HIV PREVENTIVE BEHAVIORS AMONG HIGH SCHOOL MALE STUDENTS IN PHNOM PENH CITY, CAMBODIA: AN APPLICATION OF HEALTH BELIEF MODEL

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ABSTRACT

This cross-sectional study investigated sexual behavior and HIV preventive behaviors among male high school students in Phnom Penh City. Four hundred and nine students were selected by random proportional stratified sampling. This study also examined the relationship between the perceptions of HIV infection and HIV preventive behaviors with knowledge about HIV/AIDS using t-tests and Pearson's correlation.

The results revealed that 8.8% of the students had had sexual experience and that 91.2% had had no sexual experience. A those who had had sexual experience, the study also found that 36.1% had had sexual experience only with their girlfriends and 36.1% had had sexual experience with a commercial sex worker (CSW). However, 27.8% of them had had experience with both. With regard to condom use, 65.2% of the students always used a condom with their girlfriend and 95.7% of them always used a condom with a commercial sex worker. With regard to knowledge, 47.2% of them had a moderate level of knowledge, and 15.8% of them were in the low level group. More than ninety percent of the students (93.2%) received information from TV/Radio. A significant negative correlation was found between knowledge and perceptions of HIV infection (r=-0.153, P-value=0.008 for perceived severity, and r=-0.163, P-value=0.001 for perceived barriers). There was a significant difference between the group of students who had had sex with only their girlfriends (Mean=2.31) and those who had had sex with the both a girlfriend and CSW (Mean=1.96) with t=2.123, P-values=0.020. For perceived susceptibility to HIV infection, the mean score of those who always used a condom (Mean=1.95) was higher than the mean score of those who did not use a condom, or used a condom sometimes (Mean=1.00), and there was a significant difference (t=1.922, P-value=0.034). Based on these results, the level of knowledge was moderate in high school students in Phnom Penh, and the Cambodian and HIV/AIDS educational curriculum should be modified and the curriculums revised.

The Ministry of Education and the Ministry of Health should liaise with each other and develop strategies for preventing HIV/AIDS in order to integrate HIV/AIDS education into public schools in the future, in terms of HIV preventive behavior among high school male students in Phnom Penh, Cambodia.

KEY WORDS: HIV PREVENTIVE BEHAVIORS / HIGH SCHOOL STUDENTS

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CONTENTS

Page

CONTENTS (Cont.)

Page

CONTENTS (Cont.)

Page

LISTS OF TABLES

TABLE Page

LISTS OF TABLES (Cont.)

TABLE Page

LIST OF FIGURES

LIST OF ABBREVIATIONS

AIDS	: Auto Immune Deficiency System
AIHD	: ASEAN Institute For Health Development
ANC	: Antenatal Care
CDC	: Communicable Disease Control
CSW	: Commercial Sex Worker
DFSW	: Direct Female Sex Worker
HBM	: Health Belief Model
HIV	: Human Immuno Deficiency Virus
HSS	: HIV Sentinel Surveillance
IDFSW	: Indirect Female Sex Worker
MTCT	: Mother-To-Child Transmission
NAA	: National Authority AIDS
NCHADS	: National Center for HIV/AIDS, Dermatology and STI
SCFUK	: Save Children Fund United Kingdom
SD	: Standard Deviation
STD	: Sexually Transmitted Disease
STI	: Sexually Transmitted Infection
TB	: Tuberculosis
TV	: Television
UNAIDS	: United Nation Joint Programme on AIDS
UNICEF	: United Nation Children's Fund
WHO	: World Health Organization

CHAPTER 1
INTRODUCTION

1.1 Rationale and Justification of the Problem

1.1.1 HIV/AIDS Epidemic in the World

Human Immunodeficiency Virus (HIV) is the virus that causes Acquired Immunodeficiency Syndrome (AIDS). HIV destroys the biological ability of the human body to fight off many opportunistic infections. A person can be infected with HIV for a long time without showing any symptoms of the disease (1).

According to the World Health Report 2004: Changing History, today an estimated 34-46 million people are living with HIV/AIDS; more than 20 million people have died from AIDS, 3 million in 2003 alone (2). The rates of infection are still on the rise in many countries in sub-Saharan Africa. The most explosive growth of the epidemic occurred in the mid-1990s, especially in Africa which was home to two-thirds of world's people living with HIV/AIDS, but only 11% of the world's total population. Today, about 1-in-12 African adults are living with HIV/AIDS. However, one-fifth of the people infected with HIV live in Asia (2).

Today's youth generation is the largest in AIDS history; nearly half of the global population is less than 25 years old (3). They have not known a world without AIDS. However young people are exposed to HIV in different ways. In sub-Saharan Africa, the main mode of transmission is heterosexual intercourse. This region contains almost two-thirds of all young people who are living with HIV, approximately 6.2 million people, 75% of whom are female (3). Young people, 15-24 year olds, account for nearly half of all new HIV infections worldwide (4). All new HIV infections are among young people (about 7,000 young people become infected every day) (5). In 17 countries surveyed by UNICEF, the majority of the 11.8 million young people living with HIV do not know that they carry the virus. Millions more

know little, if anything, about HIV/AIDS. They do not know HIV is transmitted or how to protect themselves from infection. Over half of the adolescents could not name a single method of protecting themselves against HIV (6).

In Asia, it is estimated that 7.4 million people are living with HIV. Around half a million are believed to have died of AIDS in 2003, and about twice as many, 1.1 million, are thought to have become newly infected with HIV. Among young people 15–24 years of age, 0.3% of women and 0.4% of men were living with HIV at the end of 2003. Epidemics in this region remain largely concentrated among injection drug users, men who have had sex with men, sex workers, clients of sex workers and their sexual partners (7).

The HIV/AIDS pandemic is one of the most important and urgent public health challenges facing governments and civil societies around the world. Adolescents are at the center of the pandemic in terms of transmission, impact, and potential for changing their behavior that underlies this disease (5).

1.1.2 HIV/AIDS Epidemic in Cambodia

The Kingdom of Cambodia, with Phnom Penh as the Capital, is a small country in the western pacific region of Asia. Cambodia remains a country with high burden of communicable diseases, HIV/AIDS and STD. The first case of HIV infection was reported in 1991. The annual HIV Sentinel Surveillance (HSS) in 1998 showed that HIV seropositive was 42.6 percent among direct female sex workers (DFSWs: brothel based sex workers); 19.2 percent among indirect female sex workers (IDFSWs: women who work as beer promotion workers, bar girls, karaoke workers or masseuses, but they provide sex services depending on the negotiation with their clients); 6 percent among the police and 2.82 percent among antenatal care. The national prevalence rate was 3.3 percent among adults aged from 15 to 49 in the general population; it was estimated approximately 175,000 people of Cambodians were infected with HIV in 1998 (8).

The annual HIV Sentinel Surveillance (HSS) in 2002 found that HIV seropositive was 28.8 percent among direct female sex workers; 14.8 percent among indirect female sex workers; 8.4 percent among TB patients; 3.1 percent among police and 2.8 percent among antenatal care. (see Figure:1) (8). Even though the data showed a decline of HIV infection among the selected population, the increased number of people dying from AIDS was greater than the total number of hospital beds in public health services of the country. The infection rate was estimated at 2.6 percent of the adult's population aged from 15 to 49. This was the highest rate in the region, and it was estimated that HIV had already infected 157,500 people in 2002 (8). Notwithstanding the decline in the HIV infection rate, the HIV epidemic can still pose a major threat to Cambodia's development and growth.

In Cambodia, while talking about sex is still taboo, many men have high-risk sexual encounters. The transmission of HIV is mainly heterosexual and occurs through engaging in sex without using a condom with a trend of 20 new infections per day. The HIV/AIDS epidemic has moved from high risk target groups to the general population. The situation therefore requires the establishment of linkages between prevention and care and stronger efforts in term of preventive intervention directed at young people.

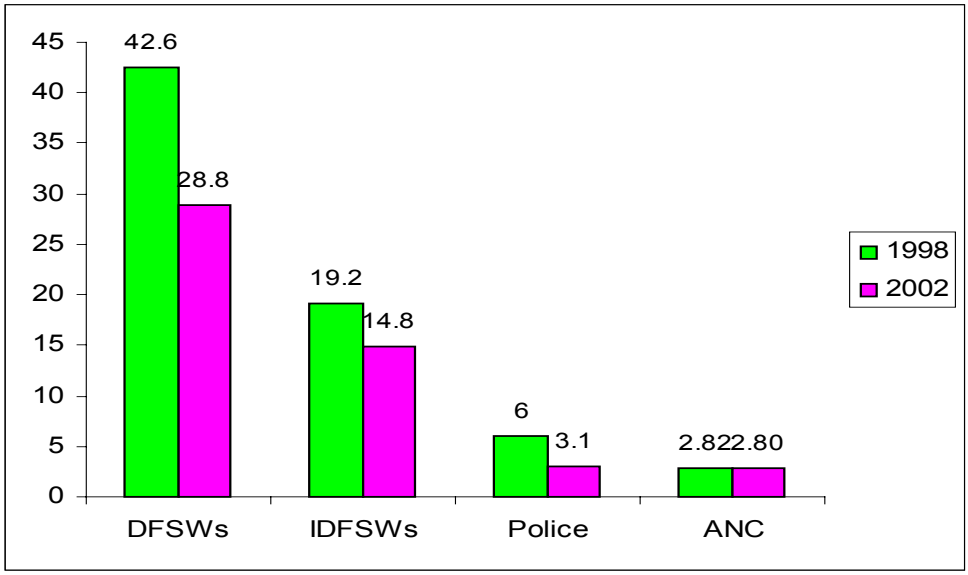


Figure 1 HIV Seroprevalence among Sentinel Sub-population in Cambodia, 2002

The baseline survey of HIV/AIDS/STD Communication for behavior change for teenagers in Cambodia showed that they had experience a high sexual drive at this age and they often went to visit commercial sex worker (CSW) to relieve sexual tension. The first sexual intercourse for many Cambodian men is with a sex worker. They also had limited or a lack of education about HIV/AIDS/STD. They need information, education and communication that guides practical and effective behavior to avoid HIV infection and transmission of other diseases. Besides lack of understanding, many young Cambodians cannot control their sexual drive and ignore all culture traditions (9). In conclusion, the largest youth generation in Cambodia needs a protective environment, regular schooling, and access to health and support services, if they are to play a vital part in combating HIV/AIDS epidemic in Cambodia.

As in most developing countries, including Cambodia, adolescents mainly obtain sexual information from VCDs, DVDs, and the Internet. Knowledge of sexuality and reproductive health is low, therefore it is leading adolescences to have unsafe sex and thus susceptibility to HIV infection.

Presently, no cure is available for HIV/AIDS and anti-retroviral drug treatments to achieve temporary remission are prohibitively expensive. Virtually all currently HIV infected young Cambodians will be dead from the disease, including associated opportunistic infections, in coming years. The situation in Cambodia, especially in Phnom Penh City, requires more understanding of sexual behavior among male adolescents who are still in school. In addition to investigating adolescence sexual behavior, this study also aims to explore strategies of abstinence from having sex among male students in Phnom Penh. The understanding of the male HIV preventive behavior in this study was examined by using the Health Belief Model as an application. The results of the study should provide benefits for improving HIV/AIDS preventive strategies in Phnom Penh, Cambodia.

1.2 Research Questions

This study had two main research questions as follows:

(1) What is the sexual behavior of Phnom Penh high school male students and their HIV preventive behavior – abstinence from having sexual intercourse, partner selection and condom use?

