

**FACTORS RELATED TO SMOKING BEHAVIOR  
AMONG HIGH SCHOOL STUDENTS  
IN CANTHO CITY, VIETNAM**



**A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF  
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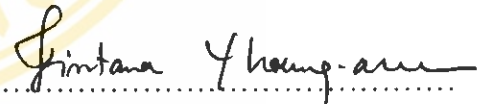
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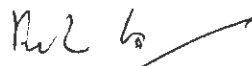
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**FACTORS RELATED TO SMOKING BEHAVIOR AMONG HIGH SCHOOL STUDENTS IN CANTHO CITY, VIETNAM****CHAU LIEU TRINH 4737968 ADPM / M****M.P.H.M. (PRIMARY HEALTH CARE MANAGEMENT)****THESIS ADVISORS: NONGLAK PANCHARUNITI, D.D.S., M.P.H., Dr.P.H.,  
JINTANA YHOUNG-AREE, Ph.D., KITTI SHIYALAP, Ph.D.****ABSTRACT**

This is a cross - sectional study that determined student's smoking status and assessed the association between factors contributing to smoking behavior among the respondents. The total number of subjects in the study was 363 male high school students from Cantho City, Vietnam, aged 16 – 23 years old. Data was collected through a self-administered questionnaire. The study of 363 students had two groups for comparison urban and rural students and attempted to describe the different smoking behavior of students in these groups.

It was found that the prevalence of smoking among students was 21.8% (urban school= 19.8%, rural school=23.8%) with the median age to start smoking at 16 years. Half of the students started smoking for curiosity. More than half of students had close friends who were smokers and the major of them received cigarettes from friends. In addition, most students 92.5% reported that their teachers smoked. The study also showed that there were many significant associations between smoking behavior of students and its contributing factors, such as perception towards smoking ( $p < .0001$ ); smoking behavior and family relationship ( $\chi^2$  (urban school)= 10.605,  $p = .001$ ;  $\chi^2$  (rural school)= 4.126,  $p = .042$ ), smoking friends ( $\chi^2$  (urban school)= 15.710,  $p < .0001$ ;  $\chi^2$  (rural school)= 8.108,  $p = .004$ ).

Based on the findings of the study, it is recommended that the strengthening of health education programs in order to improve youths' perception and lifestyle during school age is of great importance. Health promotion should also include establishing a tobacco free environment in the school as well as peer group for anti-smoking programs. Parents, teachers and school management teams should be organized systematically to prevent smoking among students.

**KEY WORDS :FACTOR/ SMOKING BEHAVIOR /HIGH SCHOOL/STUDENTS/  
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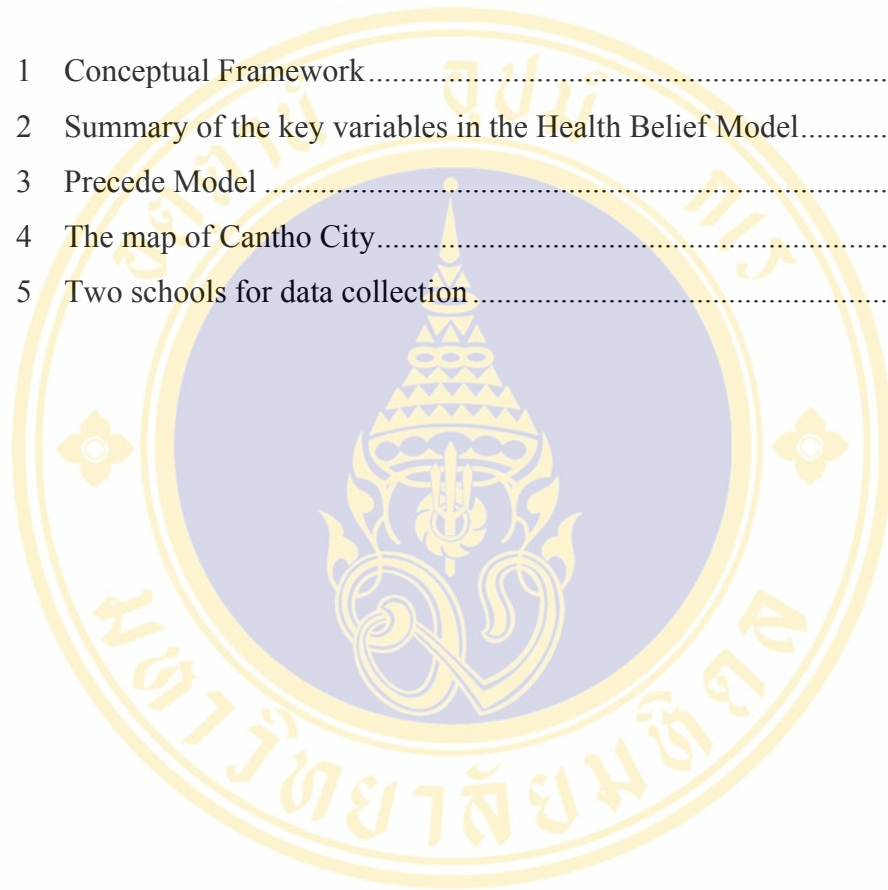
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## LIST OF ABBREVIATIONS

- WHO : World Health Organization  
AIDS : Acquired Immune Deficiency Syndrome  
VND : Vietnam Dong  
HCM : HoChiMinh  
HBM : Health Belief Model  
US : United State  
\$ : Dollar



# CHAPTER 1

## INTRODUCTION

### 1.1 Rational and justification

#### 1.1.1 Global situation

Smoking is the single largest cause of preventable death worldwide. One in tenth adult dies of smoking – related diseases, a figure set to reach one in six (or 10 million deaths annually) by 2030. Seventy percent of these deaths will be in low and middle -income countries, where smoking rates have risen by 3.4% annually in recent years.

Smoking is on the rise in the developing world but declining in developed nations. About 15 billion cigarettes are sold daily or 10 million every minute. In the developing world, tobacco consumption is rising by 3.4% per year; one in three cigarettes are consumed in the Western Pacific Region (1).

Today, World Health Organization (WHO) notes that the tobacco epidemic is still expanding, especially in developing countries where, currently, 84% of the smokers live. At current rates, the total number of smokers is expected to increase from 1.3 billion to 1.7 billion by 2025.

According to the World Bank, the net economic costs of tobacco use exceed estimates of the economic benefits to producers and consumers by at least US\$ 200 billion each year (5). It was estimated that high-income countries currently spend between 6% and 15% of their total health-care costs to treat tobacco-related diseases. In Egypt, annual costs of treating diseases caused by tobacco use have been estimated at US\$ 545.5 million in a 2003 report and in China health costs of smoking were estimated at US\$ 6.5 billion per year (in the mid-1990s) (2).

### 1.1.2 Tobacco related diseases

Tobacco is one of the major public health disasters of the last 100 years. In industrialized countries, smoking has been identified as the most important preventable cause of diseases and premature death. Cigarettes kill half of all lifetime smokers, while tobacco has detrimental effect much higher than AIDS, legal drugs, illegal drugs, road accidents, murder and suicide combined (3).

In both developed and developing countries within the Western Pacific Region, tobacco consumption causes or aggravates chronic diseases that altogether comprise up to 18% of the total disability adjusted life years (DALYs) lost. This is not including the years of healthy life lost by non- smokers whose health is introduced by exposure to second- hand smoke (4).

Smoking related diseases are responsible for as much as 90% of all cases of lung cancer, 75% of chronic bronchitis and emphysema and 25 % of ischemic heart disease in men under 65 years, as well as for a number of other types of cancer, pregnancy complications and more frequent respiratory ailments in children from smoking families. Smoking related diseases account for 7% of all deaths in Chile and Ecuador and 24% in Venezuela, 30% in Cuba, 10% in France, 17% in Canada, 15-20% in the United Kingdom and up to 35% among White South- Africans (5).

Studies across all the regions in the world show that it is the poorest people who tend to smoke the most in both developing and developed countries, and who bear most of the disease burden (3).

### 1.1.3 Smoking prevalence in Western Pacific Region

Worldwide, approximately 1.3 billion people smoke cigarettes or other tobacco products; almost one billion men and 250 million women. Globally, tobacco use is significantly higher among men (47%) than it is among women (12%).

In developed countries, 35% of men and 22% of women smoke, while in developing countries, 50% of men and 9% of women are smokers. Women in developing countries are clearly a key potential market for the tobacco industry. Recent increases in female smoking prevalence have been reported from Cambodia, Malaysia and Bangladesh (3).

Compared with other WHO region, the Western Pacific which covers East Asia and the Pacific has the highest smoking with nearly two thirds of men smoking. It is estimated that 59% of males and 4% of females smoke (World Bank 1999). Rates for some countries appear in Table 1 (6).

**Table 1** Prevalence of smoking among males and females in selected countries of the Western Pacific Region (%)

Country	Male rate (%)	Female rate (%)
Australia	29.9	24.2
China	66.9	4.2
Cook Islands	34.4	71.1
French Polynesia	36.0	36.0
Laos	41.0	15.0
Philippines	53.8	11.0
Singapore	26.9	3.1
Vietnam	50.0	3.4

Source: WHO (2000)

China, Singapore and Vietnam have the region's lowest female rates, while Chinese and Vietnamese men are among the heaviest smokers.

In many countries, the average age when smokers first tried a cigarette was 14.5 years, and the average age at which they became daily smokers was 17.7 years (7).

#### 1.1.4 Smoking among Adolescent group in the world

Tobacco market aims at recruiting new smokers continuously, through marketing strategies. Adolescent become victims, less information of the addictive nature of tobacco and the health impact, influenced by peers, advertising and perceived social acceptability. Personal factors such as self-esteem and self-image of the adolescent are also related to this phenomenon (8).

One in five smokers worldwide are among young teens (aged 13 to 15). Between 80,000 and 100,000 children worldwide start smoking every day, roughly half of whom live in Asia. Evidence shows that around 50% of those who start smoking in adolescent years go on to smoke for 15 to 20 years (1).

In Thailand, the overall smoking prevalence was 20.6% in adults (11 years and older) in 2001, and also the smoking prevalence of youth (15-19 years) was 6.3% of the youth population (9).

Finding from the Global Youth Tobacco Survey reveal an alarmingly high rate of smoking among schoolchildren aged 13 –15 years old, with 58.5% of schoolchildren surveyed in Palau and 62.4% in the Northern Marianas Islands are currently smoking. Many of these children started smoking before the age of 10; for instance, in Chongqing, China, of the schoolchildren currently smoking, 39% reported starting before reaching 10 years of age (10).

The overall prevalence of smoking (occasional and daily smokers) for the high school students was 18%. Sixty percent or more of Canadian, European, and West Indian students had smoked, as opposed to 37% of Asian students, 34% of East Indian students and 37% of “other” students (11).

### 1.1.5 Smoking prevalence in Vietnam

Smoking –related diseases are held responsible for the death of up to 40,000 people each year in Vietnam, where the number of smokers remains so high. Annual smoking expenditure in Vietnam is estimated at 8,200 billion VND (US\$ 53,3 million), equal to the amount needed to buy food for 15 million people a year. On average, a Vietnamese smoker spends between US\$ 60 and US\$ 80 a year on cigarettes.

Vietnam now has the twenty- second highest incidence of smoking in the world. According to a survey conducted by the Vietnamese Ministry of Health in 1997, 59% of males regularly smoke and 3.4% of females would do so. The rate of smokers aged 18 to 19 years old is 50%; it reaches 71% in the 20 to 24 years of age group. Smokers in the city aged 20 years on average. Tobacco consumption is also increasing among teenagers; nearly 30% of high- school students smoke. To deal with the situation, the Ministry of Health is encouraging educational establishments nationwide to forbid smoking within their campuses (12).

Although the smoking hazards are well known, the number of smokers among school students is still high. There are many factors influencing these students to start smoking: for example, socio-economic status, socio environment parents, friends and sibling who smoke. In developing countries, however, smoking among children and adolescents has not received as much attention. Nonetheless, it is well known that smoking among adolescents is a developmental phenomenon with several factors exerting an influence on cigarette use at different times. Cigarette smoking is considered to be the single most preventable contributor to chronic diseases, but there is still controversy about the initiation and maintenance of smoking among adolescents (13).

Preventing of smoking, it is essential to reduce smoking behavior among youths as early in life as possible. Youths are the highest risk group who has potentially become new smokers. Therefore, the study of factors related to smoking behavior among high school student in Cantho City, Vietnam is plausible and a priority.

The results of this survey may provide baseline information of the smoking status of high school students, especially this would be useful for the administrative authorities of the school, to plan and implement effectively on tobacco control activities such as “ Health Promotion School” programs, for benefit of future young generations.

#### **1.1.6 Research questions**

1. What is the pattern of cigarette smoking among high school students in Cantho City, Vietnam?
2. What are the factors related to smoking behavior among high school students?

#### **1.2. Research objectives**

##### **1.2.1 General objective**

To determine patterns of cigarette smoking and factors related to smoking behavior among high school students in Cantho City, Vietnam.

##### **1.2.2 Specific objectives**

1. To determine the prevalence of cigarette smoking among high school students.
2. To describe the demographic and socio-economic variables of the study population.

3. To define the predisposing factors such as knowledge and perception, self-efficacy of students towards cigarette smoking aspects.

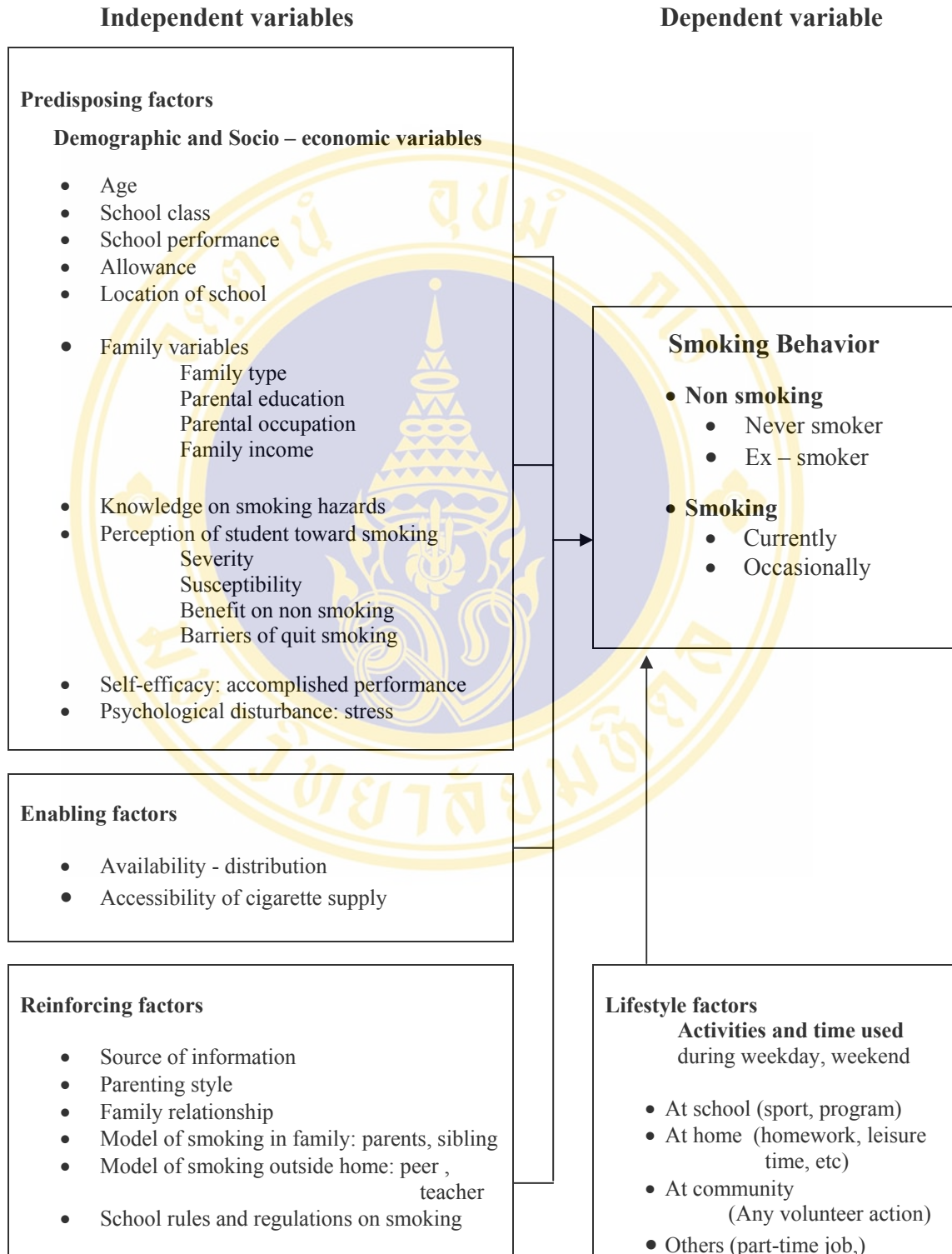
4. To identify the enabling factors consisting accessibility and availability of cigarette smoke. Reinforcing factors include relationships in family, peer, rules and regulations at school related to smoking and impacts on source of information and lifestyle.

5. To assess the relationships between smoking behavior and predisposing, enabling, reinforcing and lifestyle factors.

### **1.2.3 Hypothesis**

1. The older students have higher smoking prevalence than younger students.
2. There is an association between smoking behavior among high school students and demographic and socio-economic characteristics of students.
3. There is an association between smoking behavior and knowledge, perception on smoking, self-efficacy, and psychological disturbance.
4. There is an association between smoking behavior of high school students and family, peer, information, lifestyle factor.

### 1.3 Conceptual Framework



**Figure 1 Conceptual Framework**

## 1.4 Operational definition

### 1.4.1 Predisposing factors

#### **Demographic and Socio-economic variables**

Includes the age, gender, school class and residence of students together with the following independent variables:

**Age:** refer to age at the last date of birth

**School performance:** refers to student's grade point average for their achievements at school.

**Allowance of students** refers how much each student received per month.

**Parental education** will be categorized into:

- Illiterate
- Primary school
- Secondary school
- High school
- College/ University

**Parental occupation** will be categorized into:

- Wage
- Agricultural
- Business
- Government employee
- Housewife

**Family type (composition):** refers the functional type of the student's family, as categorized below:

- Nuclear family: the student lives with both his mother and father.
- Extended family: the student lives with his parents and other close relatives in the same household.
- Single parent: the student lives with either his mother or father such as divorce, die, separate.

**Family income** includes the amount of money in VND that all members in the family could earn from their daily work per month.

**Knowledge** refers to how estimate of the essential knowledge of students about health hazards toward smoking.

**Perception** on smoking:

- Perceived susceptibility: student believes of the chances of getting smoking – related diseases.
- Perceived severity: student believes of how serious smoking and its consequences are such as heart disease, lung cancer.
- Perceived benefit: student believes in the expected outcome of non-smoking or smoking cessation.
- Perceived barrier: student believes in various factors limiting them in quit smoking.

**Self- efficacy:** students believe in their performance and accomplishment or confidence in one's ability to take action. It refers to the question: Do you believe that you could quit smoking; I am confident that I will never smoke.

**Psychological disturbance:** refers to stress such as sleepless, lose concentration.

#### 1.4.2 Enabling factors: refers to following variables:

**Accessibility** – In this study refers to the questions on; Do you think people in general can by cigarette from every shop easily? How much did it cost to purchase a packet of cigarette smoke? And whether its was cheap or not? The researcher is basically trying to find out the students financial accessibility to obtaining a packet of cigarette smoke.

**Availability** – In this study refers to the followings:

Place where cigarette can be found and distributed such as in the school premises; local shops around the school or at home; on the streets with vendors, markets; and other places.

**1.4.3 Reinforcing factors:** study will try to focus on reinforcing factors as the followings:

**Source of information:** refers to the sources of public information on smoking which student received from mass media, health personnel, teacher, parents, siblings, friends, and other authorities.

**Parenting style:** refers to four styles: indulgent (permissive or nondirective); authoritarian, authoritative, and uninvolved.

- Indulgent parents are more responsive than they are demanding (i.e. high support but low control)
- Authoritarian parents are highly demanding and directive, but not responsive (i.e. low support but high control)
- Authoritative parents are both demanding and responsive (i.e. high support and control)
- Uninvolved parents are low in both responsiveness and demanding ness (i.e. low support and control)

**Family relationships:** refers the student's perceptions on parental concern in his family. These categories include; how do you feel about the relationship among your family member? How much do you think that your parents care about you? What do you think of your family members getting along with? How much do you consider yourself obedient to your parents?

