FACTORS INFLUENCING THE SMOKING BEHAVIOR OF THE STUDENTS OF MAHIDOL UNIVERSITY, SALAYA CAMPUS

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FACTORS INFLUENCING THE SMOKING BEHAVIOR OF THE STUDENTS OF MAHIDOL UNIVERSITY, SALAYA CAMPUS

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ABSTRACT

A cross-sectional study aimed to determine the smoking behaviors and factors influencing the smoking behaviors among the students of Mahidol University, Salaya Campus. Data were collected from February 6 to 20, 2009 through a structured questionnaire. The total number of respondents was 205, which consisted of 62.93% males and 37.07% females.

The prevalence of smoking among the students in this study was 74.64% and 25.37% were non-smokers, with more male smokers (86.05%) than female (55.26%). Most of the smokers were in the age group 16-20 (69.86%).

This study concluded that a significant association between smoking behaviors and factors related to smoking behaviors among respondents were found: Age (P-value=0.014%); Gender (P-value<0.001); Education of father (P-value = 0.007%); Education of mother (P-value=0.033%); Average allowance (P-value = 0.023%); Academic achievement (P-value=0.040%); Knowledge of health hazards of smoking (P-value=0.001); Attitude level (P-value<0.001); peer pressure (P-value =0.005).

From the findings of this study, the recommendations that can be offered are that there should be a health education and health promotion program and smoking cessation program, in order to increase the knowledge level and attitude level of smoking among the students during primary as well as secondary school level. The government should increase tax on cigarettes so that it increase price of cigarette packets. Parents, teachers and school management teams should be organized in order to prevent smoking among students.

KEY WORDS : FACTORS/ SMOKING BEHAVIOR/ UNIVERSITY STUDENTS

95 pages.

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CHAPTER I
INTRODUCTION

1.1 Rationale and justification of the study

In, the twenty first century, tobacco related disease is the second major cause of the death in the world .The death rate of smokers is three to four times higher than that of non-smokers. If this current trend continues in the world, it could kill billions of people and which eighty percent of these deaths will occur in the developing countries. (1)

The inhalation of smoke from burned dried or curved leaves of the tobacco plant usually in the form of cigarettes is known as tobacco smoking. Some people smoke for relaxation, pleasure, to get satisfy an addiction which is of course present in tobacco as nicotine. The nicotine shows effect to first time users or irregular users as an increase in alertness and memory and europhia. Disturbance in metabolism and suppressed appetite is also characterized by nicotine because it temporarily increases the blood sugar level. (2) Even though people are familiar with slogan”Smoking is injurious to health, some people smoke for fun, some smoke for ritualistic purposes or some might be involved in response to social pressure.

The greatest numbers of smokers reside in the Western Pacific Region. It is estimated that one- third of the world’s smokers are in the Western Pacific Region and in every single minute 2 people die from a tobacco related disease. In the United States, 23 percent of high school students are currently smokers of which 23 percent are female and 22.9 percent are male. Each year about 1 of every 5 deaths (438,000 people) become one of the major causes of death which is related to the cigarette smoking. More deaths are caused by tobacco related disease than by

HIV, illegal drug use, alcohol use etc. The smoking behaviors among age group between 18-24 years are 23.9 percent, 25-44 years are 23.5 percent, and 45-64 years are 21.8 percent and 65 years and above are 10.2 percent. From above, we can see that most of the age group who involve in smoking is adolescence group (age group between 18-24).

Each day in the United States about 4,000 young people age of between 12-17 are involving in cigarette smoking and it is estimated that 1,140 young people become daily smokers. Cigarette smoking has become more common among adults below the poverty line (30.6%) than among those who live at or above poverty level (20.4%). Now, the trend of smoking has been increasing in developing countries where as it has been decreasing in developed countries, The consumption of tobacco has been continuously rising at the rate of 3.4% per annum. But in Japan, 51% of men smoke which is still high for a developed nation.

Out of 500 million smokers in Asia, the majority of smokers are male, and smoking among females are relatively rare. In most of the countries, male smokers exceed 50 percent where as less than 5 percent of female. Asia is an especially important region for global tobacco control given its large population and the increasing trend of smoking in the region. In most of the countries the smoking rate among males exceeds 50 percent where as less than 5 percent among female. But the prevalence of smoking among Asian women will drastically increased in coming decades particularly as the presence of multinational tobacco companies are growing in the regions. (31)

In Australia, 51 percent of men and 49 percent of women are daily smokers. The most likely age group to smoke is the young. But anyway the figure from 2004 -2005 shows that there is a decline in the rate of smoking by 2% as compared to 1995. The tobacco epidemic is only now beginning in low and middle income countries. A rapid increasing in the disease burden is expected in China and India, where the use of tobacco has grown fast. If the current trend continues, about 2 to 3 million of people will die due to tobacco related disease in China alone by the

year 2020 (17). The smoking rate has dropped by half from 1965-2006 in the United States, falling from 42 percent to 20.8 percent among adults.

Table 1 Smoking Prevalence by Gender

Region	Percent smoking	
	Men	**Women**
Africa	29	4
United States	35	22
Eastern Mediterranean	35	4
Europe	46	26
Southeast Asia	44	4
Western Pacific	60	8

Source: World Health Organization**,** 2000

In the United Kingdom, the percentage of male smokers fell from 65 percent to 45 percent and that of female smokers from 45 percent to 34 percent. Smoking is decreased from 54 percent to 29 percent among males and 36 percent to 24 percent among females in United Kingdom. In Norway, smoking among male decreased from 53 percent to 42 percent. Similarly, in Canada smoking declined from 44 percent to 35 percent. In the Eastern Mediterranean Region, 90 percent of lung cancer deaths in Egypt are due to tobacco use. In general tobacco use related cancer is rising. The proportion for men rose from 8.9 percent to 14.8 percent between 1974 and

1987. In 1995, there were 5, 14,000 smoking related lung cancer death in the developed countries as comparison on to 6,25,000 smoking attributable death from heart and other vascular disease in same year.(10,17)

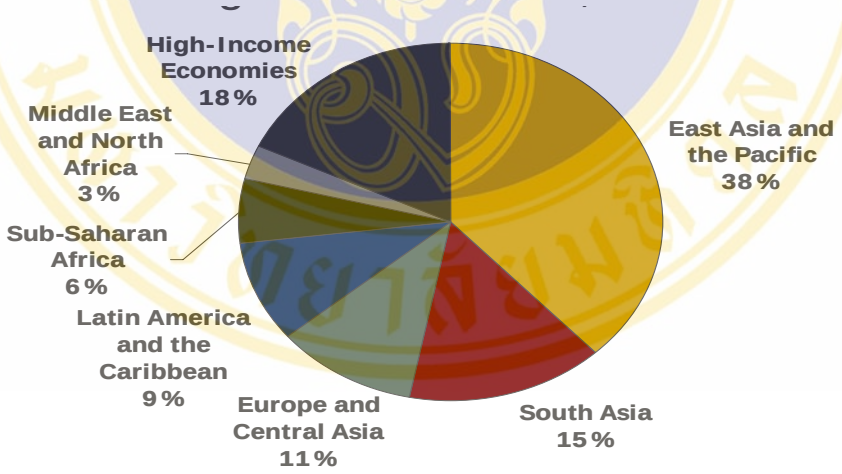
The young teen smokers aged between13 to15, about one in five world wide. Between 80,000 to 100,000 children world wide start to smoke everyday. About half of them live in Asia. The evidence shows that around 50 percent of those who start smoking in adolescence continue to smoke for 15 to 20 years. The peer- reviewed study also shows that teenagers are strongly influenced in smoking by advertising. In the Asia region, about 70 percent cigarette consumption in Philippines, 73 percent in Thailand, 35 percent in Nepal begins smoking at the age of 20. The report has shown that, teen smoking is more prevalent in Indonesia and Nepal. A study conducted in various ecological regions of Nepal, shows that the prevalence rate of smoking among age group from 15 to 30 is more than 70 percent.

The number of smokers will rise from 1.3 billion to 1.7 billion by 2025, at the current rate. The prevalence of smoking among females is recently increasing in Cambodia, Malaysia, Bangladesh, and Republic of Korea. (6) The smoking prevalence among male in Indonesia is 62.2 percent to 84 percent. The prevalence of smoking among youth is 50 percent between age group 15 to 24 among males and 7.6 percent among females. Even though there are rules and regulations against smoking but they are very difficult to implement and it is also very hard to find out the smoke free zones. The research shows that the factors that influence smoking behavior among the youth of Indonesia were norms, economic consideration, self value, and coping mechanism. (2)

Currently 1 in 10 adults die from tobacco use and health hazards is an increasing by the year 2030 and it is also predicted that the number of tobacco related disease and death is to be double, approximately 10 million per year. The health and economic burden of tobacco use is rapidly shifting towards the low and middle income countries from high income countries. In Malaysia, 23 percent are daily smokers. Smoking among youth and youth adults has been increasing drastically from previous

years and smoking among 13 to15 year olds are 39.2 percent men, and 11.2 percent of women are current smokers. Similarly, a study conducted in Asian countries found that the majority of smokers start in early youth. Almost one fifth of smokers try their first cigarette before the age of 13 years. (30)

According to Canadian statistics, 1995, coronary artery disease continues to be the leading cause of the death among Canadians. In recent years, Canadian and Federal legislation on tobacco product control and no smoking policies continues to reduce daily stressors such as anger and loneliness. Although, it has also been reported that coronary artery bypass graft surgery improves the quality of life due to a decrease in chest pain, fewer activity limitations and to reduce the requirement of medication for cardiac, though it is unclear that whether these changes alter intentions to consume cigarette smoking (CASS Principal Investigators and their Associations,(1983). (21)



Source: Disease Control Priorities Development Counties, 2006

Figure 1 Regional Distribution of Smokers Age 15 and Older, 2000

From the above diagram it is estimated that there were 1.1 billion people smokers worldwide. The vast majority of these smokers reside in low- and middle-income countries and the region with the largest proportion of smokers is East Asia and the Pacific, which accounts for 38 percent of all smokers.

1.2 Tobacco related disease

The most important preventable risk factor among non- communicable disease is tobacco use. It is responsible for a high rate of considerable morbidity and mortality in the world. Tobacco contains more then 4000 substances which are harmful to the health of humans. Among them at least 43 are carcinogenic or toxic. Depending upon the current trend of smoking, tobacco will become the leading cause of death worldwide, causing more deaths than HIV/AIDS, maternal mortality, auto-mobile accidents, homicide, and suicide combined. (8)

Smoking harms nearly every organ of the body and causes many diseases. About 90 percent of lung cancer in men and almost 80 percent of lung cancer death in women is the caused by smoking. It also causes of cancer of oral cavity, bladder, pharynx, larynx, oesophagus, cervix, kidney, lung, pancreas, stomach, and acute myeloid leukaemia. The rate of cancer related to the cigarette smoking is high among African- American men. In Egypt, 90% of lung cancer death are attributed to the use of tobacco. The research show that in 1995, there were 514,000 smoking related lung cancer deaths was occurred in developed nations. Half of long term smokers will die from tobacco use and every smoke cuts at least five minutes off life on average. (1, 6)

Smoking related disease causes 7 percent of all deaths in Chile and Ecuador, and 30 percent in Cuba, 24 percent in Venezuela, 10 percent in France, 17 percent in Canada, 15 to 20 percent in United Kingdom, and up to 35 percent among White South Africans. In the all regions of the world, the people who tend to smoke and who bears the burden of disease are the poorest people in both developed and developing countries. According to the estimates of WHO, there are approximately 1.1 billion smokers in the world, about one third of the global population aged 15 years and above. Tobacco is already responsible for about 2.6 percent of total deaths and the disease burden is expected to triple to 8.9 percent of the total by the year 2020. For 1,000 ton of tobacco produced about 1,000 people will eventually die. (9, 17)

1.3 Smoking among women and its burden

Smoking becomes the leading cause of premature and preventable death and disease among women. In the United State, there are about 68,000 women who are killed from lung cancer. Lung cancer becomes one of the leading causes of death among women of United States. In 1997, about 165,000 women prematurely died from smoking related disease such as cancer and heart disease. Smoking during the pregnancy could have a negative effect on the survival and development of a fetus, can also lead to abortion, untimely birth, prenatal death, Low birth weight, and increase the risk of retardation of intrauterine growth, and alter the menstrual function. Among women, the prevalence rate of smoking is estimated as 7 percent in developing countries and 24 percent in developed countries. The research shows that the tobacco marketing industry is one of the factors influencing susceptibility to and initiation of smoking among girls in the USA and overseas. Another study conducted in America shows that the reason for adolescent girls starting smoking was stress reduction and relaxation but not peer pressure. (12, 13)

In the year 2000, more women died of lung cancer than breast cancer. The step to be taken for the epidemic of smoking and smoking related disease among the women in United States as well as through the world also.

1) Publicizing that most of the women are non smokers and support the women's anti-smoking program.

2) By raising the awareness of the impact of smoking on women's health.

3) Build the science base for understanding the health hazards of smoking among women.

4) Everything which is possible to stop the epidemic of smoking and smoking related disease among women should be done.

The risk of lung cancer increases with the duration and the intensity of smoking. The risk of dying of lung cancer is 20 times higher among women who smoke 2 or more packs cigarette per day than the women who do not. That risk will drastically reduce within 1 or 2 years of smoking cessation. Women who quit smoking

during pregnancy or before pregnancy, reduce the risk of adverse reproductive outcome, including conception delay, infertility, low birth weight, preterm delivery etc. Among women smokers, weight loss and decreased bone density are common features. A smoking prevalence among women varies markedly across countries; it is as low as an estimated 7 percent in developing countries and 24 percent developed countries. (12)

1.4 Smoking prevalence in Thailand and others countries

According to the report, the tobacco smoking among Thai adult, daily and occasionally was 37.2 percent for males and 2.1 percent among females and overall by 19.5 percent. A previous study shows that in Thailand 11.2 million of the total populations were smokers of which 10.6 million and 0.6 million smokers are male and female respectively. During 1996, the Thai people smoked approximately 113.8 packs/person/year. Tobacco farming is an important economic activity of Thailand. (13) The youth who dropout from the school early and who have poor educational performance have a higher chance of smoking. Moreover, the youth with high income also had higher chance of smoking. As soon as possible, preventing smoking is essential to reduce the smoking among youth because they are the high risk group. Anyway, the smoking prevalence among males is higher among young females in Thailand. (14)

The Global Youth Tobacco Survey reported the high rate of smoking among school- children aged between 13-15 years old, the highest rate was in the Northern Marianas Islands as (62.4 percent), 58.5 percent of school children in Palau. Many of them started smoking at the age of 10. A survey conducted in China showed that 39 percent of school students started smoking before reaching the age of 10 years old. In the Netherlands, the highest increase of current smoking among adolescence occurs in 12-14 years old children. (34)

According to the National Level Youth survey, in 5 Asian countries smoking prevalence among youth aged between 15 to19 is very high; 38 percent in Indonesia, 33 percent in Thailand, 30 percent in Taiwan, 28 percent in Philippines and 12 percent in Nepal. Although the health hazards of smoking are well known, the number of smokers among adults is still increasing. The factors related to smoking behaviors among youth might be socio-economic and educational, individual and family, friends and sibling who smoke. However, one of the surveys shows that the smoking prevalence among women in the Asian countries is very low. In the developing countries, smoking among children and adolescents has received little attention. The single most preventable contributor to chronic disease is cigarette smoking, the maintenance and initiation of smoking among adolescents is still controversial. (14, 9)

Table 2 Number of smokers and smoking prevalence of both sexes, 15 years and older(26).