(2) How much are the Health Belief Model variables - perceived susceptibility to HIV infection, perceived severity of HIV infection, perceived benefits and barriers of HIV preventive behavior - associated with HIV preventive behavior among high school male students in Phnom Penh City?

1.3 Research Objectives

1.3.1 General Objectives:

The main objective of this study is to investigate sexual behavior and HIV preventive behavior, including abstinence from sex and condom use, among high school male students in Phnom Penh City, Cambodia. Moreover, the study also examines the relationships between HIV preventive behavior and Health Belief Model determinants.

1.3.2 Specific Objectives:

The specific objectives of the study were:

(1) To investigate sexual behavior among high school male students in Phnom Penh City.

(2) To investigate HIV preventive behavior among high school male students in Phnom Penh City.

(3) To investigate perceptions of HIV infection/preventive behavior (perceived susceptibility to HIV infection, perceived severity of HIV infection, perceived benefits and barriers of HIV preventive behavior) among high school male students in Phnom Penh City.

(4) To examine the relationships between HIV preventive behavior, and perceptions of HIV infection/preventive behavior, among high school male students in Phnom Penh City.

(5) To investigate the level of knowledge about HIV/AIDS among high school male students in Phnom Penh City.

(6) To investigate sources of information about HIV/AIDS from schools, peers, family and mass media that high school male students in Phnom Penh City receive.

(7) To examine the relationship between knowledge about HIV/AIDS and perceptions of HIV infection/preventive behavior among high school male students in Phnom Penh City.

1.4 Research Hypotheses

(1) High school male students who have a higher level of perceived susceptibility to HIV infection are more likely to perform HIV preventive behavior than those who have a lower level of perceived susceptibility to HIV infection.

(2) High school male students who have a higher level of perceived severity of HIV infection are more likely to perform HIV preventive behavior than those who have a lower level of perceived severity of HIV infection.

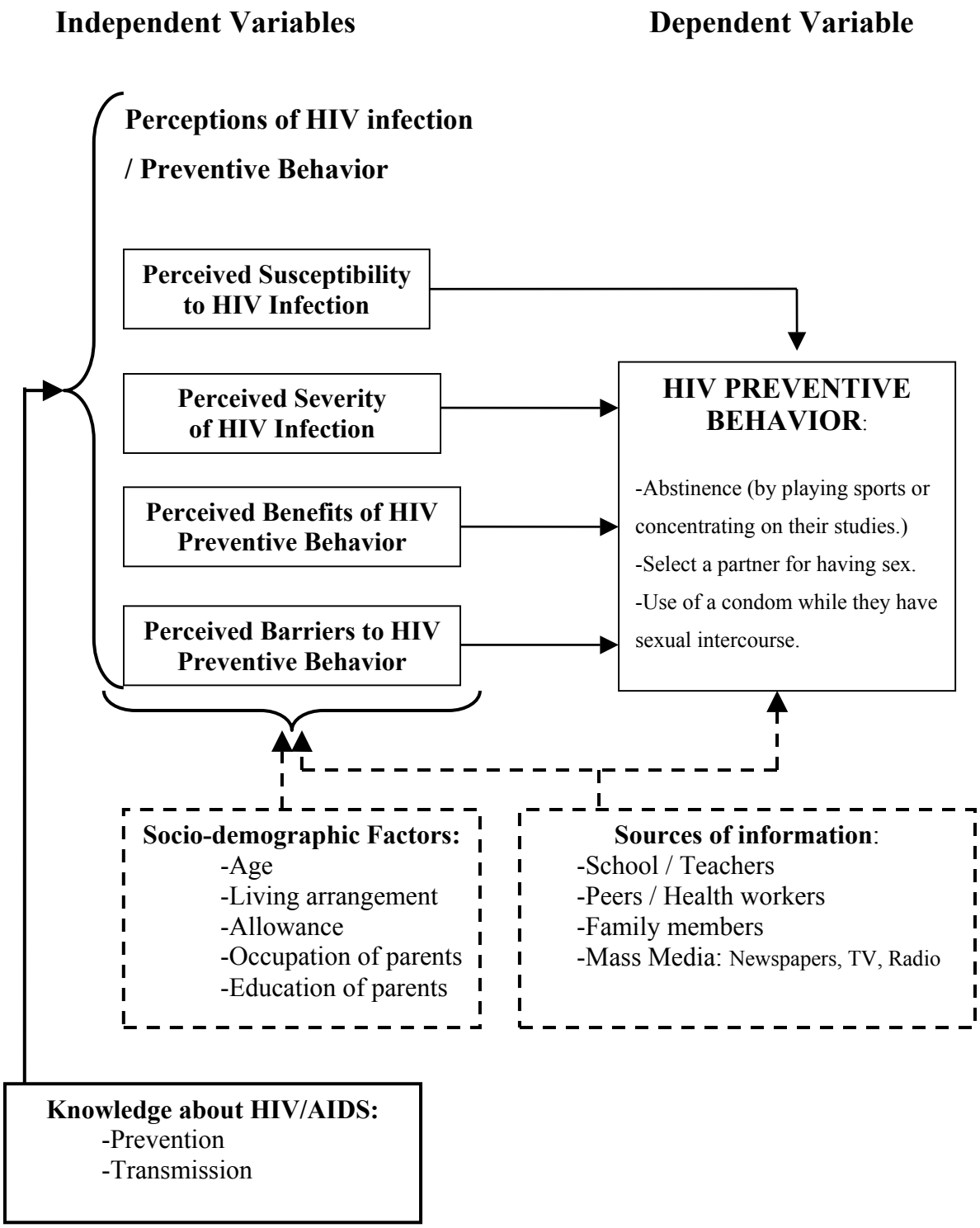
(3) High school male students who have a higher level of perceived benefits of HIV preventive behavior are more likely to perform HIV preventive behavior than those who have a lower level of perceived benefit of HIV infection.

(4) High school male students who have a lower level of perceived barrier to HIV preventive behavior are more likely to perform HIV preventive behavior than those who have a higher level of perceived barrier to HIV preventive behavior.

(5) High school male students who have a higher level of knowledge about HIV/AIDS are more likely to have a higher level of perceived preventive behavior than those who have a lower level of knowledge about HIV/AIDS.

1.5 Conceptual Framework

This study is a cross-sectional study, which was conducted among high school male students in Phnom Penh City, Cambodia.



1.6 Operational Definitions

-HIV Preventive Behavior:

In this study "HIV Preventive Behavior" means actions performed by male students in order to be abstinent from having sex during their studies. For example, they are encouraged to practice "abstinence-until-marriage" by concentrating on their studies or playing sports to suppress their sexual drive. However, if they do engage in sexual activity, they should be careful in selecting their sexual partners that are in high risk groups: direct sex workers and indirect sex workers who are in a high risk group for HIV/AIDS. Moreover, if they cannot control themselves, they must use a condom every time they have sexual intercourse in order to prevent HIV infection.

-High School Male Students

High School Male Students refers to the male students are studying in 10^{th} to 12^{th} grades.

-Perceptions of HIV Infection / Preventive Behavior:

Perceptions of HIV Infection/Preventive Behavior are the ways that students think about positive values or negative values of HIV preventive behavior or the impression/understanding about HIV/AIDS that they have related to HIV preventive behavior among high school male students. These concepts come from the Health Belief Model as follows:

Perceived Susceptibility to HIV Infection is defined as the thought and feeling that students are in real danger of contracting HIV infection or the recognition of being at risk to HIV infection. This perception will be measures through the male student reports.

Perceived Severity of HIV Infection refers to the concern and seriousness of a given health problem and related problems that may vary from student to student. The degree/extent of concern or seriousness of HIV infection may be judge by the degree of emotion. It includes physical, mental and social seriousness at individual and family levels.

Perceived Benefits of HIV Preventive Behavior refers to the belief regarding the relationship and effectiveness of positive outcomes of known available alternatives in preventive behavior, such as condom use during every sexual intercourse in order to reduce HIV infection.

Perceived Barriers to HIV Preventive Behavior are defined as the negative aspects related to HIV preventive behavior; for example, using available preventive measures may cause them to pay more for sex and reduce their sexual pleasure.

-Age

Age, in this study, refers to the adolescences, aged from 14 to 21 years. Males older than 21 years old were excluded from this study.

-Living Arrangement

Living arrangement refers to the residence or with whom each student currently lives with most of the time, such as living with parents, relatives, in a dormitory at the school or alone outside the home.

-Allowance

Allowance refers to the amount of money that students received from their parents or other sources every month, excluding residence fee and fees for studies.

-Occupation of Parents

Occupation of Parents refers to the parent's job to earn money to support the family. In this study, occupation is classified into two groups: professionals (Government, business/trade owners) and non-professionals (laborer, farmer and unemployed).

-Education of Parents

Education of Parents refers to the highest level of education received by the parents, such as: primary, secondary, high school and college or post graduate.

-Knowledge about HIV/AIDS

Knowledge of HIV/AIDS refers to a correct understand about HIV/AIDS, mode of transmission, high risk groups, and how to prevent transmission of HIV/AIDS.

-Sources of Information

Sources of Information refers to external sources such as persons or media which provide information about HIV/AIDS, such as school, teachers, peers, health workers, family members, Internet and mass media: (TV, Radio and leaflets).

1.7 Limitation and Scope of the Study

This study aims to examine sexual and HIV preventive behavior, subjects which high school male students may be very sensitive in the current cultural context of Cambodia. The study therefore is mainly descriptive and quantitative as a whole by using a self-administered questionnaire. The data collection method may not provide in-depth information; however, because of the anonymous nature of the method, it should more appropriate to this sensitive issue.

Although a number of factors related to preventive behavior should be appropriated in this study due to its broadness, the determinants of high school students on HIV preventive behavior are complex and vary in different social and cultural contexts. Therefore, this research is concerned only with preventive behavior, general characteristics, knowledge and perceptions on HIV/AIDS, based on the Health Belief Model, of high school male students in Phnom Penh City, Cambodia.

CHAPTER 2
LITERATURE REVIEW

2.1 The Global and Asia Situation on HIV/AIDS

The acquired immunodeficiency syndrome (AIDS) is caused by infection with HIV, which was originally discovered in 1983 at the Pasteur Institute in Paris. A retrovirus, HIV is transmitted either sexually, prenatally or by means of contaminated blood products. The infection is chronic with a mathematically project AIDS free median time of 11 year after seroconversion (10).

A report on the global AIDS epidemic showed in 2003 an estimate 4.8 million people became newly infected with HIV. This is more than in any year before. Today, 37.8 million people are living with HIV, which killed 2.9 million in 2003 and over 20 million since the first cases of AIDS were identified in 1981 (11). Young people (15-24 year old) account for half of all new infections worldwide; more than 6,000 young people become infected every day (11). The epidemic remains extremely dynamic, growing and changing in character as the virus exploits new opportunities for transmission. There is no room for complacency anywhere. Virtually no country in the world remains unaffected. Some countries that have let down their guard are seeing a renewed rise in numbers of people infected with HIV. For example, in some industrialized countries, widespread access to antiretroviral medicines is fuelling a dangerous myth that AIDS has been defeated. In sub-Saharan Africa, the overall percentage of adults with HIV infection has remained stable in recent years, but the number of people living with HIV is still growing. The epidemic is not homogeneous within regions; some countries are more affected than others. Even at the country level, there are usually wide variations in infection levels between different provinces, states or districts, and between urban and rural areas. In reality, the national picture is made up of a series of epidemics with their own characteristics and dynamics.