**Model of smoking in family:** refers smoking status (smoker or non smoker) of his mother or father, siblings as declared by the student.

**Peer:** refers to friends who share common interests and to be influenced by the behaviors determined by their groups. These peer groups include classmates, roommate's social friends and other groups.

**Rules and Regulation existing in school** refer to existing of smoking sign, smoking is strictly prohibited, and students are not allowed to smoke.

**1.4.4 Lifestyle factors:** refers to a person's pattern of living as expressed in his or her activities interest and time used during weekday and weekend such as activities at school (participating of sport, health programs); at home (doing more work, going to church, exercising regularly, taking care of his parents, leisure time spent); at community (socializing, recycling or take care of the environment) and others (part – time job, time spent with friend).

**1.4.5 Smoking prevalence:** refers to the proportion of students who are smokers ( both daily and occasionally ) at a point time.

**1.4.6 Smoking behavior:** refers to smoking status of the students in terms of never/ ever smoking, frequency of smoking, type of cigarettes, amount of cigarettes.

In this study refer to two different groups that will be classified under the following categories:

**Non smokers:** This category includes those who have never smoked and also are ex-smokers: a person who used to smoke, but, has quit smoking at least one month prior to date on which he fills the questionnaire.

**Smokers:** This category includes

- Current smoker: a current smoker who smokes cigarettes daily
- Occasional smoker: a current smoker who smokes infrequently (not daily)

## 1.5 Limitation of the study

The study focus on male students who are studying in high school, Cantho City, Vietnam. Female students will be not included in the study, since the prevalence among young Vietnamese women had been low, as reported by previous researchers.

## CHAPTER 2

### LITERATURE REVIEW

The world consumption of cigarettes is estimated at around six hundred billion cigarettes per year. That total number of cigarettes is enough to send 3 million smokers to the grave annually; this includes both passive and active smokers.

Smoking is becoming one of the important mortality risk factors, not only in industrialized countries but also in developing countries. Recent data have confirmed that the risks of smoking are substantially higher than previously thought. With prolonged smoking, smokers have a death rate about three times higher than nonsmokers at all ages from young adulthood (13).

#### **2.1 Smoking situation and trends among youth.**

Adolescence is a period in which many youngsters begin to experiment with smoking. In most of the Western countries, there is an increase in the prevalence of smoking in the adolescence period. In many of these countries, the prevalence of regular smoking for 13 years olds varies from 3.8% to 12.5% and increase to 17% to 24.5% for 15 year olds. In the Netherlands, the highest increase of ever smoking among adolescents occurs in 12 to 14 year olds children (14).

Finding from the Youth Risk Behavior Survey conducted by the Centers for Disease Control and prevention showed that overall smoking rates among high school students increased by one third between 1991 and 1997. The surveys indicate that the proportion of 10<sup>th</sup> grade student who were daily smokers increased from 12.3% to 18.3% between 1992 and 1996. Since 1997, current smoking rates among 8<sup>th</sup>, 10<sup>th</sup> and 12<sup>th</sup> graders have plateau or declined slightly but remain high (15).

The prevalence of smoking in high school students in Korea in 1989 was found to be 8% ( 15% for boys and 1% for girls), whereas smoking prevalence for high school students in Beijing, China, was reported to be 20%(11).

On the whole it is to point out smoking is an increasing trend among young people, the prevalence of ever – smoking increased with age and smokers begin to smoke the young age.

## **2.2 Situation in Vietnam**

### **2.2.1 Tobacco consumption**

By 1993, the percentage of tobacco consumed as cigarette had risen to 93%. Per capita consumption appears to average about 790 cigarettes per adult per year, in 1990 and smokers smoked on average 14.2 cigarettes per day (17).

According to the Vietnam Tobacco Association around 3,4 million packets of cigarettes were consumed in 2003, up to 300 million from the previous year (12). Tobacco use in Vietnam consists of smoking cigarettes, pipe tobacco, and chewing tobacco, sometimes in conjunction with chewing areca nut and betel leaves, the latter being more common among women. Indeed, a much larger proportion of female tobacco users are likely to use pipe or chewing tobacco. Among male tobacco users, cigarette smoking is relatively more common than using pipe or chewing tobacco (17).

### **2.2.2 Tobacco Control**

Vietnam is in the process of ratifying the Framework Convention on Tobacco Control. Viet Nam was among the first 40 countries worldwide to sign the document last year. In 1994, the Government banned tobacco advertisement and in 2000 issued a ten-year National Policy against Smoking (17).

A “ National Tobacco Control Policy” for the 2000 -2010 period with the following objectives:

- Reduce the proportion of male smokers from 50% to 20%.
  - Reduce the proportion of female smokers to a level below 2%.
  - Reduce the proportion of young smokers (15-24 years of age) from 26% to 7%.
- Protect the rights of non – smokers to breathe clean, smoke-free air
- Reduce tobacco-related losses for individuals, families and society as a whole.

### **2.2.3 Health education**

News and articles about the hazards of smoking are published regularly and presented on the radio and television. In 1990, Hanoi hosted the First National Conference on Smoking and Health. A few religious organizations are also encouraging people to stop smoking. World No-Tobacco Day has been celebrated in Viet Nam since 1988, and recent celebrations have involved participation from government representatives, NGOs, medical institutes and schools (17).

### **2.2.4 Protection for non-smokers**

The law on Health Protection adopted by the National Assembly in 1989 stipulates no smoking in halls, cinemas, theatres and other places. In 1995, the Ministry of Health issued instructions to prohibit smoking in all health facilities (hospitals, health centres, and health stations) and offices (national, provincial, and district). Several other Ministries have followed, banning smoking in their offices. Smoking is banned on all domestic and international flights of less than 2.5 hours of the Vietnamese flag carrier, Air Viet Nam (17).

## **2.3 Effects of smoking on health**

Cigarette smoking is one of the largest causes of preventable death worldwide and the leading cause of premature death in industrialized countries.

Many studies conducted in developed countries have showed that in populations where tobacco smoking has been high for several decades, 90-95% of deaths due to lung cancer, 30-35% of all cancer deaths, 80-85% of deaths due to chronic obstructive airways diseases and 20 -25% of deaths due to cardiovascular diseases are directly attributed to tobacco (8).

Smoking is known to cause cancers in many other sites in the body, including oral cavity, pharynx, esophagus, pancreas, bladder, kidney and uterine cervix. The age of onset of these cancers among smokers is earlier than among non- smokers. More than 30% of all the cancer deaths in the world can be prevented if no one smokes (8).

The consequences of tobacco use affect the health of a woman and her children through out her life cycle. From birth, girl hood, womanhood, pregnancy and birth again as a mother, tobacco harms the health of the girl, woman and baby (19).

Many researchers have demonstrated the effects of hypoxia on intellectual development of children exposed to tobacco, especially from maternal smoking. These children tend to have low IQ levels and are characterized by many conduct disorders such as aggressive and delinquency. Continuous exposure to high plasma nicotine levels in the uterine life can produce withdrawal effects in the infant. The sensitization of nicotinic receptors in the fetal brain may also increase the probability of addiction to tobacco in late life (8).

Exposure to other people's smoking or second hand smoke has been recognized as a major public health problem in the new century. It has been estimated that about 70% of the smoke produced in the process of smoking is released to the environment (8).

A variety of studies demonstrated that, there is an association between cigarette smoking and alcohol drinking. Cigarette and excessive alcohol intake are also associated with low bone mass and may increase calcium loss (5).

It is widely accepted that, the health problems in all ages are associated with the tobacco use in the society.

## **2.4 Theoretical Model**

### **2.4.1 Health Belief Model**

The Health Belief Model (HBM) was initially developed in the 1950s by a group of social psychologists in the US Public Health Service in effort to explain the widespread failure of the people to participate in programs to prevent or to detect disease (Hochbaum, 1958; Rosenstock, 1960, 1966, 1974). Later, the model was extended to apply to people's responses to symptoms (Kirscht, 1974) and to their behavior in response to diagnosed chronic compliance with medical regimens (Becker, 1974). Over three decades, the model has been one of the most widely used psychosocial approaches to explaining health-related behavior (16).

Although the model evolved gradually in response very practical programmatic concerns that will be describes later, its basis in psychological theory is provided as an aid to understanding its rationale as well as its strengths and weakness.

#### **Components of the Health Belief Model**

Over the years since Hochbaum's survey, many investigations have helped to expand and clarify the model and to extend it beyond screening behaviors to include all preventive actions to illness behaviors and to sick-role behavior (see summaries in Becker, 1974; Becker & Maiman, 1980; Janz & Becker, 1984; Kirscht, 1974; Rosenstock, 1974). In general, it is now believed that individuals will take action if they believe that a course of action available to them would be beneficial in reducing either their susceptibility to or the severity of the condition; and if they believe that the anticipated barriers to (or costs of) taking the action are outweighed by its benefits. Each component of the model is described in greater detail below.

#### **2.4.1.1 Perceived Susceptibility**

This dimension refers to one's subjective perception of the risk of contracting a health condition. In the case of medically established illness, the dimension has been reformulated to include acceptance of the diagnosis, personal estimates of resusceptibility, and susceptibility to illness in general.

#### **2.4.1.2 Perceived Severity**

Feelings concerning the seriousness of contracting an illness or leaving it untreated include evaluations of both medical and clinical consequences (death, disability, and pain) and possible social consequences (such as effect of the conditions on work, family life, and social relations). We have come to label the combination of susceptibility and severity as perceived threat.

#### **2.4.1.3 Perceived Benefit**

While acceptance of personal susceptibility to a condition also believed to be serious (perceived threat) products a force leading to behavior, the particular course of action that will be taken depends upon beliefs regarding the effectiveness of the various a valuables actions in reducing the disease threat, termed the perceived benefits of taking health actions. Thus, an individual exhibiting an optimal level of beliefs in susceptibility and severity would not be expected to accept any recommended health action unless that action was perceived as potentially efficacious.

#### **2.4.1.4 Perceived Barriers**

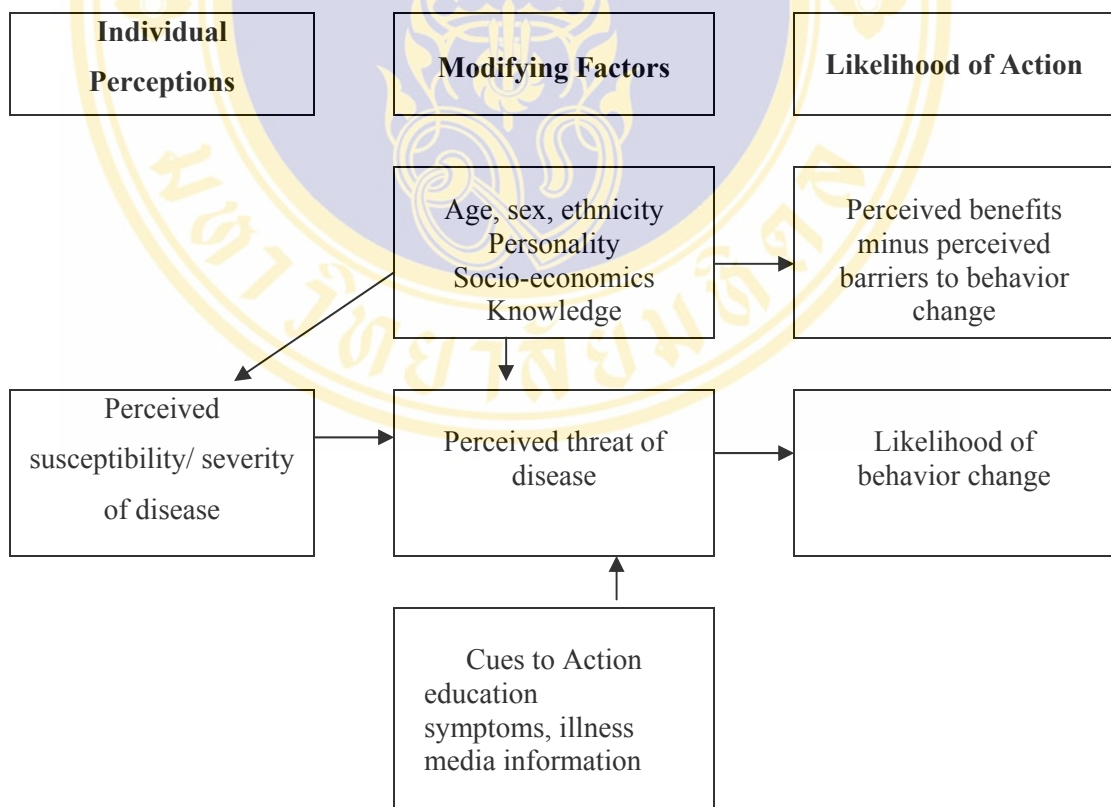
The potential negative aspects of a particular health action, or perceived barriers, may act as impediments to undertaking the recommended behavior.

The individual engages in a cost-benefits analysis where In the they weight the action's smoking behavior of high school students smoking behavior of high school

students effectiveness against perceptions that may be expensive, dangerous (having negative side effects or estrogenic outcomes), unpleasant (painful, difficult, upsetting), inconvenient, time-consuming, and so forth. Thus, the combined levels of susceptibility and severity provide the energy or force to act and the perception of benefits (less barriers) provide a preferred path of action (Rosenstock, 1974).

**2.4.1.5 Cues to action**

In various early formulations of the HBM, the concepts of cues, which trigger action, were discussed and may ultimately prove to be important, but they have not been systematically studied.



**Figure 2** Summary of the key variables in the Health Belief Model

### 2.4.2 Self-Efficacy

Self – efficacy refers to people’s perceptions of, their ability to perform activities that in duced that belief in one’s capability to change unhealthy behavior and to perform health activities. A person develops self-efficacy by gathering information from four main sources: (1) personal experience performing a behavior successfully; (2) Vicarious experience observing other successfully performing the behavior; (3) Encouragement from others that they are capable of performing behavior; and (4) internal psychological states.

When people has perceptions that they are susceptible to a certain health problem, that the health problem is severe and that there are behaviors to protect from it, they tend to adopt those protective behaviors. Accordingly, when an adolescent perceives that he or she is susceptible to health consequences of smoking, that those health problems are severe and non- smoking can protect him or her from those health problems, he or she would not take up smoking.

### 2.4.3 Precedes Model

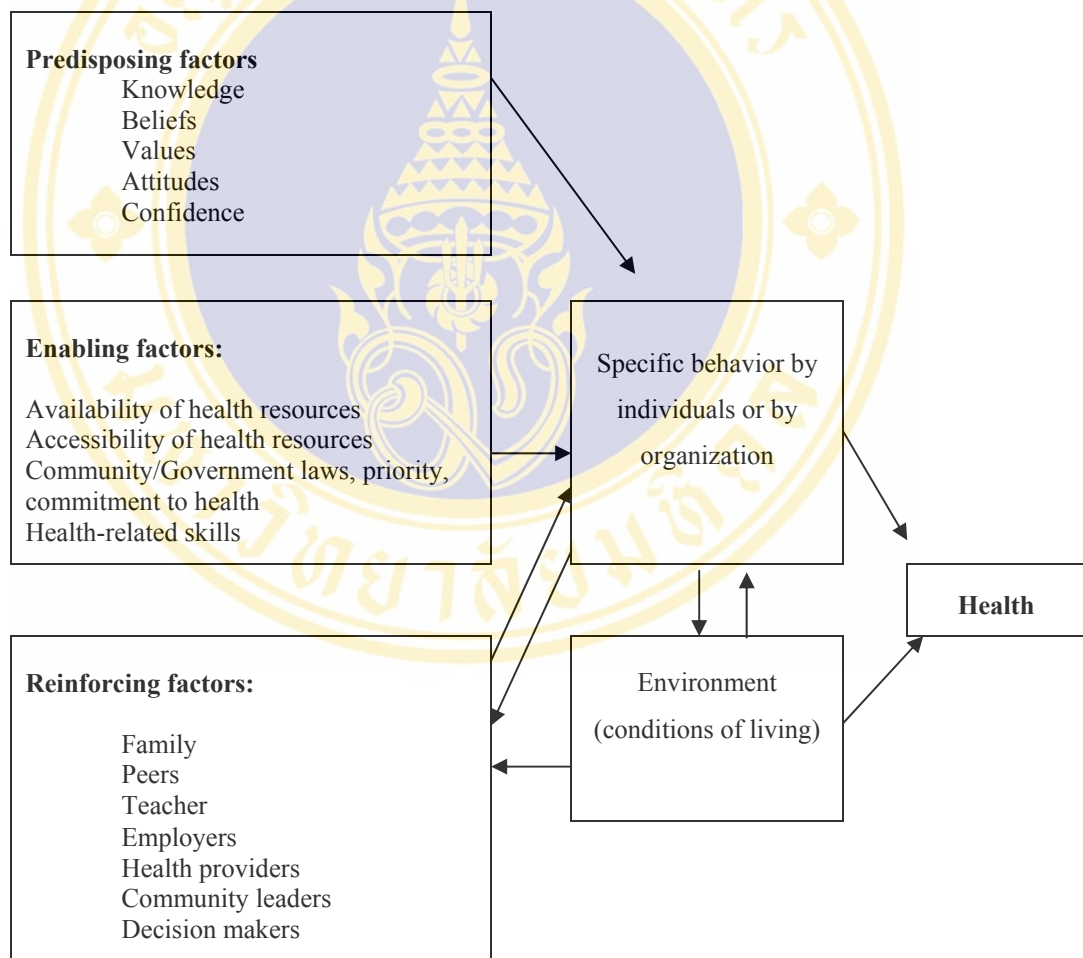
The PROCEED model is a framework for the process of systematic development and education programs. According to the PRECEDE framework, three categories: predisposing, enabling and reinforcing factors affect individual or collective behavior.

**Predisposing factors** include a person’ knowledge, attitude, beliefs, values and perception that facilitate or hinder motivation for change.

**Enabling factors** those skills, resources, or barriers that can help or hinder the desired behavioral changes as well as environmental changes. These skills can be viewed as vehicles or barriers, created mainly by societal forces or systems, those antecedents to behavior that enable a motivation to be realized including the

availability, accessibility, and affordability of health – care and community resources which facilitate the performance of an action.

**Reinforcing factors** the rewards received, and the feedback the learner receives from others following adoption of the behavior, may encourage or discourage continuation of the behavior. Reinforcing factors thus include social support, peer influences, family, teacher, and other control rewards.



**Figure 3** Precede Model

Example student and smoking, Students may have a negative attitude toward smoking and believe that smoking is harmful (predisposing factors); plus it may be difficult to purchase cigarettes as a minor (enabling factor); so she/ he doesn't smoke (behavior); and this non- smoking behavior is rewarded by her parents (reinforcing factors).

#### **2.4.4 Application of Health models to the present study**

This study will be designed on the basis of the integration of the following three theoretical models: Health Belief Model, Precede Models and Self-Efficacy.

### **2.5 Factors related to smoking behavior**

#### **2.5.1 Predisposing factors**

##### **2.5.1.1 Demographic and Socio-economic variables**

There was no relationship between socio-economic group and regular smoking, but that young people from non-manual home backgrounds on average smoked fewer cigarette per week (Rudat et al 1992), whilst a National Survey of Scottish Schoolchildren in 1990 found that the relationship between smoking and socio-economic background was “ complex” and dependent on age with no social class differences found for the older group of 15 year-olds in study (Currie and Todd,1993) by a National Survey of English school children in 1989 (20).

The study on Adolescent smoking and family structure in Europe found that smoking was strongly associated with the young person's own disposable income in Australia, Germany, Finland, Scotland, Norway and Wales ( $p < 0.001$ ). Adolescents who had a higher than average weekly income compared to other 15-year-olds in their country were more likely to be daily smokers (21).

### **2.5.1.2 Family type**

A survey in seven European countries, analysis showed that there was a significant association between family structure and smoking among 15-year-olds adolescents with smoking prevalence lowest among adolescents in intact families and highest among adolescents in stepfamilies ( $p < 0.01$ ), there was no significant association between family structure and adolescent income (21).