Year	Total no. of people age 15 years and above	Total no. of people smoking age 15 years and above	% of people smoking age 15 years and above	% of smoking male age 15 years and above	% of female 15 age years and above
1996	43,480.5	11,240.2	25.9	49.25	2.78
1999	45,529.4	10,219.6	22.4	42.63	2.65
2001	46,980.4	10,551.3	22.5	42.92	2.36
2004	49,438.9	9,627.7	19.5	37.2	2.1
2006	50,347.2	9,535.5	18.94	36.91	2.1

Tobacco farming is an important activity as and in 1995, 0.21 percent of the land was covered by tobacco farming. Advertisements, peer pressure, family influence, feeling insecure and loneliness, curiosity, stress are some of the factors that make students experiment with cigarette smoking. At the moment there is relative little data to monitor the smoking patterns among the youth in Thailand. But the

available data suggests that smoking among the youth may be rising. Even though there are rules and laws against tobacco product control in Thailand which includes to the protection of non smoker's health, the number of smokers is still high. According to observation, the smoking prevalence among adolescents is rapidly increasing. Tobacco smoking directly affects not only has an economic impact but also imposes social burden also. Accordingly this focuses on the smoking behavior of the university students in Thailand. (13, 26)

1.5 Research questions

1. What is the smoking behavior of students in Mahidol University, Salaya Campus Thailand?

2. What factors influence the smoking behavior of students at Mahidol University, Salaya Campus?

1.6 Research objectives

1.6.1 General objective

To determine the smoking behavior and the factors influencing the smoking behavior of student of Mahidol University, Salaya Campus.

1.6.2 Specific objectives

1. To determine the socio demographic factors of the respondents.

2. To determine the predisposing factors of the respondents such as knowledge and attitude of the target population towards the smoking behaviour.

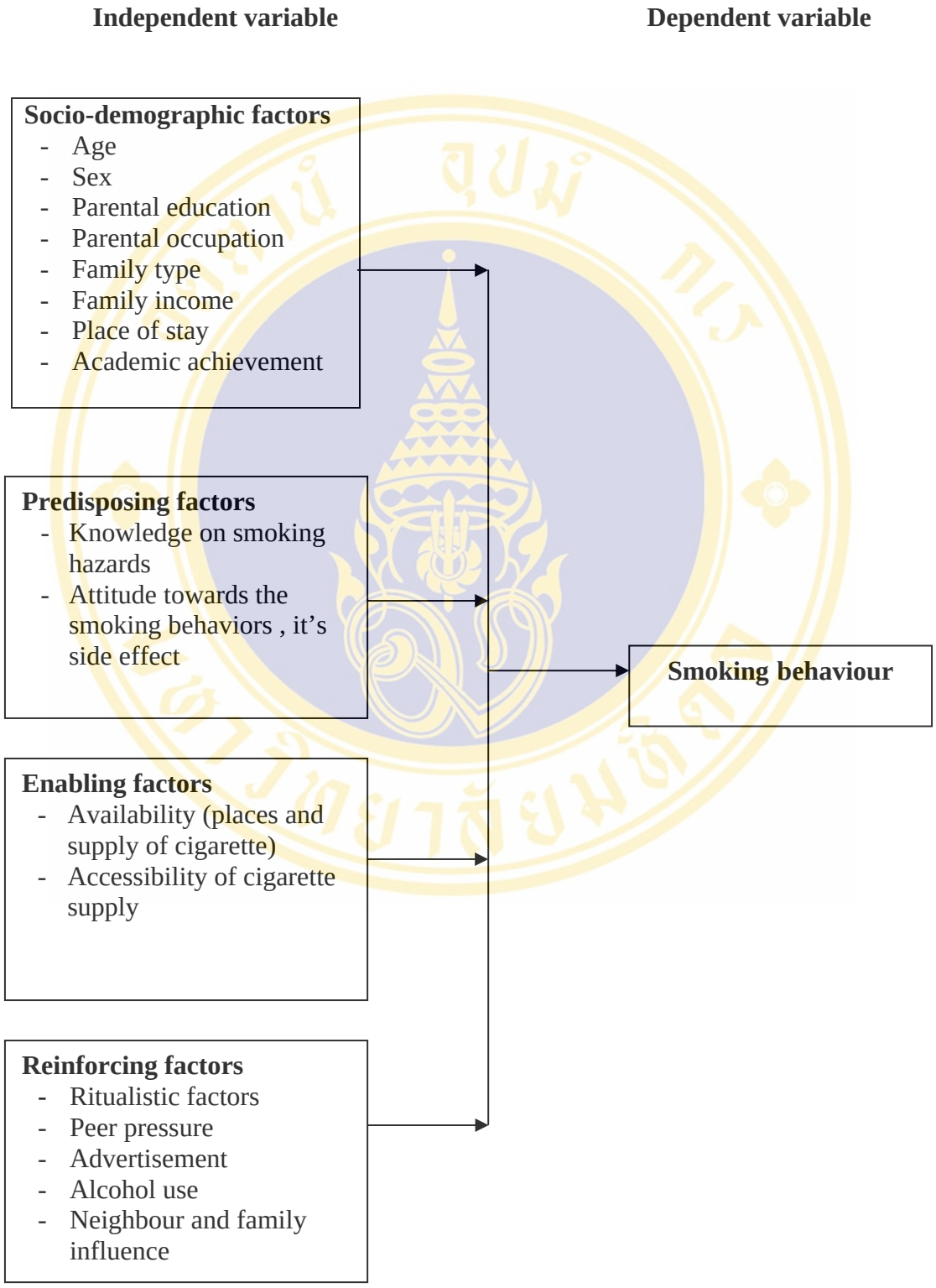
3. To identify the enabling factors such as accessibility and availability of cigarettes supply.

4. To identify the reinforcing factors which comprise the ritualistic factors, peer, family, neighbors and the effects of advertising on the smoking behavior of the target population.

In this study the conceptual framework adopts the **PRECEDE-PROCEED** model. The model was first introduced by Lowrence Green and Kreuter in 1999 and is composed of predisposing factors, enabling factors, and reinforcing factors as set up in the conceptual framework. Predisposing factors include a person's knowledge, attitudes, beliefs, values and perceptions that hinder motivation for change.

Enabling factors include the availability, accessibility, and affordability of health care and community resources which facilitate the performance of actions. Reinforcing factors include social support, peer pressure, family, teachers, neighbors and other persons support etc. As the appropriate variable that will allow the researchers to illustrate and derive from the study finding, how smoking behaviors among target population can be change to suit the National and International demands or to achieve the goal on smoking reduction and prevention program.

1.7 Conceptual framework



1.8 Operational definition

1.8.1 Socio-demographic factors

It contains age and sex of the respondents together with the following variables:

Parental education refers to the education level of father and mother of the students.

Occupation of parents refer to the parents of students who are working in

- Agriculture
- Business
- Government employee
- House wife and others

Family type refers to the type of student's family as

- Nuclear family (as students live with both father and mother)
- Extended family (students live with parents and other relatives in the same household).
- Single parents (the students either live with father or mother because one of them died or they are separated or divorced).

Family income refers to the salary of parents per month.

Place of stay refers to the place where students is now living as in

- Condominium
- Dormitory
- Relative's house or in own home.

Academic achievement refers to the satisfaction of the students towards their academic performance.

Knowledge refers to how much students know about the health hazards of smoking.

Attitude: In this study attitude refers to how students take about the significance of fell about Negative and positive effect of smoking.

1.8.2 Enabling factors refers to the following variables:

Availability: In this study availability refers to the place where cigarettes can be purchased.

- Around university
- On street
- Shops
- Markets
- Or other places

Accessibility: In this study accessibility refers to the cost of cigarettes and whether there is limitation of cigarette sold.

1.8.3 Reinforcing factors are composed of four aspects that are ritualistic factors, peer pressure, advertisements and family and neighbors influences.

Ritualistic factors: It refers to whether there is a religious view on smoking or not or the students may be influenced on smoking by religious view or not.

Peer pressure refers to the friends of students who share their common interests, and influence by the behaviours determined by their groups which may include classmates, roommates and others.

Advertisement: It means the effect of cigarette advertisement on smoking like

- implication of famous brand
- famous celebrity
- drama in T.V and others

Neighbours and family influence: It refers to that how the smoking behaviour is existed around the neighbours and family which effects to the target group.

1.8.4 Dependent variables

Smoking behaviors is the habits of students related to smoking and is classified as smokers or non smokers.

(Ex smoker: a person who used to smoke in the past but has stopped smoking at least 1 month prior to the date of filling of questionnaire.

- **never smoked**: a person who has not smoked at all).

1.9 Limitation of the study

This study was only focused on the students of Mahidol University in Salaya Campus, Thailand. But the finding of this research might not be generalized to all college students in Thailand. However, this study was conducted to know the factors related to smoking behavior among students in Mahidol University, Salaya campus Thailand even though self administered questionnaire was used**.** The result of this survey might provide the information of smoking status among students of Mahidol University, Salaya Campus which might be helpful to the administrative authorities of University to control the activities on tobacco control by providing "Health Promotion" and" Health education" programs which may provide benefit the younger generation in the future. This study may also help make policy and be informative to the health policy makers to plan and implement tobacco control program.

CHAPTER II
LITERATURE REVIEW

Tobacco smoking is the biggest preventable cause of morbidity and mortality in the world. Tobacco smoke contains more than 4000 substances which are harmful to the health. Among them, at least 43 substances are toxic. About 5 million people die every year from tobacco related disease in the world, besides which higher mortality rate is occurring in the developing countries. If the current trends of smoking continue in the world, which will causes more than HIV/AIDS, suicide, homicide, vehicles accidents, maternal mortality combined.(8)

2.1 Trend of smoking

The trend of smoking among youth is increasing in developing countries but decreasing in developed countries. The rate of smoking amazingly declined from the mid 1960s to 1990s among Americans falling by 23 percent among adults in the year 1997. But the consumption of tobacco is rising by 3.4 percent per year in the developing countries. About 15 billion cigarettes are sold daily in the world. Young teens aged between13 to 15 are about one in five smokers in the world. Between 80, 000 to 100,000, children start smoking every day and half of them live in Asia. Many youngsters want to experiment with new things like smoking, drugs, etc, during their adolescence. The Global Youth Tobacco survey, (GYTS) during the period of 2000-2007, found that students between the ages of 13-15 years, were more likely to be exposed to smoking by seeing advertising on bill boards, newspapers, magazines, promotions and sponsorships. (16)

The smoking prevalence among youth in China is about third of male teens and nearly 80 percent of females. China is one of the largest tobacco producers in the world, producing about a quarter of global tobacco leaf production. About 3,000

people die in China due to smoking. A study conducted in Malaysia showed that about 30 percent of adolescence boys aged between 12 to 18 smoke and the number of female teen smokers rose from 4.8 percent to 8 percent. About 50 teenagers below the age of 18 start to smoke everyday in Malaysia. The prevalence of smoking among adolescent boys is about 40 percent in Philippines (6). It should be pointed out that the smoking prevalence is highly increasing among youth. They start to smoke at the young age and prevalence of ever smoking is increase with increasing the age. (9)

Table 3 Estimated prevalence of smoking among people ages 15 and older by gender 2000.

	Smoking Prevalence (percent)		
Region	**Men**	**Women**	**Overall**
East Asia and the Pacific	63	5	34
Europe and Central Asia	56	17	35
Latin America and the Caribbean	40	24	32
Middle East and North Africa	36	5	21
South Asia	32	6	20
Sub-Saharan Africa	29	8	18
Low- and middle-income economies	49	8	29
High-income economies	37	21	29

Source: *Disease Control Priorities in Developing Countries,* second edition,

The survey conducted by the Youth Risk Behavior by the Centers for Disease Control and Prevention showed that the rate of smoking increased by one third from 1992 to 1997. From 1992 to 1996, the proportion of the students in the tenth grade who were daily smokers increased from 12.3 percent to 18.3 percent. But, in 1997, there is a slightly declined in the rate of smoking among eighth, tenth, and twelfth grade students. The study conducted in the University of Brazil and around the world shows that the smoking habit is acquired early. This finding confirms that the global tendency of smoking is increasing among the population composed of adolescents and young adults especially, among the university students who are more prone to be involved with smoking. (37)

Secondary school age is a critical period in which adolescents want to engage in the smoking habit. The earlier they start smoking, the more likely they are to

become regular smokers. A study conducted in Malaysia showed that with the improvement of socio economic status and the standard health care, the incidence of communicable disease has been declining, but the other health problems are emerging like smoking related disease such as coronary artery disease, which is now the main death cause in hospitals in Malaysia. School is a place where most of the students socialize outside their home environment for the first time and much knowledge is obtained, attitudes are formed and sometimes habits are also chosen. The research conducted in Malaysia showed that there is significant association between smoking status and parental smoking history, academic performance, perception of the smoking health hazard and type of school attended and peer influence. Religion was the most often indicated by non smoker as their reason for non smoking. So the epidemic of tobacco use is at top, if drastic action is not taken and the authors also suggested that anti smoking campaign with an emphasis on religious aspect as the students start as early as in primary school in Malaysia. (25)

2.2 Health effect of smoking

Tobacco causes some 5 million premature deaths each year, among which a long term users have 50 percent of chance of dying prematurely from tobacco related disease. American Dr. Isaac Adler was the first person who strongly suggested that there is strong relationship between smoking and lung cancer in the year 1912. Many surveys conducted in developed countries show that 90 to 95 percent of deaths occurs due to lung cancer, 30 to35 percent of deaths occurs by all cancer death, 80 to 85 percent of death by chronic obstructive airways, 20-25 percent of death due to cardiovascular disease are directly related to the smoking.(9). Tobacco smoking is the prime factors for the main health risk causes disease in cardiovascular system, heart attack, disease of respiratory tract, such as Chronic Obstructive Pulmonary Disease (COPD), asthma, emphysema, and cancer particularly in the lung, cancer of larynx, and tongue. The risk to the health is not uniform to all smokers; it depends upon the amount smoked. It means that, those who smoke more are at a higher risk, it do not mean that who smoke light does not reduce the health risk. Data regarding smoking has been shown that those who smoke less than 10 cigarettes a day increase 40 percent

mortality rate, by 70 percent in those person who smoke 10 to 19 cigarette a day, by 90 percent in those persons who smoke 20 to 39 cigarette in a day and the person who smoke 2 packets or more in a day by 120 percent mortality rate. (1)

Involuntary or passive smoking has been major public health problem in the world. Involuntary smoke harms children, infants, and reproductive health which cause several diseases like middle ear infection, acute lower respiratory tract illness, asthma induction, and exacerbation, lower birth weight babies and Sudden Infants Death Syndrome (SIDS). So it is a broad based problem which requires the best solution in the involvement of many sectors of the society.

A number of studies have established that there is a strong association between smoking tobacco and other drug use. But the nature of these associations remains unclear. According to the theory of phenotypic causation (gateway) model, smoking is a primarily influence on drug use in the future, but the theory of correlated liabilities model argues that the smoking and other drug use depends upon the environmental factors and genetics. (17)

One of the major health problems is smoking during pregnancy which leads to adverse effects on the health of women and their unborn children. In recent years the prevalence of smoking among pregnant women has declined but a substantial number of pregnant women continue to smoke. Only one third of women stop smoking but they still practice smoke 1 year after the delivery. One of the reasons why women smoke is to be attractive figure, atheletic model, featuring slim. Even after delivery, these might be with low IQ levels, aggressive and delinquency. If the mother is continuous high exposed to the plasma nicotine level in uterine life can have a negative effect on the infants. (12, 9)

2.3 Theoretical model

This study is based on the Precede-Proceed model. This model was first developed in 1999 by Lawrence Green and Kreuter. This model is composed of predisposing factors, enabling factors, and reinforcing factors in the conceptual framework. This model is a framework for the systematic process of developing the knowledge and education program about the smoking behavior of the target population. The most effective program to diagnose the problem properly in the population is health education.