Table 1 Total number of adults and children living with HIV: 38 million

Number of adults and children living with HIV	**Total**	**37.8 Million**
	Adults	35.7 million
	Women	17 million
	Children<15 years	2.1 million
People newly infected with HIV in 2003	**Total**	**4.8 Million**
	Adults	4.1 million
	Children<15 years	630,000
AIDS deaths in 2003	**Total**	**2.9 Million**
	Adults	2.4 million
	Children<15 years	490,000

Source: 4th Global Report 2004 Report on the Global AIDS Epidemic. (UNAIDS)

Sub-Saharan Africa has just over 10% of the world's population, but is home to close to two-thirds of all people living with HIV—some 25 million people. In 2003 alone, an estimated 3 million people in the region became newly infected, while 2.2 million died of AIDS. Among young people 15–24 years of age, 6.9% of women and 2.1% of men were living with HIV by the end of 2003 (11). While heterosexual activity is by far the predominant mode of HIV transmission, unsafe injections in health-care settings are believed to be responsible for around 2.5% of all infections (12).

The report showed that the rates of infection are still on the rise in many countries in sub-Saharan Africa. In 2003 alone, an estimated 3 million people in the region became newly infected (12). New epidemics appear to be advancing unchecked in other places, notably Eastern Europe and Asia – regions that are

experiencing the fastest-growing epidemics in the world. More than 20 years and 20 million deaths since the first AIDS diagnosis was made in 1981, almost 38 million people are living with HIV. Young people – 15-24 year olds – account for nearly half of all new HIV infections worldwide (12). They are the largest youth generation in history and need a protective environment – regular schooling, access to health and support services – if they are to play their vital part in combating the epidemic.

In Asia, the epidemic is expanding rapidly. This is most evident with sharp increases in HIV infections in China, Indonesia and Viet Nam. An estimated 7.4 million people are living with HIV and around a half million are believed to have died of AIDS in 2003 with 1.1 million people became newly infected with HIV in Asia. Among young people 15-24 year of age, 0.3% of women and 0.4% of men were living with HIV by the end of 2003 (11). The HIV epidemic remains largely concentrated among sex workers, clients of sex workers and their immediate sexual partners. Asian countries such as Thailand and Cambodia, which have chosen to tackle openly high-risk behavior, such as sex work, have been more successful in fighting HIV, as shown by the reduction in infection rates among sex workers. However there is no room for complacency. Although there is a reduction in the numbers of young Thai men visiting brothels, for example, there is also an increase in casual sex. Behavioral surveillance between 1996 and 2002 shows a clear rise in the proportion of secondary school students who are sexually active, and at the same time there is consistently low levels of condom use. If other Asian countries fail to target populations at higher risk, the epidemic will affect much greater numbers of people in the general population. India has the largest number of people living with HIV outside South Africa –5.1 million people. But knowledge about the virus and its transmission is still scant and incomplete (12).

Table 2 Estimated number of people living with HIV and AIDS deaths in Asia at the end of 2003

No	Countries	Number living with HIV: Adults and Children, end of 2003	Number of AIDS Deaths: Adults and Children, end of 2003
1	Cambodia	170,000	15,000
2	Indonesia	110,000	2,400
3	Lao P.D.R	1,700	< 200
4	Malaysia	52,000	2,000
5	Myanmar	330,000	22,000
6	Philippine	9,000	<500
7	Singapore	4,100	<200
8	Thailand	570,000	58,000
9	Vietnam	220,000	9,000

Source: 4th Global Report 2004 Report on the Global AIDS Epidemic (UNAIDS)

2.2 The Situation on HIV/ AIDS in Cambodia

The Kingdom of Cambodia continues to struggle in its transition to democratic governance after decades of war and authoritarian governance. The challenges to political and economic progress are many: a narrow and vulnerable economic base of garments and tourism, limited foreign and domestic investment, poor infrastructure, low levels of education and literacy, and wide-spread corruption. The judicial system is weak and generally unable to protect human rights or fairly resolve commercial disputes. Cambodia's social indicators, among the worst in the region, reflect poverty and lack of access to basic health services. Life expectancy is in the mid 50's; population growth rate is 2%, and infant mortality 95 per 1000 births.

The first case of HIV was detected in 1991 during serological screening of donated blood. Cambodia's National Center for HIV/AIDS, Dermatology and STD (NCHADS) reported that there were 210,000 adults living with HIV/AIDS in 1997. NCHADS estimated that adult HIV prevalence was 3.3% in 1998. Active commercial sex and "bridging" networks, where by HIV infection is transmitted from a commercial sex worker to other sex partners, play a major role in the rapid spread of HIV, with a large portion of HIV infection comprises transmission from sex workers to their male clients. The national HIV Sentinel Surveillance (HSS) 2002 of the National Center for HIV/AIDS Dermatology and STDs (NCHADS) of the Ministry of Health, found that those that are HIV sero-positive was 28.8 percent among direct female sex workers (DFSWs), 14.8 percent among indirect female sex workers (IDFSWs), 8.4 percent among TB patient, 3.1 percent among police and 2.8 percent among antenatal care. The estimated HIV prevalence among adults aged 15-49 was 2.6 percent, with approximately 157,500 adults living with HIV infection. Cambodia faces one of the most serious HIV/AIDS epidemic in Asia (8).

Table 3 Statistics of HIV/AIDS Infection in Cambodia, 2002

Direct Female Sex Workers	28.6%
Indirect Female Sex Worker	14.8%
Police	3.1%
Antenatal care	2.8%
Estimated adult HIV prevalence	2.6%

Source: National Center for HIV/AIDS Dermatology and STD, Ministry of Health, Cambodia. 2002

In Cambodia, although talking about sex is still taboo, many men continue to have high risk sexual encounters. The mode of HIV infection is mainly through unprotected heterosexual intercourse without use of a condom, with a trend of 20 new infections per day. The HIV/AIDS epidemic has now moved from high-risk target groups to the general population especially youth people (8). This situation, therefore,

requires the need to establish a link between prevention and care with stronger efforts in term of preventive intervention directed at young people.

As elsewhere in Asia, the two transmission mechanisms accounting for HIV infection are sexual contact and mother-to-child transmission (MTCT). Besides sexual contact and MTCT, HIV can also be transmitted through contaminated blood, for example, through transfusions or the sharing of needles that have been in contact with the blood of an HIV infection people. In parts of Cambodia, the sharing of needles by injection drug users has contributed to the spread of HIV. However, the predominant mode of transmission is sexual contact, mainly heterosexual. At this time, there is limited information about homosexual and bisexual transmission (13). (see Figure:2).

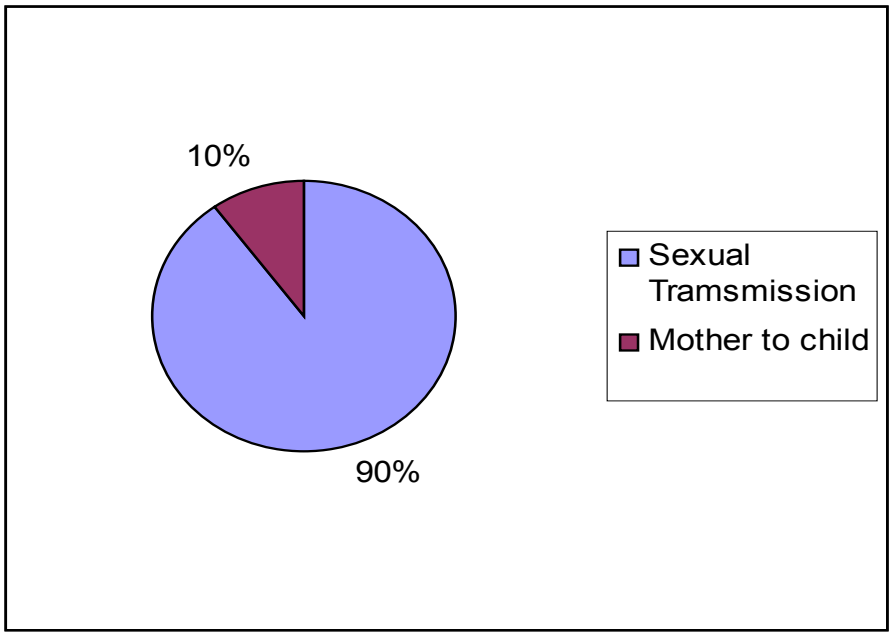


Figure 2 HIV Transmission Mechanism in Cambodia

Many young Cambodian people experience a high sexual drive and they usually visit a commercial sex worker to relieve their sexual tension. Since many young people have sex with a partner who is in a risk target groups, such as a commercial sex worker, they need information about HIV/AIDS, education and communication to guide them or prevent them from becoming infected with HIV.

The Projection for HIV/AIDS showed that the number of HIV infection over the course of the epidemic assumes behavior remains the same in 2000 through the end of 2010. From this baseline scenario, the state of the Cambodia HIV/AIDS epidemic today in 2002 is:

-259,000 people (238,000 adults and 21,000 children) have been infected with HIV in Cambodia since the start of the epidemic;

-94,000 of these people have subsequently died of AIDS;

-164,000 people are currently living with HIV/AIDS in the country;

-7,300 new infections will occur this year, of which 2,600 will be children;

-22,400 Cambodian will develop serious AIDS related illnesses this year requiring medicine care and 21,200 will die of AIDS complications (14).

2.3 Sexual Behavior and Transmission of HIV/AIDS

2.3.1 Sexual Behavior

Male-to-female transmission of HIV was estimated in one study of sero-discordant to be 23 percent. In the Masaka district in Uganda, the prevalence of HIV in girls aged between 13 and 19 years old was 20 times that of boys in the same age group (15). Increased risk arises out of not only a physical vulnerability, but also a social one. Often responsibility for contraception and STD protection is with females. The average age difference between females and their first male partners has been 1.8 years in the United States and 2.3 years in Sweden (16).

In a study examining the correlation of early coitus, partner insistence was the single most important reasons for engaging in their first sexual intercourse for 5 percent of boys, but 33 percent of girls. In this study, where there was sex with regular or steady partners, only 11.8 percent of male respondents but 40.9 percent of female respondents reported that the partner made the decision not to use a condom (17). Further, not only are condoms less likely to be used in a steady relationship, but condom use also decreases as sexual experience increases.

2.3.2 Transmission of HIV/AIDS

Although there has been a great deal of concern about the mode of transmission of the HIV virus, there has been little if any change in the way HIV has been acquired since the early 1980s. Today the emphasis is not so much on risk groups, but on the behavior that put people at risk for the disease. These risky behaviors fit into the following transmission categories:

-male homosexual/ bisexual contact
-IV drug use (female and heterosexual male)
-male heterosexual / bisexual contact and IV drugs use
-hemophilia treatment
-heterosexual contact (male or female)
-transfusion/ blood component recipient
-being born to a parent with/at risk for AIDS

For these behavior, three mode of transmission have been identified:

1-Sexual contact with an infected person
    -homosexual or heterosexual
2-Exposure to blood or blood products
    -needle sharing among IV drug users
    -transfusions/blood products
    -occupational exposure in the health setting
3-Transmissions from an infected woman to her fetus (18).

In many ways the rapid and wide dissemination of HIV/AIDS depends upon modern society and contemporary life styles. It is disease, after all, that is carried in the person, in one's blood. There is no need for a special client or vector or other environmental condition to convey the disease from one place to another (19).

2.4 Health Belief Model

The health setting during the early 1950's for the US Public Health Service was primarily oriented toward prevention of disease and not treatment of disease. Medical care, which was largely considered appropriate public health work, was not the focus during that time. Thus, the public health concern for problems connected with patient's symptoms and their compliance with medical regimens was slight. The originators of the HBM were concerned rather with the widespread failure of individuals to engage in preventive health measures.