Turning to the make up of the family household, smoking was strongly associated with family structure ( $p < 0.001$ ) with raised prevalence among young people from both reconstituted and lone-parent families (20).

### **2.5.1.3 Parental education and occupation**

The results for parents' occupation and education suggested that smoking was not associated with the socio-economic status in the family (20).

### **2.5.1.4 Knowledge on smoking hazard**

It has been noticed that health knowledge had less effect on habitual smoking, but it plays a major role when behavior changes are contemplated by the individual, as in attempts to quit (12). Boupka K, were found 38% of students to have good knowledge of smoking and its is related harmful effects.

Previous research studies have proved that most students tend to have fair knowledge about the health hazards of smoking.

### **2.5.1.5 Perception on smoking**

There were no significant differences among the perception of short – and long – term harms when comparing the nonsmokers to the at- risk nonsmokers. In contrast, perceived short- term benefits and perceived safety of casual smoking differed significantly among the nonsmoker, smokers and at – risk nonsmokers.

The results from Charlton and Blair also found that adolescents' females who never smoked a cigarette still had positive beliefs concerning the benefits of smoking (22).

### **2.5.2 Enabling factors**

#### **Accessibility to cigarette**

In 1991, a Government of Vietnam banned on tobacco advertising on television, radio, newspapers and billboards. However, there are no bans on sales to minors, no tar and nicotine limits, and no bans on smokeless tobacco. Although law does not require them, health warnings now appear in English and Vietnamese on cigarette packs. Multinationals in Viet Nam are required to obey the same regulations as Vietnamese cigarette manufacturers (17).

In the survey by Centers for Disease Control and Prevention 1996 found that the percentage of youths aged 12 -17 years who purchased cigarettes from large stores decreased by 12.8% but the percentage who purchased them from small stores increased by 3.9% (23).

### **2.5.3 Reinforcing factors**

#### **2.5.3.1 Source of information**

Risk of smoking initiation involves a compels interplay of social, environmental, and personal factors.

Social trends of many behaviors are learnt through residing or staying in specific geographical situations and places. Thus when a youth stays in place where smoking is common and has a social acceptance, his or her chance of becoming a smoker is greater than of a youth who stays in a play where smoking is uncommon and not socially well accepted (8).

Tobacco industry advertising plays an important role in including adolescents to smoke. One study found that 86% of 10<sup>th</sup> graders and 88% of 12<sup>th</sup> graders who purchase their own cigarettes bought one of the three most heavily advertised brands: Marlboro, Camel, and Newport (24).

The mass media has been found to be an effective means of presenting smoking prevention messages to high – risk youth. Children receive information and other influences from a variety of sources (5).

In one study of over 300 college students conducted in Mumbai in 1999, 40 percent admitted to be influenced by advertisement and said that sports and film personalities (for boys) and stylish lifestyles (for girls) were the most influential factors in these. Children in a large study in Uttar Pradesh ( Manipuri) were impressed by advertising depicting a high lifestyle, which includes smoking, drinking, good clothes and affluent surroundings (8).

In the developing countries advertisements influence young girls even more as they may have little to no knowledge about the harmful effects of smoking. At present tobacco advertising in the developing countries tend to be directed at the general public although are attempts to make women as special like in China, Sri Lanka and the Philippines (19).

### **2.5.3.2 Parenting style**

Perceptions of family support were found to be inversely related to smoking, with an “unsupportive” home environment associated with increased likelihood of smoking. In addition, smoking prevalence was raised where perceptions of poor support were combined with reports of fewer controls (25).

### **2.5.3.3 Family relationships**

In 1993 Rutter reported that the family and school are the most important social contexts that influence adolescent risk behavior (26). Family plays a critical role in the socialization of children, thus, a major determinant in preventive health behaviors.

A few studies seem to indicate that tobacco use is more common among youth who are living away from their parents (college students, street children), have poor parental supervision or whose elders use tobacco (19).

However, some argue that family relationships and support are more influential in the development of adolescent behaviors than living with either single or both of the parents (8).

Most of the literature on parental influence on adolescent behavior focuses on two aspects, relationship quality and parental monitoring. McCord found both aspects to be prognostic of adolescent delinquent behavior. Other aspects of parenting that have been studied for their effect on adolescent behavior include effective discipline and parental involvement with the youth (26).

### **2.5.3.4 Model of smoking in family: parent, sibling**

It is well known that family based factors are associated with young people's smoking behavior. Lynn Michell (1990) in a survey of Scottish 14 year-olds found that nearly five times as many young people who admitted smoking regularly came from household where a family member smoked than came from families where nobody smoke. Associations with parents' smoking behavior have been consistently reported in the literature (Chartol,1992) and data indicated that young people from smoking backgrounds were at least twice as likely to be regular smokers themselves ( $p < 0.001$ ) (20).

In a study of families in which both parents smoke, 20.7% of girls were smoke, compared with 7.6% of girls from families where neither parent smoked. Parental smoking appears to be more influential for girls than for boys, this finding was particularly pronounced for the influence of smoking mothers on adolescent daughters. The strong influence of parental smoking has been demonstrated for European American girls, as well as for African American girls are less pronounced (26). Other variables associated with adolescent smoking include parental or sibling smoking, perceived support for smoking by parents or peers, and having lower socio-economic status or parental educational attainment. There is also gender –specific factors associated with smoking (24).

Parental smoking behavior appeared to be an important factor in the smoking behavior of university students. The prevalence of smoking was highest among student who has at least two members of their family who were smokers (27,28,29).

Bangladesh reports peer influence and parental smoking habits were found to be major factors influencing urban high school students to start smoking (19).

The influence of siblings who smoke also appears to be strong. In families with non-smoking parents, children with older sibling who smoke, do so. In neither families where neither parents nor older siblings who smoke, the rate of smoking is less (29,30).

#### **2.5.3.5 Model of smoking outside home: peer, teacher**

The students who live with their friends rather than their families were more likely to smoke. The influence of friends who smoke is significant for both the initiation and the maintenance of adolescent smoking, it has also been demonstrated that individuals may change or mitigate the importance of the certain cognitions to protect against possible conflict between the self and a group of peers (23,24).

Susceptibility to peer pressure does appear to be influenced by race and gender. Peer pressure and offers to smoke have been reported as to initiate smoking

more often by females (15%) than males (9%). In addition, risk for lifelong continuation of smoking in females may be greater than males because the reasons they begin smoking are associated with an increased likelihood of continued smoking (26).

Young people both boys and girls take to smoking of cigarettes to conform to their group friend. Peer pressure and parental smoking are often quoted reasons for young taking up the habit. They report to smoke to be confident, sophisticated, care free and in control of themselves (15,19,26) ).

Ashton and Robstepney revealed that, the greatest influence in starting smoking come from friends of similar age.

Another factor influencing children to initiate smoking is teacher. Wilkinson mentioned that teachers are not always interested or able to teach relaxation, or other relevant social skills. Conversely, boys are more likely to smoke if the male teachers smoke. Cornacchia suggested that, teacher have responsibility to support compliance as good models for children as well as for preservation of their own health (5).

#### **2.5.4 Smoking behavior**

##### **2.5.4.1 Prevalence of smoking**

The teenage years are the most important period in which decisions about tobacco use are first made. A lot of experimentation occurs and at this time many occasional users become regular users.

According to the 2001 Youth Risk Behavior Survey, 63.9% of adolescents (grade 9-12) have tried on cigarette, 28.5% are current smokers and 13.8% of are current frequent smokers (smoking at least 20 days in a month) (15).

More recently, a survey implemented in 2002 Health Information and Education Center of HoChiMinh City, Vietnam has revealed that smoking prevalence of high school male students was 27.8% for recent (30 days) in the 15-18 age group.

In 2003, 8.3% of secondary school male students in the 13-15 age group; 4.7% (grade 8); 7.6% (grade 9) and 12% (grade 10) (31).

Cross-sectional Health Habits Survey was administered to 4,808 students who were about 15 years old. Louisiana youth reported 58% of students ever smoked a cigarette, 25% had a cigarette within the previous 30 days, 17% smoked within the past 7 days and almost 8% smokeless tobacco use. Smokeless tobacco use was greater for males than females (32).

#### **2.5.4.2 Age to start**

Children with parents at low or medium education levels began to experiment with smoking at the age of 12.2 years, and children with parents at high levels began experimenting at 12.9 years of age (19).

In the Western countries, most young people start smoking before the age of 18 years and their first experiences with cigarettes are in the early years of adolescence. The first cigarette was usually smoked at home, followed by on the way to/ from school and then at the house of a friend or relative.

#### **2.5.4.3 Reason to start**

Reasons for starting smoking among youth often included a warm feeling of sharing among friends. Forcing by friends or relatives, a direct form of peer pressure, was found in two out of eight studies. Some young smokers said they smoked to relieve feeling of anxiety/stress/failure. The desire to enhance one's image, adding to one's status, appearing grown up macho were reasons cited by many (19).

Thailand- the National Survey showed that male youth, smoked for fun and due to peer influence. Females often smoked out of loneliness or insecurity.

Other functions served by substance use are: to relieve hunger, to adopt a rebellious stance, for peer/ social acceptance, to relieve pain, keep awake or get to

sleep, or to dream. Teenage girls may use cigarette smoking as a method of weight control and maintenance of a thin appearance (19,24).

#### **2.5.4.4 Desire and attempts to quit smoking**

A result of the study from researcher in Connecticut found that one third of young smokers intend to smoke in the future, the rest are uncertain, or do not intend to smoke. This suggests that the young smoker does not feel committed to long-term smoking, and perhaps does not understand the addictive nature of smoking or the difficulty of quitting. ( About 24% of children who intended to smoke reported current smoking, as did 3.5% of those who were unsure, and less than 1% of those who did not intend to smoke when older (33).

The price of tobacco products also correlates with adolescent tobacco use: a significant price increase leads to a decrease in adolescent tobacco use (19).

## CHAPTER 3

### RESEARCH METHODOLOGY

#### 3.1 Research design

This research was conducted as a cross-sectional study.

#### 3.2 Study population

Sample of this study was high school male students in Cantho City, Vietnam.

#### 3.3 Sample size

Sample size for the study was calculated from formula:

$$n = \frac{Z_{\alpha/2}^2 p(1-p)}{d^2}$$

n= estimated sample size

Z= level of statistical significance in this study, was set at 95%  
confidence interval= 1.96 ( $\alpha = 0.05$ )

d= absolute precision of the study was set at 0.05

p= proportion of current smokers among high school male student as reported by Truong Trong Hoang et al in 2002 = 27.8% (31)

$$n = \frac{(1.96)^2 (0.28)(0.72)}{0.05^2} = 309.786 = 310$$

### 3.4 Sampling technique

The study was conducted in Cantho City. It is located in the South of Vietnam.

There are 22 high schools in Cantho City. From the schools list provided by Department of Training and Education, two schools were purposively selected; one is in urban and another is in rural with total 363 high school male students. In each school were focused three classes namely grade 10, grade 11 and grade 12. Fairly proportional 60 students were drawn for each class. The respondents were determined using simple random sampling.

### 3.5 Research Instruments

A self-administered questionnaire of semi-coded was developed based on the conceptual framework. It consists of 5 parts as the followings:

**Part 1:** Predisposing factors includes age, religion, school class, location of school, study grade, school performance, allowance, family variables (family size, parental education, parental occupation and family income), knowledge on smoking hazard, perception of student toward smoking, self efficacy and psychological disturbance (stress).

- Knowledge on smoking hazards.

This included 8 questions to be answered as true or false. Each correct answer was given 1 score and each incorrect answer was given 0. The maximum score of knowledge was 8.

- Perception toward smoking

This part contained 16 statements. Each statement is answered with one of the three options (agree /not sure/ disagree). The maximum perception score was 48.

For positive statements	3 points for agree
	2 points for not sure

	1 point for disagree
For negative statements	1 point for agree
	2 points for not sure
	3 points for disagree

**Parenting style** had 4 questions. Each question had 4 options: The respondent was asked to select the best option for him. The scoring was done as follows:

- Option 1=1
- Option 2= 2
- Option 3= 3
- Option 4= 4

**Family relationship** includes 4 questions. Each question had 3 options

- Option 1= 1
- Option 2= 2
- Option 3= 3

**Part 2:** Enabling factors included accessibility of cigarette supply and availability and distribution of cigarettes.

**Part 3:** Reinforcing factors includes source of information on smoking, parenting style, family relationships, model of smoking in family, model of smoking outside home and the rules and regulations on smoking at the schools.

**Part 4:** Lifestyle factors refer to activities and time used during weekday, or weekend, such as activities in community, in school or at home.

**Part 5:** Smoking behavior of students and its characteristics.

### 3.6 Data collection

The data collection of this study was conducted at Bui Huu Nghia and Thoi Lai High School in Cantho City from January 17<sup>th</sup> to February 4<sup>th</sup> 2005.

The data collection process was as follows:

1. Consulted with Department of Training and Education to get permission to come to two schools for data collection.
2. Discussed with the director of each school to arrange the working schedule.
3. Discussed with a group of 4 persons who were colleagues to check each questionnaire for completeness of the data.
4. Accessed pre-test by passing 30 students.
5. Corrected questionnaire after pre-test and collected data from 360 students

The students completed the questionnaire by themselves during the class hours. During the actual completion and submission of the questionnaire, the teachers asked not to be present in class.

Those students who had participated in the pre-test of the questionnaire were removed from the sample and replaced by the next randomly selected students.

#### **Test for validity and reliability**

The questionnaire was prepared with the consensus of the major advisor and two co-advisors to ensure validity. It was prepared first in English and translated into Vietnamese language for the appropriate data collection.

After the pre-testing with 30 high school students, analysis for reliability of knowledge on smoking hazards and perception towards smoking was done according the Cronbach's Alpha coefficient.

### 3.7 Data processing and analysis

Using the statistical software of SPSS for window 11.5 version performed the data analysis. All the variables were described by using descriptive statistic as frequency, percentage, mean, standard deviation, minimum, maximum. This is called Univariate analysis.

Cross tabulation and bi – variable analysis by using Chi square test were used to identify significance of relationship between student's smoking behavior and predisposing, enabling, reinforcing and lifestyle factors.

The results from the data analysis presented in different tables in the form of frequency, percentage distribution and Chi - square test.

## CHAPTER 4

### RESULTS

This study was to describe the patterns of cigarette smoking and factors related to smoking behavior among high school students in Cantho City, Vietnam.

The results are presented in six parts. The first part includes characteristics of studied schools and its environments which consist of physical profile of the school, rule and regulation about cigarette smoking, public roles on cigarette advertisement, availability of cigarette and strategy to control cigarette smoking in school students. The second part is about basic characteristics of respondents. This includes information about personal characteristics, student's family background and socio-economic status as well as lifestyle and parenting style among them. The third part includes knowledge, perception on cigarette smoking, and factors inducing students to practice smoking. Including in the fourth part is smoking behaviors; entry and history of cigarette smoking, current practices, and previous expense on smoking. Health status, stress and coping strategies of school students are demonstrated in the fifth part. Lastly, relationships between pattern of cigarette smoking and its associating factors were also assessed.

Since this was a cross sectional study with two groups comparison (urban and rural), most of the results are summarized in frequency and percentage of studied variables that further stratified based on status of urban and rural groups. The relationships between the contributing factors to smoking behavior among the target population were analyzed by using Chi-Square. Given statistical significance, strength of relationship (or effect size) will be determined and interpreted based on the level of significance set at  $\alpha = 0.05$  Cohen's rule of thumb (1988).

## 4.1 Characteristics of studied schools and its environments

### 4.1.1 Physical profile of the schools

This study was conducted in Cantho City. Cantho City, as shown in the map, was located in the center of the Mekong Delta. The City was divided into 8 districts. The total number of high school was 22 schools with 25,061 students (female: 15,743; male: 9,318). There are three levels of high school, namely grade 10, 11 and 12. Bui Huu Nghia and Thoi Lai High School were selected in this study.

1. Bui Huu Nghia High School is located in Binh Thuy district.

Total of teacher: 126 persons (Male: 29)

Total of class: 31

Total of students: 1,510 (Male: 642 students)

2. Thoi Lai High School belongs to Co Do rural district

Total of teacher: 51 persons (Female 19)

Total of class: 37

Total of student: 1,233 (Male: 609 students)

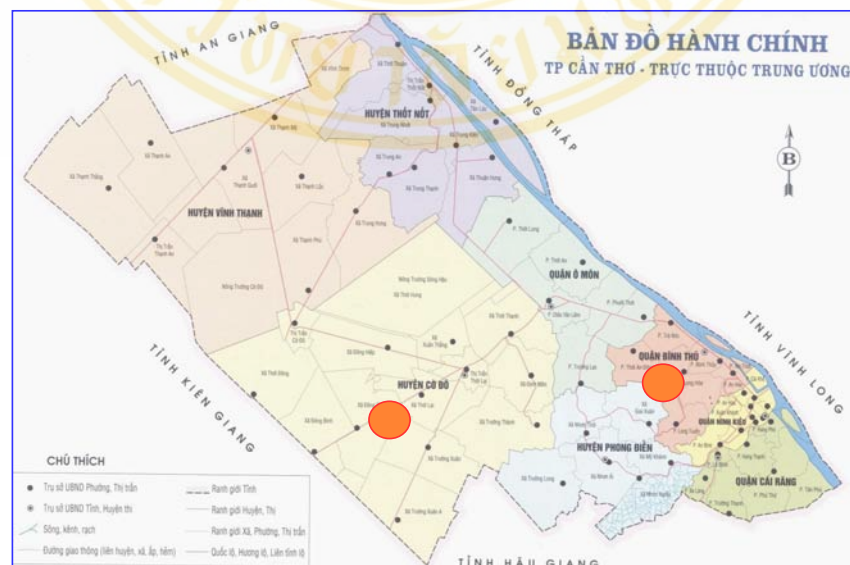


Figure 4 The map of Cantho City

#### 4.1.2 Rule and regulation about cigarette smoking

This part includes source of information related to smoking and its rule and regulation, cigarette advertisement, availability of cigarette and strategy for controlling cigarette smoking among students.

##### **Source of information related to smoking and its rule and regulation**

This referred to teaching topic concerning smoking in school, smoking's rules and regulation existing in school as well as attending a smoking prevention program.

Regarding the source of external information from school (Table 2), more than half (65.7%) of students have ever heard about smoking subjects in the school. Those who had ever known about existing of smoking sign in school were found to be nearly half (48.9%). Only 5% of students who did not know about the smoking's rule and regulation were found in the study.

On the aspects of whether students attend a smoking prevention program, only one fourth (22.6%) of students participated this activity in urban school as well as rural school (23.1%, 22.1% respectively).

**Cigarette advertisement** refers to advertisement about cigarettes in newspaper, magazine, sport stadium and cupboard.

The results shown in Table 3, revealed that seventy percent of respondents have seen cigarette advertisement from different sources. About 42.7% of students had seen cigarette advertisement from cupboard. This was also known to be higher than other sources of advertisement in the study. About 46% of urban school students had seen the cigarette advertisement from cupboard as compared to 39% of rural school students.

**Table 2** Source of information related to smoking and its rules regulation

<b>External information</b>	<b>Urban school n (%)</b>	<b>Rural school n (%)</b>	<b>Total n (%)</b>
<b>Teaching topics concerning smoking</b>			
<b>at school</b>	<b>182</b>	<b>80</b>	<b>362</b>
Yes	109 (59.9)	129 (71.7)	238 (65.7)
No	73 (40.1)	51 (28.3)	124 (34.3)
<b>Smoking's rules and regulation existing</b>			
<b>in school</b>	<b>182</b>	<b>180</b>	<b>362</b>
Existing of smoking sign	68 (37.4)	109 (60.6)	177 (48.9)
Students are not allowed to smoke	98 (53.8)	136 (75.6)	234 (64.6)
Smoking is strictly prohibited	73 (40.1)	34 (18.9)	107 (29.6)
No regulation announced	1 (0.5)	3 (1.7)	4 (1.1)
Students who don't know about the rules & regulation	10 (5.5)	7 (3.9)	17 (4.7)

**Table 3** Source of information cigarette advertisement

<b>Characteristics</b>	<b>Urban school n (%)</b>	<b>Rural school n (%)</b>	<b>Total n (%)</b>
<b>Acquiring cigarette messages</b>			
<b>from advertisement</b>	<b>182</b>	<b>181</b>	<b>363</b>
Yes	130 (71.4)	124 (68.5)	254 (70.0)
No	52 (28.6)	57 (31.5)	109 (30.0)
<b>Source of messages *</b>			
Newspaper	39 (21.4)	45 (24.9)	84 (23.1)
Magazine	57 (31.3)	67 (37.0)	124 (34.2)
Sport stadium	46 (25.3)	34 (18.8)	80 (22.0)
Cupboard	84 (46.2)	71 (39.2)	155 (42.7)

\* Multiple answers

### Availability of cigarette

Most of the students (80.3%) reported that they had bought cigarettes from local shops. More than half of the students demonstrated they have got cigarettes from friends at school as well as from home (67.1%, 30.4% respectively). Almost all students (94.8%) said that cigarette was easy to buy in both urban and rural school (urban school=92.3%, rural school=97.2%) (Table 4).