PRECEDE is an acronym from Predisposing, Reinforcing, Enabling, Causes in Educational Diagnosis and Evaluation. According to this model, health education is dependent on the voluntary co-operation and the direct participation of the client in a process which allows personal determination of behavioral practice. The degree of change in knowledge and health practice is directly related to the active participation of the clients. This model is multi-dimensional can be found in social/ behavioral science, epidemiology, administration, and education. The purpose of this model is to direct attention to the outcomes rather than inputs which forces the planners to begin planning from an outcome point of view. This model is widely used by health professionals which has been basic for many professional projects.

For health promotion and health education programs the Precede- Proceed model is the best one which is widely used. The Precede framework is composed of 3 parts: Predisposing factors, enabling factors, and reinforcing factors. Predisposing factors include a person’s attitudes, knowledge, beliefs, and perceptions which facilitate or hinder a person’s motivation or can be changed by direct contact.

Enabling factors are those barriers, skills, or resources which are mainly created by the societal system or by force which involve availability, accessibility and affordability of the health care and community resource which can help the desired behavior as well environmental changes.

Reinforcing factors include peer pressure, social support, family, teachers, neighbors, and other control rewards. It comprises the different rewards or feed back the target population receives from others adoption of behaviors may either encourage or discourage the continuation of the behaviors. (29)

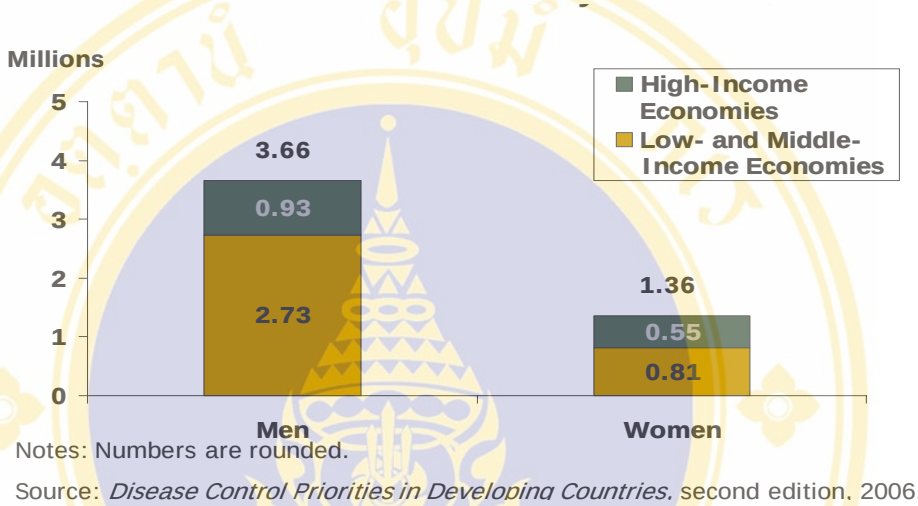
2.4 Public health problems:

In industrialized countries, tobacco related disease is one of the biggest causes of premature death in the world. A recent study estimated that in China 1/3 of the male population will have short life span due to smoking and in the United States about 500,000 deaths per year are related to smoking.

To discourage or prevent smoking among people many government sectors are holding anti-smoking campaigns in the mass media. Second hand smoking is a major public health problem. So, smoking in indoor public places should be stopped or banned such as bars, pubs, and restaurants. These rules make smoking become more inconvenient and discourage smoking in enclosed public places. Many States have passed laws against selling tobacco products to under age customers. (18)

An effective way to reduce the involuntary smoke exposure in the homes is through the rules by making home 100 percent smoke free; this means that no one may smoke in the home at all. In the 2003, 72 percent of U.S households had smoke free home rules as reported by CDC. In March 2006, in Scotland after the ban on smoking in all enclosed places, there was 17 percent reduction in hospital admissions for coronary syndrome. In countries where there is a public health system, when smoker become ill the society covers all the cost of medical care by increasing taxes. So two arguments exist in this front, the “pro-smoking” and “anti-smoking” argument. According to “pro-smoking” argument, that heavy smokers do not live long enough to develop costly and chronic illnesses which adversely affect the elderly, reducing society’s health care burden.

It is estimated that five million premature deaths were attributable to diseases caused by tobacco, including cardiovascular disease, lung cancer, and respiratory illnesses in the year 2006 in which men accounted for about 3.7 million tobacco deaths, while women account for about 1.4 million. Over half of these deaths were in low- and middle-income countries.



Notes: Numbers are rounded.

Source: *Disease Control Priorities in Developing Countries*, second edition, 2006.

Figure 2: Global tobacco Death, by gender, 2006

Similarly the suggestion of the "anti-smoking" argument is that the health care burden is increasing due to chronic illness increased by smoker at the younger age and at a higher rate than the general population (17). Tobacco smoking directly affects the economic and social burden on communities because:

1) Tobacco cultivation decreases the amount of productive land.
2) It causes environmental pollution.
3) Reduces the society's health care burden.
4) Due to premature death and illness of economically productive groups, there is loss of productivity.
5) Loss of foreign exchange due to smuggling of cigarette. (5)

By the year 1970 and 1995, there was increase in per capita cigarette consumption in the developing countries by 67 percent, while it was dropped by 10 percent in the developed countries. 80 percent of smokers now live in the developing countries. According to the WHO forecast, by the year 2030, tobacco related disease

will cause 10 million people to die which make it will be the single and biggest cause of death worldwide, and there will be largest increasing prevalence among the women. According to the study of British doctor, people who stopped smoking before they reached at the age of 30 lived almost as long as the people who never smoked. The risk can be decreased by reducing frequent smoking and by proper diet and exercise. It is also indicated by some research that the damage caused by smoking tobacco can be moderated by the use of antioxidants. (17)

For the development of anti-smoking attitudes among adolescents, the researcher report shows that there should be ban of smoking in the home. According to the Dr. Alison B. Albers and colleagues report, having a home smoking ban reduced the odds that adolescents would begin to experiment with cigarettes but only in homes that did not contain smokers. The survey conducted by Albers of Boston University School of Public Health and team, between 2001 and 2002 their finding showed that adolescents who lived in households where there was no complete ban of smoking, consider adult smoking to be socially acceptable. This finding also suggested that smoking bans in the home can promote anti-smoking norms and also inhibit early smoking experiments. (18)

2.5 Legal rules and regulations and regulations against smoking:

The World Health Organization Framework Convention on tobacco control took place on February 27, 2005. It was the world's first formal public health agreement between countries setting a common goal, minimum standards for tobacco control policy, and cooperating in dealing with cross border challenges such as smuggling of cigarettes. Recently WHO declared that 4 million people will be covered by the treaty with 168 signatories. Others legislation will eliminate passive smoking in public places, transportation, indoor work places, and other public places. There should be legislation against selling tobacco products to minors. In many countries including the United States, most European Union member states, New Zealand, Canada, South Africa, Australia, India, and Brazil. There are minimum smoking ages and it is illegal to sell tobacco products to children. Similarly the Netherland, Belgium,

Denmark have an age restriction making it illegal to sell the tobacco to the children under the age of 16. But in China, Turkey and many others countries children are forced to buy tobacco by their parents. (17)

In order to decrease the consumption of cigarettes, many governments impose heavy taxation on cigarettes. They use these money collected on the tobacco prevention programs. According to the Center for Disease Control and Prevention, in 2002, each pack of cigarettes sold in US cost the nation more than $7 in medical care and lost productivity. Raising the price of cigarettes lowers overall cigarette consumption, as shown by Substantial Scientific evidence. Many study conclude that, if there is 10 percent increase in price of cigarette, cigarettes consumption will decrease by 3 percent to 5 percent. Instead of increasing the price, the youth, low income status, minorities' smokers are 2 to 3 times more likely to quite smoking. There is heavy taxation on tobacco in many countries, Denmark, in 1997, had the highest tax burden of $4.02 per pack. Many countries including Russia and Greece still allow the bill boards for advertising the use of tobacco. Tobacco smoking is still advertised in special magazines, in gas stations and stores, and during sport events. (17)

Since 1971, all television advertising of tobacco products in the United States has been prohibited, and in Australia, 1992. A banned on sponsors and all tobacco advertising on television has operated in the European Union since 1991 under the television without Frontiers Directive (1989). This ban was extended in 2005 by the Tobacco Advertising Directive to other media such as the internet, print media, and radio. Some countries like Australia, Canada, Thailand and Iceland have implemented labels upon cigarette packs showing warning levels to the smokers which include graphic images of the potential health effects of smoking. In Canada also inserted inside packs of cigarettes are different methods of quitting smoking. In Australia, currently almost 70 percent of cigarette packs are covered by graphic images of the effect of smoking, as well as information about the names and number of chemicals and also the annual death rate. Television advertisement also show the videos of smokers who are struggling to breathe in hospitals. So, most of the people are aware and about one quarter of the smoker has been reduced. Similarly in

Singapore, cigarette manufactures print the image of mouth, feet, and blood vessels adversely affected by the smoking. The actual effectiveness of tobacco advertising is widely documented. The public health expert, Henery Saffer, says that the tobacco advertisements increase the consumption of cigarettes. Most of the literature is based on experiment rather than theory, and suggested that tobacco advertising has a significant effect on smoking, especially for children. (17)

The tobacco industry has now changed its strategy for advertising in the last 30 years. More than half of the expenditure goes on the promotional allowances and items, such as t-shirts, key rings or lighters for the young people. Only 10 percent of expenditure goes on print and outdoor advertisements. (6) To bring about changes 0involvement and cooperation between different sectors is needed. The agreement is that prevention is the most important step to control tobacco. Here are some points for the successful tobacco control programs derived from the World Health Assembly resolution with the recommendation from other international and intergovernmental bodies which should be included in comprehensive national tobacco control programs:

1) Children are protected against the tobacco addition
2) Use of fiscal policies to discourage the use of tobacco
3) The money raised from taxes of tobacco is used on the other health promotion and tobacco control programs.
4) Set up health promotion, health education, and smoking cessation programs.
5) Protection for Environmental Tobacco Smoke (ETS).
6) Bans on direct and indirect tobacco advertising, sponsorship, and promotion.
7) Elimination of socio-economic, behavioral etc which maintain and promote use of tobacco.
8) By controlling on the product which should include the warning label on tobacco product.
9) Effective management, monitoring and evaluation of the tobacco issue.

10) In the case of tobacco growing and manufacturing there should be promotion of other economic alternatives. (5)

Tobacco companies manipulate the youth to think smoking is cool or use athletes and sports sponsorship to sell cigarettes to the youth. The health hazards of smoking are well established and numerous. In order to reduce the health hazards of smoking, considerable effort in the tobacco control has focused on smoking cessation, prevention, and protection from second hand smoke. The increased attention has now been shown by the Tobacco Industry Demoralization (TID) which is a public health strategy designated to inform and make the public aware of the role of tobacco companies. TID uses social activism and the mass media to inform the public about the negligence and fraud, the failure of tobacco companies to warn smokers about the health hazards of smoking and the way tobacco companies direct their the marketing efforts at the youth. The focus of TID is not only asking smokers to change their smoking habits, but on increasing public awareness about the role played by the tobacco companies as they target to the youth. This will lead to a change in the people's attitude towards smoking will turn change their smoking habits or prevent them particularly the young people from starting smoking. (38)

2.6 Literature regarding independent variables

The survey conducted by National Level Youth in 5 countries reported that smoking prevalence in 5 countries among 15 to19 age group is very high. It shows that 38 percent in Indonesia, 33 percent in Thailand, 30 percent in Taiwan, 28 percent in the Philippines and 12 percent in Nepal of males smoke but the prevalence among women is very low. In countries like the Philippines, and Indonesia the attitude of parents about smoking is permissive for their sons but not daughters. Parents who have close relationships with their children are less likely to expose them to smoking. The survey also reported that countries like Nepal and Indonesia have a system of early marriage so early marriage might affect smoking prevalence. (15)

In Thailand, tobacco farming is an important activity. In 1995, 0.21 percent of the land was covered by tobacco farming. Between 2000 and 2005, the tobacco industry contributed 3.5 percent to 4.5 percent of the total government income in the country. But the Thai tobacco industry is significantly dominated by the state-owned Thai Tobacco Monopoly (TTM) (14). The previous research conducted in Thailand showed that the majority of youth start smoking for fun. Some wanted to experiment; some followed their friends. Research also showed that young females started smoking because of loneliness and insecure feeling. The young males and females both started smoking due to poor educational performance and early school drop out. It was also found that more income youth also have higher rate of smoking. So, it can be concluded that the students who have low socio-demographic status have high smoking behavior. (10)

In 2000 to 2007, the Global Youth Tobacco Survey (GYTS) found that among the student age group 13 to 15 many young people knew about the health hazards of smoking and they thought that it is no longer acceptable. One out of two students knew about the danger of smoking and eighty one percent of students wanted to quit smoking. The survey also showed a high level of exposure to advertisements, promotion, and sponsorship of tobacco products. So WHO Framework Convention on Tobacco Control totally ban on the advertising, sponsorships, and promotion on smoking. The warning raised by WHO are:

1) Youngsters are greatly influenced by the advertising as more likely they use.

2) By the influence of advertisement, it is difficult to believe for youngsters that smoking can kill. (2)

Reinforcing factors include friends who are smokers. When they spend much more time with such friends they can get a golden opportunity to reinforce smoking behavior. The smoking patterns start during work break, with foods and beverages, during social events and parties which expose their healthy life and productive lifestyle to the health risk by smoking (10). The study conducted in Thailand also showed that smoking behavior among youth is also influenced by the peer pressure. Most young people started to smoke at friends' houses and they tended

to smoke with friends. Even smoking is the immoral habits in most of the major religions, smoking is not prohibited. It has been accepted in some cultures. Many Native American tribes have a ritual of communal smoking of a sacred tobacco pipe and were considered as a sacred part of their religion. In some countries tobacco is grown for ceremonial use and they considered the ultimate scared plant so its smoke was believed to carry prayers to the heaven. But in the Sikh religion, tobacco smoking is strictly prohibited. (5, 17)

The previous research has linked substances use such as tobacco use to others risky health behaviors, mental health problems, suicide, motor vehicle accidents, violent crime, dental problems and others major health problems including cancer and heart disease. The research on the sequence on drug use suggested that the cigarette and the alcohol may serve as the" gateway" drugs to illicit drugs. Many research projects examined that the social correlates of tobacco use among adolescents were not able to recognize the theories of health behavioral and health promotion in their analysis. The study conducted by Rudatsikira et al. among Thai school going adolescents by using the Socio Ecological Model and assumed as the demographic and social factors associated with the current smoking among adolescent in Thailand. Adolescent cigarette use may be explained through the SEM of health behaviors. This model has been applied to a broad range of health behaviors and different populations, and this model also suggested that various factors including individual level factors and the socio-cultural environments that an individual is exposed to interact to produce specific behaviors such as cigarette smoking. If society is more permissive towards smoking by one gender, that gender may be more likely to smoke. Similarly, adolescent whose parents or peers smoke may be living in an environment that is more tolerant to smoking. (33)

The Global Youth Tobacco Survey has for the first time documented that tobacco use is a serious problem among youth that is globally in Nature. The research conducted by GYTS, in 43 countries and the Gaza Stripes/ west Bank Region found that this problem is of equal concern in both developed and developing countries. Among 6.2 billion world's population 186 million are estimated to be aged 13-15

years attending school. Out of 186 million, it is estimated that 34.8 million are currently smokers using some form of tobacco and 25.8 million are currently cigarette smokers. In addition, almost one in four students, smoked for the first time before the age of 10. Therefore, the dependency on tobacco and the health consequences of tobacco use seems to be a major problem facing countries throughout the world in coming future. The finding also suggested that the immediate action should be taken to the development of both global national tobacco control program.