This model is influenced by the theories of Kurt Lewin, which states that it is the world of the perceiver that determines what an individual will and will not do. The originators of the HBM conducted major studies in the 1950's and 1960's meant to systematically explain preventive health behavior. Godfrey Hochbaum initiated the first research on the HBM in 1952 by an attempt to identify factors underlying the decision to obtain a chest x-ray for the early detection of TB. Thus, like Lewin, the early researchers also included in the model a strong component of the behaving individual's perceptual world. Later, researchers included motivation as a major component. Also a strong concentration on the individual's current dynamics, believing that prior experience exercises influence only insofar as it is still represented in the individual's present state of affairs.

The HBM attempts to predict health-related behavior in terms of certain belief patterns. Emphasis is placed on the above described categories. The model is used in explaining and predicting preventive health behavior, as well as sick-role and illness behavior.

The HBM has been applied to study all types of health behavior. A person's motivation to undertake a health behavior can be divided into three main categories: individual perceptions, modifying behavior, and likelihood of action. Individual perceptions are factors that affect the perception of illness or disease; they deal with the importance of health to the individual, perceived susceptibility, and perceived

severity. Modifying factors include demographic variables, perceived threat, and cues to action. The likelihood of action discusses factors in probability of appropriate health behavior; it is the likelihood of taking the recommended preventive health action. The combination of these factors causes a response that often manifests into action, provided it is accompanied by a rational alternative course of action. Other theories have contributed to the development of this theory. The Social Learning Theory contributes to the HBM in different ways:

-Multiple sources for acquiring expectations

-Learning through imitating others

-Self-efficacy

The HBM states that the perception of a personal health behavior threat is itself influenced by at least three factors: general health values, which include interest and concern about health; specific health beliefs about vulnerability to a particular health threat; and belief about the consequences of the health problem. Once an individual perceives a threat to his/her health and is simultaneously cued to action, and his/her perceived benefits outweighs his/her perceived costs, then that individual is most likely to undertake the recommended preventive health action. There may be some variables (demographic, socio-psychological, and structural) that can influence an individual's decision.

Perceived Susceptibility: Each individual has his/her own perception of the likelihood of experiencing a condition that would adversely affect one's health. Individuals vary widely in their perception of susceptibility to a disease or condition. Those at the low end of the extreme deny the possibility of contracting an adverse condition. Individuals in a moderate category admit to a statistical possibility of disease susceptibility. Those individuals at the high extreme of susceptibility feel there is a real danger that they will experience an adverse condition or contract a given disease.

Perceived Seriousness: refers to the beliefs a person holds concerning the effects a given disease or condition would have on one's state of affairs. These effects

can be considered from the point of view of the difficulties that a disease would create. For instance, pain and discomfort, loss of work time, financial burdens, difficulties with family, relationships, and susceptibility to future conditions. It is important to include these emotional and financial burdens when considering the seriousness of a disease or condition.

Perceived Benefit of Taking Action: taking action toward the prevention of disease or toward dealing with an illness is the next step to expect after an individual has accepted the susceptibility of a disease and recognized it is serious. The direction of action that a person chooses will be influenced by the belief regarding the action.

Barriers to Taking Action: action may not take place, even though an individual may believe that the benefits to taking action are effective. This may be due to barriers. Barriers relate to the characteristics of a treatment or preventive measure may be inconvenient, expensive, unpleasant, painful or upsetting. These characteristics may lead a person away from taking the desired action.

Cues to Action: an individual's perception of the levels of susceptibility and seriousness provide the force to act. Benefits (minus barriers) provide the path of action. However, it may require a 'cue to action' for the desired behavior to occur. These cues may be internal or external.

2.5 The Process of Adolescence and Teen Sexual Activity

Knowing the importance of young people, UNAIDS choose their 1998 campaign for young people. Diclemente, (20) describes adolescence as follows: "*Adolescence is a time of growth and experimentation, a period marked by establishing autonomy and confronting new challenges. Its is also a time in which many adolescents will initiate sexual behavior that increase the possibility of HIV infection.*"

According to WHO, young people are those aged 10-24 year. It is period of human development marked by numerous psychological and social issues together with behavioral changes. Since they are still in a phase of decision making and experimentation it is easy to prevent HIV/AIDS infection. At the same time, this is a time when they become the most vulnerable to HIV infection and transmitted diseases.

2.5.1 The Process of Adolescence

It is important, first, to keep in mind that no outline of psychosocial development can describe adequately every adolescent. Adolescents are not a homogeneous group but display wide variability in biological and emotional growth. Each adolescent responds to life's demands and opportunities in a unique and personal way. Further, adolescents must meet the challenges that arise from their own high-risk behavior as well as the many social factors that affect their lives (21).

Second, the transition from childhood to adulthood does not occur by a continuous, uniform synchronous process. In fact, biological, social, emotional, and intellectual growth may be totally asynchronous. In addition, growth may be accented by frequent periods of regression. It must be remembered that life, from birth to death, is a constant process of change and that adolescence is not the only difficult period.

Third, whereas adolescence has been described as a period of extreme instability or "normal psychosis," most adolescents survive with no lasting difficulties, and many are unperturbed by the process (22). In actuality, about 80% of adolescents cope well with the developmental process. Of these 80%, about 30% have an easy continual growth process, 40% have periods of stress intermingled with periods of calm, and 30% have tumultuous development market by bouts of intense storm and stress. In a national survey, approximately 90% of 16-year-old boys and girls report that they got along well with their mother, and 75% reported no difficult parent-child relationships. Overall, major conflict between parent and their adolescent children is not a normal part of adolescence (23).

2.5.2 Teen Sexual Activity

2.5.2.1 First Sexual Intercourse

A national survey of Adolescent in the United States in 2001 revealed that fewer than half of students (9^{th}-12^{th} grade) have had sexual intercourse, reflecting a decline from 54 percent in 1991 to 46 percent in 2001. But male students are more likely than female students to have had sexual intercourse (24) (25). The percentage of high school students who have had sexual intercourse increases to 61 percent of 12^{th} graders, compared with 35 percent of 9^{th} graders in 2001 (25). The percentage of students (9^{th}-12^{th} grade) who initiated sexual intercourse before age 13 has fluctuated in recent years, from a high of 9 percent in 1995 (the first year data was collected) to a low of 6.6 percent in 2001. 9 percent of male students versus 4 percent of female students report having sex at these early ages (24) (25).

Among teenage girls aged 15-19 who have had sexual intercourse, 69 percent described their first time as "voluntary and wanted;" 24 percent as "voluntary but unwanted;" and 7 percent as "non-voluntary." The younger the age at the time of their first sexual intercourse, the greater the likelihood the experience was unwanted and/or non-voluntary (26).

2.5.2.2 Sexual Partners and Relationships

According to the national survey of Adolescent in the United States in 2001, most teenage girls aged 15-19 who describe their first sexual experience as voluntary knew their partners fairly well, 73 percent say their first sexual partner was someone they were going steady with, while 20 percent say the first encounter was with a friend or someone they dated occasionally (27). The percentage of 9^{th}-12^{th} grade students who report having had four or more sexual partner has declined in recent years from 19 percent in 1991 to 14 percent in 2001. However, males (17%) are more likely than females (11%) to report having had four or more sexual partners (24) (25). Sixty-three percent of sexually active females aged 15-19 had partners who were within two years (older or younger) of their age; 28 percent had partners who were three to five years older (28). The younger a girl is when she has sex for the first time, the greater the average age difference is likely to be between her and her partner (27).

2.5.2.3 Abstinence

The national survey of Adolescent in the United States in 1999, stated that more than one in four (27%) of 9th-12th grade students who had sexual intercourse said they were currently abstinent. Males (31%) were more likely than females (24%) to report being currently abstinent (24). Among teens aged 15-17 who have not had sexual intercourse, 83 percent say that "worry about getting/getting someone pregnant" was the main reason they had not had sex. Another 74 percent said they "made a conscious decision to wait," and 73 percent said they were "worried about STDs" (29).

2.5.2.4 Condom Use

Base on the national survey of Adolescent in the United States, condom use among 9th-12th grade students increased over the last decade. In 1991, 46 percent reported using a condom the last time they had sexual intercourse, compared with 58 percent who did so in 2001. However, in recent years, the rate of increase in condom use has leveled off (24) (25). Among sexually active 15-17-year-olds, 88 percent say "what their partner wants to use," however, 86 percent say "how well it protects against HIV and other STDs" is important (30).

In a study of determinant of condom use to prevent HIV among the young in Ghana, researchers have also identified several perceptions as important determinants of condom use among adolescents. These include perceived susceptibility to AIDS, perceived benefits and barriers of condom use, perceived self-efficacy to use or have a partner use a condom, and perceived social support for condom use. Perceived susceptibility to AIDS has been found to be significantly related to intention to use condoms among adolescents (31) (32). In addition, some studies have demonstrated that the belief by adolescents that condoms effectively prevent HIV transmission was predictive of consistent condom use (33) (35). Other studies have shown that barriers to condom use (barriers that reflect physical, emotional, or accessibility concerns with condom use) were strongly predictive of the lack of condom use (34) (36). The results also showed that while 65% of the sexually active male respondents had used condoms at least once, only 25% had used condoms during their last sexual

intercourse. Findings from multiple logistic regression analysis indicate that perceived susceptibility to HIV infection, perceived self-efficacy to use condoms, perceived barriers to condom use, and perceived social support were significant predictors of condom use.

2.6 Knowledge about HIV/AIDS

Knowledge about HIV/AIDS has been seen to play a role in motivating initial behavioral change, particularly in persons who see themselves as being at relatively low risk and who are initially less informed about the disease and the route of HIV transmission.

Dr. Peter Piot, executive Director of UNAIDS, Said "Globally there has been some increase in political commitment and in programs responding to the rights of people to be educated about their health, but much more need to be done especially in the area of the sexual health. And as this review shows the quality of these programs is all important in developing health behavior in order to reduce the transmission of HIV and other STDs."

Knowledge alone, however, does not ensure long term behavioral change. Perception of risk seems to be more important than objective knowledge in motivating behavioral change. It has been noted that individuals tend to underestimate their own vulnerability, operating under an "optimistic bias" regarding their health.

A study by Alison Imperato among young students revealed that there are still a high percentage of people who believe that urinating after sex or taking antibiotics can prevent HIV/AIDS. In addition, the study of Gold et al. (37) showed the belief and thought processes of 340 students associated with the decision to have unprotected sex and the type of occasion when they were likely to occur. This enabled a perception of HIV/AIDS to be examined in a situational and social context. The most common belief was not to use a condom during sex with those perceived to be in a low risk group.

A UNICEF survey of 10,000 young people in East Asia and Pacific asked about their level of knowledge on HIV/AIDS. Twenty-five percent of those 14-17 age group said they know “absolutely nothing” or “only the name”. In addition, 35 percent of 14-17 years olds says they are ignorant about sexual relationships. Sixty eight percent of the respondents correctly identify unprotected sexual intercourse as a major route of HIV/AIDS transmission, but only 41 percent say they know what a condom is. Countries with the highest number of children and adolescents saying “absolutely nothing” or “only know the name” in regard to knowledge about HIV/AIDS were; East Timor (98%), Lao PDR (68%), Philippines (62%), Mongolia (54%), China (48%), Republic of Korea (47%). But even in countries such as Thailand, Cambodia and Malaysia, the number of respondents lacking basic knowledge on HIV/AIDS ranges from 23 percent to 36 percent (38).

