of each patient. Hence, the implications of this study are expected to complement the hospital's already established anti-smoking or smoking cessation program, positively contributing to the betterment of health among the patients and general people in the region.

CHAPTER 2
LITERATURE REVIEW

2.1 Tobacco smoking: A global pandemic

2.1.1 Global situation

In the developed world, tobacco use has generally followed a four-stage model. This model is instructive in terms of current and future patterns in the developing world, and is critical to considerations of tobacco control and poverty. While not all countries follow this model exactly (e.g. female smoking in China and some other developing countries is not at the rates that would be predicted), it provides a good indication of likely trends.

In stage 1 of the tobacco epidemic, smoking prevalence is low (below 20%), but increasing, and there is little evidence of lung cancer and other diseases caused by long-term smoking. This characterizes many ,but not all of the countries in sub-Saharan Africa, where poverty is endemic. In stage 2, smoking prevalence rises to about 50 % of males; there is an increase in female smoking, earlier initiation of youth into smoking, and increased morbidity and mortality attributable to tobacco. Much of Asia, Latin America, and North Africa are at this stage. In stage 3,male smoking prevalence peaks at about 60 %. And then decreases, and female smoking decreases more slowly. During stage 3,the burden of disease attributable to smoking rises because of the delayed effect of smoking on chronic illnesses such as heart disease and lung cancer. Smoking accounts for between 10% and 30% of deaths (about 75%. of these in men) in stage 3. Much of Eastern and Southern Europe and parts of Latin America are at this stage. In stage 4,smoking prevalence continues to fall, and smoking deaths peak in men at about 30 –55%, and in women at about 20 –25%. .Most Western industrialized nations are in stage 4 of the tobacco epidemic. The four-stage model of the tobacco epidemic explains the process of smoking uptake and decline in developed countries (17).

Tobacco is highly addictive. Almost 1.3 billion people currently smoke worldwide, the majority of whom are in countries with medium levels of human development, where the tobacco epidemic is pervasive, having moved through the developed world. The tobacco epidemic is now poised to afflict poorer developing countries with low levels of human development. Tobacco kills one in two long-term users, 4.9 million such deaths occurring each year. Tobacco is responsible for more deaths worldwide than any other risk factor except high blood pressure. While total consumption of cigarettes remained stable in the developed world between 1970 and 2000,it trebled in the developing world. Over the next 25 years, total cigarette consumption will rise by 60% in countries with medium levels of human development and by 100% in countries with low levels of human development. This latter group of nations will by then consume more tobacco than either medium or high human development countries.

One hundred million deaths were attributed to tobacco during the 20th century, mostly in developed countries. Given current patterns of consumption, one billion deaths due to tobacco are expected this century, but now mostly in developing countries. Half of these deaths will be among those in middle-age (35 –69 years old),with harmful effects on national economies(17).

Tobacco is the second leading cause of death in developed and low mortality developing countries, and sixth in high mortality developing countries. Tobacco also accounts for a large portion of the disease burden in developing countries, and is currently ranked fourth in the world in its contribution to years of life lost. As poverty has fallen and economies have grown, the major transnational tobacco companies have expanded their influence into the developing world. Over time, they have moved into South America, Asia, Eastern Europe and Africa. Trade liberalization has placed additional pressure on the developing world. Studies in more than 80 countries show that trade liberalization increases tobacco consumption, especially in low and middle income countries. (2)

According the World Health Organization (WHO) estimate on the global premature mortality caused by cigarette smoking in the year 2000, it reveals the total death toll of 4.2 million people, 1.8 million of whom are men in the developing nations, and 1.6 of whom are men from the developed nations, totaling 3.4 million of premature mortality of men world wide. In contrast, the premature mortality among women worldwide is 0.8 million, 0.3 million are among women are in the developing countries, and 0.5 of whom are found in the developed countries. It is also projected that in the year 2025 to 2050, the annual deaths due to cigarette smoking in the developing world, 7 million deaths, would be dramatically exceeded those in the developed countries(3 million), the gap is more than two fold as illustrated in figure 1 (18).

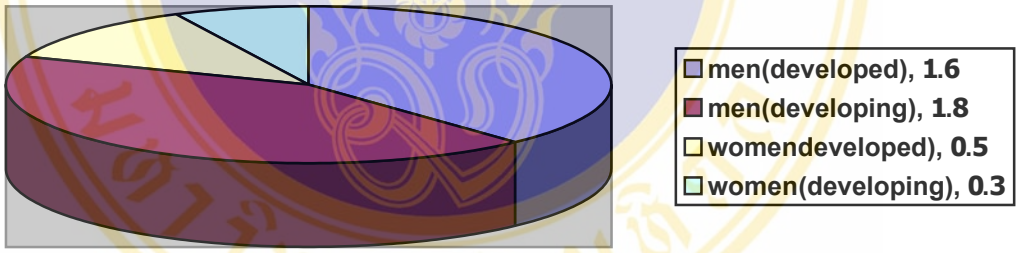


Figure 1 Shows the premature deaths(in million) estimates among men and women in developed and developing countries.

Evidence gathered from the statistical information obtained from WHO and CDC Web-sites suggests, that if smoking trends continue and is not found a quick and effective remedy, then the whole world must realize that more deaths will occur as a result of smoking. To further complicate the situation, the economical stability of the many countries that will be affected, due to the loss of people who are in the work force component of the population pyramid. Social and family peace will be lost, as many wives and children will be left without a leader in the family, so the worst consequences would be the breaking up of the family unit (19).

Table 2 Global smoking prevalence in developed countries

Rank	Country(year survey)	Men(%)	Women(%)
10	Japan (1994)	59.0	14.8
77	United Kingdom(1994)	28.0	26.0
78	United States(1993)	27.7	22.5
85	New Zealand(1992)	24.0	22.0

Source : WHO estimates, 1994

The prevalence of smoking in developed countries indicates that there is still more smoking among the male population compared to females. And of the estimated 47% male and 12% female global smokers, in developed countries, the corresponding figures are 42% for males and 24% for females (20).

In developing world, available data suggest that about 48% of men and 7% of women smoke and the vast majority of smokers are in the developing countries (800 million) and most of these are men (700 million) (20).

Table 3 Global smoking prevalence in developing countries

Rank	Country(year survey)	Men(%)	Women(%)
1	Republic of Korea (1989)	68.2	6.7
7	China(1984)	61.0	7.0
78	Bangladesh(1990)	60.0	15.0
85	Thailand(1995)	49.0	4.0

Source : WHO estimates, 1992

Because of the fact that developing countries rank higher in the global prevalence of cigarette smoking consumption as reported by WHO estimates, more and more consorted efforts through national collaboration under the guidance and

support of international authorities must be directed towards enforcing tobacco control programs and laws in these countries. Especially, when resources are scarce, socio-economic stability in most developing countries weak, and educational levels more or less low compared to the developed world (20).

2.1.2 Situation in Thailand

In a study that was conducted in Thailand by the Ministry of Public Health, the findings showed a reducing trend of smoking between 1988 to 1991, and the little surge between 1988 to 1991. Therefore, it raised the issue of smoking and its related diseases, as still being quite a threat and a good reason for concern, for the people of Thailand (21)

Table 4 Smoking prevalence by age group in Thailand, Percent (1981-1991)

Age group	1986	1988	1991
15-19	12.4	9.9	12.2
20-24	28.2	25.1	38.3
25-29	34.5	30.6	32.9
30-34	35.6	32.6	33.7
35-39	38.2	34.5	34.5
40-49	40.0	36.9	36.3
50-59	41.6	38.0	35.9
60and above	35.4	31.1	31.2
TOTAL	26.4	25.0	26.3

Source : (1) The survey of smoking Behavior, 1991

(2) The population projection of the national board of economics and social development

Table 5 Trend of smoking prevalence among Thai aged 15 and above Percent (1981 – 1991)

	1981	1986	1988	1991
Male	63.3	58.1	53.2	55.5
Female	5.4	4.8	3.9	4.3
Overall Crude	34.4	31.3	28.4	29.7
Age adjusted	35.2	32.0	28.7	29.7

Source: 1) Health welfare survey 1981, 1986, 1991
2) The survey of smoking behavior, 1998

Table 5 shows that the prevalence of smoking among Thai males aged 15 and above is several times that of Thai females counterparts, warranting the urgent need for in-depth studies to address the long –standing problems in both genders with emphasis on males. Although Thailand is one of the few developing countries that has successfully adopted and implemented comprehensive tobacco control strategies and programs which lead to the satisfactory results in reducing the prevalence of smoking among the general population, more research regarding smoking behavior is required to tackle these problems.

2.1.3 Tobacco use among population sub-groups

Comparatively, smoking prevalence among the population aged 11 and over is less in the urban areas (15.2%) than in the rural areas (22%). In general, those with higher levels of education smoke less than those with lower education. Smokers living in rural areas are switching over from hand-rolled to manufactured cigarettes, and smokers of non-filter cigarettes are turning to filtered ones. Middle and high-income groups as well as youth and women mostly consume imported cigarettes.

A 1987 survey by the Ministry of Public Health (MOPH) found that 40.6% male and 3% female employees smoked. In 1989, 17.1% MOPH doctors and dentists smoked an average of 12.6 cigarettes daily, as did 11.4% of other health workers. A 1992 survey of first and final year medial students revealed that only 1% males

smoked daily. None of the females were daily smokers, while 13% males and 4% females were ex-smokers (21).

2.2 Health hazards of cigarette smoking

The diseases that have been closely linked to cigarette smoking are well documented in many literatures, yet cigarette smokers are more compelled to continue smoking. And, despite the vast knowledge on these different causes of smoking-related diseases, cigarette smoking continues to rise at an alarmingly steady pace.

2.3 What in tobacco causes diseases

Cigarette smoke is composed of a large number of different substances that affect many parts of the body. Cigarette "tar" – a short name for the condensed solid particles in smoke – contains about 4,000 known chemicals, including poisons, and 50 cancer-causing substances. Many have been linked to disease. Some of the chemicals and poisonous gases in cigarette smoke are: arsenic, acetone (used in paint stripper and nail polish remover), ammonia, carbon monoxide, cyanide, mercury, nicotine, lead. Heart and circulatory disease, lung and other cancers, emphysema and chronic bronchitis have been linked with a number of these substances (5).

2.4 How cigarettes are harmful

The moment the smoke from cigarettes touches the lips, it begins to attack living cells. It continues to do so wherever it goes: mouth, tongue, throat, esophagus, air passages, lungs, stomach. The cigarette's breakdown products eventually reach the: bladder, pancreas, kidneys, breast, colon, cervix.

2.4.1 Nicotine

Nicotine (found naturally in tobacco plants) is a powerful stimulant to the brain and central nervous system. It is extremely addictive. When inhaling cigarette smoke:

- The smoker gets an immediate, concentrated dose of nicotine in the bloodstream.
- Nicotine hits the brain within 10 seconds – faster than mainlining heroin.
- Nicotine causes blood pressure to rise and increases heart rate.
- Nicotine may also have a depressant effect.

The first daily dose of nicotine stimulates the large bowel while curbing appetite and slowing digestion. It lowers skin temperature and reduces blood circulation in the legs and arms. This makes the heart work harder. Nicotine is very poisonous if consumed in large amounts and may cause nausea in new smokers or any smoker who gets too much of it (22). Sixty milligrams of nicotine taken at one time will kill the average adult human being by paralysing breathing. The reason it doesn't kill smokers quickly is that it is taken in tiny doses, which are quickly metabolized and excreted by the body.

2.4.2 Carbon monoxide in cigarette smoke

Carbon monoxide in smoke replaces the oxygen in red blood cells. This forms a chemical called carboxyhemoglobin (COHb). When people smoke, nicotine causes the heart to work harder while the carboxyhemoglobin takes away the oxygen which the heart then needs more to work properly. Carbon monoxide also promotes cholesterol deposits in arteries (5, 23).

Every 6.5 seconds someone dies from tobacco use, says the World Health Organization. Research suggests that people who start smoking in their teens (as more than 70 percent do) and continue for two decades or more will die 20 to 25 years earlier than those who never light up.

a) Smoking is a known or probable cause of death from cancers of the : oral cavity, larynx, lung, esophagus, bladder, pancreas, renal pelvis, stomach, and cervix

b) Smoking is also a cause of heart disease, stroke, peripheral vascular disease, chronic obstructive lung disease, and low birth weight babies.

c) Smoking is a probable cause of peptic ulcer disease, unsuccessful pregnancies, increased infant mortality (including sudden infant death syndrome (5,24, 25).

It is firmly established that smoking is also related with the weakening of the immune system, leaving the body more vulnerable to diseases such as lupus erythematosus, which can cause hair loss, ulceration in the mouth and rashes on the face, scalp and hands. Smoking is believed to cause or worsen several eye conditions. Smokers have a 40 percent higher rate of cataracts, a clouding of the eye's lens that blocks light and may lead to blindness. Smoking is also associated with age-related macular degeneration, an incurable eye disease caused by the deterioration of the central portion of the retina, known as the macula. Smoking does increase the chances of dying from it. Smokers have a two-fold increased risk of contracting cutaneus squamous cell cancer – a cancer that leaves scaly, red eruptions on the skin. Carbon monoxide, the main poisonous gas in car exhaust fumes and cigarette smoke, binds to blood much more readily than oxygen, cutting the oxygen-carrying power of heavy smokers' blood by as much as 15 percent. As a result, smokers' bones lose density, fracture more easily and take up to 80 percent longer to heal (5,24).

Smoking is one of the biggest risk factors for developing cardiovascular diseases. These diseases kill more than a million people a year in developing countries. Smoking-related cardiovascular diseases kill more than 600 000 people each year in developed countries. Smoking makes the heart beat faster, raises blood pressure and increases the risk of hypertension and clogged arteries and eventually causes heart attacks and strokes. A study examining the effect of smoking on diabetes reveals that smoking 25 or more cigarettes per day is directly associated with the development of Type 2 Diabetes Mellitus (NIDDM) (26, 27).

Cigarettes kill half of all lifetime users. Half die in middle age –between 35 and 69 years old. No other consumer product is as dangerous, or kills as many people. Tobacco kills more than AIDS, legal drugs, illegal drugs, road accidents, murder, and suicide combined. Tobacco already kills more men in developing countries than in

industrialized countries, and it is likely that deaths among women will soon be the same. While 0.1 billion people died from tobacco use in the 20th century, ten times as many will die in the 21st century. Maternal smoking during pregnancy is responsible for many fetal deaths and is also a major cause of Sudden Infant Death Syndrome. Passive smoking in the home, workplace, or in public places also kills, although in lower numbers. However, those killed do not die from their own habit, but from someone else's. Children are at particular risk from adults smoking, and even smoking by other adults around a pregnant woman has a harmful effect on a foetus (18).

2.5 Stages of smoking behavior

The stages of smoking behavior can be broadly categorized into 3 stages: initiation, maintenance, and cessation (28).

1. Initiation stage

Smoking uptake usually occurs during adolescence, while the vast majority of smoking-related deaths occur in middle-aged and elderly people. The longer the onset of smoking is delayed, the less likely a person is to become addicted (29). Young people who smoke may acquire the habit and become addicted before reaching adulthood, making them less able to quit smoking and more likely to have a tobacco-related health problem. Smoking experimentation remains a consistent characteristic of adolescence and as a young person moves through this period the likelihood of smoking increases. At the smoking initiation stage, several risk factors tended to be generically applicable to the various sex and age cohorts that have been studied. One set of risk factors for smoking initiation relates to the involvement by adolescents in other health risk behaviors (eg, alcohol, illicit drugs and having had sex), and the breaking up of a family unit. A relationship has also been identified between lower self-esteem and physical self-perception and smoking initiation in youth. Additionally, adult and scholastic competence, locus of control, socialization, susceptibility to peer influence, and risk-taking are also factors associated with the initiation of smoking behavior. In moving from experimentation to regular smoking,

the most important risk factor is having friends who smoked. Low socio-economic status in childhood also increases the risk for progression to regular smoking and is associated with a reduced likelihood of smoking cessation (29).

2. Maintenance stage

In most cases, experimental smokers progress towards regular daily use because they have now been addicted to nicotine contained in cigarette. They are therefore entering the stage of Maintenance, which usually lasts for many years (28). There are two most prominent factors associated with the establishment of smoking habit at this stage, namely psychological and social factors.

2.1 Psychological factors

Personality type of Extroversion has been shown to be positively associated with smoking according to Eysenck's research on Extroversion-introversion (11). Internal-external controls have also been ascertained to have an influence on the acquisition of a particular smoking behavior. Internally-controlled individuals tend to believe that they are the masters of what happens to them; their effort and skills (intrinsic properties) will bring them rewards. Externally-controlled individuals tend to believe that fate, luck, or, in general, things beyond their control will bring them their rewards. Four out of five analyses showed smokers to be more externally controlled (11).

2.2 Social factors

Many of the social factors that are involved in the establishment of smoking are important for the maintenance of the habit. The adult smoker is likely to have many smoking friends (28). Probably the most important family structure influence on the maintenance of cigarette smoking derives from the smoking habits of spouses or cohabitants (11). The increasing militancy of nonsmokers and the increasing restriction on public opportunities to smoke (29) may be acting to tighten the ranks of cigarette smokers, making the support of a group of smoking friends all the more important to the maintenance of the habit. Smokers at this maintenance stage have been determined to share a common false notion or illusion towards smoking. The

illusion that quitting is easy or the illusion that cigarettes are not dependence-producing helps the smoker to maintain the habit in the early years. Indeed, if one believes that cigarettes' damaging effects to health occur only after a long history of smoking and if, at the same time, one believes that he will be only a short-term smoker, the health consequences of smoking are, in effect, tabled as a reason for not smoking. One factor proposed by Green (29) is called a "rationalization factor". Some smokers do feel that there is room for doubt concerning the link between smoking and health. Such beliefs do at least give "rational" support to the maintenance of smoking. In other words, smokers at this stage are weighing the pros and cons of cigarette smoking. If they perceive that the benefits accrued from cigarette smoking outweigh the risks incurred by it, it is very likely that their smoking habit will perpetuate. Some benefits gained from cigarette smoking reported by smokers include the Pleasurable Relaxation, Tension Reduction, Stimulation and Craving factors were the most important reasons overall. If smoking can be used to relax or to stimulate the smoker (29), it may genuinely contribute to successful performance in a variety of settings, as perceived by smokers.

Furthermore, social class or socio-economic status has also been found to associate with smoking behavior at this stage. White-collar workers (professional, technical) have the lowest smoking rates; blue-collar workers (laborers, craftsmen) have the highest smoking rates.

3. Cessation stage

Subsequently, some smokers who perceive that the disadvantages of cigarette smoking outweigh its benefits will become ambivalent smokers, and later on progress into the cessation process. There are five stages in this cessation stage, as explained by Transtheoretical model (TTM) proposed by Prochaska (30). Those five stages are:

1. Precontemplation: some individuals are smoking and not intending to quit smoking in the next 6 months.

2. Contemplation: individuals are currently smoking, but are considering quitting in the next 6 months

3. Preparation: individuals are smoking, but are planning to quit smoking in the next 30 days

4. Action: individuals have actually quit smoking and been abstinent for less than 6 months

5. Maintenance: individuals have quit smoking and been abstinent for more than 6 months after initial quitting

These stages have been shown to have predictable relationships with self-efficacy, and decision balance.