The GYTS data document in many parts of the world already announced that tobacco use is a serious problem which is already exist among the youth, so we need to change the way in which every individual, community and the society view tobacco product and begin to treat these products are health hazards. The survey found that:

1) Many of the students are adversely influenced by advertisements. Also in many countries, students are offered free cigarettes by companies. But not only advertisement is the factors influencing young people to smoke there are also evidence that cigarette promotion and the marketing plays a vital role.

2) Majority of students are exposed to second hand smoke in public places as well in their homes.

3) Survey result indicated that vast majority of 13-15 years old current smokers who purchase cigarettes were not refused.

After the finding GYTS reinforce that;

1) The several restrictions on the marketing of tobacco products should be applied as public health actions.

2) Need of strong law prohibiting the sale of tobacco products to minors and the law must be enforced.

3) Need for the law which protects the children from exposure to second hand smoke.

4) Strongly suggested that need for effective youth cessation program.

5) Need for school based education programs for the development and the implementation of the effective tobacco prevention curriculum in schools through out the world. (35)

The research conducted in University of Brazil and Cambridge University demonstrate that the prevalence of smoking among students attending courses in the area of health sectors especially medical students are lower than the students attending course in the other fields. This concludes that the students attending course in the area of health show higher levels of awareness regarding the hazards of smoking. Another study reported that more than50 percent of regular smokers tended to increase tobacco consumption after the admission into the University environment. There is a growing tendency in smoking among university students globally. (37)

A study conducted by Naing NN et al (2001), on smoking behavior among male adolescents in Malaysia found that the reason to start smoking were following friends, feeling of maturation, enjoyment, following parents, relaxation in free time, and feeling that smoking is a normal behavior for men. Among non-smokers most often cited religion, parental influence, health protection and financial reasons as factors preventing them from smoking. Smokers had relatively poor academic performance compared to non smokers. Thambypillai (1985) reported a similar finding of association between high smoking prevalence and poor academic performance. Among a few studies conducted, Thambypillai (1985) found that the prevalence of smoking among secondary school boys in an urban school in Kuala Lumpur, Malaysia, was 17.0 percent. In Saudi Arab the prevalence of smoking among secondary school boys was 17 percent while in China it was 2.24 percent. The study also found that peer influence is the major reason for starting of smoking which is similar to the finding of the Surgeon General of United States. This type of relationship between smoking and peer influence was also found in junior and senior high school students in China. Studied from Japan and Spain have showed that the smoking rate of school students is strongly related to having a friend who smokes. (25)

2.7 Factors related to promote smoking

The study conducted by Beti et al. found that people were physically addicted to smoking and they also believed that the smell and taste of tobacco heavily influenced taking the decision to smoke and their habits were strongly associated with smoking which were very tough to overcome. Heavy smokers are psychologically addicted and think that it is used as coping mechanism to overcome stress, defuse anger, relief from physical symptoms from disease and to withdraw from people or keep people away. Some people also stated that they felt many social pressures to smoke such as tobacco companies, family members who smoke and some buddies also. So they are heavily influenced by the social environment.

Once a person has become a current smoker, it is very much difficult to give smoking. In general, heavy smokers face great challenges to quit smoking. So they need help from various sectors. The first and most important sector is the social environment to quit smoking which is either supportive or be considerable stumbling block. Support from family and friends also plays a vital role which makes work site rules that made it difficult to smoke them and as well as policy prohibiting smoking in the public places. But many people fear that their physical health could suffer if they quit smoking. From study it also can conclude that heavy smokers are highly addicted to the nicotine both physically and emotionally and they are socially dependent upon the tobacco and its products. The participants in this study also felt internal pressure to continue smoking as well as social environment also. Tobacco use typically is woven into everyday life and can be physiologically, psychologically and socially reinforcement. Many factors e.g media, depiction, cultural and societal acceptance combine with tobacco's addictive capacity to make it difficult to quite. (22)

In the 1950s, manufacturers began to add filter tips to cigarette to remove some of the tar and nicotine and introduce the cigarette as a safer and less potent "light cigarette". It become so popular in the year 2004, half of the Americans prefer as over regular cigarette. In fact the light cigarette as safer is a myth. The cigarette with low tar and nicotine causes the smoker to smoke more, or to inhale more deeply to get the

same level of nicotine. According to The Federal Government's National Cancer Institute, light cigarette has no benefit to health of the smokers. (17) It can be concluded that low tar, low nicotine cigarettes encourage young people and women to start smoking and influence smokers to continue in the belief that low tar, low nicotine cigarette are less dangerous.

Motivational Interviewing has been well investigated as a theraptic approach for the treatment of the substance use problems among adults over a decade. MI focuses on a clinical style, which is respectful, acknowledgeable, and emphasizes the autonomy of the clients and does not confront the resistance. It is well suited for the adolescent population (Baer and Peterson 2002). The clinical trial of MI for adolescent smoking has shown less success. Many previous studied have applied Theory of Planned Behaviors to the prediction of smoking behaviors (Norman,Conner,Bell, 1999;Hanson,1997; Godin, Valois, Lepage and Desharnais,1992; Hu and Lanese,1998). The Theory of Planned Behaviors has demonstrated applicability for the sub-population of adolescent smokers (Maher and Rickwood, 1997; Higgins and Conner, 2003). Similarly Hill and colleagues (1997) found that only attitude and perceived behavior can be control, but not the subjective norms, were predictive of smoking acquisition among adolescence. After the addition of perceived susceptibility to the theory and found to be predictive of intention to quit smoking (Norman, Conner and Bell, 1999). (36)

To prevent young people starting smoking is a critical step for lung cancer control. According to the Theory of Triadic Influence, there are three different levels of context which can influence the youth smoking individual characteristics (eg age and gender), characteristics of the immediate social environment surrounding (e.g. friends and family members), and the characteristics of the border social environment surrounding youth (e.g. school, community). A survey conducted in 57 elementary schools in Ontario, Canada(2005) showed that the students are at increased risk of smoking if they 1) often see other students smoking near their school 2) also report that student at their school smoke where they are not allowed, and 3) attend a school with a relatively high senior students smoking rate. Recent research has identified two

influential school characteristics which are related to youth smoking. The first is school level social modeling characteristics that means smoking initiation is more likely to occur in a school with a high smoking rate among senior students. The second is a school smoking restriction which indicates that the strong enforcement of school smoking restriction is related to the lower levels of student smoking. (40)

A study conducted in Malaysia among male adolescents found that religion was the strongest reason among non smokers for not smoking; such finding is consistent with earlier studies in Saudi Arabia of school boys, medical students and university students. There was a significant association between the students smoking status and their fathers smoking habits found in this study. According to social learning theory of behavior states that the children are more likely to model their own behavior on actions of people they regard as worthy similar to themselves and model of their own sex. (25)

2.8 Tobacco consumption in Thailand

Even though there are rules and laws against tobacco product control in Thailand which includes to the protection of non smokers' health, the number of smokers is still high. The total number of smokers slightly declined from 20.5 percent in 1995 to 20.3 percent 2006, but comparatively increase for both male and female. The data showed that Thai people overall smoke an average of 87.6 packs per person per year which was rose from 71packs/person/year in the year 2001-2002. The study conducted by the Kasikorn Research center in the year 2003, among the Bangkok residents showed that the motivation for smoking included stress, alcohol use, anger, uneasiness, visiting night spots, and seeing movies with smoking scenes.

The research also showed that one third of the youth under the age of 13, are heavily influenced by seeing movies with smoking scenes. The market share of imported cigarettes has increased from 4.1 percent in 1997 to 22.6 percent in 2006, similarly the market share of cigarette produced by Tobacco Monopoly of Thailand has been dropped from 95.9 percent in 1997 to 77.4 percent in the year 2006. The

study also found that Bangkok residents spent 15.07 percent of the total monthly income on cigarettes which indicates that on average they spent about 150 baht per month on cigarettes.

According to a World Bank Report, tobacco use causes economic loss of 200,000 million US dollars worldwide each year, one third of which occurred in the developing countries. Approximately 42,000 people die each year from smoking related disease or 115 deaths per day which means 6 deaths per hour in Thailand. The smoking is a serious illness, which causes 90 percent of male cancer patient, 82 percents of larynx cancer patients and 80 percent pharynx cancer patients had ever smokers. A cigarette smoking causes a major seriousness disease as Coronary Obstructive Pulmonary Disease (COPD) for long period of time in Thailand. According to the survey of Health Examination in the year 1991, 1.5 percent of the people of the age 15 had COPD and that they more smoke, more they would come down with COPD. It has been estimated that by the year 2020, the prevalence of COPD would be 7,035 per 100,000 populations. Emphysema is also one of the diseases caused by the smoking and the prevalence of emphysema also has been rose from 0.07 percent in 1984 to 4.3 percent in the year 2006 in Thailand. (26, 27)

In the year 1991, the study conducted by Wanchai on the economic impact of the lung cancer, coronary heart disease, and COPD related to the smoking and found that the average direct treatment costs per patients were 5,777, 4, 186, and 8,784 baht respectively. In the year 1994, Theera estimated that the total lifetime economic loss due to lung cancer caused by the smoking consisting of the direct medical cost of treatment and opportunity cost of the work loss was 2,233 million baht for a cohort of 7,800 smokers. Again in 1996, Kunaluck reported that the economic impact of the lung cancer caused by smoking to be 54,434 baht per persons. In the year 2001, Jayantan examined the impact of smoking on COPD and CHD, health care expenditure and the quality of life which shows that direct medical costs for COPD was on average 3,265 baht/person /year, the total expenditure on the treatment associated with CHD was 17,746 baht /person/year. This smoking affects health and the economic impact in Thailand. In the year 2006, the combined costs for the lung

cancer, COPD and CHD attributable to the smoking in Thailand was 9,857.02 million baht. (30)

2.9 Smoking pattern among Thai youth

The survey conducted by the National Statistics Office in 2004 on smoking behavior among Thai people compared data from previous years and shows the prevalence of smoking was drastically dropped within past two decades. In 1986, there was a smoking age population (15 years and above) of 33 million with 10.4 million smokers. However in 2004, only 9.6 million people out of total 49.4 million of smoking age were smokers. According to the study of WHO, half of the people will die of cigarette related disease which indicated that 2.2 million of Thai people had been saved from such disease. According to the Statistical Office, the ratio of male to female smokers is 18:1 among regular smoker, in which 65.6 % people get addicted before the age of 19. (26)

Smoking rates also differ among rural and urban populations. Previous research showed that youth who live in rural areas are more likely to smoke than those who live in urban areas. In 1996, 16 percent of urban youth and 27 percent of rural youth aged 20 -40 were found to be regular smokers. The highest prevalence of smoking among youth was 28.6 percent in the North- Eastern region of Thailand and the lowest prevalence was observed in Bangkok. In Central Thailand only 14 percent of youth smoked and 24 percent in Southern Thailand. Many studied have found that the average age of Thai youth start to smoke was 15 years (14-19). The National Survey conducted by the Health Research Institute in 1996 concluded that 58.5 percent of smokers started to smoke between15-19 years of age.

Supawongse C, et al. in 1996 reported that the prevalence of smoking among 15 years old male age group was 9.3 percent and 0.7 percent among females. The prevalence of smoking by 22 years old male was 39.2 percent and 2.2% among female. Ut NV in 1997, reported that among 260 youths aged between 15 to 24 years in Phuttamonthon district, Nakhorn Pathom province, 70 (26.9percent) were current

smokers and 10 (3.8 percent) were ex-smokers. BMC Dassanayake in 2003, concluded that among 316 male students in Mahidol University from 3 faculties, 12.4 percent were current smokers and 18 percent were ex-smokers and the median age for starting to smoke was 16 years. Among smokers, half of them started to smoke just for fun and one third of them were influenced by friends. (5)

At the moment there is relatively little data to monitoring the smoking patterns among the youth in Thailand. But the available data suggests that smoking among the youth may be rising. According to Supawongse et al., the prevalence of smoking in the male population dropped from 58 percent in 1996 to 37 percent in 2006, which is still high compared to the developed countries as the prevalence of smoking between 25 and 29 percent only. The research conducted among Thai youth showed that the smokers try cigarettes at the average age of 14 years. The finding also provided the initial step taken to the policy domain such as youth access to tobacco. Nevertheless, the majority of smoker reported that it was easy to bye the cigarette. This research is concluded further to see whether there is real effect and if so, what are the measures effective in the targeting key demographics.

2.10 Policy against tobacco control in Thailand

Thailand has played a vital model role for tobacco control in Asia for more than a decade. Thailand was the first country in the world to introduce comprehensive restrictions on promotion and advertising, and also to introduce a tobacco control policy. These activities were run in collaboration with governmental and non-governmental organizations. Cigarette smoking was popular among Thai people during the region of Rama V (1868-1910), which resulted in the importation of foreign cigarettes and in 1939, the establishment of a state owned tobacco industry. During 1943, there was enactment of the Tobacco Act which rendered the operation of the tobacco industry a state monopoly. But, during this time no evidence showed that there was any control of tobacco consumption. In 1974, the proposal containing the requirement for the health warning label on the cigarette packets accepted by

government. The two progressive legislation became important strategies for preventing smoking among Thai youth:

1. **The Tobacco Control Act, 1992**, has banned advertising tobacco products in the print media as well as on bill boards. It prohibits all forms of sale formation, prohibits cigarette vending machines, and banns cigarette sales to person under the age of 18. It requires legible health warning with 6 different messages to be placed on the front of cigarette packets. Since the year 2006, cigarette packets which were manufactured or imported for sale with in Thailand must contain a total of 9 graphic pictures with health warning massages. The warnings are that tobacco smoke hurts people nearby, it causes bad breadth; smoking causes emphysema; tobacco smoke causes fatal lung cancer; tobacco smoke bring about death; smoking causes cancer in the mouth and cancer of the larynx; and tobacco smoke causes embolic strokes. (5) One of the major strategic actions for the prevention smoking among youth and reducing the prevalence of smoking among the adolescents was to increase taxes on cigarettes to make them more expensive. From 1976 to 1991, major price increase on tobacco occurred. In 1991, 55% of the retail price was excise tax which was increased to 60 percent in 1993. in 2005, it was increased from 75 percent to 79 percent. As a result, it was expected that tobacco consumption might decrease by 10 percent. (26)

2. The Non Smoker's Health Protection (1992), In 1976, smoking in public places has been issued as a regulation. Those who broke the regulations were to be fined from 5000 to 1,000 bhat. After 16 years later, the parliament passed an important act to protect the non –smokers' health comprising prohibition of smoking in public places to be enforced nationwide from 1992. The prohibited area covers air conditioned buses, elevators, movie theaters, school days nurseries, hospitals, shopping centers. At present, the smoke ban has effectively covers the various types of public places to protect non smokers' health. The establishment of health education was applied for the public during 1987; on tobacco related health effect through the mass media. World No Tobacco Day has been celebrated during the year 1988.