A SCF (UK) surveyed of young people in Cambodia (39) stated that in order to prevent the transmission of HIV/AIDS, 14.6 percent thought that the best method would be to abstain from sex. Others suggested non-sharing of syringes and other instruments (28.5%), sound personal hygiene (23.2%), consistent condom use (16.1%) staying away from people living with HIV/AIDS (12.9%), and avoidance of sexual intercourse with commercial sex workers (9.9%).

A 1988 study by Siegel (40) on knowledge, attitude, and AIDS related behavior of 1,967 high school students aged between 11-16 years old showed students misunderstanding about AIDS transmission. For instance, 27% of male students and 34% of female students believed that transmission can occur by shaking hands, and some students believed that transmission can be made by sharing public restroom (28% of male students and 37% of female students), by insects (36% of male and 14% of female) with 47% of them believing less in effective condom use.

2.7 Perceptions on HIV/AIDS

Perceptions by human beings is the way that people get information from the environment such as social, custom, economic, and some psychological factors which influence risk perception of individuals. Perception plays a role as the first principle of behavior.

A study by Kladsawas K (41) among Thai students in Songkla town found that 73.1% of those had a good overall perception of HIV/AIDS, and the rate of perceived susceptibility on HIV/AIDS increased to 86.8%. Surprising, the rate of perceived severity and perceived benefits of preventive behavior were lower at 59.8% and 51.7%, respectively. However, another study by Tamura M (42) on HIV/AIDS preventive behavior among adolescents in Bangkok revealed that the good perception of HIV/AIDS was 58.2%, and the perception of susceptibility and severity rate were 75.3% and 52.2%, respectively.

2.8 Role of Condom and HIV Preventive Behavior

Despite advances in biomedical research, there is still no preventive vaccine or medical cure for AIDS and therefore, it is still a deadly disease. Consequently efforts to change risk behavior remains the only available means to prevent HIV infection.

Given the fact that 90% of HIV infection is from sexual transmission in Cambodia, the only ways to prevent HIV infection is abstinence from having sex and correct use of condoms with a partner. Since abstinence is not realistic for preventing HIV infections, more focus should be on the increased use of condoms. Young people must be competent and willing to use a condom during sexual intercourse. Since the risk of HIV infection increases by having sex with a commercial sex worker or sex with multiple partners, an alternative way to reduce HIV infection is to reduce the use of commercial sex workers and motivate people to have single partners. The sex industry in Cambodia has become solidified in the social-culture context. The AIDS epidemic has been spreading for more than one decade in Cambodia and the government has promoted the 100% condom use programme among general

population in the whole country. This programme has focused on the commercial sex worker, especially those in high risk groups of transmissions of HIV infection. The result has met great success among the commercial sex workers group. Unfortunately, there is little impact among young people to use a condom with their partners who were not commercial sex workers.

2.9 Sources of Information

Sources of information can include mass media with broadcasting media (TV, radio) as well as print media (newspaper, books, pamphlets and posters). Interpersonal information can be given through health personnel, teachers, and friends. The present technology advancement gives easy to access to various forms of mass media to get information about HIV/AIDS preventive behavior to young people.

Case studies in several settings suggested that peers remain the main source of information on sexuality. Among secondary school students in Nairobi and Homa Bay, Kenya, 35 percent of female and 51 percent of males reported frequent discussions of sexual matters with their peers (43). Among college students in Hanoi and Ho Chi Minh City, Vietnam, over 90 percent of young people reported that they were most comfortable discussing sexual and productive health with peers of their own sex, while far fewer reported discussion with their partners (44).

In a case study in 13 provinces of Indonesia (48), peers outranked parents as the main sources of information on sexual matters for both females and males, 74 percent of males and 65 percent of females obtained their information from their peers, compared to 13 percent and 23 percent of males and females respectively, who reported parents as their sources of information.

Studies in Thailand and Japan (45) have found that the most common source of HIV/AIDS information was through TV, followed by radio and newspaper, and then health workers, and lastly by friends and family members. On the other hand, a study in Nigeria (46) showed that the primary information sources were radio and

newspaper followed by friends and health personals. Stancombe (47) has shown that the mass media, especially TV, is a powerful source of information but insufficient for changing actual risk behavior.

In addition, young people prefer different sources of information for different aspect of sexual health. Even so, young females are more likely to obtain their information from the family, usual the mother, than are young males. In case studies in some Asian setting, for example, while peers were the preferred sources of information, female were far more likely than male to discuss sexual and productive health issues with their parent, usually their mother. Among college students in Hanoi and Ho Chi Minh City, Viet Nam, while 70 percent of females discussed these issues with one of their parents, only 49 percent of males did so. In contrast, male are more likely than female to discuss their sexual and productive health needs with outsiders such as colleagues, pharmacists, medical practitioners, and youth union members' (44). In a case study in 13 province of Indonesia (48), peers and even teachers outranked parents as the main sources of information about sex for young people. The female were more likely than male to rely on their parents (23 percent versus 13 percent), somewhat less likely to rely on peers (65 percent versus 74 percent), and about as likely to rely on teachers (44 percent versus 47 percent).

The study of Rosenthal DA, Smith AM. (49) among high school students revealed that TV was the most common sources of information that was trusted. However, among those sources of information having legitimate knowledge, such as health professionals and teachers, who were presenting information, they are perceived as credible, with high influence and believability. However, these results were contrary to a study of Son HM. (50) among high school students in Thailand, which found that 42.9% of the students considered that TV and Video was the most important source of information. Teachers and health personal only accounted for 9% to 11%.

2.10 Other Related Studies

Another study by Chandeying V. (51) among secondary high school students found that even though general knowledge about HIV/AIDS was high, it is often incomplete. For example 45% of the students did not know that an infected person could have no signs. The males reported significantly more sexual activities than females; the mean age of sexual intercourse was 14.6 for male. All of them were concerned with the common visit to commercial sex workers (CSW's) and frequency of visits, and particularly that they would have sex with both a girlfriend and CSW'S (40.7%). Only 25.4% of the males had used a condom during their last sexual intercourse, although almost all students know about the prevention of HIV. A significant proportion of students did not know to use a condom (25.7%) or understand the meaning of safe sex (28.8%).

Other research has concluded that young person who perceive themselves to be involved in committed relationship also perceive their risk of contracting AIDS as low and therefore are less likely to engage in safe sex practices. Lamdingham Van M. J , Supraset S, Grandejan N, Stittirai W. (52) applied the Health Belief Model (HBM) and Theory of Reasoned Action (TRA) to an analysis of unsafe sexual practices among northern Thai men. The analysis of condom use focused on male university students, soldiers, clerics and laborers living in Chaing Mai who reported visiting prostitutes during the six months preceding the survey. It revealed that while less than 10% of the respondents reported they never used a condom; only about half reporting used condoms consistently. Thirty percent of each group indicated that they felt condom use reduce the joy of having sex. Most of respondents realized that condoms provide some protection against the virus, but nearly one third of the construction workers did not use condoms. The most important reason for not using condoms consistently with casual partners is the false belief that HIV is only contracted from high risk group as such as commercial sex workers (CSW's). Gray, L, Saracino M. (53) found that more than 40% of participants were engaging in risky sexual behavior. This suggests that a moderate to high knowledge level of AIDS may not be a predictor of safe sexual behavior practices.

Carducci A, Frasca M, Grasso A, Terzi I, Avio CM. (54) evidenced a possible explanation for the variance in findings among studies is demographic characteristics such as nationality, age, sex, religion, ethnicity, and marital status. Knowledge level is another possible predictor of attitude, indicating that increasing knowledge levels of AIDS may produce more positive attitudes towards individuals with AIDS.

Research focusing on the effects of beliefs of susceptibility to AIDS indicates that adolescents and adults who report high perceived risk for AIDS practice safer sexual behavior, whereas those who perceive a low risk for contracting AIDS report practicing unsafe sexual behavior (53). However, in a study of health behavior in Kenya, perceived susceptibility to AIDS was not a significant predictor of condom use. Volk JE, Koopman C. (55).

CHAPTER 3
RESEARCH METHODOLOGY

3.1 Study Design

This research was a cross sectional study; the aims of the study were to determine sexual behavior and HIV preventive behavior, perceptions of HIV infection/preventive behavior, socio-demographic and knowledge among high school male students in Phnom Penh City, Cambodia. It also examined the relationship between perceptions of HIV infection / preventive behavior, sources of information and HIV preventive behavior.

3.2 Study Population

The study population included Toul Tompong high school male students aged from 14 to 21 year-old, attending class from grades 10 to 12 in Phnom Penh City, Cambodia.

3.3 Sample Size

The required sample size estimation was based on the following formula Equation:

$$n = \frac{Z^2_{\alpha/2} P(1-P)}{d^2}$$

Where:

n = estimated sample size

α = level of statistical significance, the statistical significance was set at 0.05, therefore $\mathbf{Z}$ = 1.96

d = absolute precision of the study, it was set at 0.05

P = anticipated proportion of individual in the population possessing the characteristic of the study interest. In this case it was the proportion of students among high school who intended to use a condom. Based on the previous study by Ha Minh Son in 1998 among first year male college students in Mahidol University, Thailand, the proportion of students, which intended to always use condom was 47%.

$$n = \frac{(1.96)^2 (0.47)(1 - 0.47)}{(0.05)^2} = 383$$

Therefore, the minimum sample size required for the study was 383.

3.4 Sampling Technique

Toul Tompong high school in Phnom Penh had 2,258 males students including: 10 grade=870 students, 11 grade=754 students and 12 grade=634 students by using random proportional stratified sampling.

The estimated sample size of 383 high school male students was divided into three groups by proportional number level of students:

$$\text{Number of level 10 grade} \frac{383X870}{2258} = 148 \text{ students}$$

$$\text{Number of level 11 grade} \frac{383X754}{2258} = 128 \text{ students}$$

$$\text{Number of level 12 grade} \frac{383X634}{2258} = 108 \text{ students}$$

Therefore, the sample size for this study needed to be at least 383 male students, who had been studying at high school Toul Tompong in Phnom Penh City, Cambodia at that time of data collection. However, four hundred and nine of students from high school male students were chosen to answers this study.

3.5 Research Instruments

A structured self-administered questionnaire was used as research instrument for data collection. Initially, the questionnaire was prepared in English then translated into Cambodian language (Khmer language). The structured questionnaire consisted of five parts as the followings:

Part 1: Socio-demographic

This part consisted of questions about age, living arrangement, allowance, occupation of parents and education of parents. The questions in this part were mostly close-ended.

Part 2: Knowledge about HIV/AIDS

This part focused on questions of knowledge about HIV/AIDS. A score of one was assigned to each "**correct answer**" and zero for any "**incorrect answer**" or for a response of no idea. Considering the maximum, minimum, mean and standard deviation (SD) scores, the knowledge was classified into three levels:

-High level of knowledge ≥ Mean + Standard Deviation (SD)

-Moderate level of knowledge= [(Mean+ SD)-(Mean-SD)]

-Low level of knowledge ≤ Mean – Standard Deviation (SD)

Part 3: Perceptions of HIV infection/preventive behavior

This part included twenty-eight questions. The perception was divided into four group such as perceived susceptibility to HIV infection, perceived severity of HIV infection, perceived benefits of HIV preventive behavior and perceived barriers to HIV preventive behavior. Likert's type was used for ranging scales. A score of five was given to answer "**Strongly agree**," a score of four was given to the answer "**Agree**," score of three was given to answer "**Not sure**," score of two was given to answer "**Disagree**," and a score of one was given to answer "**Strong disagree**." The maximum, minimum, mean score and standard deviation score were also used for classifying of the perceptions into:

-High level of perception ≥ Mean + Standard Deviation (SD)

-Moderate level of perception = [(Mean+ SD)-(Mean-SD)]

-Low level of perception ≤ Mean − Standard Deviation (SD)

Part 4: Sources of information

The questions of this section were focused on sources of information students received about HIV/AIDS from: mass media, school, teachers, family members, and peers not in school.