**Table 4** Availability of cigarettes

Availability factors	Urban school	Rural school	Total
	n (%)	n (%)	n (%)
<b>Place students mostly buy cigarette</b>	<b>152</b>	<b>157</b>	<b>309</b>
Local shops	120 (78.9)	128 (81.5)	248 (80.3)
Local shops surround school	11 (7.2)	10 (6.4)	21 (6.8)
Street vendors	15 (9.9)	13 (8.3)	28 (9.1)
Any shops	6 (3.9)	6 (3.8)	12 (3.9)
<b>Get cigarette from</b>	<b>36</b>	<b>43</b>	<b>79</b>
Parents and Sibling	1 (2.8)	1 (2.3)	2 (2.5)
Friends at school	26 (72.2)	27 (62.8)	53 (67.1)
Friends at home	9 (25.0)	15 (34.9)	24 (30.4)

### Strategy to control cigarette smoking among students

Table 5 showed that, more than 87% of students responded to issue on giving incentive to smokers as their opinion toward smoking prevention at school. About 75% responded on issue of health education in school, and almost 73% indicated strategy through mass media campaigns. In addition, 68% responded on strategy for controlling cigarettes smoking should be carried out based on prohibiting smoking in public places as well as 53% responded on issue of ban on smoking advertisement.

**Table 5** Strategy for controlling of cigarettes smoking among students

Factors	Urban school	Rural school	Total
	n (%)	n (%)	n (%)
<b>The effective way to prevent smoking*</b>	<b>181</b>	<b>181</b>	<b>362</b>
Giving incentive to smokers	160 (87.9)	157 (86.7)	317 (87.3)
Ban on smoking advertisement	108 (59.3)	86 (47.5)	194 (53.4)
Health education in school	140 (76.9)	132 (72.9)	272 (74.9)
Mass media campaigns	128 (70.3)	136 (75.1)	264 (72.7)
Increasing price of cigarette	70 (38.5)	44 (24.3)	114 (31.4)
Control the sale of cigarette to minors	94 (51.6)	75 (41.4)	169 (46.6)
Prohibiting smoking in public place	123 (67.6)	124 (68.5)	247 (68.0)
Close cigarette company	2 (1.1)	4 (2.2)	6 (1.7)
Cancellation of tobacco farm	1 (0.5)	1 (0.6)	2 (0.6)

\* Multiple answers

## 4.2 Basic characteristics of students

Personal characteristics of the students and information about their family are highlighted as the followings:

### 4.2.1 Personal characteristics of student

This refers to age, religion, school class and cognitive performance of students.

#### Age

The median age of the respondents was 17.0 years. It ranges from 16 to 23 years old. Table 6 indicated that more than half of students (56.7%) were fallen into the group of 16 to 17 years. Only 7.4 percent were age group from 20 to 23 years.

The students in urban school were found to be more at a younger age than those of rural school. On the other hand, older students were more prevalent in rural school than those in urban. There was a statistical significant association between age group and location of school. (Pearson Chi-square= 10.957,  $p = .004$ . The strength of association indicated by Cramer's  $V = .174$ ,  $p = .004$ . This value is classified as small effect size).

### Religion

There were four religions found in this studied population. Ancestor worship was more prevalent with the rate of 72.2%. Buddhism was ranked as the second (with 21.5 percent). Students who registered as Catholic and Caodiasm follower were minor (Catholic =5.0%, Caodiasm= 1.4%). Ancestor worship was observed to be slightly higher than those in rural school children whereas Buddhism was more likely found in urban setting (urban school = 23.6%, rural school = 19.3%).

**Table 6** Personal characteristics of school students among urban and rural schools

Characteristics	Urban school	Rural school	Total
	n (%)	n (%)	n (%)
<b>Age (years);</b>	<b>182</b>	<b>181</b>	<b>363</b>
16 - 17 years	114 (62.2)	92 (50.8)	206 (56.7)
18 - 19 years	62 (34.1)	68 (37.6)	130 (35.8)
20 - 23 years	6 (3.3)	21 (11.6)	27 (7.4)
Min – Max	16 – 21	16 – 23	16 -23
Median	17.00	17.00	17.00
<b>Religion</b>	<b>182</b>	<b>181</b>	<b>363</b>
Ancestor Worship	124 (68.1)	138 (76.2)	262 (72.2)
Buddhism	43 (23.6)	35 (19.3)	78 (21.5)
Catholic	12 (6.6)	6 (3.3)	18 (5.0)
Caodiasm	3 (1.6)	2 (1.1)	5 (1.4)

**School performance** (cognitive performance) referred to student's achievements at school that based on their recent examination grades.

The minimum and the maximum grade of points of urban students were 4.0 and 9.0 as compared to 4.4 and 8.2 for rural students, respectively.

From analysis Student's T-test, it indicated that mean grade point average of students in urban school (Mean=6.155) was not statistically significant different from those among the rural school (Mean=6.143),  $t_{(347.4)} = .132$ ,  $p = .895$ .

#### 4.2.2 Family information

The family information limited to parental educational attainment, their occupation, and family income. For education, it was categorized into illiterate, primary, secondary, and high school, college and university. Occupation was grouped into wage, agriculture, business, and government service. Family income was derived from the summation of income earned per month by all members in the family.

##### Father's education

Table 7 showed that most fathers (42%) graduated at high school level, 25.5% graduated from secondary school. The proportion of fathers with high school graduated appeared to be higher among urban school students (50.8%), as compared to 32.8% of those in rural school. There were a statistical significant proportion of student's fathers in different educational level among urban and rural school students (Pearson Chi-square= 63.249,  $p < .001$  and Cramer's V= .419,  $p < .001$  medium effect size).

##### Mother's education

More than one third of students had that their mother's attained primary and secondary school graduates. Almost half of the rural mothers were primary school level (50.3%). Students who had mother's education as high school was observed to be 31.7% in urban school. There was a statistical significant different proportion between mother's education of urban and rural school students (Pearson Chi-square= 77.659,  $p < .001$  and Cramer's V=.464,  $p < .001$ , medium effect size).

### **Parental occupation**

The finding showed that almost half of their father engaged in agricultural sector (43.1%), the rest worked in government employee sectors (33.1%) (including teacher, doctor, engineer, official) and also business (19.4%). Students who had father as agricultural occupation was shown to be higher in rural school students (69.3%) whereas students who had fathers as government employee was more likely found in urban school students (55.8%). Overall, the result showed a statistical significant association between father's occupation and location of school (Pearson Chi-square= 115.740,  $p < .001$  and Cramer's  $V = .567$ ,  $p < .001$ , medium effect size).

**Mother's occupation** included housewife, wage, agriculture, business and government employee. The majority of student's mothers were supposed to be housewives (40.6%) and 28.2 percent of them were working as farmer. Students who had mother's occupation as agriculture appeared to be higher in rural school students (49.2%).

### **Family income**

Only one third of students responded on family income in the questionnaire.

The findings showed that family income ranged from 130,000 to 6,000,000 VND with median value of 1,300,000 VND per month. When the income was grouped into 2 levels, more than half of them perceived their family earned less than 1,700,000 VND (61.6%). Those who perceived the family income less than 1,700,000 were more prevalent among rural students (70.2%, as compared to 55.4 % among urban students). On the other hand, those family who earned more than 1,700,000 VND was perceived to be more prevalent among urban as compared to rural.

**Table 7** Socio-economic characteristics of parents

<b>Parent's characteristics</b>	<b>Urban school n (%)</b>	<b>Rural school n (%)</b>	<b>Total n (%)</b>
<b>Educational attainment</b>			
<b>Father's education</b>	<b>182</b>	<b>181</b>	<b>363</b>
Primary and illiterate	13 (7.2)	59 (32.2)	72 (19.7)
Secondary school	37 (19.9)	56 (31.1)	93 (25.5)
High school	92 (50.8)	59 (32.8)	151 (41.8)
College, University	40 (22.1)	7 (3.9)	47 (13.0)
<b>Mother's education</b>	<b>182</b>	<b>181</b>	<b>363</b>
Primary and illiterate	28 (15.0)	91 (50.3)	119 (32.7)
Secondary school	61 (33.9)	64 (35.4)	125 (34.6)
High school	58 (31.7)	24 (13.3)	82 (22.4)
College, University	35 (19.4)	2 (1.1)	37 (10.2)
<b>Economic status</b>			
<b>Father's occupation</b>	<b>182</b>	<b>181</b>	<b>363</b>
Wage	8 (4.4)	8 (4.5)	16 (4.4)
Agriculture	31 (17.1)	126 (69.3)	157 (43.1)
Business	42 (22.7)	29 (16.2)	71 (19.4)
Government employee	101 (55.8)	18 (10.1)	119 (33.1)
<b>Mother's occupation</b>	<b>182</b>	<b>181</b>	<b>363</b>
Housewife	89 (49.2)	58 (32.0)	147 (40.6)
Wage	2 (1.1)	6 (3.3)	8 (2.2)
Agriculture	13 (7.2)	89 (49.2)	102 (28.2)
Business	36 (19.3)	27 (14.9)	63 (17.1)
Government employee	42 (23.2)	1 (0.6)	43 (11.9)
<b>Family monthly income</b>	<b>65</b>	<b>47</b>	<b>112</b>
( x 1,000 VND)			
≤ 1,700	36 (55.4)	33 (70.2)	69 (61.6)
> 1,700	29 (44.6)	14 (29.8)	43 (38.4)
Min – Max	300 – 5,000	130 – 6,000	130 -6,000
Median	1,500	1,000	1,300

### 4.2.3 Socio- economic characteristics of students

#### Family type

According to the type of accommodation, nearly ninety percent of respondents determined that they were living in their own house (89.5%). The rest lived in other types of accommodation such as relative house, rental house or temple. The majority of the students (70%) indicated that they lived in nuclear family, whereas 26.1% living in extended family. Single parent family was observed to be 4%.

Table 8 showed that there was a statistical significant association between family type of urban school and rural school students (Pearson Chi-Square = 9.292,  $p = .010$ , Cramer's  $V = .161$ ,  $p = .010$ , small effect size)

**Table 8** Socio-economic characteristics of students

Characteristics	Urban school	Rural school	Total
	n (%)	n (%)	n (%)
<b>Accommodation during school semester</b>	<b>182</b>	<b>181</b>	<b>363</b>
Owned house	159 (87.4)	166 (91.7)	325 (89.5)
Relative's house	19 (10.4)	12 (6.6)	31 (8.5)
Rental house	3 (1.6)	3 (1.7)	6 (1.7)
Temple house	1 (0.5)		1 (0.3)
<b>Family type</b>	<b>178</b>	<b>179</b>	<b>357</b>
Nuclear family	113 (63.5)	137 (76.5)	250 (70.0)
Single parent	11 (6.2)	3 (1.7)	14 (3.9)
Extended family	54 (30.3)	39 (21.8)	93 (26.1)
<b>Average financial support from parents (x 1,000VND)</b>	<b>17</b>	<b>173</b>	<b>352</b>
≤150	120 (65.9)	132 (72.9)	252 (69.4)
150– 300	42 (23.1)	38 (21.0)	80 (22.0)
> 300	17 (9.3)	3 (1.7)	20 (5.5)
Min - Max	20 -1,500	20 – 600	20 – 1,500
Median	150.00	150.00	150.00

### **Student's financial support**

This referred to amount of money that student could receive from their parents or relative or doing part –time employment. Monthly student's financial support ranged from 20 to 1,500 (x1,000VND). The median of student's financial support was 150.00. Nearly seventy percent of students had a financial support per month lower than 150,000 VND. Almost the students received financial source from their parents and relatives (98.6%). Less than 5% of students reported part-time employment. Students who engaged in part-time job were found to be slightly higher among rural school students (rural school= 5.6%, urban school = 3.3%).

#### **4.2.4 Lifestyle and parenting style of school students**

Lifestyle referred to students who participated in the activities interest such as activities in community, at school as well as at home and time used during weekday and weekend.

**Community activities** included youth association activities, environmental hygiene protection, and socio welfare work.

Table 9 demonstrated that less than half of students participated in community activities (44.6%). Students participated in environmental hygiene camps to be high prevalent (20.9%), the next was youth association (17.6%) and only 4.7% of religious related activities. Participating in environmental hygiene activity was found to be higher among rural school students as compared to urban school students (26.0% vs 15.9%).

**School activities** included participating sport-team, English club and youth' association.

The study found that more than three fourth of the students participated in school activities (79.6%). Both of urban and rural students who participated in sport team were found to be more than half (rural school = 68.5%, urban school = 65.4%).

**Home activities** referred to students who were interested in doing homework, taking care of parents, or going to church, and entertainment issues.

More than half (65.3%) of students participated in home activities. The proportion of students who were interested in-home activities was observed to be higher among rural school students. The results showed that there was a statistical significant different between participating in home activities among urban and rural school students (Pearson Chi-Square =52.396,  $p < .001$ , Cramer's  $V = .380$ ,  $p < .001$ , small effect size)

### **Entertainments**

It was found that nearly eighty percent of students enjoyed television program, music, drama, listens to radio or enjoying with friends (79.1%). The prevalence of students who were interested in entertainments was found to be higher among urban school (Table 9). There was a statistical significant difference between performing entertainments among urban and rural school students (Pearson Chi-Square = 13.243,  $p < .001$ , Cramer's  $V = .191$ ,  $p < .001$ , small effect size).

### **Parenting style**

This referred to four styles: indulgent, authoritarian, authoritative and uninvolved parents. It was grouped into two categorized perception as agree and disagree.

Students responded identifying types of family relationships with four statements about their perceptions as shown in Table 10. More than three fourth (76.3%) of students strongly perceived of their parents as authoritative parents by choosing the following statement of "Parents give respondents reasons for rules and decisions that involve them".

More than one third of students strongly agreed on their parents being indulgent as "Parents don't give orders but will respond to whatever respondents

concern”. In addition, identifying to their parents as uninvolved, “Parents let respondents take care of themselves most of time” was chosen as their answers.

**Table 9** Lifestyle of students among urban and rural schools

Activities	Urban school	Rural school	Total
	n (%)	n (%)	n (%)
<b>Community activities *</b>	<b>182</b>	<b>181</b>	<b>363</b>
Participated			
Yes	73 (40.1)	89 (49.2)	162 (44.6)
No	109 (59.9)	92 (50.8)	201 (55.4)
List of activities participated by students			
Youth association	38 (20.9)	26 (14.4)	64 (17.6)
Environmental hygiene	29 (15.9)	47 (26.0)	76 (20.9)
Social welfare	15 (8.2)	33 (18.3)	48 (12.7)
Religious related activities	9 (4.9)	8 (4.4)	17 (4.7)
<b>School activities *</b>			
Participated			
Yes	140 (76.9)	149 (82.3)	289 (79.6)
No	42 (23.1)	32 (17.7)	74 (20.4)
List of activities participated by students			
Sport team	119 (65.4)	124 (68.5)	243 (66.9)
English club	8 (4.4)	1 (0.6)	9 (2.5)
Youth's association	16 (8.8)	27 (14.9)	43 (11.8)
Tutorial group	3 (1.6)	5 (2.8)	8 (2.2)
<b>Home activities *</b>			
Participated			
Yes	86 (47.3)	151 (83.4)	237 (65.3)
No	96 (52.7)	30 (16.6)	126 (34.7)
List of activities participated by students			
Doing home work	68 (37.4)	135 (74.6)	203 (55.9)
Reviewing lesson	56 (30.8)	97 (53.6)	153 (42.1)
Taking care of parents	8 (4.4)	26 (14.4)	34 (9.4)
<b>Entertainments *</b>			
Participated			
Yes	158 (86.8)	129 (71.3)	287 (79.1)
No	24 (13.2)	52 (28.7)	76 (20.9)
List of activities participated by students			
Enjoying issue (TV program, music, radio)	132 (72.5)	110 (60.8)	242 (66.7)
Enjoying with friends	87 (47.8)	55 (30.4)	142 (39.1)

\* Multiple answers

**Table 10** Parenting styles from student's perception in urban and rural schools

Statements assessing perception	Urban school n=182 (%)		Rural school n=181 (%)		Total n= 363 (%)	
	Agree	Dis- agree	Agree	Dis- agree	Agree	Dis- agree
<b>Uninvolved</b> (Parents let respondents take care of themselves most of the time).	72 (39.6)	110 (60.4)	44 (24.3)	137 (75.7)	116 (32.0)	247 (68.0)
<b>Indulgent</b> (Parents don't give orders but will respond to whatever respondents concern).	55 (30.2)	127 (69.8)	69 (38.1)	112 (61.9)	124 (34.2)	239 (65.8)
<b>Authoritative</b> (Parents give respondents reasons for rules and decisions that involve them).	140 (76.9)	42 (23.1)	137 (75.7)	44 (24.3)	277 (76.3)	86 (23.7)
<b>Authoritarian</b> (Parents give orders and use their power to make respondents obedient).	48 (26.4)	134 (73.6)	57 (31.5)	124 (68.5)	105 (28.9)	258 (71.1)

**Family relationships** referred the student's perceptions on parental concerning in his family. It was grouped into two categories as fair and good perception.

Table 11 showed that the majority (77.1%) of respondents had strongly perceived that their parents take care of them carefully. The students who responded "Considering by themselves as a good obedient son" were found to be (37.2%). There was a statistical significant different between family reunion among urban and rural students (feeling of respondents about relationships among family member,  $\chi^2 = 4.535$ ,  $p = .033$ ; thinking of respondents about parents take care of them,  $\chi^2 = 5.504$ ,  $p = .019$ ; considering by themselves as a good obedient son,  $\chi^2 = 6.442$ ,  $p = .011$ ).

**Table 11** Family relationships of students among urban and rural schools

Questions assessing perception	Urban school n=182 (%)		Rural school n=181 (%)		Total n=363 (%)	
	Level of relationship					
	Fair	Good	Fair	Good	Fair	Good
Feeling of respondents about relationships among family members.	65 (35.7)	117 (64.3)	46 (25.4)	135 (74.6)	111 (30.6)	252 (69.4)
Thinking of respondents about parents take care them.	51 (28.0)	131 (72.0)	2 (1.7)	49 (27.1)	3 (22.9)	280 (77.1)
Perception about family members getting along together.	64 (35.2)	18 (9.9)	57 (31.5)	124 (68.5)	121 (33.3)	242 (66.7)
Considering whether respondents is an obedient son.	126 (69.2)	56 (30.8)	102 (56.4)	79 (43.6)	228 (62.8)	135 (37.2)

### 4.3 Knowledge, perception and smoking models of school students

#### 4.3.1 Knowledge of issue related to cigarette smoking

According to the students who responded with true or false to questions asked on knowledge of smoking hazards, the total knowledge score was eight. The minimum and the maximum knowledge scores of students were 0 and 8 respectively. The mean knowledge score was 3.34 with standard deviation of 1.5.

By using Student's T-test, it was found that mean knowledge of students in urban school (Mean = 3.51) was statistically significant higher than those of the rural school (Mean=3.17),  $t_{(361)}=2.136$ ,  $p=.033$  with small effect size ( $d=.22$ ).

Table 12 demonstrated frequency and percentage of correct knowledge known among urban and rural school students. Most students (86.5%) knew that family

members could receive hazardous substance from one of the family members, who smoked cigarette. They also realized that the cigarette smoking could effect on fetus in pregnant smokers (61.7%), on nervous systems (50.7%) and lung cancer being the highest death rate among smokers (56.2%) as well as nicotine was additive substance in cigarette (40.2%). However, many students were lacking knowledge about:

1. hazardous substances from cigarette burning
2. cigarette smoking did not occur by tuberculosis
3. substances in cigarette could penetrate through breast milk from smoking mother to her baby

Being students from urban school were more likely to have knowledge related to smoking (hazardous substance from cigarette burning, addictive substance, and cigarette can penetrated through breast milk from smoking mother to baby with  $p=.044$ ,  $p=.003$ , and  $p=.018$ , respectively).