Moreover the healths of millions of non smokers are protected by the establishment of smoke free zones in public places. The activity taken to control in Thailand includes:

1) The establishment of first NGO “No Smoking “campaign project in 1986
2) The establishment of National committee for the control of Tobacco use (1989)
3) Action on smoking and health in Thailand (non- governmental organization)
4) Institute of tobacco consumption control attached to MoPH. (26,27)

CHAPTER III
RESEARCH METHODOLOGY

3.1 Research design

This cross- sectional study describes the factors influencing the smoking behavior of students of Mahidol University, Salaya Campus, Thailand. The factors consist of predisposing factors including socio-demographic factors, knowledge about the health hazards of smoking, attitude towards smoking and its side effects, and quitting smoking. Enabling factors are composed of availability and accessibility of cigarette supply. Reinforcing factors include ritualistic factors, peer pressure, advertisements, and influence of neighbors and others. In this study the relationship between the independent variables and smoking behavior was studied.

3.2 Study population

The study group comprises students of Mahidol University, Salaya Campus, Thailand. As they are University students they are more mature than high school students and they can make their own decisions without any external pressure and might they could give the real answer. These students are the part of target group of tobacco companies.

3.3 Sample size

The sample size was calculated by using,

$n = \frac{z^2 pq}{d^2}$, where

n = estimated sample size

d2 = absolute precision value of the study set as (0.06)

p = anticipated proportion of individual in the population possessing the characteristics of smoking among adolescent in Thailand reported by International Tobacco Control survey Southeast Asia P(0.254)

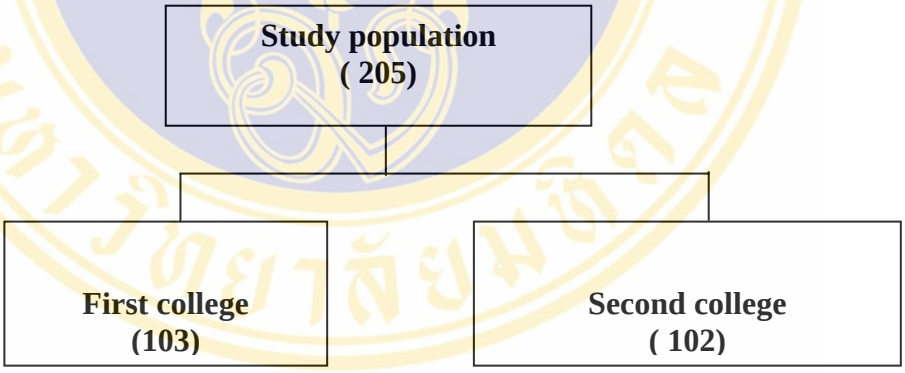
q = 1-p,

Total no of sample (n) =202

According to calculation above the sample size for this study was approximately 205 respondents.

3.4 Sampling technique:

This study was conducted in Mahidol University, Salaya Campus, Thailand. The two colleges was purposively selected as there were a lot of students smoking around a college.



3.5 Research instrument:

A structure questionnaire was used which was composed of 3 parts as seen in conceptual framework, predisposing factors, enabling factors and reinforcing factors. Socio-demographic factors included student's age, parental education, parental occupation, family type, family income and academic achievement.

Knowledge consists of 12 statements to choose answer as true or false. The total score was 12 if students could give a correct answer. The total knowledge of each respondent was differentiating into 3 levels. The result obtained by each student was scored and categorized as follows:

Scoring	**level**
>80 %	good
60-80 %	fair
≤ 60%	poor

The scoring system based on the question asked to the respondents on the knowledge of smoking health hazards. Less than 60 percent is poor, 60-80 percent is fair, and greater than 80% is good.

Similarly, the attitude part consists of 10 statements as respondents could answer with 1 from 3 options as agree, not sure and disagree. The scoring system based on.

Positive statement used in measure the item above and interpretation was used as rating scale.

Agree about the statement got a score of 3

Not sure about the statement got a score of 2

Disagree about the statement got a score of 1

Negative statement used in measure the item above and interpretation was used as rating scale

Agree about the statement got a score of 1

Not sure about the statement got a score of 2

Disagree about the statement got a score of 3

3.6 Data collection procedure

The questionnaire was first prepared in English and then translated into Thai for the data collection. Due to the language problem, data was collected by research assistants. The questionnaire was pretest for reliability with 35 students. The reliability for knowledge part was very low and some questions were modified but reliability remained same. After deleting some questions, reliability was not appropriate. Through consulting with experts, 4 questions were changed and final corrections to the questionnaire were made, then technical experts gave approval for actual data collection. The reason behind this might be the translation problem from English into Thai.

3.7 Research instrument

After data collection, recording data and entering data was done by using Epi-data and then analysis by Minitab. All the variables were described using descriptive statistics as frequency, percentage, minimum, maximum, mean, and standard deviation. To find out the relationship between students' smoking behavior and the predisposing factors, enabling factors and reinforcing factors, Chi-square test was used.

CHAPTER IV
RESULTS

The purpose of this study was to determine the smoking behavior and the factors related to smoking behavior among the students of Mahidol University, Salaya campus, Thailand. A self structured questionnaire was used. The data were collected from February 6 to 20, 2009. Most of the results have been summarized in frequency and percentage. The relationship between the contributing factors to smoking behavior in the target population has been analyzed by using Chi-square test, with the significant level set as $\alpha = 0.05$.

4.1 Socio-demographic characteristics of respondents.

Table 4 indicates the socio-demographic characteristics of the respondents. The total number of respondents was 205. Most of the respondents (71.22%) were age between 16-20 years and 28.78% were in the age between 21-25 years old. More then half (62.93%) of the respondents were male and 37.07% were female. 50.24 % of respondents were from first college and 49.76% of the respondents from second college.

The majority (43.41%) of respondents' father completed a bachelor degree and only 1.46 % was illiterate. Regarding the fathers' occupations, 44.88% were business men and 20.98% were government employees. Similarly, the majority (54.15%) of mothers had completed a bachelor degree and 1.95 % of mothers were illiterate. Regarding to the mother's occupation, the majority (32.20%) were involved in business and only 0.49 % of mothers were involved in agriculture. Most of the students lived in their homes with their both parents. Around 20.98% earned more

than 1, 50,000 baht family income per months and 38.05% earned less than 50,000 baht. Most of the students had a monthly allowance between 5000-10000 baht. The majority (62.93%) of students got grade point between1.00-3.00 and more than half of the students were satisfied with their academic achievement.

Table 4 Frequency and percentage by socio-demographic variables **(**n=205**)**

Socio-demographic variables	Number	%
Age group(Years)		
16-20	146	71.22
21-25	59	28.78
Mean=19.912, SD=1.439, Min=16, Max=25		
Gender		
Male	129	62.93
Female	76	37.07
Faculty		
Musical college	103	50.24
International college	102	49.76
Education of Father		
Illiterate	3	1.46
Primary school	15	7.32
Secondary school	31	15.12
Diploma	7	3.41
Bachelor degree	89	43.41
Master degree	33	16.10
Doctoral degree	14	6.83
Others	13	6.34

Table 4 Frequency and percentage by socio-demographic variables (cont.) (n=205)

Socio-demographic variables	Number	%
Occupation of Father		
Agriculture	7	3.41
Business	92	44.88
Laborer	3	1.46
Government employee	43	20.98
Illiterate	4	1.95
Primary school	14	6.83
Secondary school	33	16.10
Diploma	7	3.41
Bachelor degree	111	54.15
Master degree	20	9.76
Doctoral degree	14	6.83
Others	2	0.98
Occupation of Mother		
Agriculture	1	0.49
Business	66	32.20
Laborer	4	1.95
Government employee	30	14.63
Private employee	19	9.27
Teacher	14	6.83
Unemployed	44	21.46
Others	27	13.17
With whom students live with		
With both parents	159	77.56
With father only	6	2.93
With mother only	15	7.32
With relatives	12	5.85
Others	13	6.34

Table 4 Frequency and percentage by socio-demographic variables (cont.) (n=205)

Socio-demographic variables	Number	%
Average Family income per months		
<50000	78	38.05
50001-100000	72	35.12
100001-150000	12	5.85
>150001	43	20.98
Mean=125190 bht, S.D=146503, Min=5000, Max=900000		
Average allowance per months for students		
1000-5000	52	25.37
5001-10000	89	43.41
10001-15000	27	13.17
>15001	37	18.05
Mean=1332 bht, S.D=15218, Min=2000, Max=98000		
Student stay for study		
Dormitory	87	42.44
Condominium	9	4.39
Relatives home	4	1.95
At home	98	47.80
Others	7	3.41
Grade point of semester		
0.00-1.00	4	1.95
1.01-3.00	129	62.93
3.01-5.00	72	35.12
Mean=2.8230, S.D=0.6481, Min=0.0200, Max=4.00		
Satisfy with academic achievement		
Yes	117	57.07
No	88	42.93

4.2 Knowledge on health hazard of smoking

The knowledge part consists of 12 statements which comprise 6 positive and 6 negative statements. The total score is 12 if students could answer all correctly. The level of knowledge has been derived from the total score of each respondents depending upon how they responded with the asked questions. Those who scored less than 60% were categorized in low level, similarly who scored between 60%-80% were categorized into fair, and more than 80% were categorized good level.

Table 5 Frequency and percentage of knowledge level of students towards health hazards of smoking (n=205)

Knowledge level	Number	%
Tobacco is harmful to smoker only rather than non-smoker		
True	91	44.39
False	114	55.61
Smoking is responsible for main cause of lung and kidney cancer		
True	33	16.10
False	172	83.90
Smoking does not cause brown color teeth		
True	150	73.17
False	55	26.83
Smoking is responsible for bad breadth		
True	163	79.51
False	42	20.49
Cigarette contains low tar and nicotine is not so health hazard		
True	135	65.85
False	70	34.15

Table 5 Frequency and percentage of knowledge level of students towards health hazards of smoking (cont .) (n=205)

Knowledge level	Number	%
Nicotine may be absorbed by skin		
True	132	64.39
False	73	35.61
Secondhand smoker can suffer from nasal sinus cancer		
True	166	80.98
False	39	19.02
Smoking can lead to disability and illness		
True	178	86.83
False	27	13.17
Smoking does not related to increase the blood cholesterol level		
True	103	50.24
False	102	49.76
Nicotine is toxic only but not addictive in nature		
True	133	64.88
False	72	35.12
Among pregnant smoker, smoking can lead to physical disability in babies		
True	172	83.90
False	33	16.10
Nicotine is as harmful as heroine and cocaine		
True	100	48.78
False	105	51.22

The result obtained on knowledge on health hazard of smoking from Table 6, indicates that 45.85% respondents has poor knowledge level on the health hazards of smoking; only 19.51% of students had good knowledge whereas rest of score in fair category(34.63%). Half of the student (55.61%) knew that tobacco is harmful to non-

smokers. Majority (65.85%) of the respondents thought that cigarettes containing low tar and nicotine are not so health hazards. 86.83% of students answered correctly to the question “smoking can cause disability and illness”. 79.51% of respondents answered that smoking cause bad breath. Only 35.12% of student answered that nicotine is toxic as well as addictive in nature.

Table 6 Frequency and percentage by level of knowledge towards smoking behaviour (n=205)

Knowledge level	Number	%
Good (>80%)	40	19.51
Fair (60%-80%)	71	34.63
Poor (>80%)	94	45.85

4.3 Attitude on smoking behaviors

There were 10 statements for the attitude towards smoking behaviors. Of these, 4 were positive and 6 were negative statements.

Table 7 shows that majority (67.80%) of the respondents disagreed with the statement “smoking feels like a real man” while 13.17% of respondents agreed. About 46.54% of students agreed that smoking can relieve tension and anxiety and 22.44% disagreed. For the statement “In-confident often lead to smoking”, around 20% agreed and 44.88% disagreed. 49.90% of the respondents agree with the statement “most of teenagers start to smoke thinking as they are grown up” and 21.95% and 21.95% and 23.90% of them were not sure and disagreed respectively. About 57.07% of the respondents thought that quitting smoking is easy.

Majority (52.20%) of the respondents agreed that “weak force of law on smoking is good” where as only 25.85% disagreed. Surprisingly, about 33.66% of the respondents disagreed that smokers can smoke whenever they want and 33.39% agreed. About 71.71% respondents disagreed with the statement “female smoker feel proud” whereas only 11.71% agreed.

Table 7 Frequency distribution of attitude towards smoking behaviors (n=205)

Attitude	Number	%
Smoking feels a real man		
Agree	27	13.17
Not sure	39	19.02
Disagree	139	67.80
Smoking relieve tension and anxiety		
Agree	95	46.34
Not sure	64	31.22
Disagree	46	22.44
In-confidence often lead to smoke		
Agree	41	20.00
Not sure	72	35.12
Disagree	92	44.88
Occasional smoking does not cause any harm		
Agree	47	22.93
Not sure	70	34.15
Disagree	88	42.93
Smoker feels like a real man when they smoke		
Agree	28	13.66
Not sure	40	19.51
Disagree	137	66.83

Table 7 Frequency distribution of attitude towards smoking behaviors (conts.) (n=205)

Attitude	Number	%
Female smoker feel proud		
Agree	24	11.71
Not sure	34	16.59
Disagree	147	71.71
Teenager start to smoke thinking as they are grown up		
Agree	90	49.90
Not sure	66	32.20
Disagree	49	23.90
Weak force of law on smoking is good		
Agree	107	52.20
Not sure	45	21.95
Disagree	53	25.85
Quitting smoking requires a lot of efforts		
Agree	42	20.49
Not sure	46	22.44
Disagree	117	57.07
Smokers can smoke whenever they want		
Agree	69	33.39
Not sure	45	21.95
Disagree	91	33.66

The scoring on the level of attitude of respondents was based on the total score of each respondents choose one of the choices agree, not-sure and disagree to the statements given for the attitude on smoking behavior. The total score was 30 if respondents could give all answers correctly. A score of less than 16 was considered

as low level, a score between17-20 was considered as moderate and a score greater than 20 was considered as high level. Table 8 indicates that attitude level of students towards the smoking behavior. It shows that 44.83% of respondents had fair or moderate attitude level, while 42.93% had good attitude level and only 10.24% had poor attitude level.

Table 8 Frequency and percentage by level of attitude of students (n=205**)**

Attitude level	Number	%
Good (>20)	88	42.93
Moderate (17-20)	96	46.83
Poor(≥16)	21	10.24

4.4 Enabling factors

Table 9, shows accessibility and availability of cigarettes in terms of sources and the distribution. A majority (51.63%) of students preferred foreign brands, 39.22% preferred local brands whereas 9.15% preferred both foreign as well as local brands. Most (28.10%) respondents indicated that the reason for choosing a foreign brand was of good smell whereas 20.26% of respondents followed to the same brand as a friend.

36.64% of the students revealed that they could buy cigarettes from seven-eleven, and family mart. Similarly 25.49% buy them on the street. A majority of the students got their cigarette from friends at university (77.12%). Almost all of the students replied that buying cigarettes is very easy because could found everywhere and no ID check (96.59%).