Part 5: HIV preventive behavior

In this part, the students answered questions that were closed-ended and opened-ended. The questions covered issues on HIV preventive behavior among Toul Tompong high school male students in Phnom Penh City, Cambodia.

3.6 Pre-test of the Questionnaire

A pre-test was conducted, prior to data collection, after training of staff. With the cooperation of the director and teachers of Toul Tompong high school, 55 students answered questions including 17 students of 10^{th} grade, 20 students of 11^{th} grade and 18 students of 12^{th} grade. The pre-test data were analyzed for reliability coefficients of knowledge about HIV/AIDS and perceptions of HIV preventive.

The result of the pretest showed that Alpha coefficients reliability of Cronbach were - α=0.7631 for 20 questionnaires of knowledge

- α=0.6782 for 5 questionnaires of perceived susceptibility
- α=0.5645 for 4 questionnaires of perceived severity
- α=0.8101 for 9 questionnaires of perceived benefits
- α=0.6434 for 10 questionnaires of perceived barriers

Based on the result of the pre-test and the feedback from the respondents, it was found that in general the respondents had some misunderstanding of some of the questions. As a result, some question had to be improved.

3.7 Data Collection

By using simple random sampling technique, Toul Tompong high school was used in this study. The data collection was carried out as the following:

-With the cooperation of the national center for HIV/AIDS Dermatology and STI and Educational Department, the municipal of Phnom Penh gave a letter of permission;

-The director and staff of the research unit of the National Center for HIV/AIDS played the role as coordinators and the facilitators in this study;

-The self-administered questionnaires were distributed to students through their director and teacher.

3.8 Method of Data Analysis

The data were edited, coded and analyzed by using the statistical methods of Chi-square test, Pearson's correlation and other descriptive statistics. Data were analyzed by considering level of measurement. The analysis included two main parts:

(1) Descriptive statistics: describe perceptions of HIV infection/preventive behavior, socio-demographic characteristics, knowledge, sexual behavior and HIV preventive behavior. The descriptive analysis included: frequency distribution, percentage, mean, median and standard deviation.

(2) The analytic statistic Chi-Square test, t-tests and Pearson's correlation were used to determine whether each independent variable had a significant relationship with the dependent variable. The significant level was set at $\alpha = 0.05$.

CHAPTER 4
RESULTS

The purpose of the study was to investigate sexual behavior and HIV preventive behavior among high school male students in Phnom Penh City, Cambodia. The results of this study will be presented in this chapter in six parts. The first part describes socio-demographic factors of the respondents. The second part covers sexual and HIV preventive behavior. The third part is about knowledge of HIV/AIDS by the students. The fourth part describes sources of information on HIV/AIDS. The fifth part is a presentation of the perceptions of HIV infection/preventive behavior and their relationship with the knowledge of the respondents. And the last part shows the results of the relationship between perceptions of HIV infection/preventive behavior and actual HIV preventive behavior.

4.1 Socio-demographic Characteristics of the Respondents

Four hundred and nine high school male students at Toul Tompong school in Phnom Penh City were the respondents of this study. The socio-demographic factors considered were age, living arrangement, allowance, occupation of parents and education of parents as showed in Table 4.

Among the 409 high school male students, the number in grade 10 was 156 (38.1%), number in grade 11 was 138 (33.8%) and number in grade 12 was 115 (28.1%). Their age ranged from 14 to 21 years; the mean age was 17.55 years, and standard deviation was 1.46 years. Half of the respondents (50.6%) belonged to middle adolescence (17-18 years-old). About one-fourth (26.2%) of the students were in a younger age group (14-16 years-old), and another one-fourth (23.2%) were in the group aged 19 to 21 years-old.

The majority, approximately eighty percent of the students (79.7%), lived with their parents, and 18.3 percent lived with their relatives. Regarding their father's occupation, 34.7 percent were government officers. However, more than one-fourth of

their fathers (26.9%) were business owners or self employed, and 10.6 percent of their fathers were farmers. Concerning their mother's occupation, nearly half (42.8%) were unemployed, mostly spending their time managing their homes. Approximately one-fourth of their mothers (28.6%) had their own business or were self employed. The education of their fathers was mostly at the high school level with 38.6 percent, and 23 percent attended secondary school, and another 20.7 percent finished college or university. Only 2 percent of their fathers had no school attendance. Regarding mothers education, 30.1 percent of their mothers went had some secondary school education level; 27.6 percent of their mothers were high school graduates; 23.2 percent of mothers attended primary school, and 7.30 percent attended college or university, but 6.9 percent of their mothers did not attend school. With regard to student's amount of monthly allowance, nearly half of the students (46.2%) fell in the category of 60,000 Riels to 120,000 Riels, followed by 38.4 percent with lower allowance of 55,000 Riels. Only 15.4 percent of them received more than 139,500 Riels, with the range from 3,000 Riels to 2,100,000 Riels.

Table 4 Socio-demographic characteristics of the respondents

Characteristics	Number (n=409)	Percentage
Grade		
10^{th}	156	38.1
11^{th}	138	33.8
12^{th}	115	28.1
Total:	409	100.0
Age (years)		
14 - 16	107	26.2
17 - 18	207	50.6
19 - 21	95	23.2
Total:	409	100.0
Mean=17.55; SD=1.46; Maximum=21 ; Minimum=14		

Table 4 Socio-demographic characteristics of the respondents (cont.)

Living arrangement			
	Parents' house	326	79.7
	Relative's house	75	18.4
	Friend's house	3	0.7
	Temple	3	0.7
	Rent a house	2	0.5
Total:		409	100.0
Father's occupation			
	Government officer	142	34.7
	Business owner/self employed	110	26.9
	Farmer	43	10.6
	Private employed (NGO, Companies)	30	7.3
	Dead	30	7.3
	Laborer	22	5.4
	Retired	21	5.1
	Unemployed	9	2.2
	Monk	2	0.5
Total:		409	100.0
Mother's occupation			
	Unemployed	175	42.8
	Business owner/self employed	117	28.6
	Farmer	45	11.0
	Government officer	42	10.3
	Dead	14	3.4
	Private employed (NGO, Companies)	9	2.2
	Laborer	6	1.5
	Retired	1	0.2
Total:		409	100.0

Table 4 Socio-demographic characteristics of the respondents (cont.)

Father's education			
	No school education	8	2.0
	Primary school	33	8.1
	Secondary school	94	23.0
	High school	158	38.6
	College or University	85	20.7
	Dead	26	6.4
	Unknown	5	1.2
Total:		409	100.0
Mother's education			
	No school education	28	6.9
	Primary school	95	23.2
	Secondary school	123	30.1
	High school	113	27.6
	College or University	30	7.3
	Dead	12	2.9
	Unknown	8	2.0
Total:		409	100.0
Allowance per month (Riels)			
	<55,000	157	38.4
	60,000-120,000	189	46.2
	>139,500	63	15.4
Total:		409	100.0
Mean=86,980.93; SD=124,138.75; Maximum=2,100,000; Minimum=3,000			

4.2 Sexual and HIV Preventive Behavior of the Respondents

Regarding sexual drive as shown in Table 5, 61.1 percent of the students had feeling of sex, but not so much; one-fourth of the students (25.2%) had no feeling at all. However, 13.7 percent of the students had very much feeling.

Table 5 Sexual Drive

Sexual Drive	Number	Percentage
Yes, very much	56	13.7
Yes, but not so much	250	61.1
No, not at all (no feeling)	103	25.2
Total:	409	100.0

In this study, HIV preventive behavior of the male students was accessed through their sexual abstinence, partner selection, and condom use.

Regarding the question, whether students had sex with other(s) as shown in Table 6, 8.8 percent of the students had sex with other(s) but more than ninety percent of the students (91.2%), although they had feeling of having sex, they had no sex. In other words, they engaged in sexual abstinence.

Table 6 Having sex with other(s)

Having sex with other(s)	Number	Percentage
Yes	36	8.8
No	373	91.2
Total:	409	100.0

According to the students control of themselves, among those who did not have sexual experience as shown in Table 7, 60.3 percent of the students controlled themselves by playing sports; 41 percent of them by the commitment to abstain from sex until marriage; 22 percent of the students by studying hard; and 9.7 percent of them by masturbation only.

Table 7 Methods for controlling themselves among the students who did not have sexual experience

Methods for controlling themselves	**Number**	**Percentage***
Playing sport	225	60.3
Commitment to abstain from sex until marriage	153	41.0
Studying hard	82	22.0
Having sex by masturbation only	36	9.7
Not thinking about sex because of still being young	6	1.6

*The percentages were calculated by using 373 students, who had no sexual experience.

With respect to the combination of methods for controlling themselves, Table 8 shows that 37 percent of the students controlled themselves by playing sport, although 22.5 percent of the students commitment to abstain from having sex until they were married. Nevertheless, most of them used the combination of methods for controlling their sexual drive.

Table 8 Combination of methods for controlling themselves

Methods for controlling themselves	Number	Percentage
Playing sport	138	37.0
Commitment to abstain from sex until marriage	84	22.5
Playing sport and Commitment to abstain from sex until marriage	31	8.3
Studying hard, Playing sport and Commitment to abstain from sex until marriage	29	7.8
Studying hard	27	7.2
Having sex by masturbation only	22	5.9
Studying hard and Playing sport	20	5.4
Playing sport and Having sex by masturbation only	5	1.3
Not thinking about sex because of still being young	5	1.3
Studying hard and Commitment to abstain from sex until marriage	4	1.1
Studying hard and Having sex by masturbation only	3	0.8
Playing sport, Commitment to abstain from sex until marriage and Having sex by masturbation only	3	0.8
Studying hard, Playing sport, Commitment to abstain from sex until marriage and Having sex by masturbation only	1	0.3
Playing sport and Not thinking about sex because of still young	1	0.3
Total:	373	100.0

*Note: Only 36 students had a sexual experience.

For those who had sex, their first age of having sex is shown in Table 9. Approximately one-fourth of the students (26.7%) had their first sexual experience when they were in 18 years old; 23.3 percent of the students had a sexual experience

at age 17; 20.1 percent of them had a sexual experience by age 16 years, and only 3.3 percent of respondents had a sexual experience at age 14 and 15 years.

Table 9 The first age of having sex with a partner

The first age of having sex with a partner (years)	Number	Percentage
14	1	3.3
15	1	3.3
16	6	20.1
17	7	23.3
18	8	26.7
19	4	13.3
20	1	3.3
21	2	6.7
Total:	30*	100.0
Mean=17.55 years; SD=1.61 years; Maximum=21 years; Minimum=14 years		

*Note: Six students could not remember the age of their first sex.

Concerning their partner selection as shown in Table 10, more than sixty percent of the students (63.9%) had sex with a girlfriend, and 36.1 percent of them had sex with a commercial sex worker at their first sexual experience.

Table 10 Students' first sexual partner

The first sexual partners	Number	Percentage
Girlfriend	23	63.9
Commercial sex worker	13	36.1
Total:	36	100.0

Regarding using a condom with their first partner as shown in Table 11, 80.6 percent of the students used a condom with their first partner, and 19.4 percent of the students did not use a condom during their first sexual intercourse.

Table 11 Students' condom use with the first partner

Use a condom with the first partner	Number	Percentage
Yes	29	80.6
No	7	19.4
Total:	36	100.0

For those who did not use a condom for their first sexual intercourse, as shown in the Table 12, nearly sixty percent of the students (57.1%) said that they did not use a condom because there was no condom availability at that moment. However, 28.6 percent of the students admitted that they could not control themselves in spite of having a condom, and 14.3 percent of them had trust in his partner.