The concept of self-efficacy is a component of Bandura's social learning theory, defined as one's perceived confidence in the ability to carry out a specific behavior (Bandura,1997).Within the TTM self-efficacy is operationalized as self-confidence to resist temptations. In the previous studies self-confidence to resist smoking temptations has tended to be low among precontemplators and much higher as the smoker acts and maintain abstinence (30)

The decision balance construct is based on the conflict model of decision making (Janis and Mann,1977),and focuses on the importance of perceived positive (pros)and negative (cons)outcomes of a behavior change. It is assumed that an individual will not change her/his behavior unless he/she perceives the positives of change to outweigh the negatives. The previous studies have clearly shown that the decision balance construct could be substantially related to the stage of change in studying the pattern of cognitive and motivational shifts across the stages in the resolution of smoking behavior (29, 30).

In some cases, because of withdrawal symptoms, cessation is followed by a relapse, and smokers progress further, often several times, into the cessation cycle through the stages of ambivalence and readiness to stop before finally succeeding with the cessation and become persistent ex-smokers (29 , 30).

As personality regarding Extroversion , Introversion and self-efficacy have been clearly shown to have an impact on individuals' acquisition of a particular type of smoking behavior, it is imperative that the theories, the Bandura's Social cognitive theory and Hans Eysenck's Biological Trait Theory on which self-efficacy and personality are based respectively be elaborated as follows.

2.6 The Bandura's Social cognitive Theory

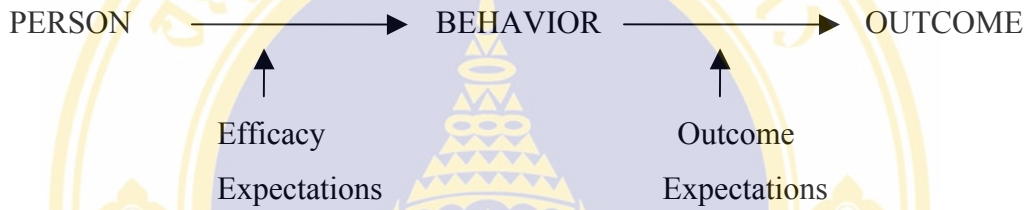
Perceived self-efficacy is defined as people's beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives. Self-efficacy beliefs determine how people feel, think, motivate themselves and behave. A strong sense of efficacy enhances human accomplishment and personal well-being in many ways. People with high assurance in their capabilities approach difficult tasks as challenges to be mastered rather than as threats to be avoided. They were confident that any task could be carried out successfully with their own ability. Such an efficacious outlook fosters intrinsic interest and deep engrossment in activities. They set themselves challenging goals and maintain strong commitment to them. They were self-sufficient, decisive, and persistent towards achieving goals. They heighten and sustain their efforts in the face of failure. They quickly recover their sense of efficacy after failures or setbacks. They attribute failure to insufficient effort or deficient knowledge and skills which are acquirable. They approach threatening situations with assurance that they can exercise control over them. Such an efficacious outlook produces personal accomplishments, reduces stress and lowers vulnerability to depression (31).

In contrast, people who doubt their capabilities shy away from difficult tasks which they view as personal threats. They have low aspirations and weak commitment to the goals they choose to pursue. They were hesitant and not decisive towards the goals. When faced with difficult tasks, they dwell on their personal deficiencies, on the obstacles they will encounter, and all kinds of adverse outcomes rather than concentrate on how to perform successfully. They slacken their efforts and give up quickly in the face of difficulties. They are slow to recover their sense of

efficacy following failure or setbacks. Because they view insufficient performance as deficient aptitude, it does not require much failure for them to lose faith in their capabilities. They fall easy victim to stress and depression (31).

2.6.1 The Theoretical framework

Bandura outlines the role of self-efficacy in the paradigm of a person engaging in a behavior that will have a consequent outcome.



According to this paradigm, behavior change and maintenance are a function of (1) expectations about the outcomes that will result from one's engaging in a behavior; and (2) expectations about one's ability to engage in or execute the behavior. Thus, "outcome expectations" consist of beliefs about whether a given behavior will lead to given outcomes, whereas "efficacy expectations consist of beliefs about how capable one is of performing the behavior that leads to those outcomes. It should be emphasized that both outcome and efficacy expectations reflect a person's beliefs about capabilities and behavior- outcome links. Thus, it is this perception, and not necessarily "true" capabilities, that influences behavior. In addition, it is important to understand that the concept of self-efficacy relates to beliefs about capabilities of performing specific behaviors in particular situations. Self-efficacy does not refer to a personality characteristic or a global trait that operates independently of contextual factors.

This means that an individual's efficacy expectations will vary greatly depending on the particular task and context which confronts him or her. It is therefore inappropriate to characterize a person as having "high" or "low" self-efficacy without reference to the specific behavior and circumstance with which the

efficacy judgement is associated. Bandura argues that perceived self-efficacy influences all aspects of behavior, including the acquisition of new behaviors (e.g., a sexually-active young adult learning how to use a particular contraceptive device), inhibition of existing behaviors (e.g., decreasing or stopping cigarette smoking), and disinhibition of behaviors (e.g., resuming sexual activity after a myocardial infarction). Self-efficacy also affects people's choices of behavioral settings, the amount of effort they will expend on a task, and the length of time they will persist in the face of obstacles.

Finally, self-efficacy affects people's emotional reactions, such as anxiety and distress, and thought patterns. Thus, individual with low self-efficacy about a particular task may ruminate about their personal deficiencies rather than thinking about accomplishing or attending to the task at hand; this, in turn, impedes successful performance of the task.(32)

According to Bandura, efficacy expectations vary along dimensions of magnitude, strength, and generality. Each of these dimensions has important implications for performance, and each implies slightly measurement procedures. "Magnitude" refers to the ordering of tasks by difficulty level. Persons having low magnitude expectations feel capable of performing only the simpler of a graded series of tasks, while those with high magnitude expectations feel capable of performing even the most difficult tasks in the series. "Strength" refers to a probabilistic judgement of how certain one is of one's ability to perform a specific task. A two-step measurement procedure assures that, where appropriate both dimensions will be tapped. First, individuals are presented with a list of performance activities, reflecting various difficulty levels and are asked to designate those tasks they believe they can accomplish at that time. Then, for each designated task, they rate the strength of their belief on a 10 unit interval scale ranging from 10-100.

The third dimensions, "generality" concerns the extent to which efficacy expectations about a particular situation or experience generalize to other situations. For example, the beliefs of post myocardial infarction patients about their endurance

capabilities generated during supervised exercise testing may or may not generalize to unsupervised exercising at home (31,32)

2.6.2 Sources of Self-Efficacy

People's beliefs about their efficacy can be developed by four main sources of influence. The most effective way of creating a strong and potent sense of efficacy is through **mastery experiences or performance accomplishments**. Successes build a robust belief in one's personal efficacy. Failures undermine it, especially if failures occur before a sense of efficacy is firmly established. If people experience only easy successes, they come to expect quick results and are easily discouraged by failure. A resilient sense of efficacy requires experience in overcoming obstacles through perseverant effort. Some setbacks and difficulties in human pursuits serve a useful purpose in teaching that success usually requires sustained effort. After people become convinced they have what it takes to succeed, they persevere in the face of adversity and quickly rebound from setbacks. By sticking it out through tough times, they emerge stronger from adversity (31). Successive mastery over tasks required to engage in a behavior helps the person to develop and refine skills. In addition, it fosters development of a repertoire of coping mechanisms to deal with problems encountered (32).

The second way of creating and strengthening self-beliefs of efficacy is through the **vicarious experiences** provided by social models. Seeing people similar to oneself succeed by sustained effort raises observers' beliefs that they too possess the capabilities to master comparable activities to succeed. By the same token, observing others' fail despite high effort lowers observers' judgments of their own efficacy and undermines their efforts. The impact of modeling on perceived self-efficacy is strongly influenced by perceived similarity to the models. The greater the assumed similarity the more persuasive are the models' successes and failures. If people see the models as very different from themselves, their perceived self-efficacy is not much influenced by the models' behavior and the results they produces. Modeling influences do more than provide a social standard against which to judge one's own capabilities. People seek proficient models who possess the competencies

to which they aspire. Through their behavior and expressed ways of thinking, competent models transmit knowledge and teach observers effective skills and strategies for managing environmental demands. Acquisition of better means raises perceived self-efficacy (31). For example, a woman who hopes to quit smoking but observes a friend's difficulty in abstaining from cigarettes may come to believe that she herself will never be able to quit. On the other hand, observing a model master situations which have been feared or seen as difficult can enhance one's own expectations of mastery (32).

Social persuasion is a third way of strengthening people's beliefs that they have what it takes to succeed. People who are persuaded verbally that they possess the capabilities to master given activities are likely to mobilize greater effort and sustain it than if they harbor self-doubts and dwell on personal deficiencies when problems arise. To the extent that persuasive boosts in perceived self-efficacy lead people to try hard enough to succeed, they promote development of skills and a sense of personal efficacy. It is more difficult to instill high beliefs of personal efficacy by social persuasion alone than to undermine it. Unrealistic boosts in efficacy are quickly disconfirmed by disappointing results of one's efforts. But people who have been persuaded that they lack capabilities tend to avoid challenging activities that cultivate potentialities and give up quickly in the face of difficulties. By constricting activities and undermining motivation, disbelief in one's capabilities creates its own behavioral validation.

Successful efficacy builders do more than convey positive appraisals. In addition to raising people's beliefs in their capabilities, they structure situations for them in ways that bring success and avoid placing people in situations prematurely where they are likely to fail often. They measure success in terms of self-improvement rather than by triumphs over others (31,32).

People also rely partly on their **somatic and emotional states** in judging their capabilities. They interpret their stress reactions and tension as signs of vulnerability to poor performance. In activities involving strength and stamina, people judge or

even mistakenly interpret their fatigue, aches and pains as signs of physical debility. Mood also affects people's judgments of their personal efficacy. Positive mood enhances perceived self-efficacy; despondent mood diminishes it. For example, people who experience sweaty palms, a racing heartbeat, and trembling knees prior to giving a talk find that their self-efficacy plummets (32). It is not the sheer intensity of emotional and physical reactions that is important but rather how they are perceived and interpreted. People who have a high sense of efficacy are likely to view their state of affective arousal as an energizing facilitator of performance, whereas those who are beset by self- doubts regard their arousal as a debilitator. Physiological indicators of efficacy play an especially influential role in health functioning and in athletic and other physical activities.The fourth way of modifying self-beliefs of efficacy is to reduce people's stress reactions and alter their negative emotional proclivities and misinterpretations of their physical states (31,32).

In the context of this study, **Self-efficacy** is specifically defined as patients' beliefs about their capability, or confidence in the pursuit of refraining from smoking at the maintenance stage of smoking.

A study conducted by Mavra E. Kear in 2002 in which Bandura's theory of social learning, and Ajzen's theory of planned behavior are utilized to ascertain whether self efficacy is a determinant of smoking habit initiation revealed that smokers have a much lower measure of resistance self-efficacy as compared to that of smokers. That is, a smoker is much less likely than a non-smoker to perceive himself as capable of successfully resisting cigarette offers or the urge to smoke across varied situations or both, the behavior at the initiation stage of smoking (10).

A study conducted in March 2005 by Young-Ho Kim (15) in which TTM (Transtheoretical model by Prochaska and Diclemente, 1983) is employed to categorize smokers into 4 stages: Precontemplation, contemplation, Preparation, and Maintenance shows that smokers in Precontemplation stage(those who do not intend to quit smoking) have the lowest self efficacy to resist temptations or avoid smoking as compared to those in other stages (15).

2.7 Hans Eysenck's Biological Trait Theory

Eyesenck proposes that the study of personality has two interlocking dimensions. The first dimension is termed the description of temperament model, which is descriptive or taxonomic, and it focuses on establishing the units to be used in summarizing the ways in which individuals differ. The second dimension is named "causal model " which recognizes the critical role played by learning and environmental forces. In addition, it also emphasizes the need to take the effect of a given situation into account, since the effect of the given situation varies among different individuals. And the determining causal role played by biological factors must also be recognized in terms of the causal chain in which a biological substrate is responsible for individual differences on fundamental dimensions of personality. Behavior results from a person's position on these dimensions, combined with the circumstances to which he or she is exposed. That is, behavior typically reflects an interaction of a person tendencies and environmental factors. Thus, the focus on biological dimensions of personality and environment can be termed "biosocial approach" in that the characteristic functioning of the central nervous system predisposes individuals to respond in certain ways to their environment (33).

2.7.1 The description of temperament model

The model makes a distinction between the concept of "trait and type". A "trait" refers to a set of related behaviors that covary or repeatedly occur together such as a person with a trait of sociability goes to parties, talks with friends, likes to spend time with other people and so on. A "type" is a higher order or superordinate construct composed of a set of correlated traits. An extravert, for example, is sociable assertive, and venturesome. Both concepts refer to continuous dimensions, in contrast to the tendency to think of a type as an either-or set of category. The distinction is that the type is more general and inclusive. Eysenck's model includes three basic typological dimensions: introversion versus Extroversion, neuroticism versus stability, and psychoticism versus impulse control (33).

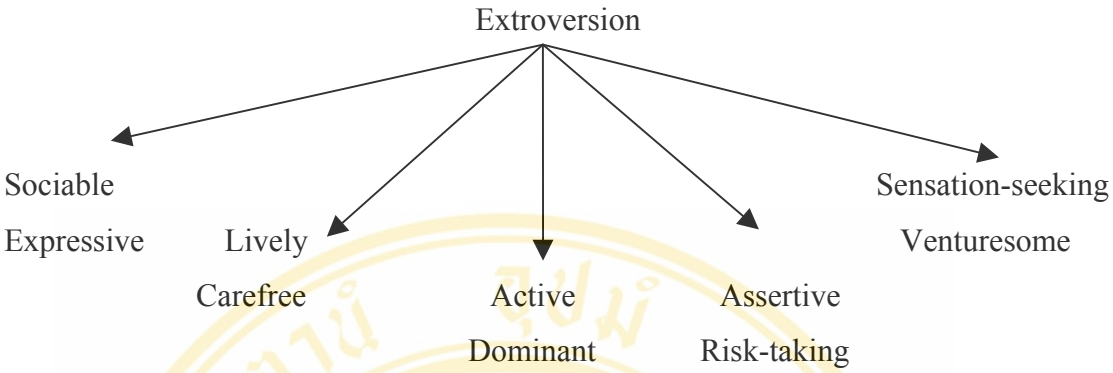


Figure 2 Illustrates Traits making up the Type of Extroversion (H.J.Eysenck, 1985)

According to Eysenck's typological approach to the temperament components of personality structure, the model is placed in historical perspective by describing how the two major personalities types: Extroversion and neuroticism can be traced back through history to temperament systems described in terms of four humors by the Greek writers Hippocrates and Galen. The classical theory of humors was first described by Hippocrates that there were four humors comprising blood, phlegm, black bile, and yellow bile, in human body. The humores in turn were reflections of four cosmic elements: earth, water, air, and fire. Hippocrates proposed that the way in which these humors were combined determined an individual's health and character. Blood, for example, was associated with wet and hot, and black bile was associated with cold and dry.

Additionally, each of the humors was associated with various correspondences and particular physical and mental characteristics, and could, moreover, be combined for more complex personality types: (e.g. choleric-sanguine, etc). The result is a system that provides a quite elaborate classification of types of personality. Galen expanded the model, arguing that an excess of any humor was responsible for an individual's distinctive emotional qualities: "The Sanguine person, always full of enthusiasm, was said to owe this temperament to the strength of blood; the sadness of the melancholic was supposed to be due to the overfunctioning of black bile; the

irritability of the choleric was attributed to the predominance of the yellow bile in the body; and the phlegmatic person's apparent slowness and apathy were traced to the influence of the phlegm" (33,34). It was therefore postulated that each of the humors gave off vapors, which ascended to the brain; an individual's personal characteristics (physical, mental, moral) were explained by his or her "temperament," or the state of that person's humors. The perfect temperament resulted when no one of these humors dominated. By 1600 it was common to use humor as a means of classifying characters (34).

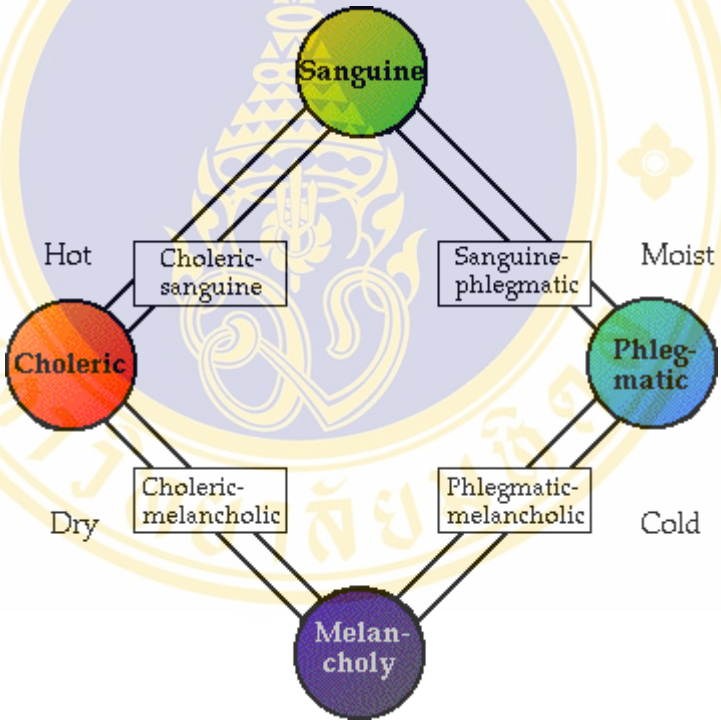
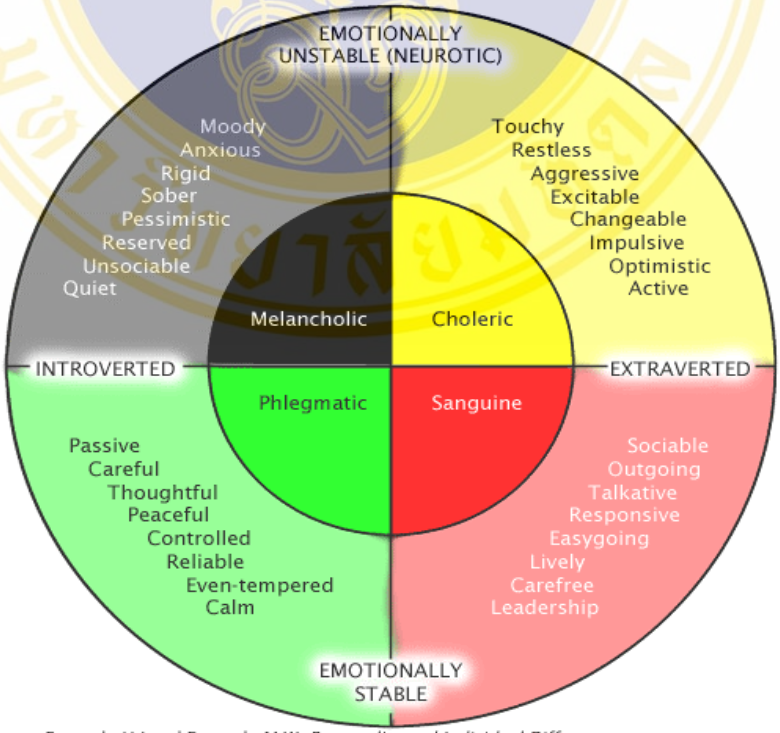


Figure 3 illustrates the four humors, their relationship with the four cosmic elements, and personality traits related to each type of the humors.