Table 9 Frequency and percentage of student smoking behavior by accessibility and availability to cigarette (n=153)

Availability and accessibility	Number	%
Brand prefer		
Local	60	39.22
Foreign	79	51.63
Both	14	9.15
Reason to prefer that brand		
Because of cheap	21	13.73
Same brand as friend	31	20.26
Same brand as parent	5	3.27
Good smell	43	28.10
Others	53	34.64
Place to buy cigarette		
Around university	26	16.99
On street	39	25.49
Shops around home	35	22.88
Others	53	34.64
How to get cigarette		
My parents	7	4.58
My friends at university	118	7.12
My friend at home	7	4.58
Senior friends	9	5.88
Others	12	7.84
Buying cigarette is easy		
Yes	198	96.59
No	7	3.41

4.5 Reinforcing factors

Ritualistic factor

From Table 10, majority (81.46%) of the students were Buddhist, 12.20% followed by Christian, whereas 0.98% of respondents were Hindu or Muslim. Almost all (84.39%) of students revealed that there was no restriction on smoking in their religion but 15.61% of students replied that there was a restriction.

Table 10 Frequency and percentage of students by ritualistic purpose towards smoking behavior (n=205)

Ritualistic purpose	Number	%
Religion		
Hindu	2	0.98
Buddhist	167	81.46
Islamic	2	0.98
Sigh	7	3.41
Christian	25	12.20
Others	2	0.98
Restriction to smoke in religion		
Yes	32	15.61
No	173	84.39

Table 11 Frequency and percentage of students by peer pressure towards smoking behavior (n=205)

Peer group pressure	Number	%
Reason to start smoke		
Peer group at school	90	58.82
Peer group at home	13	8.50
Parents smoking	3	1.96
Adult smoking	5	3.27
Others	42	27.45
Reason to continue smoking		
Peer group at school	30	19.61
Parents smoking	4	2.61
Reduce stress at school	15	9.80
Reduce stress at home	2	1.31
My decision	75	49.02
Others		
Do you have friend who smoke		
Yes	191	93.17
No	14	6.83
Reason they smoke		
Influence by parents	7	3.41
Influence by friends	137	66.83
Lack of knowledge	15	7.32
Others	46	2.44

Peer pressure:

Regarding peer pressure, the study showed that almost all (93.17%) of the respondents replied that they have friends who smoke. Majority (66.83%) of students replied that their friends started to smoke because of influence of friends. 58.82% of the respondents answered that they started to smoke due to peer pressure at school and

27.45% of students replied that to complete circle, also wanted reduce stress at school and at home. 49.02% of the students stated that they continued to smoke as their own decision and 19.61% of them continued to smoke due to peer pressure at school.

Table 12 Frequency and percentage of students by family and neighbor influence towards smoking behaviour (n=205)

Family and neighbor influence	Number	%
Do your parent smoke		
Nobody smoke	151	73.66
My father only smoke	45	21.95
My mother only smoke	1	0.49
Both of them smoke	8	3.90
Any other adult smoke at home		
Yes	69	33.66
No	136	66.34
Any people around home smoke except your parents		
Yes, a few	104	50.73
No	57	27.80
Yes, a lot	44	21.46

Family and neighbors factors:

Regarding family and neighbor influence, the result from Table 12, show that 73.66% of the respondents revealed that nobody else smoked in their home, 21.95% of the respondent's fathers were smokers. Most (66.34%) of the respondents' indicated that there was no adult smoking at their home. Around 50.73% of the people live around their home who was smokers.

Table 13 Frequency and percentage of students by advertisement influence towards smoking behaviour (n=205)

Advertisement influence	Number	%
Which advertisement influence for smoking		
Popular brand	45	21.95
Famous people	27	13.17
Repetition of advertisement	19	9.27
Nothing will be influence	75	36.59
All of above(1,2,3)	36	17.56
Others	3	1.46
Kind of media influence for smoking		
Drama in T.V	96	46.83
Newspaper/Magazine	13	6.34
Internet	25	12.20
All of above	67	32.68
Others	4	1.95

Advertisement factors

Table 13 showed that 76.10% of respondent mentioned that tobacco companies try to manipulate young people to smoke; 55.61% of them indicated that advertisements did not play any role on their smoking. More than half (61.46%) of the students revealed that smokers will be reduced if advertisement are banned. Majority (58.05%) of them indicated that many young people are influenced by advertisement to smoke. Three quarters of smokers indicated that tobacco companies use athletes and sport sponsorship to sell cigarette to young people.

Table 14 Frequency and percentage of students by advertisements (n=205)

Cigarette advertisement	Number	%
Tobacco companies try to manipulate young people		
Yes	156	76.10
No	49	23.90
Advertisements does not play any role to smoking		
Yes	114	55.61
No	91	44.39
Many young people are influence by advertisement to smoke		
Yes	119	58.05
No	86	41.95
Smoker will be reducing if advertisement will be ban		
Yes	126	61.46
No	79	38.54
Tobacco companies use athletes, and sport sponsorship to sell cigarette to young people		
Yes	124	60.49
No	81	39.51

4.6 Smoking behaviors

Table 15 shows the smoking behaviors of the respondents. 34.15% of the respondents used to smoke everyday whereas 24.39% of them were occasional smokers, 16.10% were ex-smokers and 25.37% of the respondents did not smoke. Regarding the consumption of cigarettes, 52.94% of smokers consumed 1-5 cigarettes while 0.65% consumed 21-30 cigarettes per day. Majority (52.94%) of smokers spent around 100 baht per week to buy cigarette, where as 3.92% of smokers spent 501-2000 baht for cigarette. Most of the respondents stated that they liked to smoke when they

drink alcohol, 26.14% of them indicated that liked to smoke being with friends. Majority (67.32%) of them first started to smoke at the age of 16-23.

Table 15 Frequency and percentage of respondent towards smoking behaviour (n=205)

Smoking behaviour	Number	%
Smoking status		
Yes, but not everyday	50	24.39
Yes, everyday	70	34.15
Yes, before I used to smoke before	33	16.10
No	52	25.37
Consumption of cigarette in a day		
1-5	81	52.94
6-10	50	32.68
11-15	10	6.54
16-20	11	7.19
21-30	1	0.65
Mean= 6.732, S.D=5.367, Min=1, Max=27		
Money spend to buy cigarette per week		
<100	81	52.94
100-500	66	43.14
501-2000	6	3.92
Mean=170.1, S.D=155, Min=10, Max=800		
Like to smoke		
During the break	33	21.57
During the lunch break	19	12.42
After wake up in the morning	15	9.80
When drink alcohol	46	30.07
Being with friends	40	26.14

Table 15 Frequency and percentage of respondent towards smoking behaviour (n=205)

Smoking behaviour	Number	%
Age start to smoke		
10-15	50	32.68
16-23	103	67.32
Mean =16.536, S.D=2.283, Min=10, Max= 22		

4.7 Association between socio-demographic factors and smoking behaviors

The result shows that students aged 21-25 years smoked more than students aged 16-20 years. There was a significant association between smoking behavior and age. Regarding gender, the number of male smokers was greater than female smokers. A significant association was found between smoking behavior and gender ($p<0.001$).

For father's education p-value was equal to 0.007 and for mother's p-value equal to 0.033. Occupation of father's p-value=0.816 and for mother's p-value =0.203. The result showed that there was significant association between smoking behavior and parents education whereas there was no any association between parent's occupation and smoking behaviors.

The result also indicated that the majority of students live with both parents, and the students who lived away from for study such as condominiums, relatives homes, they smoked more than when living at home. But the result showed that there was no association between smoking behavior and place of stay. According to the average family income, the result showed that there was no significant association. The average allowance per month for students revealed that smokers got more money from parents than non smokers. There was significant association

between average allowance and smoking behavior. This study also showed that there was association between grade point as well as satisfaction with the academic achievement and smoking behaviors.

Table 16 Association between socio-demographic factors and smoking behaviour

Socio demographic variables	Smokers (n=153)	%	Non- smokers (n=52)	%	χ^2	p value
Age (Years)					**6.100**	**0.014***
16-20	102	69.86	44	30.14		
21-25	51	86.44	8	13.56		
Gender					**23.938**	**0.000***
Male	111	86.05	18	13.95		
Female	42	55.26	34	44.74		
Education of Father					**12.169**	**0.007***
Illiterate/primary/other	27	87.10	4	12.90		
Secondary school	18	58.06	13	41.94		
Diploma/Bachelor	67	69.79	29	30.21		
Master /Doctoral	41	87.23	6	12.77		
Occupation of Father					**1.561**	0.816
Agriculture/ Laborer/						
Teacher	15	75.00	5	25.00		
Business	66	71.74	26	28.26		
Government employee	32	74.42	11	25.58		
Private employee	17	85.00	3	15.00		
Unemployed/ Others	22	75.86	7	24.14		
Education of mother					**10.504**	**0.033***
Illiterate/ Primary/						
Diploma	20	80.00	5	20.00		
Secondary school	23	69.70	10	30.30		
Bachelor degree	76	68.47	35	31.53		
Master degree	19	95.00	1	5.00		
Doctoral degree/ Other	15	93.75	1	6.25		

Table 16 Association between socio-demographic factors and smoking behaviour (cont.)

Socio demographic variables	Smokers (n=153)	%	Non- smokers (n=52)	%	χ^2	p value
Occupation of mother					**4.612**	**0.203**
Agriculture/ laborer/ Private employee	22	91.67	2	8.33		
Business	46	69.70	20	30.30		
Government employee/ Teacher / Other	53	74.65	18	25.35		
Unemployed	32	72.73	12	27.27		
Whom do you live with					**4.047**	**0.132**
With both parents	114	71.70	45	28.30		
With father/ with mother/ Other	30	88.24	4	11.76		
With relatives	9	75.00	3	25.00		
Average family income					**6.633**	**0.085**
<50000	52	66.67	26	33.33		
50001-100000	59	81.94	13	18.06		
100001-150000	11	91.67	1	8.33		
>150001	31	72.09	12	27.91		
Average allowance per months for students					**9.567**	**0.023***
1000-5000	31	59.62	21	40.38		
5001-10000	68	76.40	21	23.60		
10001-15000	23	85.19	4	14.81		
>15001	31	83.78	6	16.22		

* significance at level of 0.05

Table 16 Association between socio-demographic factors and smoking behaviour (cont.)

Socio demographic variables	Smokers (n =153)	%	Non- smokers (n=52)	%	χ^2	p value
Student stay for study					**1.736**	**0.420**
Dormitory	66	75.86	21	24.14		
Condominium/relatives home / Other	17	85.00	3	15.00		
At home	70	71.43	28	28.57		
Grade point of semester					**6.029**	**0.049***
0.00-1.00	4	100.0	0	0		
1.01-3.00	102	79.07	27	20.93		
3.01-5.00	47	65.28	25	34.72		
Satisfy with academic achievement					**4.203**	**0.040***
Yes	81	69.23	36	30.77		
No	72	81.82	16	18.18		

* significance at level of 0.05

4.8 Association between Association between smoking behaviors

Table 17 Association between level of knowledge on smoking hazard and smoking behavior

Level of knowledge	Smokers (n=153)	%	Non smokers (n=52)	%	χ^2	P value
Knowledge					**13.995**	**0.001***
Good	23	57.50	17	42.50		
Fair	49	69.01	22	30.99		
Poor	81	86.17	13	13.13		

* significance at level of 0.05

Table 17 shows that the most of students have poor level of knowledge. The result indicated that there was a significant association between knowledge level and smoking behavior. This result clearly shows that students who had a low level of knowledge about health hazards smoked more.

Table 18 Association between level of attitude of students towards smoking and smoking behaviors

Attitude	Smokers		Non smokers		χ^2	P value
	(n=153)	%	(n=52)	%		
Level of Attitude					**29.799**	**0.000***
Good	49	55.68	39	44.32		
Moderate	84	87.50	12	12.50		
Poor	20	95.24	1	4.76		

* significance at level of 0.05

The result given in Table 18, shows that those with a poor attitude smoked more than those who had a good attitude. The test revealed that there was a significant association between attitude and smoking behaviors.

Table 19 Association between smoking behavior and peer pressure factors

Peer group pressure	Smokers (n=153)	%	Non smokers (n=52)	%	χ^2	P value
Reason to start smoke					**10.756**	**0.005***
Peer group at school	57	63.33	33	36.67		
Peer group at home/ parent smoking/ adult smoking	20	95.24	1	4.76		
Others	34	80.95	8	19.05		
Reason to continue smoking					**0.816**	**0.846**
Peer group at school	23	76.67	7	23.33		
Parents smoking/ reduce stress at home/school	16	76.19	5	23.81		
My decision	52	69.33	23	30.67		
Others	20	74.07	7	25.93		
Have friend who smoke					**12.023**	**0.001***
Yes	148	77.49	43	22.51		
No	5	35.71	9	64.29		
Why they smoke					**3.207**	**0.201**
Influence by parents/ lack of knowledge	18	81.82	4	18.18		
Influence by friends	97	70.80	40	29.20		
Others	38	82.61	8	17.39		

* significance at level of 0.05

4.9 Association between reinforcing factors and smoking behavior

Table 19 shows that most of the students started to smoke due to peer group at school and the statistical Chi-square test showed that there was association between reason to start smoking and smoking behavior. Regarding the reason to continue smoking, Chi-square test failed to show any relationship between smoking behavior and reason to continue smoking.

The result showed that the students who had friend who smoked they smoked more than who did not. There was significant association between friends smoking and smoking behavior. (P-value=0.001).

Table 20 showed that most of the smokers were Buddhist than others but there was no significant association between religion and smoking behavior.

Table 20 Association between smoking behavior and ritualistic factors

Ritualistic factors	Smokers (n=153)	%	Non smokers (n=52)	%	χ^2	P value
Religion					**5.921**	**0.052**
Hindu /Islamic	3	75.0	1	25.00		
Buddhist	119	71.26	48	28.74		
Sigh/ Christian / Others	31	91.18	3	8.82		
Restriction to smoke in religion					**0.244**	**0.621**
Yes	25	78.13	7	21.88		
No	128	73.99	45	26.01		

***** significance at level of 0.05

The result shows that students who smoke had smoking fathers more often than those who did not. Chi-square test showed that there was no relationship between

parents smoking and smoking behavior. Majority of smokers have other adults who smoke at home. The association was found to be significant. Similarly, around smokers home there were a lot of people who smoked. However, the association was found to be not significant.

Table 21 Association between smoking behavior and family and neighbor influence

Family and neighbor influence	Smokers (n=153)	%	Non smokers (n=52)	%	χ^2	P value
Do parents smoking					**0.084**	**0.959**
No	112	74.17	39	25.83		
Father only smoke	34	75.56	11	24.44		
Mother only/ Both of them smoke	7	77.78	2	22.22		
Any other adult smoke at home					**8.342**	**0.004***
Yes	60	86.96	9	13.04		
No	93	68.38	43	31.62		
Any people around home smoke					**1.884**	**0.390**
Yes , a few	74	71.15	30	28.85		
No, nobody smoke	43	75.44	14	24.56		
Yes , a lot	36	81.82	8	18.18		

* significance at level of 0.05

Table 22 shows that smokers have a positive attitude towards the advertisements. Most smokers declared that advertisements did not have any influence. However there was no significant relationship between advertisements and smoking behavior.

Table 22 Association between advertisements and smoking behaviors

Advertisements	Smokers (n=153)	%	Non smokers (n=52)	%	χ^2	P value
Influence of advertisements					**3.043**	**0.385**
Popular brand	33	73.33	12	26.67		
Famous people/ repetition of advertisement/ others	34	69.39	15	30.61		
Nothing influence	61	81.33	14	18.67		
All of above	25	69.44	11	30.56		
Media influence					**1.115**	**0.573**
Drama in T.V	70	72.92	26	27.08		
Newspaper/ magazine/ internet/ others	34	80.95	8	19.05		
All of above	49	73.13	18	26.87		

***** significance at level of 0.05

CHAPTER V
DISCUSSION

This study was conducted at Mahidol University, Salaya Campus with the main purpose of describing the smoking behavior of students and the relationship between socio-demographic factors, predisposing, enabling and reinforcing factors and smoking behaviors of students. This chapter discusses the result describe in chapter four.