#### **4.3.2 Perception on cigarette smoking**

There were 16 statements in this part being used to assess the student's perception on cigarette smoking, there were 2 kinds of statements, positive and negative statements (8 positive and 8 negative statements), the question 1,2,5,6,10,12,13 and 14 in Table 13 were positive statements and the rest were negative statements. The answer for this part was either agreed, not sure or disagree. The score of the positive answer could be scored as 3 for agree, 2 for not sure, and 1 for disagrees. For the negative answer it was scored as 1 for agree, 2 for not sure, and 3 for disagree which was the opposite way with the positive answer. The total score was 48. The minimum and the maximum perception scores of students were 21 and 48. The mean perception was 39.30 with standard deviation of 4.026.

Table 13 illustrated the numbers and percentage of students according to the types of answer given to the statements about perception on smoking hazards. More than two third of students had strongly positive perception to answer statements No. 1,2,5,6,10,12,13 and 14 as well as statements No. 7, 11 and 16. Less than thirty percent of all statements were answered to be not sure, except statement No.15.

Using Student's T-test, the results were revealed that mean perception of students in urban school (Mean=39.53) was no significant difference with those of the rural school (Mean=39.07),  $t_{(361)}=1.078$ ,  $p=.282$ .

**Table 12** Frequency and percentage of correct answers to issues of knowledge among urban school and rural school students

Corrected reply on issues of knowledge	Urban school n (%)	Rural school n (%)	Total n (%)
Hazardous substances from cigarette burning	<b>182</b> 35 (19.2)	<b>181</b> 21 (11.6)	<b>363</b> 56 (15.4)
Addictive substance in cigarette	87 (47.8)	59 (32.6)	146 (40.2)
Substance in cigarette can penetrate through breast milk from smoking mother to a baby	30 (16.5)	15 (8.3)	45 (12.4)
Family members receive hazardous substance from one of family member smoke cigarette	166 (91.2)	148 (81.8)	314 (86.5)
Lung cancer has the highest death rate among smokers	99 (54.4)	105 (58.0)	204 (56.2)
Cigarette smoking does not occur by tuberculosis	16 (8.8)	(12.2)	38 (10.5)
The effect of cigarette smoking on fetus in pregnant smokers	109 (59.9)	115 (63.5)	224 (61.7)
Cigarette smoking effect on nervous systems	96 (52.7)	88 (48.6)	184 (50.7)

**Table 13** Student's perception toward issue related to cigarette smoking

Characteristics	Urban school n= 182 (%)			Rural school n= 181 (%)		
	Agree	Not sure	Dis Agree	Agree	Not sure	Dis Agree
1. Intensive cigarette smoking can increase risk of lung cancer	173 (95.1)	5 (2.7)	4 (2.2)	172 (95.0)	7 (3.9)	2 (1.7)
2. Cigarette smoking can cause other cancer	118 (64.8)	38 (20.9)	26 (14.3)	107 (59.1)	44 (24.3)	30 (16.6)
3. Initial phase of smoking does not cause any harmful effects to health	80 (44.0)	24 (13.2)	78 (42.9)	92 (50.8)	27 (14.9)	62 (34.3)
4. Occasional smoking does not has any risk for respiratory tract related diseases	46 (25.3)	42 (23.1)	94 (51.6)	60 (33.1)	35 (19.3)	86 (47.5)
5. Cigarette smoking can decrease body immune	131 (72.0)	33 (18.1)	18 (9.9)	149 (82.3)	15 (8.3)	17 (9.4)
6. Passive smokers can also have chances to get smoking related diseases	142 (78.0)	26 (14.3)	14 (7.7)	121 (66.9)	37 (20.4)	23 (12.7)
7. Smoking can show smoker maturity	36 (19.8)	10 (5.5)	136 (74.7)	32 (17.7)	11 (6.1)	138 (76.2)
8. Smoking can help smokers release stress	68 (37.4)	48 (26.4)	66 (36.3)	67 (37.0)	34 (18.8)	80 (44.2)
9. Smoking cigarette with filter can reduce substances	70 (38.5)	54 (29.7)	58 (31.9)	63 (34.8)	50 (27.6)	68 (37.6)

**Table 13** Student's perception toward issue related to cigarette smoking (cont.)

Characteristics	Urban school n= 182 (%)			Rural school n= 181 (%)		
	Agree	Not sure	Dis Agree	Agree	Not sure	Dis Agree
10. Even though being a member of the peer group, you do not need to smoke cigarette	150 (82.4)	5 (2.7)	27 (14.8)	148 (81.8)	5 (2.8)	28 (15.5)
11. If smokers practice exercise, smoking does not cause any harmful effects to health	25 (13.7)	39 (21.4)	118 (64.8)	32 (17.7)	38 (21.0)	111 (61.3)
12. Physical exercise can help smokers to decrease to desire smoking	118 (64.8)	38 (20.9)	26 (14.3)	95 (52.5)	50 (27.6)	36 (19.9)
13. Quit smoking can make smokers more confident	128 (70.3)	38 (20.9)	16 (8.8)	132 (72.9)	34 (18.8)	15 (8.3)
14. Quit smoking can provide a cleaner environment which does not have any harmful to health for other persons.	171 (94.0)	4 (2.2)	7 (3.8)	166 (91.7)	3 (1.7)	12 (6.6)
15. Quit smoking can decrease food appetite	27 (14.8)	72 (39.6)	83 (45.6)	29 (16.0)	64 (35.4)	88 (48.6)
16. Quit smoking can make smokers lose peer smoking groups	29 (15.9)	28 (15.4)	125 (68.7)	31 (17.1)	24 (13.3)	126 (69.6)

### 4.3.3 Acquisition of smoking

Among the source of information about smoking in Table 14, more than two third (82.5%) of students had heard about smoking hazard from mass media. The rest of the sources of information were found to be from family members, teacher, and health worker.

**Table 14** Source of information about smoking hazards

Source of information	Urban school n (%)	Rural school n (%)	Total n (%)
<b>Heard about smoking hazards from *</b>	<b>180</b>	<b>181</b>	<b>361</b>
Family	138 (76.2)	141 (77.9)	279 (77.1)
Teacher	117 (65.0)	137 (75.7)	254 (70.4)
Friends	73 (40.6)	68 (37.6)	141 (39.1)
Health worker	114 (63.3)	131 (72.4)	245 (67.9)
Mass media	149 (82.8)	149 (82.3)	298 (82.5)
Printed matters	93 (51.4)	66 (36.5)	159 (43.9)

\* Multiple answers

### 4.3.4 Smoking models: a socialization tool of smoking in school students

#### Smoking in family

The majority (79.6%) of the students admitted that there were smokers in their family. More than two third of them had fathers, brothers and grandfather as regular smokers. The rest of them were occasional smokers. Student's mothers that smoked were found only 2 cases. Most respondents who had father as regular smokers were found more prevalence among rural school students as compared to urban school (rural school=73.1%, urban school=55.7%) whereas those who declared having

grandfather and brother as smokers were higher among urban school as shown in Table 15.

**Table 15** Smoking models of high school students

Characteristics	Urban school	Rural school	Total
	n (%)	n (%)	n (%)
<b>Within family</b>	<b>182</b>	<b>181</b>	<b>363</b>
<b>Smokers in family</b>			
Yes	139 (76.4)	150 (82.9)	289 (79.6)
No	43 (23.6)	31 (17.1)	74 (20.4)
<b>Father's smoking</b>	<b>139</b>	<b>150</b>	<b>289</b>
Non –smoker	24 (17.3)	20 (13.3)	44 (15.2)
Occasional smoker	51 (44.3)	35 (26.9)	86 (35.1)
Regular smoker	64 (55.7)	95 (73.1)	159 (64.9)
<b>Brother's smoking</b>	<b>139</b>	<b>150</b>	<b>289</b>
Non –smoker	97 (69.8)	97 (64.7)	194 (67.1)
Occasional smoker	16 (38.1)	21 (39.6)	37 (38.9)
Regular smoker	26 (61.9)	32 (60.4)	58 (61.1)
<b>Grandfather's smoking</b>	<b>139</b>	<b>150</b>	<b>289</b>
Non –smoker	110 (79.1)	124 (82.7)	234 (81.0)
Occasional smoker	6 (20.0)	7 (28.0)	13 (23.6)
Regular smoker	24 (80.0)	18 (72.0)	42 (76.4)
<b>Outside the family</b>			
<b>Smoking teacher</b>	<b>182</b>	<b>180</b>	<b>362</b>
Yes	166 (91.2)	169 (93.9)	335 (92.5)
No	16 (8.8)	11 (.1)	27 (7.5)
<b>Close friends</b>	<b>182</b>	<b>180</b>	<b>362</b>
Smoker	109 (59.9)	109 (60.6)	218 (60.2)
Non-smoker	73 (40.1)	71 (39.4)	144 (39.8)
<b>Number of friends who smoke</b>	<b>108</b>	<b>108</b>	<b>216</b>
1 - 3	51 (47.2)	65 (60.2)	116 (53.7)
4 - 8	42 (38.9)	29 (26.8)	71 (32.9)
> 8	15 (13.9)	14 (13.0)	29 (13.4)
Min - Max	1 - 20	1 - 10	1 - 20
Median	3.00	3.00	3.00

### **Smoking outside the family**

The proportion of students having smoking teachers was higher than that of students having family members and friends who smoked (92.5%, 79.6%, 60.2%, respectively). More than half of the students had at least 1 to 3 friends smoked and it was found to be higher among rural students (rural school=60.2%, urban school=47.2%).

## **4.4 Smoking practices among school students**

**4.4.1 Entry of cigarette smoking** referred to age to start smoking, motivation of smoking, access to cigarette smoking and cost per pack of cigarette.

### **Age to start smoking**

From the results in Table 16, the students who smoked started smoking between the age of 7 to 19 years and the mean age at start was 15.23 years old. There was a statistically significant association between age to start smoking and the status of being urban and rural school students (Pearson Chi-square= 26.881,  $p < .001$  and Phi=.526,  $p < .001$ , medium effect size).

### **Motivation of smoking**

More than half of those who use to be smokers had started smoking by curiosity (53.6%) and being persuaded by friends (15.5%). The motivation of feeling mature, appearing more sophisticated and feeling self pity were also mentioned from 30% of respondents who smoked or used to smoke.

**Table 16** Entry of smoking behavior

Characteristics	Urban school	Rural school	Total
	n (%)	n (%)	n (%)
<b>Age to start smoking</b>	<b>48</b>	<b>49</b>	<b>97</b>
≤ 15 years	35 (72.9)	10 (20.4)	45 (46.4)
> 15 years	13 (27.1)	39 (79.6)	52 (53.6)
Min - Max	7 - 18	14 - 19	7 - 19
Median	15.00	16.00	16.00
<b>Motivation for smoking</b>	<b>48</b>	<b>49</b>	<b>97</b>
Curiosity	28 (58.3)	24 (49.0)	52 (53.6)
Feeling mature	6 (12.5)	8 (16.3)	14 (14.4)
Persuaded by friend	4 (8.3)	11 (22.4)	15 (15.5)
Appearing more sophisticated	8 (16.7)	2 (4.1)	10 (10.3)
Felt lonely	2 (4.2)	4 (8.2)	6 (6.2)

**Access to cigarette smoking**

Among the persons who introduced smoking to the respondents, more than half number (60.3%) were accessed from their friends at school or at home.

The respondents were also requested to buy cigarette. The majority of students (72.1%) have been requested to purchase cigarette for family members. Those who were requested to buy cigarette for their friends were 27.6%. Being asked to buy cigarette for family members, was higher among urban school whereas those who were requested to buy cigarette for their friends was more likely found among rural school students (rural school=30.9%, urban school= 23.9%).

### Cost of cigarette per pack

The minimum and maximum cost per pack of cigarette were 2,000 and 20,000 VND. The mean cost of cigarette was 8.392 with standard deviation of 3.357.

By using Student's T-test, it indicated that mean cost of cigarette per pack students in urban school (Mean= 9777.78) was statistical significant higher than those in the rural school (Mean= 7232.56),  $t_{(76.9)} = 3.655$ ,  $p = .033$  )

The results indicated that more than seventy percent of students mentioned that the cost of their cigarettes was not cheap (74.7%).

**Table 17** Access to cigarette and smoking

Characteristics	Urban school n (%)	Rural school n (%)	Total n (%)
<b>Asked to smoking by</b>	<b>182</b>	<b>181</b>	<b>363</b>
Family member	1 (0.5)	1 (0.6)	2 (0.6)
Teacher	3 (1.6)	6 (3.3)	9 (2.5)
Friends	108 (59.3)	111 (61.3)	219 (60.3)
<b>Asked to purchase cigarette</b>	<b>182</b>	<b>181</b>	<b>363</b>
Yes	142 (78.0)	152 (84.0)	294 (81.0)
No	40 (22.0)	29 (16.0)	69 (19.0)
<b>Requested to buy for</b>	<b>142</b>	<b>152</b>	<b>294</b>
Family member	107 (75.4)	105 (69.1)	212 (72.1)
Teacher	7 (4.9)	3 (2.0)	10 (3.4)
Friends	34 (23.9)	47 (30.9)	81 (27.6)
Visitors	12 (8.5)	12 (7.9)	24 (8.2)
Neighbor	6 (4.2)	4 (2.6)	10 (3.4)
<b>Cost of a pack of cigarette</b>	<b>36</b>	<b>43</b>	<b>79</b>
Cheap	8 (22.2)	12 (27.9)	20 (25.3)
Not cheap	28 (77.8)	31 (72.1)	59 (74.7)

#### 4.4.2 Current smoking practices

This referred to smoking status, brand preference, place to smoke, reason for continuing smoking.

Regarding smoking behavior, Table 18 reveals that current smokers were less than one third of students (21.8%), those who had ever smoked but quitted already (ex-smokers 5%) and the one who have never smoked (73.3%). Students who smoke were mentioned to be slightly higher among rural school students (23.8%).

##### **Brand preference among smokers**

Manufactured cigarette have been chosen as the common cigarettes for almost students who smoked as shown in table 18. About 45.6 % of students selected local cigarette and 54.4% foreign cigarette. Among respondents who smoked, less than half of them (46.8%) consumed one to three cigarettes per day, 38 percent of smokers consumed more than 3 cigarettes per day.

Regarding the frequency of smoking, students reported that they smoked occasionally (84.5%). Only 15.2% of smokers were found to be regularly smoking. Concerning about amount of money to spend on their cigarette per day, less than half (44.9%) of those who smoked spent 3,000 to 4,000 VND.

##### **Place to smoke**

Table 18 revealed that most of smokers liked to smoke in coffee shop (70.9%), and in any place when they craving to smoke (22.8%).

##### **Reason for continuing smoking**

About 49.4% of the respondents who smoked provided their reasons for continuing smoking as for fun and 41.8% was a way to get new friends easily. The other reasons they said to reduce stress, or when they failed lonely.

**Table 18** Current smoking practices

Characteristics	Urban school n (%)	Rural school n (%)	Total n (%)
<b>Smoking status</b>	<b>182</b>	<b>181</b>	<b>363</b>
Non smokers	134 (73.6)	132 (72.9)	266 (73.3)
Ex – smokers	12 (6.6)	6 (3.3)	18 (5.0)
Current smokers	36 (19.8)	43 (23.8)	79 (21.8)
<b>Type of smoking *</b>	<b>36</b>	<b>43</b>	<b>79</b>
Manufactured cigarette	36 (45.6)	49 (54.4)	79 (100)
Hand roll cigarette	2 (5.6)	2 (4.7)	4 (5.1)
Cigar	13 (27.1)	3 (7.0)	16 (20.3)
<b>Favorite brand of cigarette</b>	<b>36</b>	<b>43</b>	<b>79</b>
Local	14 (38.9)	22 (51.2)	36 (45.6)
Foreign	22 (61.1)	21 (48.8)	43 (54.4)
<b>Number of cigarette</b>	<b>36</b>	<b>43</b>	<b>79</b>
< 3 cigarettes	16 (44.4)	21 (48.8)	37 (46.8)
3 – 5 cigarettes	12 (33.3)	18 (41.9)	30 (38.0)
> 5 cigarettes	8 (22.2)	4 (9.3)	12 (15.2)
Min - Max	1 – 20	1 – 10	1- 20
Median	3.00	3.00	3.00
<b>Regularity of smoking</b>	<b>36</b>	<b>43</b>	<b>79</b>
Regularly	9 (25.0)	3 (7.0)	12 (15.2)
Occasionally	27 (75.0)	40 (93.0)	67 (84.8)
<b>Place to smoke</b>	<b>36</b>	<b>43</b>	<b>79</b>
In toilet at home & at school	3 (8.4)	2 (4.7)	5 (6.3)
In coffee shop	20 (55.5)	36 (83.7)	56 (70.9)
Any place when craving to	13 (36.1)	5 (11.6)	18 (22.8.)
<b>Cigarette expense; VND/day</b>	<b>36</b>	<b>43</b>	<b>79</b>
< 3,000	10 (27.8)	19 (45.2)	29 (37.2)
3,000 - 4,000	16 (44.4)	19 (45.2)	35 (44.9)
> 4,000	10 (27.8)	5 (9.5)	15 (17.9)
Min - Max	500 – 20,000	500 – 10,000	500 – 20,000
Median	2,000	2,000	2,000

\* Multiple answers

#### 4.4.3 Quit of smoking

Table 19 demonstrated how the students responded on the question as the reason of quit smoking from different sources. The majority of students (83.3%) who smoked provided the reason of quitting smoking by individual perception. This reason was found to be same prevalence in both urban and rural school students. Nearly one third of those who smoked mentioned other reason of quitting as having their health problems and being advised by friends (27.8%).

##### **Attempted to quit smoking**

More than 78.5% of students had attempted to quit smoking. The number of quitting smoking ranged from 1 to 10, with median of 2 attempts. However, the proportion of students who were not tried to quit smoking was found to be 20.3 percent.

As far as belief to quit smoking of students was found to be high (87.6%) as well as 81.2 percent of them were confident that they would be never smoke .

#### 4.5 Health status of school students: stress and coping strategies

This part referred to causes of stress such as sleeplessness, lose of concentration, and stress.

Table 20 revealed that most students declared that they sometime got stress, sleepless and losing concentration. The majority (75.8%) of students said that they have got stress due to school performing related to excessive homework, or low grade point average, or intensive session at school. The relationship to beloved persons (family, girl friend, peer) was indicated to be nearly sixty percent (57.8%). Only 18.3 percent of stress was caused by personal demand in getting a job.