Kant elaborated on the descriptions of the four temperamental types, and organized them in terms of two fundamental contrasts: The melancholic and choleric have strong or unstable emotions, whereas, the sanguine and phlegmatic have weak or stable emotions. Carl Jung in 1921, proposed that introversion and Extroversion is a

basic attitude pair, where the introvert are oriented toward the inner world and the extravert are oriented toward the outside world. In addition, the extravert are sociable, changeable, and carefree. Wundt suggested that the four types reflected characteristic that is high or low on the two- dimensional space of changeability and strength of emotions. He further elaborated that individuals were defined in terms of their position in a two-dimensional space in which the four temperaments represent extreme positions in the four quadrants.

On the basis of the earlier descriptive models provided by Hippocrates, Galen, Kant, Wundt, and Jung, Eyesenck's modern two-dimensional model which is the essential part of the temperament model has emerged by perfect integration of the foregoing models as illustrated by the following figure.



Eysenck, H.J and Eysenck, M.W. *Personality and Individual Differences.* Plenum Publishing, 1958.

Figure 4 shows the relation between the four temperaments and the modern neuroticism-Extroversion dimensional system (34)

2.7.2 The causal model

Eysenck's two-dimensional (description of temperament) or taxonomy model provides a system for describing different types of individuals in terms of their characteristic behavior patterns. What remains to be answered , however, is the causal question of why a particular individual is predisposed to exhibit a particular set of behaviors. The model is focused on specifying the underlying or genotypic factors responsible for observed variations in behavior by identifying the physiological differences that covary with high or low status on the typological dimensions. Eysenck has proposed the causal model (1967) that accounted for differences between introverts and extroverts in terms of levels of cortical arousal (33).

Eysenck relates the differences between introverts and extroverts to differences in arousal levels, and localizes the central nervous system structures within which that differences occur. Additionally, he describes a curvilinear relationship between intensity of external stimulation and degree of cortical arousal, with differing curves for introverts and extroverts.

Eysenck relates differences in introversion-Extroversion to levels of activity in the ascending reticular activating system (ARAS). In very general terms, activity in the ARAS serves to stimulate the cerebral cortex, leading to higher cortical arousal. Because of greater ARAS activity, introverts are characterized by higher levels of cortical arousal than extroverts, and this neurological difference serves as a causal basis for observed differences on the introversion-Extroversion typology. That is, introverts have lower thresholds of ARAS arousal than extroverts. In addition, individual differences in emotionality or neuroticism depend on levels of activity in the visceral brain (VB), which consists of the hippocampus, amygdala, cingulum, septum, and hypothalamus. These structures which are often referred to as the limbic system, have been related to emotional states through the operation of the autonomic nervous system. Neurotic individuals are characterized by greater activation levels and lower thresholds within the VB. The independence of these two causal systems and of the resulting Extroversion and neuroticism dimensions are complicated by a one-way link between the ARAS and VB. If a person is cortically aroused, there need

not be any emotional (i.e., VB) activation. Emotional activation, however guarantees that cortical arousal will occur (33,34).

Eysenck's 1967 model also specifies a curvilinear relationship between stimulation and cortical arousal, with introverts reaching their point of maximum arousal at a lower level of stimulation than extroverts. Introverts are postulated to be more aroused and more arousable than extroverts. Drawing on the concept of Palov's strength of the nervous system, Eysenck describes that strong nervous system can tolerate intense stimulation, and it is less sensitive to stimulation than a weak nervous system. A weak nervous system is chronically at a high level of excitation, and has a limited capacity to tolerate additional stimulation. To elaborate on the strength of nervous system concept, Palov's Transmarginal inhibition concept is also employed. This concept suggests that response to a stimulus increases as stimulus intensity increases, but only up to a point. Beyond that point, which is the point of transmarginal inhibition, the magnitude of the response decreases as stimulus intensity increases. This downturn occurs to protect the nervous system from being overaroused . An individual with a weak nervous system reaches this protective threshold at a lower level of stimulus intensity than an individual with a strong nervous system. In Eysenck adaptation, introverts behave like individuals with weak nervous systems, and extroverts behave like individuals with strong nervous systems. That is, cortical arousal increases as stimulus intensity increases for both types, but the rate of increase is more rapid for introverts because of their more sensitive ARAS. As a consequence, introverts reach the point of transmarginal inhibition at a lower level of stimulation than extroverts. Because of the resulting tendency for introverts to avoid excessive stimulation and for extroverts to seek stimulation, Eysenck says that introverts are "stimulus shy", and extroverts are "stimulus hungry". This sensitivity to stimulation is a key characteristic for introverts because it makes them shy away from any source of intense stimulation (35).

Other people can be one source of intense stimulation, so the introvert tend to avoid people. The low sociability that laypeople consider a fundamental attribute of introversion therefore is a derivative of the introvert's extreme sensitivity to

stimulation in Eysenck's model. Compared to the population average, hedonic tone is maximized for introverts at low levels of stimulation and for extravert at high stimulation. Eyesenck's transmarginal inhibition curve leads to predictions of differential behavior for introverts and extroverts in any situation that can be scaled in terms of degree of stimulation (34,35).

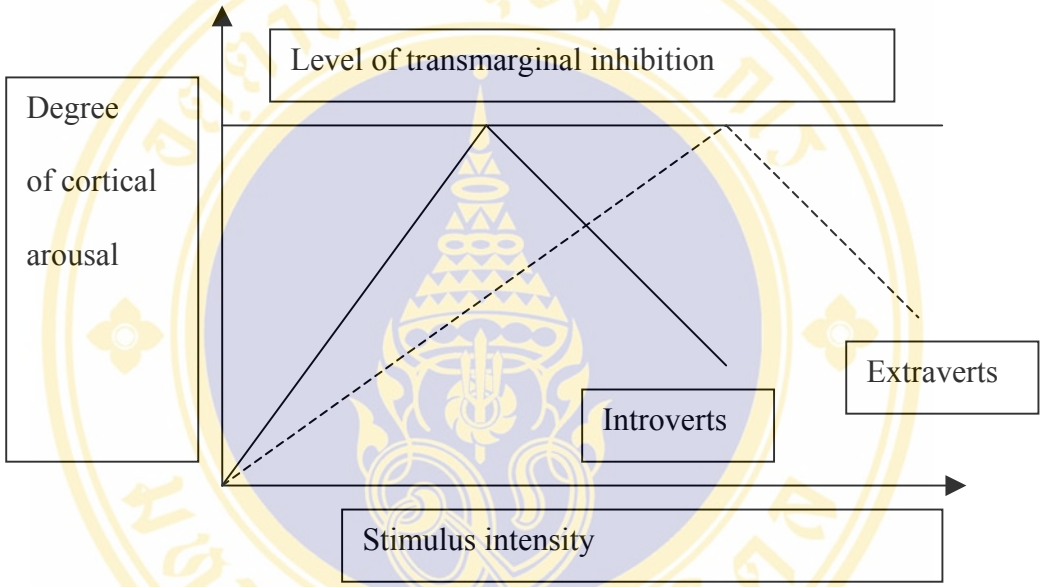


Figure 5 demonstrates the relationship between stimulus intensity and excitatory processes in introverts and extroverts (34)

It has also been cited in a research monograph series from the United States National Institute on Drug abuse that twenty-two of the twenty-four studies regarding statistical analyses about smoking behavior and personality showed that smokers were more extraverted than non-smokers (11).

A population-based study conducted by a group of Japanese researchers revealed that current and ex-smokers were higher on Extroversion assessed by Eysenck's personality questionnaire (EPQ-R) than non-smokers for both male and female ($p < 0.05$) (14).

A 1996 longitudinal study conducted by Patton, David, the university of Manitoba to ascertain the direction and relationship between personality and smoking behavior, utilizing a comprehensive personality assessment battery, including the EPQ-R, Spielberger Trait Anxiety Scale, Rosenberg Self-Esteem Scale, Vando Reducer-Augmenter Scale, MacAndrew Alcoholism Scale, Barron Ego-Strength Scale and the Group Embedded Figures Test, showed that smokers were more extroverted than non-smokers ($p < 0.05$). Personality variables that predicted smoking amount in the population of current smokers included a latent variable that was comprised of the EPQ-P and the EPQ-L scales, indicating that people who smoke more are more impulsive, extroverted than others (36).

CHAPTER 3
RESEARCH METHODOLOGY

3.1 Study Design

This research was conducted as a cross-sectional analytical study. The focus of this study was centered on ascertaining the relationship between self-efficacy, personality type and smoking behavior among male outpatients at Paholpolpa-yuhasena general hospital, Kanchanaburi province. The study was also aimed at describing smoking behavior in terms of intensity, frequency, pattern and quitting attempt in cigarette smoking among the study population. Ultimately, the study results were expected to be indispensable and integral in the formulation of an appropriate, tailored anti-smoking program to be implemented at the hospital in line with the newly established clinic for smoking cessation.

3.2 Study population

Male outpatients aged 18 year old and above receiving services at Pahol-polpayuhasena general hospital's outpatient department

3.3 Sample size

Sample size for this study was calculated, using the following formula

$$n = \frac{z^2_{\infty/2} * p(1-p)}{d^2}$$

$$n = \frac{(1.96 * 1.96) * 0.206(1-0.206)}{0.05 * 0.05}$$

$$n = 252$$

N = estimated sample size

Z = level of statistical significance for two- sided test = 1.96
(alpha = 0.05)

p = proportion possessing a characteristic of current smokers in Kanchanaburi province as reported by the national statistical office, Ministry of Information and Communication Technology in 2003 (26)

d = allowance for relative error = 0.05

3.4 Sampling technique

Systematic random sampling were employed in this study to select samples. Target patients were systematically selected, using their OPD cards as a tool. 1 OPD card was randomly drawn from every 5 OPD cards at each of the six different examination rooms in the out-patient department, namely Orthopedic, medical, surgery, ENT(Ear, Nose, Throat), ophthalmologic, and dental examination rooms. There are approximately 800- 1000 outpatients per day at Paholpolpayuhasena general hospital. The number of patients randomly selected from each different examination room must constitute 5 patients per day.

3.5 Data-collecting tools and methods

A face to face interview, using structured questionnaires was the research instrument that was used to collect the relevant data regarding the dependent (smoking behavior) and independent variables: self-efficacy and personality for this study. The questionnaire was divided into four parts; each addressing the appropriate area relevant to data needed to answer the research questions and objectives.

The construct of the questionnaire to assess the self-efficacy was based on Bandura's self-efficacy scales in which there were two dimensions of self-efficacy. Dimension 1 was characterized by confidence that the specific task which, in the sense of this study, was abstaining from cigarette smoking could be carried out successfully with one's own ability, and strong commitment to the challenging goal they chose to pursue, which was abstaining from cigarette smoking. Dimension 2 was characterized by the sustained efforts made in the process of refraining from cigarette smoking even in the face of failure or obstacles, and self-sufficiency in pursuit of achieving their goal of smoking abstinence.

These two dimensions were employed as a basis to construct the 18 questions for assessing the degree of self-efficacy in abstaining from cigarette smoking for both ex-smokers and current smokers with specific time reference in the version of questions for ex-smokers and current smokers. For ex-smokers, the questions were referred to the respondents' perceived capability at the time when they had been making a decision or in the process to quit cigarette smoking. For current smokers, the questions were referred to their perceived capability foreseen by themselves if they were making a decision or in the process of quitting cigarette smoking in the future.

Eysenck's personality inventory served as a model for the adapted version of this study's personality questionnaire to identify Extroversion and introversion in which there were two sets of five dimensions each of which specifically characterized Extroversion and introversion. For Extroversion, the characteristics in dimension 1 to 5 were sociable, expressive, risk-taking, crave excitement, carefree, fond of jokes, active, dominant, and aggressive. For Introversion, the characteristics in dimension 1 to 5 were reserved, introspective plan a head, mistrust impulse of the moment, like well-ordered mode of life, rarely aggressive**,** and pessimistic**.**

The questionnaire was pre-tested on the target population (30 respondents) for validity and reliability before the final copy was drawn and used to collect the necessary data for this study. Chronbach's Alpha coefficient of reliability was 0.68.

There were three versions of questionnaires for non-smoker, ex-smoker, and current smoker. The following is the content in the questionnaire for each type of smoking behavior.

The contents in the questionnaire for non-smoker were composed of three parts.

1. Socio-demographic characteristics included patients' age, educational achievement level, occupation, marital status, monthly income, and current illnesses leading the patients to receive services at the hospital.

2. Smoking behavior: consisted of multiple choice and fill-in-the-blank questions focused on types of smoking behavior.

3. Personality assessment was composed of 23 questions characterizing the traits of both extroversion and introversion. The respondents were requested to answer yes, no or not sure for each question.

The content in the questionnaire for ex-smokers included four parts as follows

1. Socio-demographic characteristics included patients' age, educational achievement level, occupation, marital status, monthly income, and current illnesses leading the patients to receive services at the hospital.

2. Smoking behavior: consisted of multiple choice and fill-in-the-blank questions focused on types of smoking behavior, intensity, frequency, and pattern of smoking behavior. It also included perceived accessibility, availability of cigarettes, perceived negative effects on others, the attitude towards the potential nuisance and negative effects on others in the society, their knowledge about passive smoking, reasons, strategies, and the number of attempts made to successfully quit smoking.

3. Self-efficacy assessment: was composed of 18 questions referring to the characteristics in the two dimensions. The respondents were requested to answer yes, no or not sure for each question.

4. Personality assessment: was composed of 23 questions characterizing the traits of both extroversion and introversion. The respondents were requested to answer yes, no or not sure for each question.

The content in the questionnaire for current smokers included four parts as follows

1. Socio-demographic characteristics included patients' age, educational achievement level, occupation, marital status, monthly income, and current illnesses leading the patients to receive services at the hospital.

2. Smoking behavior: consisted of multiple choice and fill-in-the-blank questions focused on types of smoking behavior, intensity, frequency, and pattern of smoking behavior. It also included perceived accessibility, availability of cigarettes, perceived negative effects on others, the attitude towards the potential nuisance and negative effects on others in the society, their knowledge about passive smoking, reasons to smoke cigarette, the number of attempts ever made to quit smoking and strategies employed.

3. Self-efficacy assessment: was composed of 18 questions referring to the characteristics in the two dimensions. The respondents were requested to answer yes, no or not sure for each question.

4. Personality assessment: was composed of 23 questions characterizing the traits of both extroversion and introversion. The respondents were requested to answer yes, no or not sure for each question.

3.6 Data analysis procedure and statistics employed

Epi Info 6 version 6.04d, a word processing database and statistics program for public health, was used as a tool in creating database to assist in the entry of data from questionnaires. The MINITAB version-13 statistical program was further employed for analysis of data. Univariate analysis comprising mean, standard deviation, frequency, and percentage was used to describe the sample.

For bivariate analysis, Chi-square test was used to ascertain the significance in the association between independent variables and smoking behavior composed of non-smokers, ex-smokers, and current smokers. Regarding multivariate analyses, multiple logistic regression was used to determine the magnitude of the association between each independent variable and smoking behavior, and identify factors that

influence the acquisition of a particular type of smoking behavior among the respondents.

The percentage of socio-demographic characteristics among the respondents: age, education level, occupation, marital status, monthly income, and types of current diseases was calculated along with specific characteristics for each type of smoking behavior. For instance, the percentage of Age of smoking initiation, reasons leading to the initiation of smoking, duration of smoking, the number of cigarette smoked weekly, their knowledge about passive smoking, and opinion towards the accessibility as well as health hazards was also calculated among former and current smokers.

For testing the hypotheses, the chi-square test was employed to ascertain the statistically significant association between each type of smoking behavior and independent variable. P-value less than 0.05 was considered statistical significant. Independent variables found to be significantly associated with the smoking behavior were further evaluated, using multiple logistic regression analysis for the strength of the significant association and the degree of influence the independent variables of interest have on the acquisition of a particular type of smoking behavior among the respondents.

CHAPTER 4
RESULTS

This cross-sectional analytical study was principally focused on ascertaining the relationship between personality types: Extroversion, Introversion and smoking behavior comprising non-smokers, ex-smokers and current smokers among male outrespondents at Paholpolpayuhasena general hospital. Simultaneously, the determination of the relationship between self-efficacy of smoking cessation and smoking behavior composed of ex-smokers and smokers was also equally emphasized. The relationship between such socio-demographic characteristics as age, education, occupation and smoking behavior was also examined. Additionally, the socio-demographic characteristics and smoking behavior of the respondents were described in details by being classified into three aspects: 1) socio-demographic characteristics of all the study respondents, 2) smoking behavior among ex-smokers, 3) smoking behavior among current smokers.

The results have been tabulated and presented in frequency and percentage. The association between each of the independent variables and smoking behavior among the study subjects was statistically determined, using Chi-square test with the level of significance at $\infty = 0.05$. The independent variables found to be significantly associated with smoking behavior would then be further analyzed for the strength of the relationship and their predictive power towards smoking behavior, using odds ratio in multiple logistic regression analysis. The results have been categorized into four parts as follows.

Part I : Prevalence of smoking and Socio-demographic characteristics

Part II : Smoking behavior of ex-smokers, and current smokers

Part III : Total score for each dimension of personality types: Extroversion and Introversion classified according to smoking behavior: non-smokers, ex-smokers, and current smokers

Part IV: Total score for each dimension of self-efficacy between ex-smokers and current smokers

Part V : Relationship between the independent and dependent variables according to the study's hypotheses

Part I: Prevalence of smoking and Socio-demographic characteristics

Table 6 Number and prevalence of respondents by smoking behavior

Smoking behavior	Frequency (n = 252)	Percentage (%)
Non-smokers	88	34.92
Ex-smokers	86	34.13
Current smokers	78	30.95

Table 6 reported the prevalence in percentage among all the 252 male outrespondents at Paholpolpayuhasena hospital. It was noteworthy that the proportion of respondents who were non-smokers (34.92%) was nearly equal to that of ex-smokers (34.13%). Of equally striking was the proportion of smoking among the study respondents (30.95%), which was approximately 1.6 times that of the whole Kanchanburi province in 2003 (20.06%) stated by the National statistics office of Thailand. This result has unveiled and shed light on the escalating extent of the smoking problem in this region.

Table 7 Socio-demographic characteristics of the respondents

Socio-demographic characteristics	Frequency (n = 252)	Percentage (%)
Age		
18-20	17	6.75
21-30	40	15.85
31-40	54	21.43
41-50	53	21.03
51-60	49	19.44
61and above	39	15.48
Mean = 44.39, SD. =	15.61, Min= 18	Max = 85
Education		
No education	2	0.79
Primary	90	35.71
Secondary	35	13.89
High school	49	19.44
Vocational	12	4.76
Diploma	18	7.14
Bachelor/ and above	46	18.25
Marital status		
Single	53	21.03
Married	199	78.97

Table 7 Socio-demographic characteristics of the respondents (cont.)