Table 12 Reason for not using a condom at their first sex

Reasons for not using a condom	Number	Percentage
No condom	4	57.1
Could not control in spite of having a condom	2	28.6
Having trust in his partner	1	14.3
Total:	7	100.0

Besides recording information on their first sexual experience, information on their total sexual experiences is shown in Table 13. It shows that 36.1 percent of the students had sexual experience with only his girlfriend. On the other hand, 36.1 percent of the students had sexual experience with only commercial sex workers.

However, 27.8 percent of them had experience with both a girlfriend and commercial sex workers.

Table 13 Type of sexual partners

Type of sexual partners	Number	Percentage
Girlfriend	13	36.1
Commercial sex worker	13	36.1
Girlfriend and Commercial sex worker	10	27.8
Total:	36	100.0

With respect to condom use, it is interestingly that the students would not always use a condom with their girlfriend as shown in Table 14, only 65.2 percent of the students always used a condom with their girlfriend. On the other hand, in the Table 15, for those who had sex with commercial sex workers, 95.7 percent of them always used a condom with their partners.

Table 14 Using condom with their girlfriends

Condom use	Number	Percentage
Always used a condom	15	65.2
Used a condom sometimes	6	26.1
Never used a condom	2	8.7
Total:	23	100.0

Table 15 Using a condom with commercial sex workers

Condom use	Number	Percentage
Always used a condom	22	95.7
Used a condom sometimes	1	4.3
Total:	23	100.0

Regarding the number of partners the students have ever had as shown in Table 16, approximately forty percent of the students (39.3%) had only one partner, 14.3 percent of them had two partners. Surprisingly, one student (3.6%) had nineteen sexual partners.

Table 16 Number of sexual partners students have ever had

Number of sexual partners	Number	Percentage
1	11	39.3
2	4	14.3
3	3	10.7
4	3	10.7
5	2	7.1
7	1	3.6
9	1	3.6
10	2	7.1
19	1	3.6
Total:	28	100.0

As shown in Table 17, half of the students (50%) had sex one time per month, and one-fourth of them (25%) had sex two times per month; 21.4 percent of them had sex three times per month, and one (3.6 %) of the students had sex four times per month.

Table 17 Average number of times having sex per month

Average number of times having sex per month	Number	Percentage
1	14	50.0
2	7	25.0
3	6	21.4
4	1	3.6
Total:	28	100.0

4.3 Knowledge of HIV/AIDS

Table 18 demonstrates the respondents' level of knowledge of HIV/AIDS. As already mentioned in Chapter Three, the knowledge scale consisted of twenty items; therefore the total score is twenty. From the analysis, it showed that the students had a very good level of knowledge about HIV/AIDS. The highest total score of knowledge that the students obtained was 18 and the lowest was 15, with the mean was 16.75 and standard deviation was 1.84. Consequently by using group reference criterion, about 37 percent of the students were in the group of high knowledge level. Nearly half of them (47.2%) had moderate level of knowledge, and 15.8 percent of the students were in the low level group.

Table 18 Number and Percentage of knowledge about HIV/AIDS

Level of knowledge	Number	Percentage
High Level (18-20 scores)	148	37.0
Moderate Level (16-17 scores)	189	47.2
Low level (5-15 scores)	63	15.8
Total:	400*	100.0
Mean=16.57, SD=1.84, Maximum=20, Minimum=5		

*9 missing cases

Table 19 shows each item of knowledge given by the respondents. The items, transmission from positive pregnant woman to her babies and treatment, were answered correctly 84.4% and 97.1%, respectively. Surprisingly, only 7.3 percent of the students responded correctly about the sexual activity with the highest risk to contact HIV/AIDS (anal sex). However, only 45.5 percent of the students answered correctly about AIDS symptoms and its developments.

Table 19 Knowledge about HIV/AIDS

	Knowledge about HIV/AIDS	**Number**	**Percentage**
AIDS symptoms to develop after a person get infected			
	(1) Few days to 4 weeks	19	4.6
	(2) Several months	199	48.7
*	(3) Few months up to 10 years	186	45.5
	(4) More than 15 years	5	1.2
	Total:	409	100.0
Which of the following <u>is not a way of</u> transmission of HIV			
	(1) Sexual intercourse	10	2.4
*	(2) Mosquito bite	397	97.1
	(3) Blood transfusions	0	0.0
	(4) Mother to unborn baby	2	0.5
	Total:	409	100.0
Which type of sex has the highest risk to contact HIV/AIDS			
	(1) Vaginal sex	369	90.2
	(2) Oral sex	6	1.5
*	(3) Anal sex	30	7.3
	(4) Self sex	4	1.0
	Total:	409	100.0

*Correct answers

Table 19 A answers of knowledge about HIV/AIDS (cont.)

	Knowledge about HIV/AIDS	Number	Percentage
An exception of HIV infection from positive pregnant woman to her babies			
	(1) During pregnancy	26	6.4
	(2) During giving breast feeding	12	2.9
	(3) During delivery	25	6.1
*	(4) During giving milk	345	84.6
	Total:	408	100.0
HIV/AIDS disease could be treated by			
	(1) By a vaccine	10	2.5
	(2) By antibiotics	9	2.2
	(3) By an operation	1	0.2
*	(4) No cure	389	95.1
	Total:	409	100.0
Which of the following is correct condom use			
*	(1) Leave space on the tip of the condom to collect semen	285	69.9
	(2) Put the condom on before erection occurs	60	14.7
	(3) Blow air into the condom	16	3.9
	(4) All above answer are correct	47	11.5
	Total:	408	100.0

*Correct answers

The data in Table 20 shows each item of knowledge about HIV/AIDS, with a percentage of correct and incorrect answers. All of the questions such as using public toilets, sharing utensils, pregnant mother to their babies, hugging and touching, sharing unclean syringes/needles, mosquito bites, kissing, having sex with commercial sex workers, masturbation, taking antibiotics, being sexually abstinence, urinating after sex, were the issues that the students provided correct answered varying from 82.1 percent to 98.8 percent. However, only 37.9 percent of the students

answered correctly the question that having a regular health check up can prevent HIV/AIDS infection.

Table 20 Correct answers concerning Knowledge about HIV/AIDS

Statement	Number	Percentage
A person can contract HIV/AIDS....		
from using public toilets.	404	98.8
from sharing utensils (cup, fork....).	400	97.8
from pregnant mothers to their babies.	391	96.1
from hugging and touching.	399	97.6
by sharing unclean syringes/needles.	399	97.6
by mosquito bites.	401	98.3
from kissing.	397	97.1
by having sexual intercourse with commercial sex workers.	394	96.3
from masturbation.	401	98.0
by having many sex partners.	398	97.3
A person can prevent himself from contracting HIV/AIDS....		
by taking antibiotics regularly.	380	93.4
by living abstinence (not having sex).	361	88.3
by having a regular health check up.	155	37.9
by urinating after sexual intercourse.	334	82.1

4.4 Sources of Information on HIV/AIDS

Regarding sources of information on HIV/AIDS, the data in Table 21 shows that almost all students (96.3%) had information on HIV/AIDS concerning prevention; 90.5 percent of the students had information on HIV/AIDS transmission; 63.8 percent of them had received information on HIV/AIDS etiology; and 1.5 percent of the students had information on HIV/AIDS through condom use and care and support programme. However, Table 22 describes the combination of information and shows that nearly one-fourth of the students (21%) got information on HIV/AIDS concerning etiology, transmission, prevention and stigmatization; 16.9 percent of the students got three kinds of information on HIV/AIDS, consisting etiology, transmission and prevention.

Table 21 Received information concerning HIV/AIDS

Kinds of information concerning HIV/AIDS	Number	Percentage*
HIV/AIDS prevention	394	96.3
HIV/AIDS transmission	370	90.5
HIV/AIDS etiology	261	63.8
HIV/AIDS stigmatization	236	57.7
HIV/AIDS treatment	118	28.9
Condom use and care support	6	1.5

*The percentages were calculated from all the respondents (409 students).

Table 22 Combination of information received concerning HIV/AIDS

Kinds of information concerning HIV/AIDS	Number	Percentage
Etiology, transmission, prevention and stigmatization	86	21.0
Etiology, transmission and prevention	69	16.9
Etiology, transmission, prevention, treatment and stigmatization	58	14.2
Transmission, prevention and stigmatization	52	12.8
Transmission and prevention	37	9.0
Etiology, transmission, prevention and treatment	19	4.7
Transmission, prevention, treatment and stigmatization	19	4.6
Prevention	11	2.8
Etiology and prevention	11	2.8
Transmission, prevention and treatment	8	2.0
Etiology, prevention and stigmatization	6	1.5
Transmission	5	1.3
Etiology and transmission	4	1.0
Etiology, prevention and treatment	4	1.0
Prevention and stigmatization	3	0.7
Etiology, transmission and treatment	2	0.5
Etiology, prevention, treatment and stigmatization	2	0.5
Etiology, transmission, prevention, stigmatization, and condom use	2	0.5
Transmission, treatment and stigmatization	1	0.2
Prevention, treatment and stigmatization	1	0.2
Transmission and treatment	1	0.2
Prevention and treatment	1	0.2

Table 22 Combination of received information concerning HIV/AIDS (cont.)

Stigmatization	1	0.2
Transmission and Stigmatization	1	0.2
Etiology, transmission and stigmatization	1	0.2
Etiology and Care support	1	0.2
Etiology, transmission, prevention and care support	1	0.2
Transmission, prevention, treatment, stigmatization and care support	1	0.2
Etiology, transmission, prevention, treatment, stigmatization and care support	1	0.2
Total:	409	100.0

The data in Table 23 shows the kinds of information that students received most frequently. More than half of the students (63.8%) got information about HIV/AIDS on prevention most frequently; nearly one-fourth of the students (24.5%) got information about HIV/AIDS on transmission most frequently, and 5.6 percent of them got information which was connected with an etiology. However, only 4.4 percent of the students received information related to stigmatization, and only 1.7 percent of them got information involving treatment.

Table 23 Kinds of information most frequent received about HIV/AIDS

Kind of information about HIV/AIDS	**Number**	**Percentage**
HIV/AIDS prevention	261	63.8
HIV/AIDS transmission	100	24.5
HIV/AIDS etiology	23	5.6
HIV/AIDS stigmatization	18	4.4
HIV/AIDS treatment	7	1.7
Total:	409	100.0

The data in Table 24 shows sources of information about HIV/AIDS which students got through teachers, peers in school, peers not in school, mass media, family members and health workers. Nearly ninety percent of the students (88.5%) received information through mass media. Although the students had to go to school nearly every day, only 69.4 percent of them got information from their teacher, and 66.5 percent of the students got information from peers in school. Approximately half of the students received information from health workers (57.0%), and family members (53.8%). Furthermore, the combination of sources of information about HIV/AIDS showed that 19.3 percent of the students received information through their teachers, peers in school, peers not in school, mass media, family members and health workers. On the other hand only 7.8 percent of the students received only information from mass media. (See detail in table A.1 Combination of sources of information in Appendix B.)