**Table 19** self-efficacy about quit smoking of students in urban and rural schools

Characteristics	Urban school	Rural school	Total
	n (%)	n (%)	n (%)
<b>Reason of quit smoking by *</b>	<b>12</b>	<b>6</b>	<b>18</b>
Friend	4 (33.3)	1 (16.7)	5 (27.8)
Family	2 (16.7)	1 (16.7)	2 (16.7)
Health problem	3 (25.0)	2 (33.3)	5 (27.8)
Teacher	1 (8.3)	2 (33.3)	3 (16.7)
Health personnel		1 (16.7)	1 (5.6)
Television, Radio		2 (33.3)	2 (11.1)
Myself	10 (83.3)	5 (83.3)	15 (83.3)
<b>Attempted to quit smoking</b>	<b>36</b>	<b>43</b>	<b>79</b>
Yes	25 (69.4)	37 (86.0)	62 (78.5)
No	11 (30.6)	6 (14.0)	17 (21.5)
<b>Number of quitting smoking</b>	<b>36</b>	<b>43</b>	<b>79</b>
Not try to quit smoking	10 (27.8)	6 (14.0)	16 (20.3)
Less than 2	16 (44.4)	23 (52.5)	39 (49.4)
More than 2	10 (27.8)	14 (32.6)	24 (30.4)
Min - Max	0- 10	0 – 10	0 – 10
Median	1.00	1.00	2.00
<b>Belief to quit smoking</b>	<b>48</b>	<b>49</b>	<b>97</b>
Yes	42 (87.5)	43 (87.8)	85 (87.6)
No	6 (12.5)	6 (12.2)	12 (12.4)
<b>Confident for never smoke</b>	<b>135</b>	<b>131</b>	<b>266</b>
Yes	111 (82.2)	105 (80.2)	216 (81.2)
No	24 (17.8)	26 (19.8)	50 (18.8)

\* Multiple answers

**Table 20** Health status of school students

Characteristics	Urban school	Rural school	Total
	n (%)	n (%)	n (%)
<b>Sleepless</b>	<b>182</b>	<b>181</b>	<b>363</b>
Sometimes	134 (73.6)	21 (11.6)	272 (74.9)
Often	12 (6.6)	138 (76.2)	34 (9.4)
Never	36 (19.8)	22 (12.2)	57 (15.7)
<b>Losing concentration</b>			
Sometimes	135 (74.2)	145 (80.1)	280 (77.1)
Often	26 (14.3)	17 (9.4)	43 (11.8)
Never	21 (11.5)	19 (10.5)	40 (11.0)
<b>Getting stress</b>	<b>141</b>	<b>148</b>	<b>289</b>
Sometimes	129 (91.5)	122 (82.4)	251 (86.9)
Often	12 (8.5)	26 (17.6)	38 (13.4)
Never	41 (22.5)	33 (18.2)	74 (20.4)
<b>Causes of stress *</b>			
School performance	100 (70.9)	119 (80.4)	219 (75.8)
Relationship to beloved persons	84 (59.6)	83 (56.1)	167 (57.8)
Personal demand in getting a job	22 (15.6)	31 (20.9)	53 (18.3)
<b>Relieve stress *</b>			
Drinking alcohol	13 (9.2)	11 (7.4)	24 (8.3)
Smoking	12 (8.5)	16 (10.8)	28 (9.7)
Playing computer games	65 (46.1)	42 (28.4)	107 (37.0)
Relaxing, physical exercise	92 (65.2)	94 (63.5)	186 (64.4)
Chatting through internet	38 (27.0)	33 (22.3)	71 (24.6)
Entertainment	47 (33.3)	76 (51.4)	123 (42.6)
<b>Ever been absent from school</b>	<b>182</b>	<b>181</b>	<b>363</b>
Yes	62 (34.1)	97 (53.6)	159 (43.8)
<b>Number of days of absenteeism</b>	<b>62</b>	<b>97</b>	<b>159</b>
1 -2 days	46 (74.2)	57 (58.8)	103 (64.8)
3 – 5 days	12 (19.4)	31 (32.0)	43 (27.0)
> 5 days	4 (6.5)	9 (9.3)	13 (8.2)
Min - Max, Median	1 – 20, 2.00	1 – 20, 2.00	1-20, 2.00

\* Multiple answers

When asking students about how to relieve stress, more than sixty percent (64.4%) of them relieved stress by relaxing or physical exercise, less than half (42.6%) would have entertainments as watching television, dancing or karaoke. However, it was also demonstrated that there were 18 percent of students reduced stress by smoking and drinking alcohol combined.

### **Absenteeism from school**

Less than half (43.8%) of students reported that they have been absent from school. Those who were absent from urban school were found to be higher in rural school (rural school = 53.6%, urban school = 34.1%). About 64.8% of students were absent less than 2 days. The percentage of students who were absent from school was found to be higher among urban school (urban school= 74.2%, rural school = 58.8%). More than 3 days of absenteeism was observed to be higher among rural school students.

## **4.6 Factors contributing to students' smoking behavior**

### **4.6.1 Personal characteristics and smoking behavior**

#### **Smoking behavior and age of students**

By using Mann-Whitney test, there was no difference from age (years) between non-smokers and smokers ( $p=.735$ ).

#### **Smoking behavior by school performance**

The study found that the grade point average of smokers was lower than those of non- smokers. By using Student's T-test, it was showed that mean school performance among urban school students (Mean=6.3) was statistical significant higher than those of the rural school students (Mean=5.7),  $t_{(135.4)}=5.111$ ,  $p<.0001$  with medium effect size ( $d=.6$ ).

**Table 21** Smoking behaviors of students by school performance

Variables	Non-smokers n (%)	Smokers n (%)	T- test	p - value
<b>School performance</b>	<b>283</b>	<b>79</b>	$t_{(135.4)} = 5.111$	
Min - Max	4.2 – 9.0	4.0 – 8.0	d=.6 with medium	
Mean	6.3	5.7	effect size	< .0001

#### 4.6.2 Knowledge on smoking hazard and smoking behavior of students

The frequency distribution of score on knowledge was normal.

Using Student's T-test, it was found that mean value of non-smokers was 3.37 and was 3.23 for smokers,  $t_{(361)} = .714$ , and  $p = .476$ . Table 22 showed that there was no statistical significant difference in the knowledge on smoking hazards between smokers and non- smokers.

**Table 22** Smoking behaviors of students by personal factors (cont.)

Variables	Non-smokers n (%)	Smokers n (%)	T- test	p - value
<b>Knowledge on smoking hazards</b>	<b>283</b>	<b>79</b>		
Min - Max	0 – 8	0 – 8	$t_{(361)} = .714$	.476
Mean	3.37	3.23		
<b>Correct perception toward smoking</b>	<b>283</b>	<b>79</b>	$t_{(361)} = 6.679$	
Min – Max	21 – 48	25 – 45	d=.82 with large effect size	< .0001
Mean	40.0	36.77		

### 4.6.3 Perception of students toward smoking

The frequency distribution of perception score was normal.

Using Student T-test, showed that mean perception of those non-smokers was 40.0 which was statistical significant higher than those who were smokers 36.77,  $t_{(361)} = 6.679$ , and  $p < .0001$  with large effect size ( $d = .82$ ). There was association between perception towards smoking and smoking behavior among the respondents.

### 4.6.4 Family factors and smoking behavior of students

#### Socio-economic characteristics of parents

There was no statistical significant association between socio-economic characteristics of student's parents and smoking behavior among the respondents (Table 23).

#### Family composition

Among student's smokers, the higher proportion of smokers was more prevalent among nuclear families as compared to those who belonged to extended families in both urban and rural school students. There was no statistical significant difference between student's smoking behavior and family composition in both urban and rural schools

Table 24 showed that, there was a statistically significant higher proportion of smokers with family members who smoked (93.0% vs. 79.7%,  $\chi^2 = 4.094$ ,  $p = .043$  among rural school students.

**Table 23** Smoking behavior of students and socio-economic characteristics of parents

Variables	Urban school			Rural school		
	Non-smokers	Smokers	$\chi^2$ , p-value	Non-smokers	Smokers	$\chi^2$ , p-value
	n (%)	n (%)		n (%)	n (%)	
<b>Father's education</b>	<b>145</b>	<b>36</b>		<b>138</b>	<b>43</b>	
Primary & illiterate	11 (7.6)	2 (5.6)	4.133, .247	44 (31.9)	14 (31.9)	2.738, .434
Secondary school	29 (20.0)	7 (19.4)		44 (31.9)	13 (28.6)	
High school	69 (47.6)	23 (63.9)		43 (31.2)	16 (38.1)	
College, University	36 (24.8)	4 (11.1)		7 (5.1)		
<b>Mother's education</b>	<b>4</b>	<b>36</b>		<b>38</b>	<b>43</b>	
Primary & illiterate	22 (15.3)	5 (13.9)	.916, .821	75 (54.3)	16 (37.2)	7.067, .070
Secondary school	50 (34.7)	11 (30.6)		47 (34.1)	17 (39.5)	
High school	46 (31.9)	11 (30.6)		14 (10.1)	10 (23.3)	
College, University	26 (18.1)	9 (25.0)		2 (1.4)		
<b>Father's occupation</b>	<b>145</b>	<b>36</b>		<b>37</b>	<b>43</b>	
Wage	6 (4.1)	2 (5.6)	1.001, .801	6 (4.4)	2 (4.8)	1.149, .765
Agriculture	26 (17.9)	5 (13.9)		97 (70.8)	27 (64.3)	
Business	31 (21.4)	10 (27.8)		20 (14.6)	9 (21.4)	
Government employee	82 (56.6)	19 (52.8)		14 (10.2)	5 (9.5)	
<b>Mother's occupation</b>	<b>145</b>	<b>36</b>		<b>38</b>	<b>43</b>	
Housewife	72 (49.7)	17 (47.2)	2.344, .673	43 (31.2)	15 (34.9)	2.600, .627
Wage	2 (1.4)			5 (3.6)	1 (2.3)	
Agriculture	12 (8.3)	1 (2.8)		71 (51.4)	18 (41.9)	
Business	27 (18.6)	8 (22.2)		18 (13.0)	9 (20.9)	
Government employee	32 (22.1)	10 (27.8)		1 (.7)		

**Table 24** Smoking behaviors of students and family factors

Variables	Urban school			Rural school		
	Non-smokers	Smokers	$\chi^2$ , p-value	Non-smokers	Smokers	$\chi^2$ , p-value
	n (%)	n (%)		n (%)	n (%)	
<b>Family composition</b>	<b>146</b>	<b>36</b>		<b>138</b>	<b>43</b>	
Nuclear family	106 (72.6)	24 (66.7)	.499, .480	110 (79.7)	33 (76.7)	.174, .677
Extended family	40 (27.4)	12 (33.3)		28 (20.3)	10 (23.3)	
<b>Smokers in family</b>	<b>146</b>	<b>36</b>		<b>138</b>	<b>43</b>	
Yes	109 (74.7)	30 (83.3)	1.205, .272	110 (79.7)	40 (93.0)	4.094, .043
No	37 (25.3)	6 (16.7)		28 (20.3)	3 (7.0)	

#### Family relationship

Table 25 showed that there was no statistical significant difference between “feeling of respondents on relationships among family members” among non-smokers and smokers in urban school. However, in rural school, the proportion of non-smokers who had strongly perceived about relationship among family members was higher than those of the smokers. This difference was statistically significant ( $\chi^2 = 8.047$ ,  $p = .005$ ).

Also, there was a statistical significant difference between “thinking of students about parents taking care them” among non-smokers and smokers. The majority of students who had good perception about their parents taking care of them were non-smokers in urban school as well as rural school. This difference was statistically significant ( $\chi^2 = 6.001$ ,  $p = .014$  and  $\chi^2 = 6.106$ ,  $p = .013$ , respectively).

**Table 25** Smoking behavior of students and family factors (cont.)

Variables	Urban school			Rural school		
	Non-smokers n (%)	Smokers n (%)	$\chi^2$ , p-value	Non-smokers n (%)	Smokers n (%)	$\chi^2$ , p-value
Feeling of student about relationships among family members.	<b>146</b>	<b>36</b>		<b>138</b>	<b>43</b>	
Fair	49 (33.6)	16 (44.4)	1.490, .222	28 (20.3)	18 (41.9)	8.047, .005
Good	97 (66.4)	20 (55.6)		110 (79.7)	25 (58.1)	
Thinking of student about parents take care them.	<b>146</b>	<b>36</b>		<b>138</b>	<b>43</b>	
Fair	35 (24.0)	16 (44.4)	6.001, .014	19 (13.8)	13 (30.2)	6.106, .013
Good	111 (76.0)	20 (55.6)		119 (86.2)	30 (69.8)	
Perception about family members getting along together.	<b>146</b>	<b>36</b>		<b>138</b>	<b>43</b>	
Fair	44 (30.1)	20 (55.6)	8.184, .004	40 (29.0)	17 (39.5)	1.691, .193
Good	102 (69.9)	16 (44.4)		98 (71.0)	26 (60.5)	
Considering whether student is an obedient son.	<b>146</b>	<b>36</b>		<b>138</b>	<b>43</b>	
Fair	93 (63.7)	33 (91.7)	10.605, .001	72 (52.2)	30 (69.8)	4.126, .042
Good	53 (36.3)	3 (8.3)		66 (47.8)	13 (30.2)	

Among urban students, the result showed that there was statistical significant difference perception about family members getting along together among non-smokers and smokers ( $\chi^2 = 8.184$ ,  $p=.004$ ). In rural students, there was no statistical significant difference between perception on family members getting along together among smokers and non-smokers.

There was statistically significant higher proportion of non-smokers considering themselves as good obedient son (36.3% vs. 8.3%,  $\chi^2 = 10.605$ ,  $p= .001$ ) among urban students. This was also found to be true with rural students (47.8% vs. 30.2%,  $\chi^2 = 4.126$ ,  $p= .042$  )

Finally, there were many statistical significant associations between family relationships and smoking behavior of students among urban and rural students.

#### **Parenting style**

Table 26 revealed that there was no statistical significant association between parenting style and smoking behavior among urban and rural students

#### **4.6.5 External factors and students' smoking behavior**

The reinforcing factors and smoking behavior of students in Table 27 showed that there was a statistical significant association between teacher smoking and smoking behavior among urban school students ( $\chi^2 = 4.325$ ,  $p= .038$ ). There was no difference between teacher smoking and students' smoking behavior.

In addition, there was statistical significant association between friends smoking and smoking behavior of students both in urban and rural schools. The proportion of smokers who had friend smoking found to be statistically significant higher in non- smokers among urban and rural students (urban school:  $\chi^2 = 15.710$ ,  $p< .0001$ ; rural school:  $\chi^2 = 8.108$ ,  $p< .004$ ).

**Table 26** Smoking behavior of students and family factors (cont.)

Parenting style	Urban school			Rural school		
	Non-smokers n (%)	Smokers n (%)	$\chi^2$ , p-value	Non-smokers n (%)	Smokers n (%)	$\chi^2$ , p-value
<b>Uninvolved</b> (Parents let respondents take care of myself most of the time)	<b>146</b>	<b>36</b>		<b>138</b>	<b>43</b>	
Agree	86 (58.9)	24 (66.7)	.728, .394	108 (78.3)	29 (67.4)	2.086, .149
Disagree	60 (41.1)	12 (33.3)		30 (21.7)	14 (32.6)	
<b>Indulgent</b> (Parents don't give orders but will respond to whatever respondents concern)	<b>146</b>	<b>36</b>		<b>38</b>	<b>43</b>	
Agree	105 (71.9)	22 (61.1)	1.599, .206	90 (65.2)	22 (51.2)	2.745, .098
Disagree	41 (28.1)	14 (38.9)		48 (34.8)	21 (48.8)	
<b>Authoritative</b> (Parents who give respondents for rules and decisions that involve them)	<b>146</b>	<b>36</b>		<b>138</b>	<b>43</b>	
Agree	32 (21.9)	10 (27.8)	.559, .455	33 (23.9)	11 (25.6)	.050, .824
Disagree	114 (78.1)	26 (72.2)		105 (76.1)	32 (74.4)	
<b>Authoritarian</b> (Parents like to give orders and use their power to make respondents obedient)	<b>146</b>	<b>36</b>		<b>138</b>	<b>43</b>	
Agree	108 (74.0)	26 (72.2)	.046, .831	93 (67.4)	31 (72.1)	.336, .562
Disagree	38 (26.0)	10 (27.8)		45 (32.6)	12 (27.9)	

**Table 27** Student's smoking behavior and external factors

Variables	Urban school			Rural school		
	Non-smokers	Smokers	$\chi^2$ , p-value	Non-smokers	Smokers	$\chi^2$ , p-value
	n (%)	n (%)		n (%)	n (%)	
<b>Smoking teacher</b>	<b>146</b>	<b>36</b>		<b>137</b>	<b>43</b>	
Yes	130 (89.0)	36 (100)	4.325, .038	127 (92.7)	42 (97.7)	1.411, .235
No	16 (11.0)			10 (7.3)	1 (2.3)	
<b>Smoking friends</b>	<b>146</b>	<b>36</b>		<b>137</b>	<b>43</b>	
Yes	77 (52.7)	32 (88.9)	15.710, <.0001	75 (54.7)	34 (79.1)	8.108, .004
No	69 (47.3)	4 (11.1)		62 (45.3)	9 (20.9)	

#### 4.6.6 Lifestyle and smoking behavior of students

Regarding the home activities in Table 28, there was a statistical significant association between home activities and smoking behaviors of students in both urban and rural schools. In urban school, the proportion of non-smokers participated in these activities found to be higher than among smokers (54.1% vs. 19.4%). In rural school, there was statistical significant difference 87.0% and 72.1%, respectively.

( $\chi^2$ (urban school) = 13.923,  $p < .0001$ ) ( $\chi^2$  (rural school) = 5.238,  $p = .022$ ).

No other statistical significant association was found between student's smoking behaviors among community activities, or school activities, or entertainment activities.

**Table 28** Lifestyle and smoking behavior of students

Variables	Urban school			Rural school		
	Non-smokers n (%)	Smokers n (%)	$\chi^2$ , p-value	Non-smokers n (%)	Smokers n (%)	$\chi^2$ , p-value
<b>Community activities</b>	<b>146</b>	<b>36</b>		<b>138</b>	<b>43</b>	
Participated	62 (42.5)	11 (30.6)	1.705, .192	70 (50.7)	19 (44.2)	.561, .454
Not participated	84 (57.5)	25 (69.4)		68 (49.3)	24 (55.8)	
<b>School activities</b>	<b>146</b>	<b>36</b>		<b>138</b>	<b>43</b>	
Participated	117 (80.1)	23 (63.9)	4.295, .038	114 (82.6)	35 (81.4)	.033, .855
Not participated	29 (19.9)	13 (36.1)		24 (17.4)	8 (18.6)	
<b>Home activities</b>	<b>146</b>	<b>36</b>		<b>138</b>	<b>43</b>	
Participated	79 (54.1)	7 (19.4)	13.923, <.0001	120 (87.0)	31 (72.1)	5.238, .022
Not participated	67 (45.9)	29 (80.6)		18 (13.0)	12 (27.9)	
<b>Entertainments</b>	<b>146</b>	<b>36</b>		<b>138</b>	<b>43</b>	
Participated	125 (85.6)	33 (91.7)	.923, .337	97 (70.3)	32 (74.4)	.273, .601
Not participated	21 (14.4)	3 (8.3)		41 (29.7)	11 (25.6)	

#### 4.6.7 Health status of school students and smoking behavior

From Table 29, there was a statistical significant association between getting stress and student's smoking status among urban school ( $\chi^2 = 3.920$ ,  $p = .048$ ). For rural school, no significant difference association was found between getting stress and smoking behaviors of students. Also, there was statistical significant difference between school performance and smoking behavior among urban school students ( $\chi^2 = 5.100$ ,  $p = .024$ ).

There was a statistically significant higher proportion of smokers drinking alcohol (32.1% vs. 3.5%,  $\chi^2 = 21.934$ ,  $p < .0001$ ) among urban school. This was also found to be so (15.4 % vs. 4.6%,  $\chi^2 = 4.867$ ,  $p = .027$ ) with rural students.

**Table 29** Stress and smoking behavior of students

Variables	Urban school			Rural school		
	Non-smokers n (%)	Smokers n (%)	$\chi^2$ , p-value	Non-smokers n (%)	Smokers n (%)	$\chi^2$ , p-value
<b>Getting stress</b>	<b>113</b>	<b>28</b>		<b>109</b>	<b>39</b>	
Sometime	106 (93.8)	23 (82.1)	3.920, .048	93 (85.3)	29 (74.4)	2.383, .123
Often	7 (6.2)	5 (17.9)		16 (14.7)	10 (25.6)	
<b>Causes of stress</b>	<b>113</b>	<b>28</b>		<b>109</b>	<b>39</b>	
School performing related	85 (75.2)	15 (53.6)	5.100, .024	89 (81.7)	30 (76.9)	.408, .523
Relationship to be beloved persons (family , friend)	64 (56.6)	20 (71.4)	2.039, .153	56 (51.4)	27 (69.2)	3.718, .054
Personal demand in getting a job	19 (16.8)	3 (10.7)	.634, .426	26 (23.9)	5 (12.8)	2.111, .146
<b>Relieve stress by</b>	<b>113</b>	<b>28</b>		<b>109</b>	<b>39</b>	
Drinking alcohol	4 (3.5)	9 (32.1)	21.934, <.0001	5 (4.6)	6 (15.4)	4.867, .027

## CHAPTER 5

### DISCUSSION

The purpose of this study was to identify factors related to smoking behavior among high school students. The finding of this study were discussed as the followings:

#### 5.1 General characteristics of high school students

There were differences between urban and rural students in this study on the basic characteristics of students such as age of student, parental educational attainment, family type, family relationships and lifestyle.