Socio-demographic characteristics	Frequency (n = 252)	Percentage (%)
Occupation		
Government official	91	36.11
Laborer/wager	92	36.51
Entrepreneur	27	10.71
Unemployed	34	13.49
Office worker	8	3.17
Monthly income		
0 – 5000	113	44.84
5001 – 10000	56	22.22
10001 – 30000	68	26.98
30001 and above	15	5.98
Mean = 10604.4	Max = 100000, Min = 0	SD. = 12084
Types of current illness		
1.Related symptoms	29	11.51
2.Related diseases	67	26.59
3.Unrelated symptoms and diseases	156	61.90

Table 7 showed that the average age among all 252 respondents was equal to 44.39 years old with standard deviation of 15.61. Most respondents (61.91%) were middle-aged respondents with the age range from 31 to 60 years old. Twenty three percent of the respondents were in the age group of 18 to 30years. There were only 15.48% of the respondents in the advanced age group of 61 and above years.

The highest level of education attained by most of the respondents (35.71%) was primary school, followed by high school level among 19.44% of the respondents. Almost comparable with 19.44% was the number of those, who obtained the highest educational achievement at Bachelor's degree and above, (18.25%).

The majority of respondents (78.97%) were married. The proportion of those whose occupation was laborer/ wager (36.51%) were more or less equal to that of the respondents whose occupation was government officials (36.11%).

The results further revealed that the average monthly income among all the respondents was 10604.4 baht with standard deviation of 12084. Nearly half of them (44.84%) had monthly income at low level of 0 to 5000 baht.

Two thirds of illnesses or health problems leading respondents to use services at the hospital were found to be unrelated to or not directly related to cigarette smoking, for instance 1) Musculoskeletal disorders such as pain at the shoulder, partial torn tendon, 2)Eye and ear disorders such as ringing in the ear, ruptured cornea, ruptured optical capillaries, 3)Other disorders such as diarrhea, fungal infection at the nails.

Table 8 Number and percentage of respondents by Socio-demographic characteristics and smoking behavior

Characteristics	Non-smokers N= 88		Ex-smokers N = 86		smokers N = 78		Total N= 252	
	frequency	%	frequency	%	frequency	%	frequency	%
Age								
18-20	13	14.77	1	1.16	3	3.85	17	6.75
21-30	17	19.32	7	8.14	16	20.51	40	15.85
31-40	17	19.32	15	17.44	22	28.21	54	21.43
41-50	13	14.77	20	23.26	20	25.64	53	21.03
51-60	14	15.91	24	27.91	11	14.10	49	19.44
61-85	14	15.91	19	22.09	6	7.61	39	15.48
Education								
No education	1	1.14	1	1.16	0	0	2	0.79
Primary	19	21.59	36	41.86	35	44.87	90	35.71
Secondary	11	12.50	9	10.47	15	19.23	35	13.89
High school	27	30.68	13	15.12	9	11.54	49	19.44
Vocational	5	5.68	3	3.49	4	5.13	12	4.76
Diploma	6	6.82	5	5.81	7	8.97	18	7.14
Bachelor and above	19	21.59	19	22.09	8	10.26	46	18.25

Table 8 Number and percentage of respondents by Socio-demographic characteristics and smoking behavior (cont.)

Characteristics	**Non-smokers N= 88**		**Ex-smokers N = 86**		**smokers N = 78**		**Total N= 252**	
	frequency	**%**	**frequency**	**%**	**frequency**	**%**	**frequency**	**%**
Occupation								
Government official	37	42.05	35	40.70	19	24.36	91	36.11
Laborer/wager	21	23.86	33	38.37	38	48.72	92	36.51
Entrepreneur	8	9.09	10	11.63	9	11.54	27	10.71
Unemployed	18	20.45	7	8.14	9	11.54	34	13.49
Office worker	4	4.55	1	1.16	3	3.85	8	3.17
Marital status								
Single	25	28.41	9	10.47	19	24.36	53	21.03
Married	63	71.59	77	89.53	59	75.64	199	78.97
Monthly income								
0 – 5000	35	39.77	33	38.37	45	57.69	113	44.84
5001 – 10000	19	21.56	20	23.26	17	21.79	56	22.22
10001 – 30000	29	32.95	25	29.07	14	17.95	68	26.98
30001 – 100000	5	5.68	8	9.30	2	2.56	15	5.98
Mean = 10604.4	SD. =	12084						
Max = 100000	Min =	0						

Table 8 Number and percentage of respondents by Socio-demographic characteristics and smoking behavior (cont.)

Characteristics	**Non-smokers N= 88**		**Ex-smokers N = 86**		**smokers N = 78**		**Total N= 252**	
	frequency	**%**	**frequency**	**%**	**frequency**	**%**	**frequency**	**%**
Current illnesses	6	6.82	9	10.47	14	17.95	29	11.51
1.Related symptoms	26	29.55	28	32.56	13	16.67	67	26.59
2.Related diseases	56	63.64	49	56.98	51	65.38	156	61.90
3.Unrelated symptoms and diseases								

Table 8 demonstrated that the majority of non-smokers were found in both the age group of 21 to 30 years old (19.32%) and 31 to 40 years old (19.32%). Most ex-smokers (27.91%) were in the age group of 51-60 years old, whereas a preponderance of current smokers (28.21%) was in the age group of 31-40 years old. With regard to education level, it was found that non-smokers mostly obtained the highest education at high school level (30.68%). However, primary school was the highest educational level attained by the majority of both ex-smokers (41.86%) and current smokers (44.87%).

With respect to occupation, government official was the most common occupation for both non-smokers (42.05%) and ex-smokers (40.70%). It was considerably interesting that the most common occupation among current smokers was laborer/wager, which was also the second most common occupation for both non-smokers (23.86%) and ex-smokers (38.37%).

Regarding marital status, respondents who were married were among the majority in all types of smoking behavior: non-smokers (71.59%), ex-smokers (89.53%), and current smokers (75.64%).

Results regarding monthly income revealed that there was a markedly wide distribution of monthly income ranging from 0 to 100,000 baht. The monthly income of zero corresponded with the "unemployed" status in the occupation category. The majority of respondents in all types of smoking behavior had monthly income in the range of 0 to 5000 baht with the highest percentage (57.69%) found in current smokers.

In the aspect of current types of illnesses or health problems bringing them to the hospital, it indicated that illnesses or health problems that were not directly related to cigarette smoking were the main reason prompting the majority of non-smokers (63.64%), ex-smokers (56.98%), and current smokers (65.38%) to come to the hospital. The illnesses or health problems that were not directly related to cigarette smoking include 1) Musculo-skeletal disorders such as pain at the shoulder, pain at the right hip, partial torn tendon, knee pain, fractured bone, joint dislocation, discitis, abrasive wound caused by accident, 2) Eye and ear disorders such as ringing in the ear, ruptured cornea, ruptured optical capillaries, glaucoma, nearsightedness, chronic otitis media, naso-lacrymal duct obstruction, and 3) Other disorders such as diarrhea, fungal infection at the nails, cut wound, laceration at the arms, Psoriasis, anal abcess, hepatitis, pus at the toe, dog bite, dermatitis, varicose vein, epilepsy, Myasthenia gravis. The diseases or health problems that were directly related to cigarette smoking included diabetes mellitus, hyperlipidemia, hypertension, tuberculosis, heart disease, chronic obstructive pulmonary disorder (COPD), periodontitis, sinusitis, common cold, asthma, cerebral stenosis, pneumonia.

Part II: Smoking behavior of former-smokers, and current smokers

Table 9 Number and percentage of former-smokers, and current smokers by characteristics of smoking behavior

Characteristics	Ex-smokers N = 86		smokers N = 78		Total N= 164	
	frequency	%	frequency	%	frequency	%
Age at which smoking initiated						
7-15	15	17.44	13	16.67	28	17.07
16-25	58	67.44	57	73.08	115	70.12
26-35	9	10.47	4	5.13	13	7.92
36-45	3	3.49	3	3.85	6	3.65
46-55	1	1.16	1	1.28	2	1.21
Mean = 20.33 years old SD. = 6.90	Max =	55	Min =	7		
Reasons leading respondents to initiate smoking						
1.adopted friend's smoking habit	52	60.47	58	74.36	110	67.07
2.wanted to experiment it myself	20	23.26	14	17.95	34	20.73
3.to relieve stress	5	5.81	1	1.28	6	3.65
4.others	9	10.47	5	6.41	14	8.53

Table 9 Number and percentage of former-smokers, and current smokers by characteristics of smoking behavior (cont.)

Characteristics	Ex-smokers N = 86		smokers N = 78		Total N= 164	
	frequency	%	frequency	%	frequency	%
How often do respondents smoke ?						
1.Sometimes	28	32.56	23	29.49	51	31.09
2.Everday	57	66.29	50	64.10	107	65.24
3.Under specific conditions	1	1.16	5	6.41	6	3.65
Is it easy to find and purchase cigarette?						
1.easy	85	98.84	76	97.44	161	98.17
2.not easy	1	1.16	2	2.56	3	1.83
Perceived negative effect on their current health problems						
1.yes	49	56.98	50	64.10	99	60.37
2.no	37	43.02	25	32.05	62	37.80
3.not sure	0	0	3	3.85	3	1.83

Table 9 Number and percentage of former-smokers, and current smokers by characteristics of smoking behavior (cont.)

Characteristics	Ex-smokers N = 86		smokers N = 78		Total N= 164	
	frequency	%	frequency	%	frequency	%
Perceived negative effects on others?						
1.yes	81	94.19	76	97.44	157	95.73
2.no	5	5.81	2	2.56	7	4.27
Their feelings when their smoking disturbs others						
1.feel nothing	20	22.99	6	7.59	26	15.67
2.feel bad	67	77.01	73	92.41	140	84.33
Duration of smoking (years)						
≥ 1 years	3	3.49	2	2.56	5	3.04
2- 10	42	48.84	34	43.59	76	46.34
11-20	21	24.42	19	24.36	40	24.39
21-60	20	22.25	23	29.49	43	26.21
Mean = 16.34 years	Max =	56	years			
SD. = 12.57	Min =	2	months			

Table 9 Number and percentage of former-smokers, and current smokers by characteristics of smoking behavior (cont.)

Characteristics	Ex-smokers N = 86		smokers N = 78		Total N= 164	
	frequency	%	frequency	%	frequency	%
The number of cigarettes smoked weekly						
2-20	12	13.95	21	26.92	33	20.12
21-40	19	25.68	15	19.23	34	20.73
41-60	5	6.76	5	6.41	10	6.09
61-80	15	20.27	19	24.35	34	2.07
81-100	4	5.41	4	5.1	8	4.87
101-120	1	1.35	0	0	1	0.6
121-140	18	24.32	13	16.66	31	18.9
161 and above	12	16.22	1	1.75	13	7.92
Mean = 84.54 SD. = 87.18	Max =	420	Min =	1		

Table 9 illustrated that the average age at which cigarette smoking was initiated was 20.33 years old with standard deviation of 6.90. It was alarmingly conspicuous that the majority of both ex-smokers (67.44%) and current smokers (73.08%) initiated their cigarette smoking habit at the age as young as 16 to 25 years old. This result was in consistence with the most salient reasons leading 60.47% of ex-smokers, and 74.36% of current smokers to initiate cigarette smoking, which was imitation and adoption of friends' cigarette smoking habit.

Most ex-smokers (66.29%) and current smokers (64.10%) indicated that they smoked cigarette everyday. The percentage of those who sometimes smoked cigarettes accounted for 32.5% among ex-smokers and 29.49% among current smokers. There was the negligible percentage of both ex-smokers (1.16%) and current smokers (2.56%) who reported smoking cigarettes only under specific conditions, for instance when they drank alcohol in parties, or when they went out for night travel.

Almost all ex-smokers (98.84%) and current smokers (97.44%) expressed a positive opinion towards the accessibility and availability of cigarette that it was very easy to find and purchase it.

Regarding the respondents' opinion towards the potential negative effects of cigarette smoking on their current health problems, 56.98% of ex-smokers and 64.10% of current smokers stated that their cigarette smoking habit had a potentially adverse effect on their current health problems.

The reason provided by both ex-smokers and current smokers to support their agreement was that smoking caused shortness of breath and fatigue, and that it caused lung cancer, asthma, heart disease, and hypertension. However, 43.02% of ex-smokers and 32.05% of current smokers said that the negative effects on their current diseases or health problems were more likely to be caused by other risk behaviors than cigarette smoking habit. Those risk behaviors that could have exacerbated their current health problems, as stated by the respondents, was accidents.

With respect to the respondents' knowledge regarding the harmful effects of cigarette smoking on others who unintentionally inhale the smoke (passive smoking), almost all of both ex-smokers (94.19%) and current smokers (97.44%) indicated they were fully aware of passive smoking while there were only 5.81% of ex-smokers and 2.56% of current smokers who stated they did not realize the detrimental effects of passive smoking.

When addressed with the question regarding their feelings towards the nuisance or health hazards their smoking might cause for others in society, the majority of both ex-smokers (77.01%) and current smokers (92.41%) revealed that they felt bad and responsible for it. As a result, they tried to find a suitable place to smoke so that their smoking would not adversely affect or annoy others. Interestingly, 22.99% of ex-smokers and 7.59% of current smokers expressed their complete indifference towards the negative effects that their smoking might potentially pass on to others in society.

In the aspect of duration of smoking, the results revealed that the average duration of smoking among all ex-smokers and current smokers was 16.34 years with standard deviation at 12.57. The smoking duration among the highest number of both ex-smokers (48.84%) and smokers (43.59%) fell within the range of 2 to 10 years. It could be further elaborated that 10 years was the most common duration of smoking for both ex-smokers (16 persons) and current smokers (16 persons) whose duration of smoking was within the range of 2 to 10 years. Similarly, the second most common duration of smoking for both ex-smoker (24.42%) and current smokers (24.36%) was at the range of 11 to 20 years of which 20 years was the most frequent duration in this range for both ex-smokers (12 persons) and current smokers (10 persons).

Results on the number of cigarettes smoked weekly among a preponderance of ex-smokers showed that there was the almost equal number of ex-smokers who weekly smoked 21 to 40 cigarettes (25.68%) and 121 to 140 cigarettes (24.32%). When those two ranges were thoroughly examined, it was found that 140 cigarettes was the most common number of cigarettes smoked per week among 20 % of ex-smokers, followed by 70 cigarettes weekly smoked among 15.29 % of ex-smokers.

In complete contrast to this particular characteristic of ex-smokers, the range of 2 to 20 and 61 to 80 cigarettes smoked weekly were almost comparable and included the majority of current smokers (26.92% and 24.35% respectively). With in-depth consideration in those ranges, it revealed that 70 was the number of cigarettes smoked weekly by the majority of current smokers (20.51%), followed by 140

cigarettes smoked per week by 16.67% of current smokers. These results clearly indicated that ex-smokers were heavy smokers when they were still engaged in smoking habit, whereas current smokers were light smokers.

Table 10 Number and percentage of former-smokers by characteristics of smoking behavior

Characteristics	Frequency N = 86	Percentage
Reasons for quitting cigarette smoking		
Bad for health	54	58.69
Asked by people around you	20	21.74
Others	18	19.56
(Note: Multiple answers)	6	
The number of attempts ever made to quit smoking including the successful one		
1-3	76	88.37
4-6	6	6.98
7-9	1	1.16
10 and above	3	3.49
Strategies used to successfully quit smoking		
Use lozenges	15	16.48
Engage in hobby	5	3.05
Take up exercise	3	3.30
Keep yourself at home	1	1.09
Suddenly quit by building up mental strength	58	63.73
Gradually reduce the number of cigarette and build up mental strength	2	2.20
Others	7	7.70
(Note: Multiple answers)	4	

Table 11 Number and percentage of current smokers by characteristics of smoking behavior

Characteristics	Frequency N = 78	Percentage
Reasons to smoke		
Alleviating stress	27	31.39
Lessening boredom	12	13.95
Raising work concentration	10	11.62
Helping in blending in society	15	17.44
Others	22	25.58
(Note: Multiple answers)	5	
Have you ever tried quitting smoking?		
1.yes	61	78.21
2.no	17	21.79
The number of attempts ever made to quit smoking		
1-3	43	70.49
4-6	15	24.59
10 and above	3	4.92
Strategies used to successfully quit smoking		
Use lozenges	16	24.61
Engage in hobby	3	4.61
Take up exercise	3	4.61
Suddenly quit by building up mental strength	37	56.92
Perform meditation	1	1.54
Eating fruits	1	1.54
Use prescribed medications	2	3.07
Gradually reduce the number of cigarette and build up mental strength	2	3.07
(Note: Multiple answers)	4	

Table 10 demonstrated specific characteristics of smoking behavior among ex-smokers. The results regarding the reasons for quitting cigarette smoking indicated that negative effects cigarette smoking had on their health was the reason among more than half (58.69%) of 86 ex-smokers to quit smoking.

When the question of the number of attempts ever made to quit cigarette smoking including the successful one was addressed, it was considerably intriguing that 88.37% of ex-smokers had taken a mere 1 to 3 attempts to successfully quit smoking. This was followed by 6.98% of ex-smokers who had made 4 to 6 attempts to meet with success in quitting smoking.

Strategies employed by ex-smokers to be successful in pursuit of quitting smoking were also ascertained. Of equally intriguing was the corresponding strategy employed by 63.73% of ex-smokers to successfully abstained from smoking, which was to suddenly quit smoking by building up mental strength. The second most common strategy to successfully quit smoking among ex-smokers was to use lozenges to quench their strong desire for cigarettes.

It was worthwhile to elaborate the answer of "others" for strategies employed to successfully quit smoking answered by 7.70% of ex-smokers. One respondent stated that his children were a great influence and impetus to the success of quitting smoking. He simply said "I don't want my children to adopt my smoking habit". Two respondents said they had been told by physicians to stop smoking, so they tried to do it accordingly, and one person stated he used powdered herbal medicine sniffed through the nose (snuff).

Table 11 illustrated specific characteristics of smoking behavior among current smokers. The results on reasons for smoking cigarette revealed that alleviating stress was the reason for smoking among the majority of current smokers (31.39%).

Almost 26% of current smokers indicated they smoked cigarette for other reasons, which could be elaborated as follows. Of all current smokers answering

“others”, 18 respondents stated a reason for them to smoke was that they had smoked cigarettes for a long time (some of them since childhood) because they were addicted to the taste and its smell. Two respondents said they smoked cigarette only when they drank alcohol in the party in order to light up the atmosphere at the party, making the conversation enjoyable and alive. And one respondent stated that it was the culture at home in which seniors asked children to bring them cigarettes and light them up, stimulating children’s curiosity.

With regard to the question “ have you ever tried quitting smoking?”, 78.21% of current smokers indicated they had tried quitting cigarette smoking, whereas only 21.79% of current smokers said they had never tried quitting cigarette smoking.

Among all 78.21% of current smokers who have tried quitting cigarette smoking, 70.49% of them reported having made 1 to 3 unsuccessful attempts to quit smoking so far, while 24.59% of them tried in vain for 4 to 6 times to quit cigarette smoking.

The corresponding strategies employed by current smokers who have made vain attempts to quit cigarette smoking followed the same pattern as those employed by ex-smokers. Almost 57% of them have tried quitting smoking habit by “suddenly quitting it by building up mental strength”. “Using lozenges” was the second most common strategy employed by 24.61% of those current smokers.