5.1 Socio-demographic factors

In this study the majority (69.86%) of the smokers was aged 16-20 years. The result revealed that there was an association between age of the students and smoking behavior. This finding is similar to what Andrade et al, reported for Brazilians university students that smoking is related to the period of transition of individual from high school to higher education (37). According to the study there were more male participants (71.22%) than female (37.07%), and there were a much higher number of smokers among male students (86.05%) as than to female students (55.26%). The statistical test found an association between smoking behaviors and gender. (P-value=<0.001). There was a lot of previous research concluded that there were a lot of male smokers than female, and significant relationship was also found between these group. (2,41)

Regarding the parental occupation, Chi-square analysis test found no significant association between parental occupation and smoking behavior of students. However, the result showed that the majority of smokers' parents were involved in business. The majority of parents had completed a bachelor degree. The result showed

that there was inversely proportional relationship between parental education and smoking behavior. The result showed that there was a significant association between parental education and smoking behaviors, p- value= 0.007 for fathers' education and p-value =0.003 for mothers' educations.

The socio-demographic distribution of students revealed by statistical test found no significant difference between whom they lived with or where they lived for study. More than half of them reported that they stayed with both parents at home. More number of smokers lived in home than in dormitory.

With regard to family income, most students reported that their average family income between average category (38.05%). Most smokers reported that their average family incomes ranged between 50001-100000 baht per month. The result showed that there was no significant association between family income and smoking behavior of the students. Chi-square showed that there was significant association smoking behavior and average allowances for students. (P-value=0.023) This study contrasts with the study of Supawongse (1998), which found that the students who got more income were likely to be smokers than who got less income. The result showed that students who got more money could spend it on buying cigarettes. This study also showed that the average allowance for smokers was more than non-smokers. (14)

A study conducted by Supawongse (1998), revealed that Thai students who did well in academically tended to become non-smokers more than those with low grades (14) However, this study revealed that those with low grades were exposed to smoke more than those who did well, and is supported by statistical test result with p-value=0.040

5.2 Predisposing and reinforcing factors

This study indicated that knowledge about smoking behavior was associated with the smoking behavior of students. (P-value=0.001). A study done by B.M.C Dassanayake (2003) similarly reported a significant association between smoking behavior and knowledge level could be found, although the percentage of ex- smoker and current smokers were low in number among with high level of knowledge. (5)

The finding of this study on knowledge level about the health hazards of smoking among students found that less than half (45.85%) of the respondents had poor levels of knowledge and about 34.63% of them were in the fair category. Interestingly only 19.51% of the respondents had scored in good category. Even the students were highly educated, but in this case the number of smokers was more so might be they have positive thinking about smoking even they knew the health hazards of smoking. The previous study by Kailawadoko reported that most students had fair to good knowledge of smoking health hazards. Nguyen V Ut (1997) also found the similar trend in the knowledge level of health hazards of smoking among the adolescents. (78.1%) fair. (42)

The level of attitude of students towards the effects of smoking, interestingly this study showed that 42.93% of students had good attitude where as 46.83% of them had moderate attitude level. Similarly, the percentage for poor attitude level was 10.24%. More than three quarter of the students disagreed with the negative statement “smokers fell like a real man when they smoke” (66.83%) and “occasional smoking does not cause any harm” (42.93%). Nearly, half (49.90%) of the respondents agreed with the positive statement” teenager start to smoke thinking as they are grown up.”

Chi –square test indicated a significant association between specific attitudes of the students and the smoking behavior of the students. (P-value<0.001).

B.M.C Dassanyake, 2003 also found a significant relationship between smoking behavior and attitude (5). The major determinant of smoking behavior by young peoples' attitude rather than knowledge. So, more emphasis should be given to improve their attitude towards smoking by adolescents to the prevent tobacco use and its products. However this study shows that, among smokers highest percentage of students had poor attitude (87.50%) where as only 55.68% had good attitude. From this result it could be revealed that why smokers had been involving in smoking. It can be also concluded that if attitude towards the positive and negative effects of smoking can be improved among students through anti-smoking and health promotion programmes, the number of smokers can be certainly reduced. From the above result, knowledge and attitude towards the health hazards of smoking among adolescents is not enough or sufficient. So, these programmes should encourage the attitude of student that smoking does not relieve tension and instead of this smoking cut off the half life of smokers. In this research, majority (52.20%) agreed with the statement "weak force of law on smoking is good". So, law should be emphasized on these statements.

In this study, reinforcing factors include peer pressure, ritualistic factors, family and neighbor influence, influence of advertisements to the smoking behaviors among respondents. This result revealed more than half (58.82%) of smokers started to smoke due to peer group at school which indicates that most of them were influenced by friends. Once they stared smoking, and question was asked why they continue smoking, 49.02 % answered that it was their own decision. This study contrasts with the study done by Ut N V, 1997 in Phuttamonthon district, 41.2% of adolescents who was smokers reported that they were initiated by friends in smoking. (42). The survey conducted by International Tobacco Control Southeast Asia, on pattern of smoking among adolescents in Malaysia and Thailand showed that 92% of Thai and 87% Malaysians reported that they smoked with friends. (31)

So, the result could be predicted that friends play a vital role in the smoking behaviors. There is directly proportional relation between smoking behavior and having friends who smoke. This study showed association between friends who

smoke and smoking behavior (P-value=0.005). This agrees with what was observed among United State adolescents by the Center for Disease Control and Prevention. (7)

When students were asked whether that they have friends who smoked, almost all (93.17%) answered that that they have smoker friend. And among non-smokers, about half of them mentioned that they had no friends who smoked (64.29%). The Chi-square test found a significant relationship between on friend who smoke and the smoking behaviors among students (P- value=0.001).

In some religions, smoking is strictly prohibited like in the Sikh religion. But in most major religions, smoking is not specifically prohibited, although it is considered as immoral habits. Although, in the common ritual of many Native Americans tribes, smoking is considered as scared part of religion and it was also believed that smoke of scared plant carried prayers to the heavens (17). Regarding, ritualistic factors in this study, the result shows that the majority (81.46%) was Buddhist and amazingly, 84.39 % of respondents replied that there was no restriction on smoking in their religion. The test showed that there was no relationship between religion and smoking behavior (P-value=0.621). A previous study found that religion was the strongest reason among non-smokerS for not smoking. A similar finding was also found in Saudi-Arabia of school boys, university students. (25)

Research conducted by the International Tobacco Control in Malaysia and Thailand found that among Thai smokers most common brand of cigarettes were Krong Tip (31.6%), Sai Fon (27.8%), L &M, Dunhill as well as Lucky strike (25.3%). In this study most of smokers preferred foreign brands (51.63%) and most (34.64%) of them revealed that they prefer Dunhill, L&M. As to why they preferred that brand, respondents clarified because of good taste, followed friends and also of good smell. However, this study contrasts with Action for Tobacco and Health reported in 2002, that 70% of the young female smokers in Thailand preferred foreign brand. It has also been reported that there has been increasing trend of preferring foreign brands that has been more popular among especially Thai female and among youth Thai than adults. (4)

Regarding family and neighbor influence on the smoking behavior of respondents, more than half (73.66%) reported that nobody smoked at their home, whereas there was 50.73% of smokers around the respondent's home. Among smokers also, most of their parents did not smoke. Chi-square test failed to find out any significant relationship between parent's smoking and smoking behaviors. (P-value=0.959). A study conducted in Budapest, Hungary, among students clarified that most student's smokers also had parents smokers. The study conducted by Supawongse, 1999, also indicated that smoking among youth was more common when either parents smoked. But this study did not reveal. (14)

One of the surveys conducted in US, in 1997 the tobacco companies were spending about $15 million a day or $ 5.7 billion per year. The research conducted by Beti (2003), found out that 57% of participants identified social components of smoking such as seeing advertisements in the environment. (22). Lois Biener concluded that more young people were exposed to smoking advertisements and promotional activities; the greater the possibility they would become smokers. Michael Siegal also declared that advertising techniques were effective whether trying to promote tobacco use or prevent it. However it can be assumed that if smoking advertisements can be banned, the number of smokers will be reduce.

However, in this study, majority (76.10%) agreed that tobacco companies tried to manipulate young people to smoke. Half of them (58.05%) claimed that many young people were influenced by advertisements to smoke. 61.46% agreed that if advertisement were banned then the number of smokers would decrease. In the case of media, respondents reclaimed that T.V drama play a vital role in attracting youngsters towards smoking. In the case of influence of advertisements for smoking one third of the respondents mentioned that advertisements did not affect people or nothing would be influence, Chi-square test shows that there was no association between smoking behaviors and advertisements.

The statements approved by WHO No Tobacco Day on 31st May, 2008 reclaimed that tobacco companies always target young people knowing that they are

the risk of becoming addicted to nicotine. WHO called policy makers to support a ban on advertising, promotion and sponsorship for WHO Frame Convention on Tobacco control. WHO warns: The more young people are exposed to tobacco advertising, the more likely they are to use tobacco and widespread tobacco advertising makes tobacco use look normal and makes it difficult young people to believe that smoking can kill. (1)

Youth is the period to experiment with new things. As youth becomes older, the prevalence of smoking increases so prevention is better then cure; anyway it is better to raise awareness among adolescents. So if we want any significant behavioral change can be confidently forecast with respect to reduce the smoking among the youth, then there should be the involvement of participation and motivation of the younger generation. It is important to emphasize that they start smoking at the early age as experiment and become habit, which is before the age of 20 years, which is commonly related to the period of transition of the individual from high school to higher education and many students have their first contact with smoking when they enter the university. (37)

The students who are attending university they get freedom with less strict rules and regulations compared with secondary or high school. They can make their decisions by themselves and get much more money from their parents so they are economically strong. There is an also higher chance of apart from their parents in order to get higher education; most students get an opportunity to live in a condominium, dormitory, or hostel. So they get a higher chance to stay with groups, which makes higher chance of exposure to smoking behavior.

CHAPTER VI
CONCLUSION AND RECOMMENDATION

6.1 Conclusion

Tobacco is the second major cause of the death and it is the fourth most common risk factor for disease in the world. The economic costs of tobacco use are equally devastating and it kills people of productive age, depriving families of breadwinners and nations of a healthy work force. At the starting of 21st century, tobacco consumption among young people is already well established in the many parts of the world. The factors for using tobacco among young people are many and varied as culture and religions, accessibility and availability of different types of tobacco products, knowledge and attitude health hazards of smoking and perhaps most importantly tobacco companies behaviors to promote their products among youngsters. However, it is very difficult to find out all detrimental factors that contribute to the decision to use tobacco which can lead to addiction and eventually adverse health effects.

This research concluded the prevalence of smoking behaviors among the students of Mahidol University, Salaya Campus, Thailand. The objective of this study was to find out the smoking behaviors and factors related to smoking behaviors among 205 respondents including both males and females. The prevalence of smoking in this population was 74.63% and the majority of smokers were male.

Most of the smokers were in the age range between16-20. Among smokers, majority of them started to smoke at the age of 14 and from obtained result we can conclude that smoking is increasing with increase in the age, which is not very different from the available national average and also from previous thesis also.

The occupation of parents as the contributing factors to smoking behaviors among the students did not showed any relationship. Neither average family income nor distribution of students shows any relationship. So, out of demographic factors used in this study comprises age, gender, parental education, average allowance for students and academic achievement shows the significant relationship.

The result of this study showed that the knowledge of students on health hazards of smoking had a significant relationship with smoking behavior among the target populations. However, the attitude level of students towards smoking also able to show the significant relationship. So, from result it can be concluded that if the knowledge and attitude of students towards smoking can be increase through the health education and promotion program at the national level, it could certainly decrease in the cigarette smoking among the younger generation.

Regarding to the reinforcing factors, the percentage of friend's smokers was 77.49% as compared by non-smokers students 22.51% and 35.71% of the smokers did not smoke and 64.29% smoke. So, there was significant relationship between smoking behaviors and the influence of friends on the smoking behaviors to the students. (P-value=0.001)

In the case of peer pressure, 63.33%of the smokers started to smoke due to peer group at school as compared by non-smokers 36.67%. However, the statistical test showed that there was significant relationship between peer pressure and smoking behaviors of the students (P-value=0.005). 49.02% of students mentioned that they would like to continue to smoke by their own decision. So, we can reveal that peer pressure is still one of the most important influence factors among the students. The influence of peers can be effectively utilized during youth specific smoking cessation program and others tobacco control program.

On accessibility and availability of cigarettes, the result of this study showed that almost all students mentioned, buying cigarettes is very easy that they could find it everywhere. Most students preferred foreign brands of cigarettes such as

Dunhill, L&M, and Lucky strike. They also mentioned that they preferred those brands because of good smell as well as of good taste. Students replied that most of the students buy their cigarettes in seven-eleven, minimart, or family mart . From this result it can be assumed that the trend of lifestyle among Thai youth as well as effects of marketing strategies of foreign tobacco companies through the country has been in growing phase.

In the case of ritualistic factors all most all students (81.46%) follow Buddhism and rest of them follow Christian followed by Sigh, Islam, and Hinduism. The statistical test showed that there was no significant association between religion and smoking behaviors among the target population.

The statistical test on smoking behaviors and adult smoking showed that there is a significant relationship between these two variables (P-value=0.004). So adult smoking is also one of the contributing factors among smokers' students. Most of the students mentioned that there were a lot of people around their home who are smokers. Similarly, advertisements play a vital role among young people to manipulate them into smoking behavior. This study showed that advertisements did not have any encourage ness and discourage ness to the smokers to continue smoke. However, most of the respondents agreed that tobacco companies use athletes, sports sponsorship to sell cigarette to young people. Statistical significant showed that there is no any association between advertisements and smoking behavior.

It can be concluded that banning advertisements of any kind of tobacco and tobacco products in the mass media, as well as other places has been fairly effective, since the proportion of smokers who had received information on cigarettes from such sources was little.

6.2 Recommendation

Finally, from obtained result, the recommendation can be offered as following:

- Parents should attempt to strain their children from accompanying of friends who are smokers.
- Parents should not smoke in front of children.
- Parents and teachers should form forums that meet at on set internal within certain time to discuss such issues as how to prevent smoking among students.

School

- School management teams should strictly considered reviewing current school rules and regulations on cigarette smoking by students.
- Teachers should discourage the students from smoking at school
- Involvement of non-smoking peer groups should be included in school anti-smoking programs.
- Smoking cessation programs should be organized through student's councils and peer counselors.

Nation

- There is good legislation on tobacco consumption control, but still there is need for improvement in implementation and enforcement mechanisms.
- Better to create more successful Tobacco Industry Demoralization (TID) which is a public health strategy which is designated to create awareness among public about tobacco industry role in the tobacco epidemic.

- Tobacco control programs for this group of youth should start in their early teen year, in secondary school. Campaigns such as tobacco free university games should be further strengthened.
- Taxes on cigarettes should be increased so that outcomes in price of cigarette packets.

For further study

- Further studies should be conducted on secondary and high school students in order to facilitate appropriate early intervention.

- Qualitative study should be conducted on smoker group to explore further reason for being a smokers and how to quite from cigarette smoking also.