Regarding the age of students, the majority of students were in the standard age group for high school (16-18 years). Only 7.4% of students were older among rural school students, this can be due to low family income, difficult means of transportation as well as their capacity in knowledge building.

Most students in both urban and rural school were living with their parents during the semester. The findings showed that 70.2% of rural students perceived their family earned less than 1,700,000 VND. This was quite suitable for practical income status in rural area of Vietnam.

Fathers with higher educational background were more prevalent among urban school students as compared to the rural school. In addition, 50.3% of their mothers attained primary school among rural students. This was not surprising because almost half of father among rural students engaged in agricultural sector. It was quite similar to previous studies (35).

More than half (65.3%) of students participated in home activities. On the other hand, student's perception on parental concern indicated that (77.1%) their parents have taken care of them carefully. It showed that there was a good family relationship between parents and children.

## 5.2 Smoking status of students

**The prevalence of smoking** among male high school students in Cantho City as revealed in this study was 21.8% (percentage of current smokers). Among students, the prevalence of smoking in urban students was 19.8% and 23.8% in rural students. This figure was lower than it was found in Investigation of unhealthy behavior and risk factor by the Health Information and Education Center of HCM City, Vietnam to be 27.8% (31).

Another study conducted among Urban High School students in Multicultural showed that the overall prevalence of smoking among these students was 18%. Sixty percent or more Canadian, European, and West Indian students had smoked; as opposed to 34% of East Indian students and 37% of Asian students (11).

Although the figures above may be higher than what this study had found, the trend on smoking prevalence among students in Cantho City was declined probably as a result of the anti- smoking campaigns of the country. On the other hand, smoking status of students could be impacted by "Healthy Lung" club which was implemented in Cantho as well as smoking's rule and regulation existing in school aiming that 64.4% of students are not allowed to smoke (35).

The smoking prevalence of rural students was higher than urban students this might be due to tougher administrative authorities in urban school, or knowledge on smoking hazards, and perception towards smoking among urban students were more appropriate than those among rural students. On the other hand, rural students could be influenced more by advertisement on cigarette presented in Table 3.

**The average age at first start smoking** in this study was 15.23 years old. The youngest age started smoking was at 7 years and the oldest began smoking at the age of 19 years.

Previous studies revealed that most of young people started smoking before the age of 18 years in Western countries (19). The report of Health and Welfare Survey in 1996- Thailand indicated that the average age at first started of smoking among young males was less than 15 years (8). This conformed to the patterns observed here in this study, which accounted for 72.6% among urban students and 79.6% among rural students.

**Reason (s) why students started smoking**, more than fifty percent of ever-smokers declared that they initiated smoking because of curiosity and being persuaded by friends (15%). In Thailand, the National Survey showed that male youth smoked for fun (40%) or peer influenced (25%) (36).

The majority of smokers in this study indicated that they preferred foreign brand (54.4%) than the local brand cigarette (45.6%). A study by Supawonsee et al, in 1996 reported a higher preference to foreign brands existed among youths. Action for Tobacco and Health reported in 2002, that 70% of the young female smokers in Thailand preferred foreign brands of cigarette. This implied a rapidly increasing sale of foreign tobacco product due to a variety of marketing strategies.

The majority of smokers (46.8%) consumed less than three cigarettes per day. Only 15.2% of smokers were found to be regular smoking. There were six smokers who said that they smoked more than 10 cigarettes per day.

The WHO reported that in the year 1990 the average cigarette smoking per day was 14.2 cigarettes for Vietnam. Finding from a survey conducted on high school students in HCM City in 2002, concluded that cigarette consumption among students who smoked was found to be highest from one to 5 cigarettes per day (31).

This finding was consistent with findings of previous studies. It implied that the smokers found among high school male students in this study were not heavy smokers. It also indicated there would be a high chance of success, if an appropriate smoking cessation programs is to be implemented.

This study confirmed that more than 78 % of the smokers had tried to quit smoking, with an average number of two attempts contributed to 49.4% of those who smoked. This study was to explore the reason(s) why students quit smoking. Results indicated that most of influencing factor (83.3%) was individual perception. Although this factor was not studied further, it indicated that many smokers 87.6% wanted to qui smoking.

### **5.3 Factors contributing to smoking behavior among students**

#### **5.3.1 Personal characteristics**

There was no statistical significant difference between ages among smokers and non - smokers in this study. Also, there was no statistical significant association between school class and smoking behavior in both urban and rural school. A survey implemented in 2002, Health Information and Education Center of HCM City revealed that the prevalence of smoking between grade 10, 11 and 12 were equal, there was no a statistically significant difference among them (31).

According to the perception of the students, it was found that school performance of students was statistically significant different. Non-smokers had a better school performance as compared to smokers in this study. This was not different from the National Health Interview Survey in the United States. It was indicated that smoking affect school performance (37).

There was no statistical significant difference between the level of knowledge on smoking hazards and smoking behavior ( $p=.476$ ). B.M.C. Dassanayake reported no significant association could be found between the knowledge levels and student's

smoking status, although the percentage of ex-smokers and current smokers were low among those with a high level knowledge (8).

This finding was consistent with findings of previous studies. It has been noticed that health knowledge had less effect on habitual smoking (12). Concerning the findings of this study about knowledge on smoking hazards in the target population, we can conclude that health education on anti-smoking programs should be intensified in schools in order to successfully accomplish better results.

A statistical significant association was found between the student's smoking behavior and the perception towards smoking ( $p < .0001$ ). The finding of previous study found no statistical significant association between perception and smoking behavior (22). However, it could be confirmed from this results, that most students who did not smoke (73.3%), ex-smokers (5.0%), had strongly perception against smoking.

### **5.3.2 Family relationship**

According to the Chi-square analysis test, there was no statistical significant difference between the relationship of student's smoking behavior and parents' education and occupation. This finding was consistent with family life and smoking in adolescent by Anthony Gledinning et all in 1997.

According to family relationship and family support, this study revealed that the student's smoking behavior was statistically significantly associated with family relationship. Non-smokers in this study reported more strongly positive family relationships than smokers among urban and rural school students. (Table 24).

These previous studies by Rutter, 1993 reported that family were the most important social contexts that influence adolescent risk behavior (26). Also, Sohaila Shakib et all, 2004 identified that the quality of family relationships as the most important factor for smoking prevention program (38). So, youth with good family

relationship and family support, especially adequate communication with parents played a major role in preventing themselves from resorting to risky behaviors such as smoking.

There was no statistical significant association between parenting style and students' smoking behavior in this study. However, there was difference in perception of family support between smokers and non-smokers (Table 26). It is well known that family related factors are associated with young people's smoking behavior.

Anthony Glendinning et al found that smoking prevalence were raised where poorer perceptions of parental support were combined with less parental control (i.e. "uninvolved" home environment) (20)

### **5.3.3 Lifestyle and smoking behavior of students**

Regarding the home activities, there was a statistical significant association between home activities and smoking behaviors of students both in urban and rural schools. Non-smokers participated in this activity more positively than smokers among urban and rural school students (urban students:  $p < .0001$ , rural students:  $p = .022$ ).

Johnson et al found that leisure time such as physical activity, even when it was not vigorous, was positively related to not smoking. It is hypothesized that youth with a higher proportion of healthy lifestyle behavior and attitudes are more likely to be amenable to quitting than those youth with a lower proportion of healthy lifestyle attitudes and behaviors (39).

The findings of this study about home activities among the target population agreed with the findings of previous studies. It was suggested that students who reported they enjoyed in home activities in order to keep themselves health are more likely to avoid smoking.

### 5.3.4 Smoking models

#### Smoking in family

It was revealed over 64.9 % of students indicated that their father smoked regularly, 61.1% of them reported brother smoked regularly, and grandfathers were 76.4%. There was a statistically significant association between family members who smoked and smoking behavior among rural students ( $\chi^2 = 4.094$ ,  $p = .043$ ).

Sohaila Shakib, 2004, found that adolescents with parents who smoked were more susceptible to smoking (38). Lynn Michell, 1990, found that nearly five times as many young people who admitted smoking regularly came from households where nobody smoked. This finding was consistent with findings of previous studies.

#### Smoking outside the family

Smokers mentioned that they had friends who smoked among urban and rural school students (88.9%, 79.1%, respectively). This indicated that smoking behavior of students according to this study was a statistically significant association with peer friends who smoked. Neistein SL found that the influence of friends who smoked was significant for both the initiation and the maintenance of adolescent smoking behavior (24). This agreed with what observed among United States adolescents by Center for Disease Control and Prevention's (23).

Ashton and Robstoney revealed that the greatest influence in starting smoking comes from friends of similar age.

In this study showed that students who were smokers had continued to indulge with this smoking behavior. Less than half (49.5%) of students mentioned that they had continued to smoke for fun, 41.8% of students continued because of getting new friends easily and very few students continued to relieve stress, or felt lonely. It was evident from the study that peer pressure is a powerful influential factor on the smoking behavior among the students.

In this study, the proportion of smoking teacher was 92.5% both in urban and rural school. It was perceived that, in such atmosphere where the largest of students had teachers who smoked, students could be imitated their teacher's smoking behavior, even though only 3.4% of students purchased cigarette for their teachers.

Generally, family members, teachers, or peer who smoked influenced the student's smoking behavior. This results also supported by the researchers (39).

On the financial accessibility to purchase a cigarette, more than eighty percent (84.8%) of students were occasional smokers and (15.2%) of students were regular smokers. About 74.7% of students admitted that the cost of cigarette per pack smoke was not cheap and 44.9% mentioned using an average amount of 3,000 to 4,000 VND on their favorite cigarettes. Therefore, if the cost of cigarette per pack was raised then it could be influenced by the prevalence of smoking and smoking behavior of students who were smokers.

The study also revealed that the availability of a cigarette pack smoked according to how students responded to questionnaire, most students (80.3%) purchased cigarettes from local shops at home. For those who did not buy their cigarette, more than half of students have got cigarette from friends at school as well as from home (67.1%, 30.4% respectively).

The question asked on whether a cigarette was easy to buy, most students answered yes (94.8%). Cigarette smoke was so widely distributed that one could almost get it anywhere once looked for it.

These findings indicated that the availability of a cigarette in terms of source and distribution, hypothetically could influence smoking behaviors among students. Therefore, if the source and distribution of a cigarette smoke were reduced, smoking among students could be declined if restricted, for example sales on smoking applied in local shops.

Regarding the student's health status, it was reported that 79.6% of students who have got stress, and (8.3%) of them relieved stress by drinking alcohol. There

were a statistically significant higher proportion of smokers by drinking alcohol (32.1% vs. 3.5%,  $\chi^2 = 21.934$ ,  $p < .0001$ ) among urban school. This was also found to be so (15.4 % vs. 4.6%,  $\chi^2 = 4.867$ ,  $p = .027$ ) with rural students.

This was not different from the previous studied. Barbara et al found the association between cigarette smoking and drinking alcohol (5).

Finally to summarize from the results obtained in this study, the independent variables were found to be a statistical significant association with smoking behavior among urban and rural school students including perception towards smoking, school performance, family relationships, smoking models in family, or outside the family, lifestyle. Thus, these factors can be used to design and implement effectively anti-smoking campaigns that are desired to change student's behavior, and reducing of smoking among students.

#### **5.4 Limitation of the study**

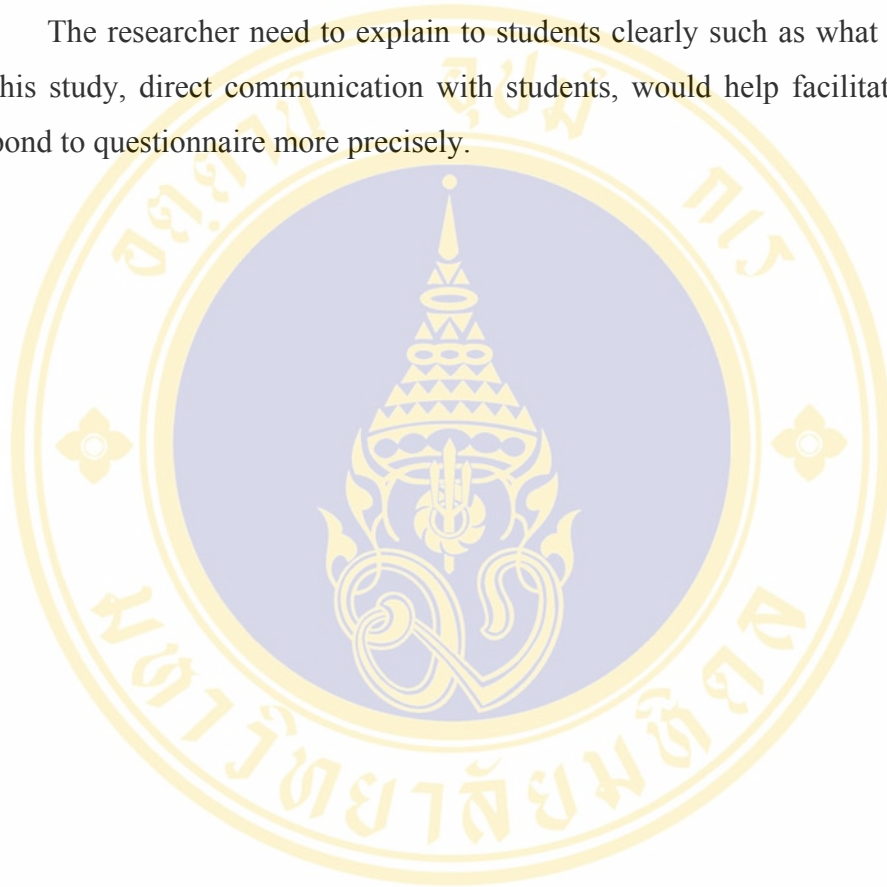
This study was carried out as a cross-sectional study. A self-administered questionnaire was used for data collection. Pre-testing of questionnaire was conducted in Cantho City and it was revised. However, several limitations were still there in this study:

This study was carried out between two schools of all 22 schools in Cantho City. The target group was purposively selected among urban and rural school students. It may not be representative of population of student's in Vietnam.

There were some open questions, which was based on the memory of students. Therefore, some recall bias could occur such as student didn't remember exactly about the family income, or how many time they were absent from school. Issue on knowledge of smoking hazards might be addressed in questionnaire too professionally oriented for high school students level to respond accurately.

The study only assessed students' perception of family characteristics. Those perceptions might not accurately reflect characteristics from other family members such as parents' perspective. Future study should exam both students and other family members' perspective of these characteristics.

The researcher need to explain to students clearly such as what was the aims of this study, direct communication with students, would help facilitate students to respond to questionnaire more precisely.



## CHAPTER 6

### CONCLUSION AND RECOMMENDATION

#### 6.1 Conclusion

A cross-sectional study was conducted at two high schools in Cantho City, Vietnam in order to determine the factors related to smoking behavior among high school students. A self-administered questionnaire of semi-coded was used for data collection. The study sample size included 363 male high school students. Based on the findings of this study, the following conclusion was drawn:

The prevalence of smoking was 21.8% in this population (urban students=19.8%, rural students=23.8%). Almost students started smoking at the age of 15.23 years.

The main reason to start smoking was curiosity and influencing by friends.

In term of factors related to family and friend's factors, more than half of the respondents had smokers in families or smoking friends. Smokers who had smoking friends were found to be 88.9% in urban school and 79.1% in rural school. Seventy percent of the smokers have received cigarettes from friends. All these observation were supportive evidences as peer pressure to determine smoking behavior of youths. In turn, the influence of peer can be effectively utilized in specific smoking cessation programs and other tobacco control activities.

According to the finding of this study, knowledge on smoking hazards of students did not have a significant association between smokers and non-smokers, but there was a significant difference of knowledge on smoking hazards between urban and rural school students. Also, the student's perception towards smoking had a significant association with their smoking behavior. It was noted that non-smokers had strongly positive perception towards smoking. This could possibly be due to

educational inputs and mass media influencing on tobacco control, to which the students have been exposed.

Therefore, increasing the knowledge of students through health education and promotion programs on smoking at schools, it could lead to a significant reduction in the cigarette smoking among students.

The socio-economic characteristic of parents are contributing factors to smoking behavior among students but did not prove to have any significant relationships. However, there was a statistical significant different between parents' education among urban and rural school students.

It was found in this study that teacher smoked 92.5%.

This study can be concluded that family, teacher, peer and other member of society play an important role in establishing and modifying individual's behavior pattern; peer pressure is often seen to be a barrier to change in health behavior.

Another factor related to of smoking behavior in this study was the lifestyle.

Regarding the home activities, there was a statistical significant difference between home activities and smoking behavior of students in both urban and rural students. More than half to 87.0% of non-smokers participated in these activities in urban and rural schools respectively.

Concerning the health status of students, there was a statistical significant difference between stress and smoking behavior of students in both urban and rural schools. Student's relieved stress by drinking alcohol as well as smoking.

Almost half of smokers preferred foreign brand cigarettes. This indicated a trend of lifestyle among youths, as well as the effects of marketing strategies of the foreign tobacco companies in the country.

About 46.8% of smokers consumed less than 3 cigarettes per day. It was shown that most students were not heavy smokers. In addition, more than seventy percent (78.5%) of smokers had attempted to quit smoking, with an average of two attempts.

As for the availability of cigarettes, it was found that most students (80.3%) purchased cigarettes from local shops, and were convenient to get access to buying cigarette from family members or friends at school or at home.

As for the accessibility of cigarettes, the study was able to describe the cost of a cigarette as not being cheap for students, so that if the price of a cigarette was raised, by increasing the tax demands on its sale, smoking behavior among students can be expected to decline.

Generally, this study had provided several statistical significant findings pertaining to smoking behavior among students.

## **6.2 Recommendation**

### **6.2.1 Family**

Family members play a more important part often throughout life. Children learn much of their early behavior from parents and grandparents.

- Parents or family members should not smoke in front of the children.
- Should not request children to buy cigarette.
- Parents and teachers should form a forum that meet on a set interval of three month, to discuss issues relating to topics such as how to prevent smoking among students.
- Stress reduction and relaxation program as exercise, yoga, music and massage should be implemented to attract students or children to participate instead of shifting toward smoking as a habit to relieve stress.

### 6.2.2 School

The School Management team should strictly consider the current school regulations on cigarette smoking among students.

- Teacher should be discouraged to smoke at school as good models for students as well as preservation of their own health.
- Teacher should not smoke at least in front of students.
- Teacher should be more vigilant of the smoking behavior among students, exerting more severe disciplinary actions on students.
- Involvement of non-smoking peer group should be included in school anti-smoking programs.

### 6.2.3 National

National health education programs on the health effects of smoking should be integrated in the school curriculum. Nicotine dependence and hazardous substance of cigarette need to be emphasized to discourage students trying on and to continue smoking.

Health promotion should be included establishing a tobacco-free environment at the school and in community in order to prevent students from smoking, or children from taking up smoking and or becoming new smokers.

Health promotion programs should also be included activities to improve appropriate perception, life skills that are essential for them to refrain from risky behaviors such as smoking. Health promotion on anti-smoking campaigns through mass media is also recommended.

#### Legislation

It is necessary to review the status of law enforcement involving sale of tobacco products to underage youths, smoking in the public places, and educational institution.

It is known that smoking is a behavior, which is difficult to give up, that is the reason why apart from health education, smoking cessation programs aiming at individual behavior change is highly recommended.

#### **6.2.4 Recommendation for further study**

A qualitative research should be conducted on the smokers group to further explore reason for being smokers, and how to quit from cigarette smoking, etc.

Study of smoking behavior and contributing factors among secondary school students should be conducted, in order to facilitate an appropriate early intervention.

The smoking behavior and related factors among female high school students should also be studied, since the number of female smokers is rapidly increasing in most of the Asian countries.