Part III: **Total score of each dimension of personality types: Extroversion and Introversion classified according to smoking behavior: non-smokers, and smokers**

Table 12 Standardized score on personality type of Extroversion by dimensions of Extroversion and smoking behavior: non-smokers (n = 88), and smokers (ex-smokers and current smokers, n = 164)

Dimension	Non-smokers N=88	Smokers N = 164	Total N=252
Dimension1: sociable, expressive	448	439	887
Dimension2: risk-taking, crave excitement, venturesome	697	707	1404
Dimension3: carefree, fond of jokes	765	742	1507
Dimension4: active, dominant	573	530	1103
Dimension5: aggressive	319	363	682
Total	**2802**	**2781**	

Table 13 Standardized score on personality type of Introversion by dimensions of Introversion and smoking behavior: non-smokers (n = 88), and smokers (ex-smokers and current smokers, n = 164)

Dimension	Non-smokers N=88	Smokers N = 164	Total N=252
Dimension1:reserved, introspective	839	776	1615
Dimension2:plan a head, mistrust impulse of the moment	125	128	253
Dimension3: like well-ordered mode of life	500	481	981
Dimension4: rarely aggressive	124	155	279
Dimension5: pessimistic	318	312	630
Total	**1906**	**1852**	

For the purpose of enabling the comparison between the two types of personality consisting of Extroversion and Introversion, study subjects who were ex-smokers and current smokers were combined into one category of smoking behavior as smokers with the total number equaling 164.

Scores were calculated based on the answer on each question in the questionnaire. The score of 3, 1, and 2 are awarded for the answer of “yes”, “no” and “not sure” respectively in each question representing specific characteristics in each dimension of Extroversion type of personality. On the other hand, the score of 1, 3, and 2 were given for the answer of “yes”, “no” and “not sure” respectively for questions that represent specific traits in each dimension of Introversion type of personality.

The total scores of questions in the two sets of five dimensions, each of which specifically characterized Extroversion and Introversion, were further summed separately among all non-smokers (n = 88) and smokers (n =164). Each value was then standardized by dividing it with the total number of respondents in each category of smoking behavior: 88 for non-smokers and 164 for smokers, and multiplying each resultant value with 100. According to the above-mentioned scoring system, the higher total score represented the correspondingly higher degree of extroversion possessed by the respondents. On the contrary, the lower total score represented the higher degree of introversion possessed by the respondents. The results were illustrated in table 12 and 13 .

It was quite observable that almost all the scores for each dimension in the category of both non-smokers and smokers were comparable. However, there were scores of some dimensions between non-smokers and smokers, the difference of which was greater than that of the other dimensions. As a result, the following general conclusions about the trend could be made in terms of which specific traits or characteristics were exhibiting in a higher degree than the others between a group of non-smokers and smokers.

Table 12 shows in details the score in each of the five dimensions, characterizing the degree of Extroversion between non-smokers and smokers. It delineated that smokers exhibited higher degree of extroversion in dimension 2 and 5, characterizing that they craved excitement, often took chances, often stuck their neck out, acted on a spur of the moment, were generally impulsive, venturesome, and liked changes. They tended to be aggressive and lost their temper quickly; their feelings were not kept under control, and they were not always reliable people.

Non-smokers were found to possess higher degree of Extroversion in dimension 1, 3, and 4, portraying that they were sociable, liked parties, needed to have people to talk to, did not like studying or doing things by themselves. They were fond of practical jokes, liked to laugh and be merry, had lively temperament, and carefree. They were generally active, assertive, and keep doing things.

Table 13 demonstrated in details the score in each of the five dimensions, characterizing the degree of Introversion between non-smokers and smokers. It showed that non-smokers exhibited higher degree of Introversion in dimension 2 and 4, portraying that they exhibited the characteristics of being very likely to plan a head or look before they leap, and mistrusting the impulse of the moment. They also kept their feelings under close control, seldom behaved in an aggressive manner, and did not lose their temper easily.

When the total scores between non-smokers and smokers in all five dimensions of Extroversion and Introversion were taken into consideration, they appeared comparable among one another. Hence, it was imperative that statistical method be employed to test whether there was a statistically significant difference between the total score of Extroversion among non-smokers (2802) and the total score of Extroversion among smokers (2781), and whether there was a statistically significant difference between the total score of Introversion among non-smokers (1906) and the total score of Introversion among smokers (1852).

Wilcoxon Rank Sum test was therefore employed to identify the statistically significant difference between two independent sample.

Table 14 Results on the difference between two independent groups: smokers and non-smokers in terms of the score on Extroversion and Introversion

Personality types	Smoking behavior		P- value
	Non-smokers N = 88	Smokers N = 164	
Extroversion	2802	2781	0.513
Introversion	1906	1852	0.357

The results form Table 14 indicated that there was no statistically significant difference in the score on Extroversion and Introversion between non-smokers and smokers (P-value = 0.513 and 0.357). This revealed that although the degree of Extroversion and Introversion was not statistically different, there was certain degree of difference in some dimensions representing Extroversion and Introversion between a group of non-smokers and smokers as previously elaborated in table 12 and 13. The results also led to the conclusion that other factors in addition to personality must also play a role or mutually influence the respondents to acquire a certain smoking behavior which were non-smoker, ex-smoker, or current smokers. Hence, a statistical method was further employed to identify the relationship between each independent variable of interest and smoking behaviors, as elaborated in part V.

Part IV: Total score for each dimension of self-efficacy between ex-smokers and current smokers

Self-efficacy regarding the perceived capability towards successfully quitting cigarette smoking between a group of ex-smokers and smokers was also ascertained and compared between a group of ex-smokers and current smokers. According to Bandura's social cognitive theory, there were two dimensions of self-efficacy on

which all the questions about self-efficacy in the questionnaires for both ex-smokers and current smokers were based. The following was the elaboration of these two dimensions.

Dimension 1 characterized that the respondents were confident that the specific task which, in the sense of this study, was abstaining from cigarette smoking could be carried out successfully with their own ability. They maintained strong commitment to the challenging goal they chose to pursue, which was abstaining from cigarette smoking.

The characteristics of the respondents in dimension 2 was that they sustained their efforts in the process of refraining from cigarette smoking and were not easily discouraged in the face of failure or obstacles that thwarted the success in smoking cessation. They were also self-sufficient in pursuit of achieving their goal of smoking abstinence in that they perceived that they could quit smoking without having to resort to others' advice or support. Additionally, they were decisive towards their ultimate decision of quitting smoking. They rarely or never wavered towards the final decision they made.

Scores were calculated based on the answer on each question specifically representing each of the two dimensions of self-efficacy in the questionnaire. The score of 3, 1, and 2 was awarded for the answer of "yes", "no", and "not sure" respectively for the questions that characterized high degree of self-efficacy. On the other hand, the score of 1, 3, and 2 was given for the answer of "yes", "no", and "not sure" respectively for the questions that characterized low degree of self-efficacy.

The total scores of questions representing each of the dimensions were separately calculated among all ex-smokers (n= 86) and current (n=78) smokers. Each value was further standardized by dividing it with the total number of respondents in each category of smoking behavior, 86 for ex-smokers and 78 for current smokers, and multiplying each value with 100. The statistical method, Wilcoxon Rank Sum test was also employed to ascertain the statistical significance in the difference between

the total standardized score in each dimension between a group of ex-smokers and current smokers . The results were shown in table 15

Table 15 Standardized score on self-efficacy by dimensions and smoking behavior: Ex-smokers (n = 86), and Current smokers (n = 78)

Dimension	Ex-smokers N=86	Current smokers N = 78	P-value
Dimension 1	1431	914	< 0.001
Dimension 2	3629	2577	< 0.001
Total	**5060**	**3391**	< 0.001

Note: P-values shown in the table were the results from Wilcoxon Rank Sum test for the difference of the score in each dimension of self-efficacy between the group of ex-smokers and current smokers.

Table 15 demonstrated that there was a statistically significant difference in the total score of self-efficacy in both dimension 1, 2, and the total score between a group of smokers and ex-smokers (P-value< 0.001).This could be concluded that self-efficacy or perceived capability in successfully quitting cigarette smoking among ex-smokers was significantly higher than that of smokers.

Ex-smokers have clearly exhibited that while they were in the process of quitting cigarette smoking, they possessed confidence in their own ability to successfully abstain from smoking, and maintained their strong commitment throughout the process. When encountering with obstacles and failure, they remained committed and persistent towards their goal. They rarely or never attributed the failure in smoking abstinence, if any, to lack of aptitude or capability, but they perceived that they acquired what it took to succeed in successfully quitting cigarette smoking.

On the contrary, current smokers expressed the confidence in being able to successfully quit smoking if they had decided to do it in a significantly lesser degree than ex-smokers. They definitely would have slackened their efforts and gave up quickly in the face of failure or setbacks if they had decided to quit smoking. Additionally, they exhibited low degree of self-sufficiency and were hesitant towards the goal.

Part V : Relationship between the independent and dependent variables according to the study's hypotheses

Chi- square was the statistical method employed to ascertain the relationship between the independent and independent variables

Table 16 Relationship between Socio-demographic factors and smoking behavior: Non-smokers, Ex-smokers, Current smokers

Socio-demographic variables	Non-smokers N= 88		Ex-smokers N = 86		smokers N = 78		P-value
	frequency	Row %	frequency	Row %	frequency	Row %	
Age group							
18-35	36	46.15	14	17.95	28	35.90	<0.001
36-59	32	25.20	52	40.94	43	33.86	
60-85	20	42.55	20	42.55	7	14.89	
Marital status							
1.Single	25	47.17	9	16.98	19	35.85	0.010
2.Married	63	31.66	77	38.69	59	29.65	

Table 16 Relationship between Socio-demographic factors and smoking behavior: Non-smokers, Ex-smokers, Current smokers (cont.)

Socio-demographic variables	Non-smokers N= 88		Ex-smokers N = 86		smokers N = 78		P-value
	frequency	Row %	frequency	Row %	frequency	Row %	
Education level							
1.No education/ Primary school/ Secondary school	31	24.41	46	36.22	50	39.37	0.002
2.Highschool/ Vocational school/ Diploma	38	48.10	21	26.58	20	25.32	
3.Bachelor's degree and above	19	41.30	19	41.30	8	17.39	
Occupation							
1.Unemployed	18	52.94	7	20.59	9	26.47	0.016
2.Laborer/wager	21	22.83	33	35.87	38	41.30	
3.Government officials	37	40.66	35	38.46	19	20.88	
4.Entrepreneur	8	29.63	10	37.04	9	33.33	
5.Office worker	4	50.00	1	12.50	3	37.50	

Table 16 Relationship between Socio-demographic factors and smoking behavior: Non-smokers, Ex-smokers, Current smokers (cont.)

Socio-demographic variables	Non-smokers N= 88		Ex-smokers N = 86		smokers N = 78		P-value
	frequency	Row %	frequency	Row %	frequency	Row %	
Monthly income							
0-1000	18	45.00	10	25.00	12	30.00	0.032
1001-5000	17	23.29	23	31.51	33	45.21	
5001-10000	19	33.93	20	35.71	17	30.36	
10001-30000	29	42.65	25	36.76	14	20.59	
30001 and above	5	33.33	8	53.33	2	13.33	

Results from statistical analysis in Table 16 revealed that there was a highly significant association between Age group and smoking behavior comprising non-smokers, ex-smokers, and current smokers (P-value <0.001). At the age group of 18 to 35 years old, the highest proportion of the respondents (46.15%) were non-smokers. Among the middle aged (36 to 59 years old), and advanced aged (60 to 85 years old) respondents, the highest proportion of them (40.94%, 42.55%) were found to be ex-smokers. For the respondents in the advanced age range of 60 to 85 years old, the trend was clear that they were more inclined to successfully quit cigarette smoking, becoming ex-smokers than those at the middle age range of 36 to 55 years old. This trend was obvious through the higher proportion of those at the middle age who were still continuing cigarette smoking (33.86%) as compared to the proportion of those at the advanced age who were still smoking (14.89%).

The analysis also indicated that there was a highly significant association between marital status and smoking behavior with P-value equal to 0.01. Respondents who were single had a tendency to acquire a smoking behavior as non-smokers, as proven by the highest percentage (47.17%) among all single respondents , whereas if the marital status was in the category of “married”, this would influence current smokers to quit smoking, becoming ex-smokers(38.69%).

The statistical analysis further elucidated that a highly significant association was also unveiled between Educational achievement level and smoking behavior (P-value = 0.002). It was unequivocal that respondents who had no education or obtained education at merely primary or secondary school level eventually became smokers (39.37%). At higher education level of high school, vocational school, or diploma, smoking behavior among respondents in the majority (48.10%) was identified as non-smokers. It was intriguing that among respondents obtaining the highest level of education, bachelor’s degree and above, this level of education had a positive effect on smokers to quit smoking, becoming ex-smokers, and encouraged respondents to steer clear of cigarette by being non-smokers (with equal highest percentage = 41.30%).

There was a highly significant association clearly present between occupation and smoking behaviors (P = 0.016). It could be elaborated that respondents who were unemployed, worked as government officials, or office workers were likely to be non-smokers. Of all the three foregoing occupations, the highest percentage of non-smokers was respondents who were unemployed (52.94%). For those who were entrepreneur, the smoking behavior was identified as ex-smokers (37.04%). Smoking behavior of respondents working as laborer or wager whose nature of work was essentially physically intensive and demanding was determined as smokers (41.30%).

The study additionally revealed a statistically significant association identified between monthly income and smoking behaviors with P-value equal to 0.032. Conclusions could be drawn from the analyzed data that respondents at the lowest range of monthly income predominantly were non-smokers (45.00%). When the

monthly income range was one level higher (1001-5000), smoking behavior among the preponderance of respondents was to the other extreme identified as smokers (45.21%). At the monthly income level of 5001 to 10000 baht, the smoking behavior among the majority was ex-smokers (35.71%). As the monthly income level moved further up to 10001 to 30000 baht, the smoking behavior was reversed to be non-smokers (42.65%). Finally at the highest level of monthly income, the most prominent smoking behavior was ascertained as ex-smokers (53.33%).

Table 17 Relationship between types of current illnesses and smoking behavior: Non-smokers, Ex-smokers, Current smokers

Types of current illnesses	**Non-smokers N= 88**		**Ex-smokers N = 86**		**smokers N = 78**		**P-value**
	frequency	**Row %**	**frequency**	**Row %**	**frequency**	**Row %**	
1. Directly related disease	26	38.81	28	41.79	13	19.40	0.051
2. Directly related symptoms	6	20.69	9	31.03	14	48.28	
3. Indirectly or unrelated related disease and symptom	56	35.90	49	31.41	51	32.69	

Illnesses, health problems, or other health –related reasons leading the respondents to use services at the hospital have been categorized into three classes, namely directly related disease**,** directly related symptoms, which were diseases and symptoms of diseases proven to be negatively affected by cigarette smoking. And indirectly or unrelated related diseases and symptoms were diseases or symptoms of diseases the prognosis of which was not directly declined or unaffected by cigarette smoking.

The result based on Chi-square test demonstrated that it failed to establish a statistically significant association between types of current illnesses and smoking behaviors among the respondents and smoking behaviors (P = 0.051).

There were other two independent variables, which were specific characteristics that were applicable merely among ex-smokers and current smokers. The determination of their relationship with the dependent variable could therefore be exclusively ascertained among ex-smokers and current smokers. The first characteristic was age at which cigarette smoking was initiated; this was presented in age group as shown in Table 18. The second characteristic dealt with self –efficacy, which was perceived capability among ex-smokers and current smokers to be able to accomplish quitting cigarette smoking. The relationship between self-efficacy and smoking behavior was illustrated in Table 19.

Table 18 Relationship between age at which cigarette smoking was initiated and smoking behavior: Ex-smokers, current smokers

Age group	**Ex-smokers N = 86**		**smokers N = 78**		**P-value**
	frequency	**Row %**	**frequency**	**Row %**	
7-15	15	53.57	13	46.67	0.621
16-25	58	50.43	57	49.57	
26-55	13	61.90	8	38.10	

It could be concluded based on the results in Table 18 that there was no statistically significant association between age at which cigarette smoking had been initiated and smoking behaviors (P-value = 0.621).

Table 19 Relationship between Self-efficacy and smoking behavior: Ex-smokers, Current smokers

Self-efficacy score	Ex-smokers N = 86		smokers N = 78		P-value
	frequency	Row %	frequency	Row %	
26-48	18	23.38	59	76.62	<0.001
49-61	68	78.16	19	21.84	

Mean of Total score = 47.82, Standard deviation = 5.150
Minimum score = 32 Maximum score = 54

The degree of self-efficacy was measured based upon the total score, which was classified into two categories of low self-efficacy (total score range of 26 to 48) and high self-efficacy (total score range of 49 to 61).

Table 19 demonstrated that there was a highly significant association between self-efficacy and smoking behaviors composed of ex-smokers and current smokers with P-value less than 0.001. It could be unequivocally established that respondents possessing low degree of self-efficacy were found to be smokers (76.62%). In a complete contrast, respondents with high degree of self-efficacy were those who believed in oneself and were capable of overcoming cigarette smoking habit, hence becoming ex-smokers (78.16%).

Due to the fact that the relationship between each independent variable of interest and dependent variable has been completely ascertained and established, it would be worthwhile if another statistical method, which was Multiple logistic

regression, was also employed to determine the magnitude of the relationship previously unveiled by Chi-square.

The concept based upon the proven theory stated that each of the foregoing independent variables of interest essentially played its own role on others, which in turn affected the cumulative tendency among the respondents to acquire a specific type of smoking behavior: non-smokers, ex-smokers or smokers. Multiple logistic regression could therefore serve as an integral tool to identify which independent variables of interest were statistically appropriate determinants to explain or predict the likelihood of the acquisition of a particular smoking behavior among the respondents when all independent variables of interest were simultaneously taken into consideration.

There were two models presented: model I and II, the details of which were delineated in table 20 and 21 respectively. Model I was the overall model that represented each explanatory independent variable of interest, including Personality and its influence on the acquisition of smoking behavior, which were non-smokers, and smokers.

Model II elucidated each explanatory independent variable of interest, including Personality and Self-efficacy and their influence on the acquisition of smoking behavior among subgroup respondents, which were ex-smokers, and current smokers.

Table 20 Multiple logistic regression analysis of the magnitude of relationship between independent variables comprising age, education level, occupation, marital status, monthly income, Personality factor, and dependent variable: smoking behavior (Model I)

Independent Variables	Estimated coefficient (β)	P-value	Odds ratio
Age	0.017	0.120	1.018
Education level 1	0.533	0.261	1.703
Education level 2	-0.211	0.622	0.810
Occupation(Laborer)	0.829	**0.017**	**2.291**
Marital status(married)	-0.017	0.962	0.983
Income	0.000	0.564	1.000
Personality	0.013	0.575	1.013
Constant	-1.288	0.338	0.276
	Adjusted R-square = 70.6		

Note: Figures in bold type signify statistical significance at P-value < 0.05
Adjusted R-square is equal to 70.6, indicating that approximately 70.6% of the total variation in smoking behavior (dependent variable) can be correctly explained by independent variables in the logistic model.

To facilitate the process of data analysis and result interpretation by multiple logistic regression, such categorical variables as education level, occupation, marital status, and the dependent variable (smoking behavior) were recoded as dummy variables. For smoking behavior, ex-smokers and current smokers were coded as “1”, whereas non-smokers were coded as “0”.

Educational achievement level was categorized into two levels of interest: Level 1 which was assigned code “1” representing the level of no education, primary school, and secondary school, and Level 2 which was coded as “0” representing high

school, vocational school, and diploma. The level which was not coded (bachelor's degree and above) was the category with which all other two categories were further compared (Reference group).