REFERENCES

1. World Health Organization, World No Tobacco Day 31 May 2008 [Online] Available from: http// www.who.int/tobacco/wntd. [Accessed 2008 Aug 17]
2. World Health Organization. Tobacco Free initiative. WHO warns of tobacco offensive against the young 31 May 2008 [online] Available from http:// www.who.int/tobacco/page/. [Accessed 2008 Aug 17].
3. Profile of Adolescence smoking in Canada. [Online] .Available from: // www.acsa-caah.Ca/portals/o/member [Accessed 2008 Oct 5]
4. Thailand Smoking Prevalence tobacco economy. [Online] Available from http:// www.medassocthai.org/journal/finds [Accessed 2008 Oct 8]
5. Dassanayake BMC. Factors related to smoking status among first year male students in Mahidol University Salaya Campus [M.P.H.M Thesis in Primary health Care Management] Nakhonpathom.Faculty of Graduate Studies, Mahidol University; 2003.
6. WHO/WPRO: Smoking statistics 2002. [28 May 2002] [Online] Available from: www.wpro.who.int. [Accessed 2008 Sep 15]
7. Center for Disease Control and Prevention. Cigarette use Among school students – United states, 1991-2005 [Online] .Available from http://www.cdc.gov/mmwr/preview/mmwrhtml [Accessed 2008 Sep 20]
8. Shamral GK, Rupakhatee K. Final Report on Global Health Professional Survey, Nepal 2006. [online] [Available from: www.searo.who.int/linkFiles/GHPS-Report 2006 Nepal] [Accessed 2008 Nov 14]

9. Trinh Cl. Factors related to smoking behaviour among high school students in Cantho city Vietnam [M.P.H.M Thesis in Primary Health Care Management]. Nakhonpathom. Faculty of Graduate Studies, Mahidol University; 2005
10. Nurdin. Smoking behaviour among senior high school students in Banda Anche Municipality, Nanggroe Aneh Darussalam Province, Indonesia [M.P.H.M Thesis in Primary Health Care Management]. Nakhonpathom: Faculty of Graduate Studies, Mahidol University; 2008
11. Center for Disease Control and Prevention. Tobacco information and prevention source the health consequences of smoking, A report of surgeon source [Online]. Available from: www.cdc.gov/tobacco/sgr] [Accessed 2008 Aug 21]
12. US surgeon General.Women and Smoking. A report of the surgeon general [Online]; CDC, Atlanta, USA, 2003 [Available from: www.cdc.gov/tobacco/sgr/sgr/for women/axe.summary.htm [Accessed 2008 Aug 19]
13. Boonyamanand L. Effect of cigarette smoking on severity of periodontal disease among male taxi motor cyclist in Thung Kru district, Bangkok [M.P.H.M Thesis in Primary Health Care Management]. Nakhonpathom. Faculty of Graduate Studies, Mahidol University; 1998.
14. Supawongse C. Smoking behavior of Thai youths: Fact sheet on Health Promotion; 1998:2:1-5. [Online] [Accessed 2008 Sep 17]
15. The Youth tobacco epidemic in Asia. [Online] Available from: www.popline.org/docs [Accessed 2008 Sep 17]
16. World Health Organization warns of tobacco offensive against the young, World no tobacco day 31 May 2008. [Online] Available from: www.who.int/tobacco/. [Accessed 2008 Aug 20]
17. Wikipedia Free encyclopedia. Tobacco Smoking. Available from: http://en.wikipedia.org/wiki/tobacco-smoking [Accessed 2008 Sep 17]
18. Teens influence by home smoking bans [online] Available from: http://www.uk.return.com/article/health/news/iduk [Accessed 2008 Oct 5]

19. Wikepedia, free encyclopedia Smoking and its history .Available from http://en.wikipedia.org/wiki/smoking [Accessed 2008 Sep 18]
20. Dewi FST, Supriyati. Why youth in developing countries start smoking? A study in Yogyakarta Municipility, Indonesia. Yogyakarta, Indonesia : Gadjah University; n.d.
21. Bursey M, Craig D. Attitude, subjective norms, perceived behaviour control, and intention related to Adult smoking cessation after Coronary Artery Bypass Graft Surgeory . Public Health Nurshing. 2000; 17(6):460-67
22. Thompson B, Thompson A, Thompson J, Fredickson C, Bishop S et al. Heavy smokers, A qualitative analysis of attitude and belief concerning cessation and continued smoking. Nicotine and Tobacco Research 2003; 5:923-33
23. Smoking in movie influence teens viewers. Alcoholism and drug abuse weekly. American journal of Preventive Medicine 2002; 14
24. Influence of socio- economic status, parents and peer on smoking behaviour of Adolescents . Eur addict Res 2005;11: 204-09
25. Naing NN, Musa R, Hamid FRA, Ghazali H, et al. Factors related to smoking habits of male adolescents. Tobacco induced disease 2004; 2(3): 133-40
26. Supawongse. C. Two decades of tobacco consumption control in Thailand: Success and challenges. Bangkok: Tobacco Control Research and Knowledge Management Centre; 2007.
27. Ministry of Public Health, Thailand. Health profile 2003-2004. Bangkok: The Ministry; 2008
28. Ministry of Public Health, Thailand. Health profile 2005-2007. Bangkok: The Ministry;2008
29. Glanz. K, Rimer. BK, Lewis. FM. Health behaviours and the health Education theory, research and practice. 3rd ed. San Francisco: Jossey-Bass; 2002.
30. Leartsakulpanitch J, Nganthavee W, Satole E. The Economics burden of smoking Related Disease In Thailand. J Med Association Thai 2007; 90(9):1925-9
31. Hammond D, Kin F, Prohmmo A, Sharma SK, Lian TY, et al. Pattern of smoking among Adolescents in Malaysia and Thailand. International Tobacco control Southeast Asia Survey, Asia pacific Journal of Public Health 2008

32. Center for Disease Control and Prevention.Report reveals significant decline in prevalence of teenage smoking 2002 [Online] Available from: www.aafp.org/afp. [Accessed 2008 Oct 27]
33. Rudatsikira E, Muula AS, Siziya S, Mataya RH. Correlates of cigarette smoking among school going adolescents in Thailand. Global youth tobacco survey 2005 [Online] Available from: www.intarchmed.com/content
34. Antte. M.David.WHO Tobacco initative, Western Pacific Regiononal office Available from: www.who.int/tobacco/global_data. [Accessed 2008 Nov 3]
35. Apodaca. RT, Abrantes. AM, Strong. DR et al. Readiness to change smoking behavior in Adolescents with Psychiatric disorders. National Institute of Health, addictive behaviour 2007;32(6):1119-30
36. Global Youth Tobacco Survey. Tobacco use among youth: A cross country comparison 2002. [Online] Available from: http:/www.tobaccocontrlol.bmj.com [Accessed 2008 Oct 17]
37. Andrade APA, Bernardo ACC, Viegas CAA, Ferreira DBL, Gomes TC, Sales MR et al Prevalence and characteristics of smoking among youth attending the University of Brasilia in Brazil. J Bras Pneumal 2006;32(1):23-8
38. Leatherdale TS, Sparks R, Kirsh AV. Beliefs about the tobacco industry practices and youth smoking behaviors: insight for future tobacco control campaigns Canada. Cancer Cause Control 2006; 17:705-11
39. Macpherson L, Myers MG, Johnson M. Adolescent definition of change in Smoking behaviors, an investigation. Nicotine tobacco research 2006;8(5):683-87
40. Leatherdale ST, Manske S. The relationship between students in the school environment and smoking onset in elementary school students. Cancer Epidemiol Biomarker Prev 2005;14(7):1762-5
41. Kailawadoko S. Smoking status among Final Year Students at Ratchamankon College, Nakorn Pathom Thailajnd. [M.P.H.M Thesis in Primary Health Care Management]. Nakhonpathom: Faculty of Graduate Studies, Mahidol University; 2003

42. Ut NV. Knoweledge, Attitude, and Perception of adolescence in Phuttamonthon District, Nakorn Pathom Province towards smoking [M.P.H.M Thesis in Primary Health Care Management]. Nakhonpathom: Faculty of Graduate Studies, Mahidol University; 1997.

APPENDIX

APPENDIX A
QUESTIONNAIRES

FACTORS INFLUENCE THE SMOKING BEHAVIOR OF THE STUDENTS OF MAHIDOL UNIVERSITY, SALAYA CAMPUS

Part 1 Socio-Demographic Factors

1) Age _____ Date of birth ….. / ……/…..
Date/month/year

2) Sex ☐ Male ☐ Female

3) You are now in faculty of …….

4) What is your father's level of education?

☐ 1. Illiterate ☐ 2. Primary school

☐ 3. Secondary school ☐ 4. Diploma

☐ 5. Bachelor Degree ☐ 6. Master Degree

☐ 7. Doctoral Degree ☐ 8. Others (specify) ……

5) What is your father's occupation?

☐ 1. Agriculture ☐ 2. Business

☐ 3. Laborer ☐ 4. Government employee

☐ 5. Private employee ☐ 6. Teacher

☐ 7. Unemployed ☐ 8. Others (specify)…….

6) What is your mother's level of education?

☐ 1. Illiterate ☐ 2. Primary school

☐ 3. Secondary school ☐ 4. Diploma

☐ 5. Bachelor Degree ☐ 6. Master Degree

☐ 7. Doctoral Degree ☐ 8. Others (specify) ……

7) What is your mother's occupation?

☐ 1. Agriculture ☐ 2. Business

☐ 3. Laborer ☐ 4. Government employee

☐ 5. Private employee ☐ 6. Teacher

☐ 7. Unemployed ☐ 8. Others (specify)…….

8) Whom do you live with?

☐ 1. With both parents ☐ 2. With father only

☐ 3.With mother only ☐ 4. With relatives (aunt, aunty, uncle etc)

☐ 5. Others (specify) ……..

9) How much money does your family earns from all sources per months?

…….. Baht

10) What is the average amount of money (in baht) you receive from all sources for your monthly expenses ? ……Baht

11) Where do you stay for study?

☐ 1. Dormitory ☐ 2. Condominium

☐ 3. Relatives home ☐ 4. At home

☐ 5. Others (specify)……..

12) What is your grade point of this semester in terms of academic performance?

……

13) Do you satisfy with your academic achievement?

☐ Yes ☐ No

PART 2: Predisposing factor Knowledge

Answer true of false for each statements in the table

	Statements	True	false
14	Tobacco contains some toxic substances which are harmful to smoker's more than secondhand smokers.		
15	It is also responsible for the cause of lung cancer and kidney cancer.		
16	Smoking does not cause for brown color teeth.		
17	Bad breadth is responsible for smoking.		
18	Cigarette contains low tar and nicotine is not so health hazards.		
19	Nicotine may be absorbed by skin.		
20	Secondhand smoker can be suffering from nasal sinus cancer.		
21	Smoking can also lead to disability and illness.		
22	Smoking does not related to increase the blood cholesterol level		
23	Nicotine is toxic only but not addictive in nature		
24	Among pregnant smoker, smoking can lead to physical disabilities in the babies.		
25	Nicotine is as harmful as heroine and cocaine.		

Attitude

Please tick your best answer for the following statements

	Statements	Agree	not sure	disagree
26	Smoking makes you fell stronger			
27	Smoking can relieve your tension and anxiety			
28	In- confidence often lead you to smoke			
29	Occasional smoking does not cause any harm			
30	You think that smoker fell like a real man when smoke			
31	Female who smoke feel so proud			
32	Most of teenagers smoke because they think they are grown up			
33	Weak force of law on smoking is good			
34	To quite smoking requires a lot of efforts			
35	Smokers have right to smoke whenever they want to smoke			

PART 3 Smoking Behaviour

36) Do you smoke cigarette?

☐ 1. Yes, buy not everyday (occasional)

☐ 2. Yes everyday (regular)

☐ 3. Yes before I used to smoke, but not anymore

☐ 4. No (Please skip to No.48)

37) How many cigarettes do you smoke in a day?

..... Cigarette/ day

38) How much do you spend on buying cigarette per week?

..... Baht

39) Which brand do you prefer?

☐ 1. Local ☐ 2. Foreign (please write the name of brand)

☐ 3. Both

40) Why do you prefer that brand?

☐ 1. Because of cheap ☐ 2. Same brand as friend

☐ 3. Same brand as parent ☐ 4. Good smell

☐ 5. Others (specify)……..

41) When do you like to smoke most?

☐ 1. During the break

☐ 2. During lunch break

☐ 3. When you wake up in the morning

☐ 4. When you drink alcohol

☐ 5. When you are with your friends

☐ 6. Others (specify)……..

42) At what age do you start to smoke? **.....** Year

43) What is the main reason that you start to smoke?

☐ 1. Peer group at school ☐ 2. Peer group at home

☐ 3. Parents smoking ☐ 4. Adult smoking

☐ 5. Others (specify)……..

44) What is the main reason that you continue to smoke?

☐ 1. Peer group in school ☐ 2. Parents smoking

☐ 3. Reduce stress at school ☐ 4. Reduce stress at home

☐ 5. My decision ☐ 6. Others (specify)……..

45) Where do you mostly bye your cigarette?

☐ 1. Around university ☐ 2.On street

☐ 3. Shops around home ☐ 4. Others (specify) ……..

46) If you do not buy your cigarette, how do you get the cigarette?

☐ 1. My parents ☐ 2. My friends at university

☐ 3. My friends at home ☐ 4. Senior friends

☐ 5. Others (Specify)……

47) Do you like to smoke when you drink?

☐ 1. Always ☐ 2. Often

☐ 3. Sometimes ☐ 4. Never

☐ 5. Others (Specify)……

48) Do you think that buying cigarette is easy?

1) Yes [reasons]**.....**

2) No [reasons]**.....**

PART 4 Reinforcing factor

49) Do you have any friend to smoke?

☐ 1. Yes ☐ 2. No

50) Why do they smoke?

☐ 1. Influence by parents ☐ 2. Influence by friends

☐ 3. Lack of knowledge

☐ 4. Others (Specify)……

51) What is your religion?

☐ 1. Hindu ☐ 2. Buddhist

☐ 3. Islamic. ☐ 4. Sigh ☐ 5. Christian

☐ 6. Others (specify)……

52) Is there any restriction in your religion to smoke?

☐ 1. Yes ☐ 2. No

Advertisement

Tick your best answer to the statements

	Statements	Yes	No
53	Tobacco companies try to manipulate young people to think smoking is cool		
54	Smoking advertisement does not play vital role in smoking among students		
55	Many young people are influence by advertisement to smoke		
56	If advertisement will be banded , smoking behavior will reduce		
57	Tobacco companies use athletes, and sports sponsorship to sell cigarette to young generations		

58) What is advertisement influence for smoking?

☐ 1. Popular brand

☐ 2. Famous people

☐ 3. Repetition of advertisement

☐ 4. All of above

☐ 5. Nothing will be influenced

☐ 6. Others (specify)……..

59) What kind of media will be influence for smoking?

☐ 1. Drama in T.V.

☐ 2. Newspaper / Magazines

☐ 3. Internet

☐ 4. All of above

☐ 5. Others (specify)……..

60) Do your parents smoke?

☐ 1. NO, nobody smoke ☐ 2. My father only smoke

☐ 3. My mother only smoke ☐ 4. Both of them smoke

61) Do any other adults smoke in your home, except your parents?

☐ 1. Yes (how many person smokes ……)

☐ 2. No

62) Do any people living around your home, except your parents smoke?

☐ 1. Yes, a few ☐ 2. No, they do not smoke

☐ 3. Yes, a lot

63) What is your opinion when you see young female smoked?

☐ 1. High society family

☐ 2. Normal life

☐ 3. Unhappy

☐ 4. Others (specify)……..

BIOGRAPHY

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