## REFERENCES

1. An international treaty for tobacco control. [Online].2003 12 August, Available from:<http://www.who.int/features/2003/08/en> [ Assessed: 2004 August 10]
2. The World Health Organization says that tobacco is bad economics all around. Printable version. 31 May 2004. Available from:  
<http://www.who.int/entity/mediacentre/news/releases/2004/pr36/en>  
[Assessed: 2004 August 10]
3. Tobacco in the developing world: action on smoking and health. Fact sheet. [Online]. 2004; No. 21. Available from:  
<http://www.ash.org.uk/html/factsheets> [Assessed: 2004 August 16].
4. Tobacco free initiative issues. [Online]. Available from:  
<http://www.who.int/dpf/ran55/10-TFI.pdf> [Assessed: 2004 August 18]
5. Ketkeo B. Smoking prevalence and its correlates on smoking behavior among male secondary school children in Vientian Municipality, Lao PDR [M.P.H.M. Thesis in Primary Health Care Management]. Nakhon Pathom: Faculty of Graduate Studies, Mahidol University; 1999.
6. Morrow M, Ngoc D H, Hoang T T , Trinh T H . Smoking and young women in Vietnam. Soc Sci Med 2002; 55: 681-90.
7. Harrell JS, et al. Smoking initiation in youth. the roles of gender, race, socioeconomics and developmental status. J Adolescent Health 1998; 23: 271-79.
8. Dassanayake BMC. Factors related to smoking status among first year male in Mahidol University Salay Ampus Thailand [M.P.H.M. Thesis in Primary Health care Management]. Faculty of Graduate Studies, Mahidol University; 2003.
9. Thailand smoking prevalence tobacco economy. [Online]. Available from:  
<http://w3.whosea.org/EN/section1174/section1462/pdfs/surv/Thailand.pdf>  
[Assessed: 2004 August 20].

10. Annette M. David, WHO, Tobacco free initiative, Western Pacific Regional Office [Online]. Available from:  
[http://www.who.int/tobacco/global\\_data/country\\_profiles/en/WPRO\\_summary.pdf](http://www.who.int/tobacco/global_data/country_profiles/en/WPRO_summary.pdf)  
[ Assessed: 2004 August 23]
11. Philippa H, et al. Cigarette smoking in multicultural, urban high school students. *J Adolesc Health* 2000; 27: 281-88.
12. Vietnam tough market for foreigner. *Tobacco Journal Current Issue Vietnam*. [Online]. [issue TJI 5/04] Country special. Available from:  
<http://www.tobaccojournal.com/show-artikel.php>  
[Accessed : 2004 August 26].
13. Bawazeer AA, Hattab AS, Morales E. First cigarette smoking experience among secondary school students in Aden. Republic of Yemen. *Eastern Mediterranean Health Journal*. [Online] 1999; 5(3): 440-49.  
Available from:<http://www.emro.who.int/publications/EMMJ/0503/02.htm>  
[Accessed: 2004 September 5].
14. Zeena Harakeh et al- Parental Factors and adolescents' smoking behavior. *Preventive Medicine*, Volume 39, Issue 5, Nov 2004, pages 951-961.
15. Cheryl A, et al. Schools and adolescent cigarette smoking. *J Adolesc Health* 2001; 29: 22-30.
16. Gochman DS. *Handbook of health behavior research I. personal and social determinants*. New York: Plenum Press; 1997.
17. World Health Organization Western Pacific Vietnam –Global status report VN1997 Smoking prevalence Tobacco economy Available from:  
[http://www/who.int/entity/tobacco/media/en/Viet\\_nam.pdf](http://www/who.int/entity/tobacco/media/en/Viet_nam.pdf)
18. Source Vietnam News Agency 2004-03-26.
19. Mira B. Aghi. Paper Women, Children and Tobacco. The WHO International conference on Global tobacco control Law: Towards a WHO framework convention on tobacco control, 7 to 9 January 2000, New Delhi, India.
20. Gledinning A, Smith JS, Hendry L. Family life and smoking in adolescence. *Soc Scio Med* 1997; 44(1): 93 –101.

21. Griesbach D, Amos A, Currie C. Adolescent smoking and family structure in Europe. *Soc Scio Med* 2003; 56:41-52.
22. Jason TS, et al. Perception of the At-risk Nonsmoker: Are potential Intervention Topics Being Overlooked. *J Adolescent Health* 2003; 33: 458-61.
23. Center for Disease Control and Prevention's. Accessibility of tobacco products to youths aged 12-17 years- United State, 1989 and 1993 Available from:[http:// www.cdc.gov/tobacco/research\\_data/youth/mmwr296.htm](http://www.cdc.gov/tobacco/research_data/youth/mmwr296.htm) [Accessed: 2004 September 8]
24. Neistein SL, editor. Adolescent health care. a practical guide. 4<sup>th</sup> ed. Philadelphia: Lippincott Williams & Wilkins; 2002.
25. Morton BS, et al. Psychosocial, school and parent factors: associated with recent smoking among early adolescent boys and girls. *Prev Med*. [Online]. 1999; 28: 138-48. Available from: <http://www.idealibrary.com>. [Accessed: 2004 September 10].
26. Faucher MA. Factors that influence smoking in adolescent girls. *J Midwifery Womens Health*. [Online]. 2003;48(3): 199-204 Available from: <http://www.jmwh.org> [Accessed: 2004 September 10].
27. Clark DB, Cornelius J. Childhood psychopathology and adolescent cigarette smoking: a prospective survival analysis in children at high risk or substance use disorders. *Addict Behav*. [Online]. 2004; 29: 837-41. Available from: [http:// www.sciencedirect.com](http://www.sciencedirect.com) [Accessed: 2004 September 15].
28. Endy A.W.den Exter Blokland, M.A et al. Lifetime parental smoking history and cessation and early adolescent smoking behavior. *Preventive Med*. [Online]. 2004; 38; 359-68. Available from: [http:// www.sciencedirect.com](http://www.sciencedirect.com) [Accessed: 2004 September 16].
29. Vitaro, F, et al. Differential contribution of parents and friends to smoking trajectories during adolescence. *Addict Behav* [Online]. 2004; 29: 831-35. Available from: [http:// www.sciencedirect.com](http://www.sciencedirect.com) [Accessed: 2004 Sept].
30. Engels RCME, Vitaro F, Blokland EDE, Kemp R de, Scholte RHJ. Influence and selection processes in friendships and adolescent smoking behaviour: the

- role of parental smoking. *J Adolesc.* [Online]. 2004 Oct; 27(5): 531-44.  
Available from: [http:// www.sciencedirect.com](http://www.sciencedirect.com) [Accessed: 2004 Sept 18]
31. Truong Trong Hoang, Bui Cong Thanh, Le Thoai Quyen, Do Hong Ngoc. Investigation of unhealthy behavior and risk factors/ protective factors among senior high school students in urban area of HoChiMinh city in 2002. “Disseminate new Materials on Adolescent Health” Workshop, January 2003, Hanoi, Vietnam.
32. Johnson CC, Myers L, Webber LS, Boris NW. Profiles of the adolescent smoker. *Prev Med.* [Online]. 2004; 39: 551-58. Available from: [http:// www.sciencedirect.com](http://www.sciencedirect.com) [Accessed: 2004 Sept 20].
33. Coogan PF, et al. Factors associated with smoking among children and adolescents in Connecticut. *Am J Prev Med.* 1998;15(1): 17-24.
34. Taylor JE, et al. Saturation of tobacco smoking models and risk of alcohol and tobacco use among adolescents, The University of Missouri-Kansa city, Missouri. *J Adoles Health* 2004; 35:190-96.
35. Le Thanh Tai et al The Epidemiology feagures of high school pupils’ smoking in Cantho City and effect of empower education in 2002, page 104-10.
36. National statistics office. Report of the Health and Welfare survey,1996. Office of the Prime Minister, Thailand, 1996.
37. United State Department of Health and Human services. The Health Consequences of Involuntary Smoking, a report of the Surgeon General U.S. Department of Health and Human Services, Marylan, 1986: 106-107
38. Sohaila Shakib, et al. Family characteristics and smoking among urban and rural adolescents living in China. *Preventive Med.* XX(2004)XXX-XXX. Available from: <http://www.sciencedirect.com>. [Accessed: 2005 March 7]
39. K.John Fisher, Warren R. Santon and John B. Lowe. Healthy Nehaviors, Lifestyle, and Reason for quitting smoking among out –of-school youth. *Journal of Adolescent Health* 1999;25:290-297



**Figure 5 Two schools for data collection**



**Thoi Lai High School, Codo District, Cantho City**



**Bui Huu Nghia High School, Binh Thuy District, Cantho City**

ID\_\_\_\_\_

**QUESTIONNAIRE**  
**SMOKING BEHAVIOR AMONG HIGH SCHOOL STUDENTS**  
**IN CANTHO CITY, VIETNAM**

Objective: This questionnaire is used to collect data about smoking behavior among high school students in Cantho City, Vietnam.

Introduction:

Please answer the following questions, or mark the appropriate space with an X. Kindly completes all questions honestly as your answer will be confidential and anonymous.

Date of Birth (day/month/year): \_\_\_\_ / \_\_\_\_ / \_\_\_\_      Age: \_\_\_\_ years  
 Grade of student:     Grade 10     Grade 11     Grade 12  
 Name of School: ..... Town..... District.....  
 Date of data collection (day/month/year):    /    /

**Part I: Basic characteristics of student**

1. What is your religion?

- 0  Ancestor worship                      2  Christian  
 1  Buddhism                                       Others (specify).....

2. During school semester, what type of your accommodation?

- 1  owned house with parents              4  rental house/ apartment  
 2  living in relative's house               others (specify).....  
 3  school dormitory

3. If live with the family, who are they? ( more than one answer)

- father 0 [ ] no      1 [ ] yes
- mother 0 [ ] no      1 [ ] yes
- sister 0 [ ] no      1 [ ] yes
- brother 0 [ ] no      1 [ ] yes
- female siblings (grandmother, aunt) 0 [ ] no      1 [ ] yes
- male siblings (grandfather, uncle) 0 [ ] no      1 [ ] yes
- alone 0 [ ] no      1 [ ] yes
- others (specify).....

4. What is your father's education?

- 0 [ ] illiterate 3 [ ] high school
- 1 [ ] primary school 4 [ ] college
- 2 [ ] secondary school 5 [ ] University

5. What is your father's occupation?

- 0 [ ] unemployed 4 [ ] teacher
- 1 [ ] laborer 5 [ ] doctor
- 2 [ ] farmer 6 [ ] government officer
- 3 [ ] businessman [ ] others (specify) .....

6. What is your mother's education?

- 0 [ ] illiterate 3 [ ] high school
- 1 [ ] primary school 4 [ ] college
- 2 [ ] secondary school 5 [ ] University

7. What is your mother's occupation?

- 1 [ ] housewife 5 [ ] teacher
- 2 [ ] laborer 6 [ ] doctor
- 3 [ ] farmer 7 [ ] government officer
- 4 [ ] business [ ] other (specify):.....

8. Do you know your total family income per month?

- 0 [ ] no      1 [ ] yes    if yes, how much?.....VND

9. What is your average amount of financial support per month?

.....VND

- from parents / relatives 0 [ ] no      1 [ ] yes
- from part – time employment 0 [ ] no      1 [ ] yes
- from others (specify):.....

10. What is your final grade point of this semester in terms of school performance?

.....



22. Do you participate any voluntary actions in your community?

0  no                      1  yes

If yes, what are these activities? ( may select more than 1 answer)

- |   |  |
|---|--|
| 1 <input type="checkbox"/> youth association activities     | 4 <input type="checkbox"/> going to church     |
| 2 <input type="checkbox"/> environmental hygiene protection | <input type="checkbox"/> others (specify)..... |
| 3 <input type="checkbox"/> social welfare work              |  |

23. Do you work for income at the following period?

- weekday    0  no    1  yes    if yes, specify.....day/month
- weekend     0  no    1  yes    if yes, specify.....day/month

24. How often are you sleepless due to thinking or worry too much?

1  never                      2  sometimes                      3  often                      4  always

25. How often do you lose concentration?

1  never                      2  sometimes                      3  often                      4  always

26. Is there anytime that you have been unhappy or stressed?

0  no ( skip to question 28)                      1  yes

If yes, how often do you feel unhappy?

1  sometimes                      2  often                      3  always

and what causes you unhappy?

- |                                 |                               |                                |
|---------------------------------|-------------------------------|--------------------------------|
| • too much homework             | 0 <input type="checkbox"/> no | 1 <input type="checkbox"/> yes |
| • family conflict               | 0 <input type="checkbox"/> no | 1 <input type="checkbox"/> yes |
| • parental control              | 0 <input type="checkbox"/> no | 1 <input type="checkbox"/> yes |
| • concern about getting a job   | 0 <input type="checkbox"/> no | 1 <input type="checkbox"/> yes |
| • being rejected by girl friend | 0 <input type="checkbox"/> no | 1 <input type="checkbox"/> yes |
| • others ( specify).....        |                               |                                |

27. When having stress, do you relieve stress by....?

- |  |                               |                                |
|--|-------------------------------|--------------------------------|
| • drinking alcohol                                 | 0 <input type="checkbox"/> no | 1 <input type="checkbox"/> yes |
| • smoking  | 0 <input type="checkbox"/> no | 1 <input type="checkbox"/> yes |
| • playing computer games                           | 0 <input type="checkbox"/> no | 1 <input type="checkbox"/> yes |
| • physical exercise                                | 0 <input type="checkbox"/> no | 1 <input type="checkbox"/> yes |
| • chatting through internet                        | 0 <input type="checkbox"/> no | 1 <input type="checkbox"/> yes |
| • entertainment (e.g. Karaoke,<br>dancing, cinema) | 0 <input type="checkbox"/> no | 1 <input type="checkbox"/> yes |
| • others ( specify) .....                          |                               |                                |

**Part 3: Knowledge toward cigarette smoking** ( choose only one answer)

28. What are the hazardous substances from cigarette burning?
- |                                  |                                  |
|----------------------------------|----------------------------------|
| 0 [ ] don't know                 | 3 [ ] morphine and codeine       |
| 1 [ ] nicotine and codeine       | 4 [ ] morphine & carbon monoxide |
| 2 [ ] nicotine & carbon monoxide |                                  |
29. What is the addictive substance in cigarette?
- |                       |                |
|-----------------------|----------------|
| 0 [ ] don't know      | 3 [ ] tar      |
| 1 [ ] nicotine        | 4 [ ] caffeine |
| 2 [ ] carbon monoxide |                |
30. Which one has the highest death rate among smokers?
- |                              |                     |
|------------------------------|---------------------|
| 0 [ ] don't know             | 3 [ ] heart disease |
| 1 [ ] lung cancer            | 4 [ ] larynx cancer |
| 2 [ ] pulmonary Tuberculosis |                     |
31. Which disease does not occur by cigarette smoking?
- |                        |                    |
|------------------------|--------------------|
| 0 [ ] don't know       | 3 [ ] emphysema    |
| 1 [ ] esophagus cancer | 4 [ ] tuberculosis |
| 2 [ ] heart disease    |                    |
32. What is the effect of cigarette smoking to fetus in pregnant smokers?
- |                                    |                              |
|------------------------------------|------------------------------|
| 0 [ ] don't know                   | 3 [ ] pulmonary tuberculosis |
| 1 [ ] deformities of legs and arms | 4 [ ] without any effect     |
| 2 [ ] low growth rate              |                              |
33. Among maternal smoking group, which substance can penetrate through breast feeding from mother to her infant?
- |                       |               |
|-----------------------|---------------|
| 0 [ ] don't know      | 3 [ ] tar     |
| 1 [ ] nicotine        | 4 [ ] ammonia |
| 2 [ ] carbon monoxide |               |
34. What is the effect of cigarette on nervous system?
- |   |                                |
|---|--------------------------------|
| 0 [ ] don't know  | 3 [ ] suppress nervous system  |
| 1 [ ] stimulate nervous system                                  | 4 [ ] not stimulate & suppress |
| 2 [ ] stimulate nervous system first and suppress nervous later |                                |
35. If one of family member smoke cigarette, can other family member receive hazardous substance from his/her smoking?
- |                                     |                                     |
|-------------------------------------|-------------------------------------|
| 0 [ ] don't know                    | 3 [ ] effect on small children only |
| 1 [ ] without any effect            | 4 [ ] effect on all family members  |
| 2 [ ] effect on pregnant woman only |                                     |

<b>Perception</b>	<b>Agree</b>	<b>Not Sure</b>	<b>Dis agree</b>
36. Intensive cigarette smoking can increase risk of lung cancer.			
37. Cigarette smoking can cause other cancer			
38. Initial phase of smoking does not cause any harmful effects to health			
39. Occasional smoking does not has any risks for respiratory tract related diseases			
40. Cigarette smoking can decrease body immune			
41. Passive smokers can also have chances to get smoking related diseases			
42. Smoking can show smoker maturity			
43. Smoking can help smokers release stress			
44. Smoking cigarette with filter can reduce its hazardous substances			
45. Even though being a member of the peer group, you do not need to smoke cigarette			
46. If smokers practice exercise, smoking does not cause any harmful effects to health			
47. Physical exercise can help smokers to decrease to desire smoking			
48. Quit smoking can make smokers more confident			
49. Quit smoking can provide a cleaner environment which does not have any harmful to health for other persons.			
50. Quit smoking can decrease food appetite			
51. Quit smoking can make smokers lose peer smoking groups			



61. What is the average cost of your favorite pack of cigarette?.....VND

62. Is the cost of buying a pack of cigarette cheap?

0  no                      1  yes

63. Are you smoking?

0  never ( skip to question 76 )

1  I used to smoke but quit now ( continue question 64 )

2  yes, I am a smoker ( continue question 65)

64. Why did you quit smoking? ( can choose more than one)

1  advised by my friends

5  advised by health personnel

2  advised by my family

6  warned by radio and TV

3  health problem

7  Myself

4  advised by my teachers

others (specify).....

65. What type of smoking do you use?

- manufactured cigarette                      0  no                      1  yes
- hand roll cigarette                              0  no                      1  yes
- cigar    0  no                      1  yes
- pipe tobacco    0  no                      1  yes
- others (specify).....

66. What age did you start smoking? .....years old.

67. What is the motivation for you to start smoking? (choose only one answer)

1  curiosity

4  persuaded by friend

2  feeling mature

5  appearing more sophisticated

3  imitating parent(s)

others (specify).....

68. What are the reasons that keep you continue smoking until now?

(can choose more than one)

1  for fun

4  making acquaintance

2  felt lonely

others (specify).....

3  getting stressed

69. How often do you smoke?

1  always

2  occasionally

3  sometimes

70. How many cigarettes do you usually smoke per day? .....cig./day

71. How much money do you spend for cigarettes per day?.....VND

72. What brand of cigarettes do you prefer to smoke?

1  local

2  foreign

73. Which is the place that you usually smoke? (Choose only one answer )

- 1  in toilet at home  
 2  in toilet at school  
 3  coffee shop  
 4  any place when I am craving to  
 others (specify) .....

74. If you are smoker, have you ever attempted to quit smoking?

- 0  no    1  yes    If yes , “ how many times .....

75. Do you believe you can quit smoking?    0  no    1  yes

76. I am confident that I will never smoke.    0  no    1  yes

**Part 5: Supportive information and activities to control cigarette smoking in student**

77. Do you have any subject on smoking introduced in the school curriculum?    0  no    1  yes

78. Do you see any advertisement about smoking? (multiple answer)

- newspaper    0  no    1  yes
- magazine    0  no    1  yes
- sport stadium    0  no    1  yes
- cupboard    0  no    1  yes
- others (specify).....

79. Have you ever heard of smoking hazards from the following sources?  
(multiple answer)

- family    0  no    1  yes
- teachers    0  no    1  yes
- friends    0  no    1  yes
- health worker    0  no    1  yes
- mass media    0  no    1  yes
- printed matters (poster, leaflet)    0  no    1  yes
- others (specify).....

80. Is there any “No smoking” sign in your school?

- 0  no    1  yes

81. Which is true for your school regulation? ( choose only one answer)

- 1  students are not allowed to smoke always
- 2  smoking is strictly prohibited in school
- 3  smoking is prohibited in class only
- 4  no regulation
- 5  I don't know
- others ( specify).....

82. Did you attend a smoking prevention camp?                      0  no                      1  yes

83. What do you think is the effective way to prevent smoking? ( multi choice)

- giving incentive to smokers                      0  no                      1  yes
- ban on smoking advertising                      0  no                      1  yes
- health education in school                      0  no                      1  yes
- mass media campaign raising the price of cigarette                      0  no                      1  yes
- prohibiting the sale of cigarette to minors                      0  no                      1  yes
- prohibiting smoking in public places
- others (specify).....

## BIOGRAPHY

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