Occupation was regrouped into two classes made up of laborer, which was assigned code "1" and non- laborer assigned with code "0", since the majority of smokers were found to be laborers according to the result from Chi-square test. The rest of the independent variables were numerical which was perfectly valid for the analysis.

Table 20 illustrated the results from statistical analysis, using multiple logistic regression. It could be concluded that after the presence of the other independent variables in a logistic regression model was adjusted, respondents whose occupation was laborer were nearly 2.3 times more likely than those whose occupation was not laborer to become smoker (P-value = 0.017, Odds ratio = 2.291).

Although personality, one of the main independent variables of interest, was not found to be an appropriate predictor of smoking behavior with statistical significance (P-value = 0.575), a trend regarding the influence of personality on the acquisition of a particular type of smoking behavior could be noticed. According to the odds ratio equal to 1.013, it could be elaborated that those whose personality score was increased 1 unit were 1.013 times more likely than those whose personality score was not increased to become smoker after the effects of the other independent variables were adjusted. Similarly, logistic regression also failed to identify educational achievement level 1(no education, primary and secondary school) as a statistically significant predictor of smoking behavior.

However, a trend can also be established in that it was 1.703 times more likely among those with no education or obtaining merely low education level (primary or secondary school) than those whose with bachelor's degree or higher to acquire smoking behavior (odds ratio = 1.703).

Table 21 Multiple logistic regression analysis of the magnitude of relationship between independent variables comprising age, education level, Personality, self-efficacy, age at which smoking was initiated and dependent variable: smoking behavior: ex-smokers and current smokers (Model II)

Independent Variables	Estimated coefficient (β)	P-value	Odds ratio
Self-efficacy	0.330	**<0.001**	**1.391**
Education level 1	-1.351	**0.031**	**0.259**
Education level 2	-1.182	0.095	0.307
Personality	0.018	0.653	1.018
Age	0.036	**0.031**	**1.037**
Age at which smoking was initiated	0.003	0.902	1.003
Constant	-17.274	0.000	0.000
	Adjusted R-square = 82.3		

Note: Figures in bold type signify statistical significance at P-value < 0.05
Adjusted R-square is equal to 82.3, indicating that approximately 82.3% of the total variation in smoking behavior (dependent variable) can be correctly explained by independent variables in the logistic model.

Multiple logistic regression was also employed in ascertaining among the sub group comprising only ex-smokers and current smokers the magnitude of the association between self-efficacy and smoking behavior when all other independent variables of interest were also taken into account.

Smoking behavior, which was a categorical variable, was recoded as dummy variables in which ex-smoker was assigned with code “1”, and current smoker was assigned the code of “2”. Education level was recoded as dummy variables in the same manner as previously described.

Results from the analysis demonstrated in Table 22 indicated that after the effects of the other independent variables of interest in the logistic model were adjusted, self –efficacy was found to be a statistically significant predictor of smoking behavior comprising ex-smokers or current smokers with P-value less than 0.001.

Therefore, respondents whose self-efficacy towards quitting cigarette smoking was increased 1 unit were 1.391 times more likely than those whose self-efficacy score was not increased to completely quit cigarette smoking, therefore becoming ex-smokers (Odds ratio = 1.391).

Logistic regression further identified another determinant of smoking behavior with statistical significance, which was Age of respondents (P-value = 0.031). It could be elucidated that after the presence of the other independent variables in the logistic regression model was adjusted, there was a tendency in favor of every one-unit increase in respondents' age. With every 1 unit increase in age, there was a corresponding 1.037-fold increase in the likelihood that respondents who were current smokers would quit cigarette smoking habit, becoming ex-smokers (Odds ratio = 1.037).

Education level was also found to be a statistically significant determinant of smoking behavior (P-value = 0.031). After the presence of the other independent variables in the logistic regression model was adjusted, respondents who had no education, obtained merely primary, or secondary school were 0.259 times less likely than those whose education level was bachelor's degree or higher to successfully quit smoking, becoming ex-smokers (Odds ratio = 0.259).

CHAPTER 5
DISCUSSION

This study was conducted among 252 male outpatients at Paholpolpayuhasena general hospital, using face-to-face interview with self-constructed questionnaires. It was unequivocal from several published research results that the such factors as people's knowledge regarding the detrimental effects of smoking, the accessibility or availability of cigarettes played their roles merely to some extent on the acquisition of a particular type of smoking behavior comprising non-smoker, ex-smoker or current smoker. Nevertheless, a considerable number of smokers were reportedly continuing their smoking habits despite their knowledge regarding well-informed negative effects of cigarette smoking. As a result, the factors that might influence people to a greater extent than the foregoing factors to acquire a specific type of smoking behavior potentially related on the other hand to psychological characteristics such as personality and self-efficacy in quitting cigarette smoking, which were coined "proximal" factor. This premise has laid a solid foundation for this study to mainly focus on the "proximal" factors in order to gain a better understanding in the psychological determinants of smoking behavior and their interaction with other distal factors such as socio-demographic characteristics in influencing people's choice of smoking habit.

The discussion of the results obtained from the study was highlighted in details in this chapter. The sequence of discussion composed of 5 parts was followed according the study's objectives:

5.1 Smoking behavior among male outpatients at Paholpolpayuhasena hospital
5.2 Relationship between socio-demographic factors and smoking behavior
5.3 Relationship between personality types (Extroversion and Introversion) and smoking behavior
5.4 Relationship between self-efficacy and smoking behavior
5.5 Study limitation

5.1 Smoking behavior among male outpatients at Paholpolpayuhasena hospital

The study revealed the prevalence of smoking among male outrespondents at Paholpolpayuhasena general hospital of 30.95%. This alarming figure of current smokers was relatively higher than that reported by the National statistics of Thailand in 2003 as 20.6% for the province of Kanchanaburi, unveiling the escalating extent of the smoking problem in the region. This figure was higher than the highest prevalence rate of smoking (25.7%) in Thailand, which was found to be in the Northeastern region, as reported by the Office of Thailand health promotion foundation (37). In addition, this smoking prevalence among male outrespondents was alarmingly higher than the prevalence of smoking among males in Singapore reported by the world Health Organization to be 26.9%.

It was noteworthy that the prevalence of ex- smokers (34.13%) and non-smokers (34.92%) was nearly equal, signifying that there were almost equivalent distribution of respondents with different types of smoking behavior receiving services at the hospital.

The prevalence of smoking from this study although did not perfectly conform to the declining trend stated by the Office of Thailand health promotion, the figure was consistent with the projection of the Word Health Organization that cigarette smoking especially in the developing world was on the rise (37).

At the age group of 18 to 35 years old, respondents tended to become non-smoker, as shown by the figure in the majority (46.15%) in this particular age range. Among respondents in the group of both middle age (36 to 55 years old) and advanced age (56 to 85 years old), it was likely that their smoking behavior among the majority in the two age group (39.64%, 44.44% respectively) was otherwise changed from current smokers to ex-smokers (P-value = 0.001).

This finding was consistent with the statistics reported by the National statistics of Thailand in 2003, but not consistent with a study conducted by Anjum Memon, and Phillip M. Moody (20) stating that the highest prevalence of smoking was found among teenagers aged 18 to 20 years old. This inconsistency can be attributed to the fact that it is rare to find young respondents who are otherwise generally healthy in nature and therefore are not at risk for any major disorders or health problems, minimizing their frequency of using services at the hospital.

Additionally most smokers (44.87%) and ex-smokers (41.86%) obtained the education level merely at primary school with statistical significance (P-value = 0.002), where as non-smokers (21.59%) mostly attained education level at high school, and vocational school.

A large number of smokers (48.72%) were also found to be working as laborer, wager, or “blue collar” workers; conversely the occupation among the majority of ex- smokes (40.70%) and non-smokers (42.05%) was government official or “white collar” workers with statistical significance (P-value = 0.016).

It was evident that there were more current smokers (42.31%) whose monthly earning was in the low level of merely from1001 to 5000 baht than ex-smokers (26.74%) and non-smokers (19.32%) with statistical significance at P-value of 0.032.

The findings regarding education level, occupation, and monthly income among the respondents were remarkably consistent with the report of Office of Thailand’s health promotion foundation and study carried out by Radhouane Fakhfakh (38), and published in Bulletin of the World Health Organization. It clearly summarized that the level of cigarette smoking in men was in inverse proportion to their educational level; men educated to degree level smoke less than those of lower educational level. Furthermore, those who were at the upper tier of working position such as employers and senior managers smoked less than those whose work were physically demanding, for instance laborer or service personnel.

In comparison among respondents in each type of smoking behavior in terms of marital status, Ex-smokers (86.05%) were among the highest percentage of those who were currently married as compared to non-smokers(68.81%) and current smokers 67.95%), but the highest number of single respondents (28.41%) were non-smokers with statistical significance (P-value = 0.01).

This findings regarding marital status were to some certain degree in contrast with the results of several previous study published in the Bulletin of the World Health Organization and conducted by Anjum Memon, and Phillip M. Moody (20). It was elaborated that those who were widowed, divorced, or separated were more likely to become smokers than those who were currently married while the number of those who were widowed, divorced, or separated found in this study was only 7.69% among current smokers. These 7.69% of current smokers were included in "married" category. There were no non-smokers or ex- smokers who possessed martial status of being divorced, widowed, or separated.

The rationale behind these findings could be elucidated that to conform with the social and cultural norms in Asian society, male respondents who were currently married usually assumed the responsibility as breadwinners in their respective families. Coupled with the middle to advanced age at 46 to 55 years old, they were inevitably prone to acquire diseases especially the major or non-communicable diseases with devastating consequences such as diabetes mellitus, chronic obstructive pulmunary disorder, Tuberculosis, heart disease or cancer.

This provided coherence with another facet of this study result stating that the majority of respondents with types of current illnesses or health problems the prognosis of which was directly affected by cigarette smoking were ex-smokers. This result although not statistically significant, reasonably provided the explanation that ex-smokers were the group of respondents who have previously carried on the smoking habit and have up until now been affected by certain non-communicable diseases.

They have now been aware of the negative consequences of cigarette smoking that were very likely playing its role to certain degree on the acquisition of the current health problems and their current deteriorating health status. With this first hand experience about the negative consequences of cigarette smoking as well as the encouragement or intimidating ultimatum bestowed by the hospital's physicians about the impending premature death that would have occurred if respondents had not quit cigarette smoking, this had substantial impact on the consideration of quitting smoking.

Due to the familial responsibility, the fear of monetary insecurity, the fright of dying of the disease, the apprehension of the children being left behind if they expire, and the strong encouragement or threatening ultimatum from highly regarded physicians, these factors have cumulatively contributed to the change of smoking behavior from current smokers to ex- smokers.

It was intriguing that there were a considerable number of current smokers who bore the similarities with ex--smokers in almost all the foregoing categories. However, they were still persistent in smoking cigarette. The rationale behind this finding potentially lied in such psychologically related factors as personality and self-efficacy, which will be elaborated, in the latter part.

5.2 Smoking behavior of ex- smokers and current smokers

The majority of both ex- smokers (67.44%) and current smokers (73.08%) have revealed that they initiated their smoking behavior at the age of 16 to 25 years old, and the most common reason for smoking initiation was Imitation and adoption of friend's smoking habit for both ex-smokers (60.47%) and smokers (74.36%). The second most common reason to start smoking habit for both groups was that they wanted to experiment it themselves.

This result perfectly conformed with the finding of the research on smoking behavior published in the Monograph series on drug abuse conducted by the US.

National Institute on Drug abuse (39), indicating that it was well established that the main factors associated with the onset of teenage smoking were peer pressure, parental and family modeling, an image of accelerated maturity, and media messages associated with popularity, sexuality, and social fluency. However, a study conducted by AA Saheed published in BMJ journal (40) reported that the age of smoking initiation was at 15 to 30 years old and the reason was to relieve stress.

Essentially these two findings have a relationship between each other to a certain degree. It was well founded through several literatures that both situational factors such as peer pressure, the influence of environments and personal factors such as personality were implicated as relevant to the initiation of smoking among adolescents. Since adolescence was a period of transition from childhood to adulthood, it was the question of whether an individual teenager was able to cope with the physical and psychological changes so as to be least vulnerable to behavioral misconduct including the acquisition of smoking habit.

It was most probable that the psychological trait of most current smokers and ex-smokers during the teenage year were that they were prone to the influence of peer or parents who had taken up smoking habit, low in self-esteem, so they have no control over aversive stimuli, and higher in their traits of anxiety with some cases complicated with security in socio economic status and social deprivation.

The foregoing premise has been substantiated by some respondents' answers stating that their family values were the influence on their acquisition of smoking habit and their families had grown tobacco, since they were born.

Furthermore, some current smokers stated they were given cigarettes as part of offerings when they were Buddhist monks. This has shown the implication of environments and social value in which they grew up that regard cigarette as a part of normal everyday life.

Most ex-smokers and current smokers regarded smoking as a habit that negatively affecting their general health and their current health problems; nonetheless they were still persistent in their smoking habit. Moreover, most of both current and ex-smokers were aware of passive smoking, so they attempted to "find suitable places to smoke cigarette". The psychological factors, for instance personality type and self–efficacy were likely to influence the continuation and acquisition of their smoking habit that was elaborated in the latter part of this discussion.

The majority of current smokers (29.49%) and ex- smokers (32.56%) produced a uniform pattern of the frequency of cigarette smoking; the most common frequency among both groups was in the category of "sometimes", closely followed by "everyday". In addition to the frequency of smoking, the duration of smoking in the range of 2 to 10 years was also consistent among most ex- smokers (48.84%) and current smokers (43.59%)

However, there was a complete contradiction between the number of cigarettes smoked weekly between the two groups. It revealed that 70 was the number of cigarettes smoked weekly by the majority of current smokers (20.51%), followed by 140 cigarettes smoked per week by 16.67% of current smokers. On the contrary, 140 cigarettes was the most common number of cigarettes smoked per week among 20 % of ex-smokers, followed by 70 cigarettes weekly smoked among 15.29 % of ex-smokers.

Furthermore, most ex- smokers (88.37%) reported that they made merely 1 to 3 attempts to be successful in quitting cigarette smoking, whereas current smokers appears to have made more attempts to quit smoking ranging from 2 to 6 times, but those attempts were all in vain.

In addition, the strategies used to abstain from cigarette smoking were also identical between most current and ex- smokers. Those strategies were " suddenly quit smoking by building mental strength", followed by "using lozenges".

It was of particular interest that when all other previously mentioned characteristics between current smokers and ex- smokers were the same except the fact that ex- smokers smoked more cigarettes and made fewer attempts than current smokers. Therefore, it was highly possible that ex- smokers might have acquired a higher degree of nicotine dependence than that of current smokers. This recidivism when established was extremely difficult to destroy or even avoid it, but ex- smokers succeeded in abstaining from cigarette smoking despite the circumstance that was not conducive to it. This might be explained by some intrinsic factors such as psychological factors such as personality and the degree of self-efficacy that were different between the two groups.

Another coherent aspect that confirmed the above-mentioned premise deals with the fact that there were the equivalent number of current smokers in the majority (28.21%) who stated the reason to continue smoking cigarette as alleviating stress and recidivism. They pointed out that they had been smoking cigarettes since they were teenagers and had already been addicted to its smell and taste. This has proved that nicotine dependence or recidivism was a major reason thwarting the success in abstaining from cigarette smoking. However, this premise was not applicable among ex- smokers who successfully overcame this formidable task.

5.3 Relationship between personality types (Extroversion and Introversion) and smoking behavior

According to the study's results regarding the difference in the degree of Extroversion and Introversion between a group of non-smokers and smokers (ex-smokers combined with current smokers), it revealed that there was no difference in the total score representing the degree of Extroversion and that representing Introversion between non-smokers and smokers. Nonetheless, the study indicated that there were the combined traits of both extroversion and introversion in each respondent's personality regardless of smoking behavior they acquired: non-smokers or smokers. It was considerably rare for a person to possess the type of personality in

each of the two extremes that were Extroversion and Introversion. And the pattern of extroversion among smokers appeared to be prominent in certain dimensions. Smokers were found to exhibit traits of Extroversion in a higher degree than non-smokers in certain dimensions, characterizing that they craved excitement, often took chances, often stuck their neck out, acted on a spur of the moment, were generally impulsive, venturesome, and liked changes. They tended to be aggressive and lost their temper quickly. Their feelings were not kept under control, and they were not always reliable people (41).

Essentially, the result from multiple logistic regression analysis when the effects of other covariates were adjusted revealed that smokers were 1.013 times more likely to possess higher degree of extroversion than were non- smokers. This finding was supported by the results from Personality and national character written by R. Lynn (42) and smoking behavior by C.D. Spielberger and G.A. Jacobs. It coherently indicated that smokers had significantly higher score on Extroversion than non-smokers, signifying that smokers had a higher degree of extroversion than non-smokers did. Occupation as laborer or "blue collar" worker was additionally identified by the study as a significant predictor of smoking behavior. Those who were "blue collar" workers were 2.291 times more likely to be smokers than non-smokers.

These trend of the change in smoking behavior by the influence of personality suggested by this study results was also consistent with those reported in "Psychosocial influences on cigarette smoking" by US. National Institute on Drug abuse. A large longitudinal study conducted among 2753 British males and females indicated that both male and female smokers were more extroverted than male and female non-smokers (P-value < 0.01) (11).

In an attempt to shed light on the reasons behind the influence of personality on the inclination among extroverts to be smokers and the introverts to be non-smokers, a biologically based theory by Eysenck was employed as a basis for the following argument. The most plausible explanation was that extroverts were found to be more susceptible to social influence and peer pressure than were introverts. It could

be further elaborated based on this study results that the nature of extroverts who were generally sociable, impulsive, aggressive and took chances were conducive to the acquisition and maintenance of smoking habit. Additionally, Eyesenck also proposed the cortical arousal and stimulation, stating that Introverts were those who always avoided stimulation or "stimulus shy", whereas extroverts were those who constantly seek stimulation or "stimulus hungry" because introverts possessed lower level of threshold or transmarginal inhibition than extroverts. Therefore, with the equal intensity of stimulation, introverts would find it intolerable and consequently try to avoid it, but extroverts found it exciting and stimulating because that particular intensity has not yet reached the extroverts' threshold. The application of this proposed basis to the actual situation identified in this study could be made in terms of another factor, occupation as "blue collar" workers, that was also found to be exerting its effects and interacting with personality factors to ultimately have an impact on type of smoking behavior to be acquired by a particular person. Due to the preference to seek stimulation and the physically demanding nature of their works among "blue collar" workers, cigarettes were the most rational source to provide them with stimulating effects from nicotine so that they would feel energetic and refreshed to carry out their works. The interrelation of personality and types of occupation therefore may play a significant role in determining particular smoking behavior to be acquired by the respondents.

5.4 Relationship between self-efficacy and smoking behavior

It was unequivocal to make a definite conclusion that ex--smokers exhibited a significantly higher degree of self-efficacy towards abstaining from cigarette smoking than that of current smokers (P-value < 0.001). This finding was consistent with the results of the study based on Transtheoretical model (TTM) by Young-Ho Kim (15), elaborating that self-efficacy scores of those smokers who were at Precontemplation stage are significantly lower than self-efficacy scores of those at the Maintenance stage. Those smokers at Precontemplation stage were comparable to current smokers in this study, while those at Maintenance stage could be translated as ex- smokers in this study.

According to Bandura's social learning theory, those with high self-efficacy can be explained in that individuals with a perceived, high level of confidence to avoid smoking even when they are in various risk situations such as working in an office with most colleagues who smoke cigarette, or being offered cigarette when engaging in social gathering (43). This explanation has prompted us to further discover the rationale behind the sources of high level of self-efficacy among ex-smokers that was firmly established by this study.

One explanation that appeared most plausible dealt with the importance of perceiving high benefits and low barriers, or "decision balance" before smoking abstinence could occur among ex- smokers, as emphasized by Janis and Mann. Therefore, it was possible to explain that individuals' perceptions that smoking abstinence could make them feel healthier and lead a better life were positively related to greater readiness and inclination towards quitting smoking.

In order to extend this concept in the realm of the study, it was logical to conclude that this so-called "decision balance" was strongly reinforced by "Social persuasion" supported by Bandura's social cognitive theory.

This social persuasion in this particular sense was different from the core concept proposed by Bandura in that it was not merely the verbal persuasion people in society were attempting to convince that the respondents had what it took to succeed in the pursuit of smoking abstinence, but it was their own high degree of awareness towards malicious effects of smoking. This high degree of awareness was engendered and strengthened by the patient's first hand experience towards inimical effects of smoking, physicians' intimidating advice regarding the imminent death if smoking habit still persisted as well as strong sentiments arisen from family members' fervent appeals for them to stop smoking.

This particular circumstance was subsequently influenced by the notion of responsibility for the family's security and well being as well as the adverse consequences the family would encounter if the respondents depart. This explanation

might be able to certain extent provide an insight into high degree of self-efficacy towards smoking abstinence among ex- smokers. This argument was in complete consistence with the model (II) of smoking behavior prediction statistically proven by multiple logistic regression analysis. According to the model, respondents with high level of self-efficacy towards quitting smoking, were at more advanced age than others, attained high level of education, were endowed with high tendency to be successful in the pursuit of smoking behavior change from current smokers to ex-smokers.

This study's results were also consistent with the findings of the research on smoking behavior published in the Monograph series on drug abuse conducted by the US. National Institute on Drug abuse (44). It indicated that there were five necessary conditions for the success in changing smoking behavior from smokers to ex- smoker, namely

1) Knowledge and importance of the threat of cigarette smoking
2) Personal relevance of the threat from cigarette smoking
3) Self-efficacy or the perceived capability of being able to quit cigarette smoking
4) Values of quitting smoking or continuing smoking cigarette

Regarding knowledge and importance of the threat of cigarette smoking, sufficient amount and variety of knowledge towards the detrimental effects of smoking were of importance to motivate people to quit smoking. This was also closely related with the high educational background pointed out by this study as a significant predictor of smoking behavior

In the aspect of personal relevance of the threat from cigarette smoking, it was stated that while recognizing that cigarette smoking was, in general, an important health threat, a smoker might still deny its personal relevance. He may say, "I don't smoke enough to get any of the diseases cigarette smoking is supposed to cause," or, "I haven't smoked long enough to worry about the diseases cigarette smoking is

supposed to cause." As long as he holds the "It can't happen to me" attitude, he will not act on his knowledge of the threat.

It was most plausible that this personal relevance can also serve as a source of self-efficacy, since it would be a strong driving force for smokers to quit smoking if they perceive smoking as their personal threat. Smokers reported that they continued smoking because they were already addicted to it and most probable they did not perceive smoking as a threat for them because they were at the age of 36 to 45 years old. Therefore they were less prone to acquire any major health problems than ex-smokers who were at the age of 45 to 55 years old. This reason was likely influencing smokers not to regard smoking as a threat as highly as ex- smokers did, contributing to the low degree of self-efficacy among current smokers.

5.5 Study limitation

It is deemed necessary to mention study limitations in order to prevent the potential errors arisen from the application of the study results for other groups of people. The limitations of the study include the cross-sectional nature of this study. As with the majority of cross-sectional analyses, causality and the possibility of unmeasured confounders must be considered. It may be expected that response bias would be distributed randomly and not associated with any particular characteristics so that this potential bias may not have an impact on the findings of the study in relation to the association between the study's independent and dependent variables. Additionally, a face-to-face interview is employed to address this response bias and potential misunderstanding among respondents, since main focus of the study is on psychological factors: personality and self-efficacy. Therefore, a face-to-face interview can ensure the accuracy in terms of intended meaning each question conveys and the completeness of the answers. To maximize the accuracy of measurement tools, questionnaire utilized for this study is also equally important. The self-constructed questionnaires exclusively created for this study are based on dimensions specifically characterized each type of personality: Extroversion and Introversion in the theory of personality by Hans Eysenck's biologial trait theory. The

questionnaire measuring the degree of self-effiacy is developed based upon the Bandura's social cognitive theory.

Due to the fact that this is a hospital-based study focused on groups of respondents in a particular place and time, the limitation regarding generalizability of the results might arise.

CHAPTER 6
CONCLUSION AND RECOMMMENDATION

6.1 Conclusion

The rapid increase in tobacco consumption and its spread around the world represents a great concern to public health both globally and at the national level. The threat posed by smoking to global health is unprecedented, as cigarette smoking is the second major cause of death in the world and the fourth most common risk factor for disease worldwide. It kills 4.9 million persons each year, which is equivalent to one in ten adult deaths worldwide. This trend is rendered even more alarming when looking at the projections showing that the number of deaths will double in the next 20 years. Diseases for which tobacco use is an important risk factor, for instance cancers, respiratory diseases and cardiovascular diseases, are taking an increasing toll in developing countries, including Thailand and among low-income groups in many countries. The world health organization has been the leading international body on the formulation of global anti-smoking programs, for which Thailand has been recognized for being able to achieve most of its goals. The results from this study could join forces as part of the concerted efforts for better understanding of smoking behavior.

6.2 Methodology

A face-to-face interview with constructed questionnaires was used as a data-collecting method and tool in this cross-sectional study. Data were collected from January, 30 to February 4, 2006 among 252 male outpatients receiving services at each of the six different examination rooms, namely Orthopedic, medical, surgery, ENT(Ear, Nose, Throat), ophthalmologic, and dental examination rooms of Paholpolpayuhasena general hospital. The questionnaires had been previously tried

out for reliability at Makarak general hospital, Makarak district, Kanchanaburi province. Chronbach's Alpha coefficient of reliability was 0.68.

Univariate analysis (mean, standard deviation, frequency, and percentage) was employed to provide description in the descriptive part of the study. Chi-square test was used to assess the significance of association between each independent variable of interest and smoking behaviors. Multiple logistic regression analysis was further employed to evaluate the magnitude of the association and the influence of independent variables previously found to be significantly associated with smoking behavior by Chi-square.

6.3 Results

The prevalence of smoking in percentage among all the 252 male outpatients at Paholpolpayuhasena hospital, Kanchanaburi province was 30.95%. The average age among all 252 respondents was equal to 44.39 years old with standard deviation of 15.61. Most respondents (61.91%) were middle-aged patients with the age range from 31 to 60 years old. The level of educational achievement attained by most of the respondents (35.71%) was primary school, followed by high school level among 19.44% of the respondents.

Almost all of the respondents (78.97%) were married. The number of those whose occupation was Laborer/ wager (36.51%) was slightly higher than that of the respondents whose occupation was government officials (36.11%).

The average monthly income among all the respondents was 10604.4 baht with standard deviation of 12084. The monthly income of most respondents (44.84%) was at low level of 0 to 5000 baht.

Types of current illnesses or health problems prompting patients to use services at the hospital were found to be unrelated to or not directly related to cigarette smoking such as Musculoskeletal disorders.

Regarding Socio-demographic characteristics categorized according to each type of smoking behavior, the majority of non-smokers were found in both the age group of 21 to 30 years old (19.32%) and 31 to 40 years old (19.32%).Most ex-smokers (27.91%) were in the age group of 51-60 years old, whereas a preponderance of current smokers (28.21%) was in the age group of 31-40 years old.

Non-smokers mostly obtained the highest education at high school level (30.68%). However, primary school was the highest educational level attained by the majority of both ex-smokers (41.86%) and current smokers (44.87%). Government official was the most common occupation for both non-smokers (42.05%) and ex-smokers (40.70%). However, laborer/wager, was the most common occupation among current smokers.

The majority of respondents in all types of smoking behavior were married: non-smokers (71.59%), ex-smokers (89.53%), and current smokers (75.64%). The majority of respondents in all types of smoking behavior had monthly income in the range of 0 to 5000 baht with the highest percentage (57.69%) found in current smokers.

Illnesses or health problems that were not directly related to cigarette smoking were mainly the reason prompting the majority of non-smokers (63.64%), ex-smokers (56.98%), and current smokers (65.38%) to come to the hospital.

With respect to smoking behavior of ex-smokers, and current smokers, the average age at which cigarette smoking was initiated among former and current smokers was 20.33 years old with standard deviation of 6.90. The majority of both ex-smokers (67.44%) and current smokers (73.08%) initiated their cigarette smoking habit at the age as young as 16 to 25 years old with the most common reason for the initiation of smoking habit stated as “imitation and adoption of friends’ cigarette smoking habit”.

Most ex-smokers (66.29%) and current smokers (64.10%) indicated that they smoked cigarette everyday. The number of those who sometimes smoked cigarettes accounted for 32.56% among ex-smokers and 29.49% among current smokers. Almost all ex-smokers (98.84%) and current smokers (97.44%) said it was very easy to find and purchase cigarettes.

Almost 57% of ex-smokers and 64.10% of current smokers stated that their cigarette smoking habit had a potentially adverse effect on their current health problems. A large number of both ex-smokers (94.19%) and current smokers (97.44%) indicated they were fully aware of passive smoking or knowledge regarding the harmful effects of cigarette smoking on others who unintentionally inhale the smoke

Regarding their feelings towards the nuisance or health hazards their smoking might cause for others in society, the majority of both ex-smokers (77.01%) and current smokers (92.41%) revealed that they felt bad and responsible for it. As a result, they tried to find a suitable place to smoke so that their smoking would not adversely affect or annoy others.

In the aspect of duration of smoking, the results revealed that the average duration of smoking among all ex-smokers and current smokers was 16.34 years with standard deviation at 12.57.

The majority of both ex-smokers (48.84%) and smokers (43.59%) reported the duration of smoking from 2 to 10 years, followed by 11 to 20 years. Most ex-smokers indicated they had smoked 140 cigarettes weekly, followed by 70 cigarettes, whereas most current smokers reported smoking 70 cigarettes weekly, followed by 140 cigarettes.

Concerning specific characteristics of smoking behavior among ex-smokers, more than half (58.69%) of all 86 ex-smokers stated the reasons for quitting cigarette smoking as “negative effects cigarette smoking had on their health”. Most ex-smokers

(88.37%) had taken only 1 to 3 attempts to successfully quit smoking. The most common strategy employed by most ex-smokers to successfully abstain from smoking was suddenly quitting smoking by building up mental strength.

For the specific characteristics of smoking behavior among current smokers, most current smokers stated they smoked cigarettes in order to alleviate stress. 78.21% of current smokers indicated they had tried quitting cigarette smoking, whereas only 21.79% of current smokers said they had never tried quitting cigarette smoking.

Of all current smokers who have tried quitting cigarette smoking, 70.49% of them reported having made 1 to 3 attempts so far, while 24.59% of them tried in vain for 4 to 6 times to quit cigarette smoking.

The corresponding strategies employed by current smokers who have made vain attempts to quit cigarette smoking was also suddenly quitting smoking by building up mental strength, the same strategy used by ex-smokers.

In the analytical part of the results, using Chi-square test, the research hypothesis stating "There is an association between Socio-demographic characteristics and smoking behavior among male outpatients at Paholpolpayuhasena hospital can be answered as follows. It revealed that there was a statistically significant association between smoking behaviors comprising non-smoker, former smoker, current smoker, and socio-demographic characteristics, including age of patients (P-value < 0.001), marital status(P-value = 0.01) , educational achievement level (P-value = 0.002), occupation (P-value = 0.016), and monthly income(P-value = 0.032).

It could be concluded that at the age group of 18 to 35 years, repondents tended to be non-smokers. At the middle age (36 to 55 years old) and advanced age (56 to 85 years old), it was likely that their smoking behavior was on the other hand changed from current smokers to ex-smokers.

Respondents who were single had a tendency to acquire a smoking behavior as non-smokers, whereas if patients were married , this would influence the smoking behavior among respondents to be changed from current smokers to ex-smokers.

Respondents who had no education or obtained education at merely primary or secondary school level eventually became smokers. Respondents attaining higher education level of high school, vocational school, or diploma were likely to become non-smokers. At bachelor's degree and above, this level of education had a positive effect on smokers to quit smoking, becoming ex-smokers, and encouraged respondents to steer clear of cigarette by being non-smokers.

Those respondents working as laborer or wager whose nature of work was essentially physically intensive and demanding had a high tendency to become smokers. However, those who were unemployed, worked as government officials, or office workers were likely to be non-smokers.

Respondents were likely to be smokers if their monthly income was at low level (1001-5000 baht). At the monthly income level of 5001 to 10000 baht, the smoking behavior was tended to be ex-smokers. As the monthly income level moved further up to 10001 to 30000 baht, the smoking behavior was reversed to be non-smokers.

6.3.1 Results on Personality

To answer the research hypothesis stating "There is an association between Personality types (Extroversion and Introversion) and smoking behavior among male outpatients at Paholpolpayuhasena hospital", the following was the conclusion. Results from the statistical test, Wilcoxon sum rank test, revealed that there was no statistically significant difference in the score on Extroversion and Introversion between non-smokers and smokers (P-value = 0.513 and 0.357 respectively). According to the sum of the score in each of the five dimensions representing extroversion and introversion, there were scores for some dimensions that showed the difference in the degree of extroversion and introversion between smokers and non-

smokers. As a results it could be concluded based on the results obtained from this study that both smokers and non-smokers exhibited both the traits of extroversion and introversion. There were merely some respondents in minority who expressed the trait of either extroversion or introversion in the high degree.

However, when the scores in each of the five dimensions representing extroversion and introversion were deeply examined, it was found that some dimensions representing extroversion were expressed in higher degree by smokers than non-smokers. On the contrary, non-smokers exhibited some dimensions representing extroversion in higher degree than smokers. This could be elaborated as follows.

Smokers exhibited higher degree of extroversion in dimension 2 and 5, characterizing that they craved excitement, often took chances, often stuck their neck out, acted on a spur of the moment, were generally impulsive, venturesome, and liked changes. They tended to be aggressive and lost their temper quickly; their feelings were not kept under control, and they were not always reliable people.

Non-smokers were found to possess higher degree of Extroversion in dimension 1, 3, and 4, portraying that they were sociable, liked parties, needed to have people to talk to, did not like studying or doing things by themselves. They were fond of practical jokes, liked to laugh and be merry, had lively temperament, and carefree. They were generally active, assertive, and kept doing things.

6.3.2 Results on self-efficacy

To answer the research hypothesis stating “There is an association between Self-efficacy and smoking behavior comprising ex-smokers and current smokers among male outpatients at Paholpolpayuhasena hospital, the following was the conclusion. Statistical significance was found between self-efficacy and smoking behavior (P- value < 0.001). Respondents possessing low degree of self-efficacy were found to be smokers. In a complete contrast, respondents with high degree of

self-efficacy were those who believed in oneself and were capable of overcoming cigarette smoking habit, hence becoming ex-smokers.

There was a statistically significant difference in the total score of self-efficacy in both dimension 1, 2, and the total score between a group of smokers and ex-smokers (P-value< 0.001).This could be concluded that self-efficacy or perceived capability in successfully quitting cigarette smoking among ex-smokers was significantly higher than that of smokers.

Ex smokers have clearly exhibited that while they were in the process of quitting cigarette smoking, they possessed confidence in their own ability to successfully abstain from smoking, and maintained their strong commitment throughout the process. When encountering with obstacles and failure, they remained committed and persistent towards their goal. They rarely or never attributed the failure to lack of aptitude or capability, but they perceived that they acquired what it took to succeed in successfully quitting cigarette smoking.

6.3.3 Results form multiple logistic regression analysis

In reality, there are several factors that are playing roles on one another and ultimately exerting their cumulative effects on tendency for patients to acquire a specific type of smoking behavior. This interaction of all the independent variables of interest makes it imperative for the use of multiple logistic regression analysis to ascertain the influence of each independent variable of interest on smoking behavior.

There were two models of multiple logistic regression.

Model I elaborated the influence of the independent variables of interest on smoking behavior comprising non-smokers and smoker.

It could be concluded that after the presence of the other independent variables in a logistic regression model was adjusted, respondents whose occupation was laborer are nearly 2.3 times more likely than those whose occupation was not laborer to become smoker (P-value = 0.017, Odds ratio = 2.291).

Although personality, the main independent variable of interest, was not found to be an appropriate predictor of smoking behavior with statistical significance (P-value = 0.575), a trend regarding the influence of personality on the acquisition of a particular type of smoking behavior could be noticed.

According to the odds ratio equal to 1.013, it could be elaborated that those whose personality score was increased 1 unit were 1.013 times more likely than those whose personality score was not increased to become smoker after the effects of the other independent variables were adjusted.

Model II elucidated each explanatory independent variable of interest, including Personality and Self-efficacy and their influence on the acquisition of smoking behavior among subgroup respondents, which were ex-smokers, and current smokers.

Multiple logistic regression revealed three statistically significant determinants of the acquisition of smoking behavior: ex-smoker or current smoker. These determinants were self-efficacy (P-value < 0.001), respondents' age (P-value = 0.031), and educational achievement (P-value = 0.031).

After the effects of the other independent variables of interest in the logistic model were adjusted, respondents whose self-efficacy towards quitting cigarette smoking was increased 1 unit were 1.391 times more likely than those whose self-efficacy score was not increased to change their smoking behavior from current smokers to ex-smokers (Odds ratio = 1.391). And with every 1 unit increase in age, there was a 1.037 fold-increase in the likelihood that their smoking behavior would be converted from smokers to ex-smokers. (Odds ratio = 1.037). Also those who had no education or obtained merely primary or secondary school were 0.259 times less likely than those whose education level was bachelor's degree or higher to become ex-smokers (Odds ratio = 0.259).

6.4 Recommendations

The recommendations can be categorized into two major interrelated aspects as follows.

1. The external factors encompass government sector, tobacco-producing companies, and health personnel

1.1 The government sector

A national plan must be set up to ensure the multisectoral coordination and designate the responsibility among several ministries. For instance, the ministry of health must play a lead role in providing technical expertise for training, collecting data to track the progress of the already existing interventions to tackle cigarette smoking, and also health education.

The government must designate the roles that other ministries should play in the concerted, national efforts. Additionally, the committee at different level, provincial, district, sub-district, and village, responsible for coordinating with higher committee and ensuring the implementation of the approved interventions to be instituted at village level. Those personnel in charge of the committee at different level will be specifically trained for health aspect and other realms of smoking so that they can raise awareness among people at the grassroots.

1.2 Tobacco-producing companies

The cooperation in abiding by the regulations towards production and advertisement must be obtained from those companies producing cigarettes. The extent to which the law is enforced should be agreed upon by several committee stated in the action plan, and strictly enforced with the supervision from the ministry of law and justice.

Specifically, the content of advertisement of cigarette products should not be misleading. The production of the low-nicotine cigarette may, on the one hand,

be important for those who are trying to quit but still need a tapered dose of nicotine. On the other hand, the cigarette-producing companies may take advantage of this opportunity to mislead the public that low-nicotine (light) cigarettes are not addictive. As a result, there must be the mutual agreement from both the cigarette-producing companies and the government in terms of the details in the law to be enforced. The government agencies must monitor whether those companies abide by the law.

1.3 The roles of health personnel

The role of education and training is of paramount importance. Health personnel should be a spearhead in conducting the needs assessment as to who in the area of responsibility needs which types of education, ,and which forms of intervention would best fit for each specific group. For instance, if the trainees are teachers or employers, the content might be suitable if health risks of cigarettes and model of developing smoking-free school or smoking –free workplace are included. This role should be coordinated by other sectors such as the ministry of health in providing necessary resources.

2. The implications of self-efficacy and personality towards interventions to be instituted by health care personnel, including hospital physicians

The study's results have unveiled the significance of psychological factors that are self-efficacy and personality types along with such certain socio-demographic characteristics as age and occupation in determining the acquisition of a particular type of smoking behavior. The formulation of interventions should therefore be based on these interrelated factors and tailored for each group of patients or general people in the region. The interventions to be formulated and implemented should be holistic, taking into consideration all aspects in life with focus on self-efficacy, personality, and Socio-demographic characteristics. The smoking cessation clinic at the hospital should serve as a center from which the interventions are formulated and disseminated.

As the results have confirmed that the majority of current and ex smokers initiate their smoking habit at a very young age, an anti-smoking approach specifically tailored for students at school in the regions should be implemented with cooperation from teachers in order to minimize the number of new smokers. The education regarding the inimical effects of cigarette smoking may be included in as part of the main curriculum as well as informal education conducted by health personnel at the primary care level. The schools must cooperate with health personnel by monitoring students smoking behavior and providing the background information of students especially those who are currently smoking, at risk of becoming smokers, or carrying a tendency to become smokers by taking into account their personality type: extroversion or introversion. The information regarding family financial status, parents' occupation, education, and smoking behavior are also beneficial, since the influence from parents plays a significant role on students' smoking behavior. The self-efficacy towards resisting or quitting smoking should also be ascertained among the general students and those who are likely to become smokers or currently smoking so that approaches to increase self-efficacy can be included in the education.

For the middle-aged and advanced aged people, the frequency of receiving services at the hospital is increased, since they are more prone to all kinds of illnesses. The interventions included in the form of intimidating advice from physicians can therefore greatly influence those current smokers to quit their habit because the prestigious status in society. Similarly, personality and self-efficacy are of greatest importance for physicians especially at the hospital's smoking cessation clinic, as customized approaches for patients with different types of personality must be formulated to ensure the success and sustainable outcomes. For example, those who are risk-taking tend to go against the grain or do the opposite as recommended by physicians.

As a result, physicians' advice or sometimes threatening words about premature death might not convince those type of patients, but rather these advice are more likely to stimulate or instigate them to try what has been advised to refrain from.

The key is to modify the surroundings, making sure that it's not conducive to any actions arisen from the desire to try among those who are intrinsically risk-taking.

In addition to the psychological factors, socio-demographic characteristics such as occupation of patients should also be taken into consideration. The laborers or blue- collar workers should be the group of people to whom the utmost consideration is paid. The interventions focused on deterring them to initiate smoking or assisting them in the pursuit of smoking abstinence should be formulated and properly implemented with the cooperation from the employers. Since most of them attained low level of education, the knowledge regarding the detrimental effects of cigarette smoking may not be fully recognized. Hence, mobile and comprehensive educational interventions jointly conducted by health personnel in the region should be launched at the site of working: factories or construction areas as well as at the communities to raise awareness about insidious effects of cigarette smoking among the workers. Certain smoking-oriented activities that involve everyone in the family to take part in such as questions and answer session or games, followed by an informal talk regarding negative effects of smoking given by a panel of respected members in the community can be an integral part in the education plan. This is expected to raise the degree of self-efficacy towards quitting cigarette smoking among the workers, since the advice or words of encouragement especially from revered figures in the community, for instance monk, community leaders, or physicians is known to play a great role on their mentality. These words of encouragement or advice would also include the beneficial facet accrued from quitting smoking that deals with potential longevity and security in family unit. One of the psychological influences might as well be brought about by the fervent appeals from their children. This is consequently engendered by the interventions to raise awareness about smoking among school-aged students as previously mentioned

In the mean time, the smoking cessation clinic at the hospital will also be integral in the process by suggesting alternative strategies that aid the blue-collar workers on the course of quitting smoking when they feel the desire to smoke. Those strategies might involve the use of lozenges when they feel like smoking at

work. Additionally, constructive hobby participated by the whole families members might also be beneficial.

6.5 Recommendation for future study

1. This study is hospital-based, limiting the generalization. If the target group is expanded to include those other than patients, the clearer situation regarding cigarette smoking in the region could be achieved.

2. Further should be designed to explore other psychological variables that may influence the acquisition of smoking behavior at different age range, for instance locus of control, self-esteem.

3. The data-collecting method, which is an in-depth interview is highly recommended, since the subtlety of psychological factors warrants the detailed account to gain insight into the factors and circumstances involved.

4. A suitable place conducive to the in-depth interview is also suggested, as the surroundings at the interview site has an impact on the accuracy of the data to be obtained from respondents.

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APPENDIX

QUESTIONNAIRES

SELF-EFFICACY, PERSONALITY AND SMOKING BEHAVIOR AMONG MALE OUTPATIENTS AT PAHOLPOLPAYUHASENA GENERAL HOSPITAL, KANCHANABURI, THAILAND

INSTRUCTION:

The questionnaires are designed to assist trained interviewers in the face-to-face interview. There are 3 versions of the questionnaires: for non-smokers, ex-smokers, and current smokers.

To ask a question, the interviewers must ALWAYS pose one question at a time and listen to responses carefully before posing the next question. Additionally, the interviewers should also put the respondents at ease and encourage them to express their feelings freely.

The first question to be posed must be the one that identifies whether a respondent is a non-smoker, ex-smoker, or current smoker so that the corresponding version of the questionnaire can be correctly selected for each respondent.

The respondents are requested to answer as honestly as possible. They must also be assured of the anonymity and confidentiality of the information they provide. Therefore, the respondents are to be informed that their names are not required and the questionnaires containing their information will be completely destroyed at the completion of thesis writing.

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APPENDIX A

QUESTIONNAIRE (FOR NON-SMOKER)

PART 1 Socio-demographic characteristics and current illness

1. How old are you?..... years old

2. What is your highest educational achievement?.....

3. What is your occupation?.....

4. What is your martial status ?

1. single 2. married 3. widowed 4. divorced 5. separated

5. How much do you earn per month?..... baht

If you are married and not separated from your spouse, please specify the total amount of monthly income (including the income of your spouse)…….

6. Please state the reason that you came to the hospital today (What illness or health problem do you currently have ?)……

PART 2 Smoking behavior

7. Do you smoke? (please select the answer 1, 2, or 3)

1. No, I have never smoked a cigarette in my entire life

2. No, but I used to smoke cigarettes and have now completely quit

If the answer is 2, please answer the question 2.1

2.1) How long were you in the habit of cigarette smoking?..... year(s) and how many cigarettes did you smoke weekly?.....

3. Yes, I currently smoke cigarettes

If the answer is 3, please answer the question 3.1

3.1) How long have you been smoking cigarettes?.....year (s) and how many cigarettes do you smoke weekly?.....

PART 3 Personality assessment (Extroversion / Introversion)

Items	Questions	Yes	No	Not sure
1.	Are you inclined to keep in the background on social occasions ?			
2.	I am normally reserved and retiring.			
3.	I prefer having friends to exchange ideas with rather than thinking on my own			
4.	I usually avoid talking to people I'm not familiar with. I only talk to my intimate friends.			
5.	I'd rather be alone than meet other people.			
6.	I am more comfortable working alone than with people.			
7.	I usually crave life excitement when opportunity presents itself.			
8.	I am a person who normally takes chances and often sticks my neck out.			
9.	I generally like changes in life.			
10.	I tend to plan ahead before starting something (look before I leap).			
11.	I like a well-ordered mode of life.			
12.	I always have a sense of humor.			
13.	I am not oversensitive about trivial things people say about me.			
14.	I always make careful plans for my life and strictly stick to them.			
15.	I make friends easily.			
16.	I usually take matters of everyday life with proper seriousness.			
17.	I can always keep my anger under control.			

Items	Questions	Yes	No	Not sure
18	I prefer to keep moving and doing things.			
19	I do not let events in my life happen in their own course without doing anything about them			
20	I am aggressive.			
21	I am pessimistic.			
22	I lose my temper easily.			
23	I am inclined to place greater value on ethical standards when doing something.			

APPENDIX B
QUESTIONNAIRE (FOR EX-SMOKER)

PART 1 Socio-demographic characteristics and current illness

1. How old are you?..... years old

2. What is your highest educational achievement?.....

3. What is your occupation?.....

4. What is your martial status ?

1. single 2. married 3. widowed 4. divorced 5. separated

5. How much do you earn per month?..... baht

If you are married and not separated from your spouse, please specify the total amount of monthly income (including the income of your spouse)…….

6. Please state the reason that you came to the hospital today (What illness or health problem do you currently have ?)……

PART 2 Smoking behavior

7. Do you smoke? (please select the answer 1, 2, or 3)

1. No, I have never smoked a cigarette in my entire life

2. No, but I used to smoke cigarettes and have now completely quit

If the answer is 2, please answer the question 2.1

2.1) How long were you in the habit of cigarette smoking?..... year(s) and how many cigarettes did you smoke weekly?.....

3. Yes, I currently smoke cigarettes

If the answer is 3, please answer the question 3.1

3.1) How long have you been smoking cigarettes?.....year (s) and how many cigarettes do you smoke weekly?.....

8. What was/were the major reason (s) that led you to quit cigarette smoking?

1. It had negative effects on my health

2. People around me, especially my family members pleaded with me to stop smoking

3. Others (please specify……)

9. Please specify the number of attempts you have made to quit cigarette smoking ……times

10. Please state the strategy (s) you have taken to successfully quit cigarette smoking …….

11. How old were you when you started smoking cigarettes?.....years old

12. What was the reason that led you to start smoking cigarettes?..... ……..

13. While you still smoked cigarettes, how often did you feel like smoking?.

1. Sometimes 2. Everyday

3. Others (please specify……..)

14. While you still smoked cigarettes, was it easy to find and purchase cigarettes?

1. Yes, it was easy 2. No, it was not easy

15. Do you think that smoking has adverse effects on your current illnesses or health problems?

1. Yes, please give reason……..

2. No, please give reason……...

16. Do you know that cigarette smoking is not only harmful for the smoker but also harmful for other people whom unintentionally inhale the smoke?

1. Yes 2. No

17. While you still smoked, how did you feel if your smoking was a nuisance or had negative effects on the health of other people in the society?

1. I was indifferent towards this matter (feel nothing)

2. I felt bad and tried to cut down the number of cigarettes I smoked

3. I felt bad, but I smoked anyway

4. I felt bad, so I tried to find a suitable place to smoke

5. Others (please specify……)

PART 3 Self-efficacy assessment

Items	Questions	Yes	No	Not sure
1.	While quitting smoking, I was confident that I could successfully do it.			
2.	Had the price of cigarettes been changed, it never would have affected my decision to quit smoking.			
3.	Although I encountered some obstacles while quitting smoking, I was able to quit in the end.			
4.	I believed there was nothing that could break my resolve while quitting smoking.			
5.	While quitting smoking, I was not hesitant to try to succeed in it.			
6.	While quitting smoking, I was well aware that it took utmost perseverance, but it was not beyond my capability.			
7.	During quitting smoking, I perceived it as a challenging task although it was difficult to succeed in it.			
8.	While quitting smoking, I believed I could abstain from cigarette smoking without help from others.			
9.	When I wanted to succeed in anything, including quitting smoking, I normally prayed for the success.			
10.	I believed success in quitting smoking depended on myself not on pressure from others.			
11.	No matter what kind of decision I made, including the decision to quit smoking, I preferred to listen to friends' opinions.			
12.	Although there were friends who disagreed with me quitting smoking, I was adamant in my decision to quit.			
13.	While quitting smoking, I believed I could still			

Items	Questions	Yes	No	Not sure
	socialize normally with smoking friends.			
14.	When I wanted to quit smoking, I could start doing it immediately without hesitation.			
15.	I believed that smoking abstinence was an individual right that was independent of others'opinion.			
16.	During quitting smoking, I was brave enough to differentiate myself from my group of smoking friends by deciding to quit.			
17.	I could adjust myself well after successfully quitting smoking.			
18.	I have failed several times in quitting smoking, but I never lost my will to try again until I was successful.			

PART 4 Personality assessment (Extroversion / Introversion)

Items	Questions	Yes	No	Not sure
1.	Are you inclined to keep in the background on social occasions ?			
2.	I am normally reserved and retiring.			
3.	I prefer having friends to exchange ideas with rather than thinking on my own			
4.	I usually avoid talking to people I'm not familiar with. I only talk to my intimate friends.			
5.	I'd rather be alone than meet other people.			
6.	I am more comfortable working alone than with people.			
7.	I usually crave life excitement when opportunity presents itself.			

Items	Questions	Yes	No	Not sure
8.	I am a person who normally takes chances and often sticks my neck out.			
9.	I generally like changes in life.			
10.	I tend to plan ahead before starting something (look before I leap).			
11.	I like a well-ordered mode of life.			
12.	I always have a sense of humor.			
13.	I am not oversensitive about trivial things people say about me.			
14.	I always make careful plans for my life and strictly stick to them.			
15.	I make friends easily.			
16.	I usually take matters of everyday life with proper seriousness.			
17.	I can always keep my anger under control.			
18	I prefer to keep moving and doing things.			
19	I do not let events in my life happen in their own course without doing anything about them			
20	I am aggressive.			
21	I am pessimistic.			
22	I lose my temper easily.			
23	I am inclined to place greater value on ethical standards when doing something.			

APPENDIX C

QUESTIONNAIRE (FOR CURRENT SMOKERS)

PART 1 Socio-demographic characteristics and current illness

1. How old are you?..... years old

2. What is your highest educational achievement?.....

3. What is your occupation?.....

4. What is your martial status ?

1. single 2. married 3. widowed 4. divorced 5. separated

5. How much do you earn per month?..... baht

If you are married and not separated from your spouse, please specify the total amount of monthly income (including the income of your spouse)…….

6. Please state the reason that you came to the hospital today (What illness or health problem do you currently have ?)……

PART 2 Smoking behavior

7. Do you smoke? (please select the answer 1, 2, or 3)

1. No, I have never smoked a cigarette in my entire life

2. No, but I used to smoke cigarettes and have now completely quit

If the answer is 2, please answer the question 2.1

2.1) How long were you in the habit of cigarette smoking?..... year(s) and how many cigarettes did you smoke weekly?.....

3. Yes, I currently smoke cigarettes

If the answer is 3, please answer the question 3.1

3.1) How long have you been smoking cigarettes?.....year (s) and how many cigarettes do you smoke weekly?.....

8. What is/are the major reason (s) for you to smoke?

1. relieves stress
2. relieves boredom
3. helps me to concentrate at work
4. helps me socialize with others
5. Others (please specify……)

9. Have you ever tried quitting smoking?

1. Yes 2. No

If the answer is Yes, please provide the following information

9.1 Please specify the number of attempts you have made to quit cigarette smoking ……..…….times

9.2. Please state the strategy (s) you have taken to quit cigarette smoking …….

10. How old were you when you started smoking cigarettes?.....years old

11. What was the reason that led you to start smoking cigarettes?..... ……..

12. How often do you feel like smoking?

1. Sometimes 2. Everyday
3. Others (please specify……..)

13. Is it easy to find and purchase cigarettes?

1. Yes, it's easy 2. No, it's not easy

14. Do you think smoking has adverse effects on your current illnesses or health problems?

1. Yes, please give reason……..
2. No, please give reason……...

15. Do you know that cigarette smoking is not only harmful for the smoker but also harmful for other people whom unintentionally inhale the smoke?

1. Yes 2. No

16. How do you feel if your smoking is a nuisance or has negative effects on the health of other people in the society?

1. I am indifferent towards this matter (feel nothing)
2. I feel bad and try to cut down the number of cigarettes I smoked
3. I feel bad, but I smoke anyway
4. I feel bad, so I try to find a suitable place to smoke
5. Others (please specify……)

PART 3 Self-efficacy assessment

Items	Questions	Yes	No	Not sure
1.	If I want to quit smoking, I am confident that I can successfully do it.			
2.	If the price of cigarettes was changed, it definitely would not affect my decision to quit smoking.			
3.	Although I may encounter some obstacles during quitting smoking, I still believe I can be successful in the end.			
4.	I believe there is nothing that could break my resolve to quit smoking.			
5.	I am not confident that I am strong enough to be able to quit smoking.			
6.	I am well aware that quitting smoking takes utmost perseverance, but it is not beyond my capability.			
7.	I think quitting smoking is a challenging task although it is difficult to succeed in it.			
8.	I believe I can abstain from cigarette smoking without help from others.			
9.	I don't want to waste my time trying to quit smoking because I am not confident whether I will be able to succeed in it.			

Items	Questions	Yes	No	Not sure
10.	I believe success in quitting smoking depends on myself not on pressure from others.			
11.	No matter what kind of decision I make, including the decision to quit smoking, I prefer to listen to friends' opinions.			
12.	Although there might be friends who disagree with me quitting smoking, I am adamant in my decision to quit.			
13.	If I successfully quit smoking, I believe I can still socialize normally with smoking friends.			
14.	I can make a decision on my own to quit smoking.			
15.	I believe that smoking abstinence is an individual right that is independent of others' opinion.			
16.	If I fail in quitting smoking, it will make me increasingly disappointed.			
17.	I believe I can adjust myself well after successfully quitting smoking.			
18.	I think getting advice from others would help me prevent mistakes in quitting smoking.			

PART 4 Personality assessment (Extroversion / Introversion)

Items	Questions	Yes	No	Not sure
1.	Are you inclined to keep in the background on social occasions ?			
2.	I am normally reserved and retiring.			
3.	I prefer having friends to exchange ideas with rather than thinking on my own			
4.	I usually avoid talking to people I'm not familiar with. I only talk to my intimate friends.			
5.	I'd rather be alone than meet other people.			
6.	I am more comfortable working alone than with people.			
7.	I usually crave life excitement when opportunity presents itself.			
8.	I am a person who normally takes chances and often sticks my neck out.			
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15.	I make friends easily.			
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Items	Questions	Yes	No	Not sure
18	I prefer to keep moving and doing things.			
19	I do not let events in my life happen in their own course without doing anything about them			
20	I am aggressive.			
21	I am pessimistic.			
22	I lose my temper easily.			
23	I am inclined to place greater value on ethical standards when doing something.			

BIOGRAPHY

NAME	Mr. Saeksan Siriphadung
DATE OF BIRTH	August 12, 1976
PLACE OF BIRTH	Kanchanaburi
INSTITUTION ATTENDED	Silpakorn University, Thailand Bachelor of Science (Pharmacy) 1995-1999 ASEAN Institute for Health Development, Mahidol University, Thailand Master of Primary Health Care Management 2005-2006
FELLOWSHIP	self support
PRESENT POSITION	out-patient pharmacist at Paholpolpayuhasena General Hospital Kanchanaburi province, Thailand