Table 24 Sources of information about HIV/AIDS

Sources of information about HIV/AIDS	Number	Percentage
Mass Media	362	88.5
Teachers	284	69.4
Peers in school	272	66.5
Health workers	233	57.0
Family members	220	53.8
Peers not in school	176	43.0
Friend	7	1.7

The data in Table 25 also describes sources of information about HIV/AIDS by mass media materials. Almost all of the students (93.2%) received information from television or radio, but 54 percent got information from posters and nearly half of the students received information from books (49.1%) and magazines (48.7%). Only one student got information by using the Internet. However, table A.2 shows

that all of them received a lot of information about HIV/AIDS from multiple mass media sources (See detail in Table A.2 Combination of materials about HIV/AIDS in Appendix B.)

Table 25 Mass media materials about HIV/AIDS

Kinds of materials about HIV/AIDS	Number	Percentage
Television / Radio	381	93.2
Posters	223	54.5
Books	201	49.1
Magazines	199	48.7
Newspapers	178	43.5
Leaflets	147	35.9
Internet	1	0.2

The data in Table 26 describes each type of information about HIV/AIDS that the students received from school. Almost all of the students (97.3%) got information concerning HIV/AIDS preventions; 89 percent of the students obtained information concerning transmissions, approximately sixty percent of them received information about etiology (58.4%), and stigmatization (54.3%), 24.9 percent of the students got HIV/AIDS information concerning treatment and 5 percent of the students received information from the condom use programme.

Table 26 Information about HIV/AIDS from school

Kind of information about HIV/AIDS from school	Number	Percentage*
HIV/AIDS concerning prevention	398	97.3
HIV/AIDS concerning transmission	364	89.0
HIV/AIDS concerning etiology	239	58.4
HIV/AIDS concerning stigmatization	222	54.3
HIV/AIDS concerning treatment	102	24.9
Condom use	2	5.0

*The percentages were calculated by using total cases.

The data in Table 27 presents combination details of information about HIV/AIDS from school. Nearly twenty percent of the students (18.3%) got three kinds of information about HIV/AIDS concerning etiology, transmission and prevention, and 17.6 percent of them received four kinds of information about HIV/AIDS concerning etiology, transmission, prevention and stigmatization.

Table 27 Combination of information from school

Kinds of information about HIV/AIDS from school	Number	Percentage
Etiology, Transmission and Prevention	75	18.3
Etiology, Transmission, Prevention and Stigmatization	72	17.6
Transmission, Prevention and Stigmatization	66	16.2
Etiology, Transmission, Prevention, Treatment and Stigmatization	55	13.5
Transmission and Prevention	48	11.8
Etiology and Prevention	14	3.4
Transmission, Prevention, Treatment and Stigmatization	13	3.2
Prevention	13	3.2

Table 27 Combination of information from school (cont.)

Transmission, Prevention and Treatment	12	3.0
Etiology, Transmission, Prevention and Treatment	10	2.5
Prevention and Stigmatization	5	1.2
Transmission	4	1.0
Prevention, Treatment and Stigmatization	3	0.7
Prevention and Treatment	3	0.7
Etiology	2	0.5
Etiology, Prevention and Treatment	2	0.5
Etiology, Transmission, Treatment and Stigmatization	2	0.5
Etiology, Prevention and Stigmatization	2	0.5
Etiology, Prevention, Treatment and Stigmatization	2	0.5
Etiology and Transmission	1	0.2
Etiology, Transmission and Treatment	1	0.2
Etiology and Stigmatization	1	0.2
Transmission and condom use	1	0.2
Etiology, Transmission, Prevention and Condom use	1	0.2
Etiology, Transmission, Prevention, Treatment, Stigmatization and Condom use	1	0.2
Total:	409	100.0

Regarding Table 28, the students give their opinion concerning information obtained from school. More than half of the students (58.6%) said the information their received was sufficient, and 12.5 percent of the students said that they had too much information about HIV/AIDS from the school. On the other hand, one-fourth of them (25.7%) thought that information on HIV/AIDS provided in school was too little.

Table 28 Opinion on information about HIV/AIDS in the school

Opinion	Number	Percentage
Sufficient	239	58.6
Too little	105	25.7
Too much	51	12.5
Not sure, not comment	13	3.2
Total:	408	100.0

4.5 Perceptions of HIV Infection / Preventive Behavior

In this study, the perceptions of HIV infection and preventive behavior composed four perceived issues. The first, perceived susceptibility to HIV infection had five items. The second, perceived severity of HIV infection had four items. The third, perceived benefits of HIV preventive behavior there were nine items, and the last, perceived barriers to HIV preventive behavior there were ten items. All the responded scales were five point scales (strongly agree to strongly disagree).

Table 29 Summary of perceptions of HIV infection/preventive behavior

Perceptions of HIV infection / preventive behavior	**Number of items**	**Total of Scores**	**Range**	**Mean**	**SD**
Perceived susceptibility to HIV infection	5	25	5 to 25	15.45	3.37
Perceived severity of HIV infection	4	20	4 to 20	9.42	2.15
Perceived benefits of HIV preventive behavior	9	45	16 to 44	35.17	3.88
Perceived barriers to HIV preventive behavior	10	50	10 to 42	25.79	5.06

In Table 30, perceived susceptibility to HIV infection by using group reference was divided into three levels. The scores ranged from 5 to 25, with a mean of 15.45 and standard deviation of 16. Seventy percent of the students (70.5%) had a moderate level of susceptibility perception; 9.9 percent of the students were in the high level group and 19.6 percent of the students had a low level of perceived susceptibility to HIV infection. However, when five items of perceived susceptibility were described in detail, 44.7 percent of the students agreed on the point that "Your behavior could cause you to get HIV infection in the future." Forty percent of them (40.1%) agreed that "Regarding your sexual behavior, you should not get AIDS." In addition, 40.5 percent of the students disagreed that "You worry that you will be infected with HIV/AIDS." and 41.6 percent were not sure when they were asked about "regarding their sexual behavior, they should not get AIDS."

Table 30 Perceived susceptibility to HIV infection

Perceived Susceptibility	**Number**	**Percentage**
High Level (20-25 scores)	40	9.9
Moderate Level (13-19 scores)	285	70.5
Low level (5-12 scores)	79	19.6
Total:	404	100.0
Mean=15.45, SD=16.00, Maximum=25, Minimum=5		

Perceived susceptibility to HIV infection in detail

Perceived susceptibility	5	4	3	2	1
Regarding your sexual behavior, you should not get AIDS.	14.7	25.4	41.6	13.9	4.4
You worry that you will be infected with HIV/AIDS.	8.1	19.8	31.6	19.3	21.2
Your behavior could cause you to get HIV infection in the future.	16.1	28.6	31.8	13.5	10.0
Your present daily behavior put you at any risk of being infected by HIV/AIDS.	12.2	34.0	28.1	13.0	12.7
It is possible for you to contact HIV/AIDS.	9.1	24.0	31.1	20.6	15.2

Strongly agree=5, Agree=4, Not sure=3, Disagree=2, Strongly disagree=1

Regarding Table 31, the perceived severity of HIV infection showed that the students could be categorized into three levels of perception, namely high, moderate and low levels. More than eighty percent of the students (82.9%) were in the moderate level. The mean was 9.42 and standard deviation was 2.15. Only, 8.3 percent of the students had a high level of perceived severity, and 8.8 percent of the students had a low level of perceived severity. Moreover, from four items of perceived severity, only 91.4 percent of the students agreed that “HIV/AIDS is a curable disease.” Almost all of them (90.2%) disagreed on the point that “People with HIV/AIDS will be isolated from their communities.” In addition, nearly ninety percent of the students disagreed on “Students with HIV/AIDS won’t be allowed to attend schools.”(88%) and “People with HIV/AIDS will be fired from their jobs.” (89.7%).

Table 31 Perceived severity of HIV infection

Perceived Severity	Number	Percentage
High Level (13-20 scores)	34	8.3
Moderate Level (8-12 scores)	339	82.9
Low level (4-7 scores)	36	8.8
Total:	409	100.0
Mean=9.42, SD=2.15, Maximum=20, Minimum=4		

Perceived severity of HIV infection in detail

Perceived Severity	5	4	3	2	1
HIV/AIDS is a curable disease.	80.4	11.0	2.4	1.5	4.7
People with HIV/AIDS will be isolated from their communities.	2.9	2.9	4.0	32.0	58.2
Students with HIV/AIDS won't be allowed to attend schools.	3.2	2.4	6.4	26.4	61.6
People with HIV/AIDS will be fired from their jobs.	3.4	2.7	4.2	31.8	57.9

Strongly agree=5, Agree=4, Not sure=3, Disagree=2, Strongly disagree=1

Table 32, perceived benefits of HIV preventive behavior, shows that 72.3 percent of the students had moderate levels of perception. The mean was 35.17 and the standard deviation was 3.88. Nearly twenty percent of them (17.9%) had a high level of perceived benefit, and only 9.8 percent of the students had a low level of perceived benefit. Furthermore, nine items of perceived benefit revealed that almost all, 94.3 percent of the students, agreed on the point that "Use of a condom is a good model for the young generation in preventing HIV/AIDS." Approximately ninety percent of them (89.8%) agreed on "It is important to be abstinent from having sex when you are a student." However, nearly three-fourth of the students (74.8%) agreed that "Sexual abstinent is a method to prevent you from infection with HIV/AIDS." In

contrast, 75.5 percent of the students disagreed on "You cannot avoid contracting HIV infection although you use a condom."

Table 32 Perceived benefits of HIV preventive behavior

Perceived Benefits	Number	Percentage
High Level (39-44 scores)	73	17.9
Moderate Level (31-38 scores)	294	72.3
Low level (16-30 scores)	40	9.8
Total:	407	100.0
Mean=35.17, SD=3.88, Maximum=44, Minimum=16		

Perceived benefits of HIV preventive behavior in detail

Perceived Benefits	5	4	3	2	1
You cannot avoid contracting HIV infection although you use a condom.	9.5	10.3	4.7	30.8	44.7
You think that a condom should be used during sex.	52.3	37.9	2.4	3.7	3.7
It is important to be abstinent from having sex when you are a student.	70.7	19.1	2.9	2.2	5.1
Using a condom with all sexual partners prevents you from getting HIV/AIDS.	53.0	34.5	4.2	3.2	5.1
Using a condom is a good model for the young generation in preventing HIV/AIDS.	50.3	44.0	2.0	2.0	1.7
For you, sexual abstinence is good for your health.	29.3	38.4	22.5	7.1	2.7
There is no need to use a condom with a steady partner.	24.8	50.4	15.5	6.9	2.4
It is not important to choose a sexual partner.	40.8	37.4	11.0	7.8	3.0
Sexual abstinent is a method to prevent you from infection with HIV/AIDS.	33.0	41.8	8.6	11.7	4.9

Strongly agree=5, Agree=4, Not sure=3, Disagree=2, Strongly disagree=1

Regarding perceived barriers to HIV preventive behavior, Table 33 shows that the respondents were divided into three levels of perceived barriers. More than sixty percent of the students (65.5%) were in the moderate level and 12.9 percent of them had a high level of perception. However, only 21.6 percent of them had a low level of perception. The minimum of perceived barriers was 10, the maximum was 42 with the mean of 25.79 and the standard deviation 5.06. Moreover, ten items of perceived barriers to HIV preventive behavior are also presented in detail; 78.7 percent of the students disagreed on "Use of condom with sexual partner is not practicable." Approximately, three-fourth of them (75%) also disagreed on "Condoms are too expensive to use regularly." In contrast, one-third of the students (33.2%) agreed on "It is not easy to talk about condom used with your sexual partners." On the other hand, more than half of the students (54.0%) were not sure when they were asked about "Your sexual partner will feel uncomfortable when you are using a condom." Forty percent of the students (40.5%) were not sure about "Use of a condom makes sex less enjoyable."

Table 33 Perceived barriers to HIV preventive behavior

Perceived Barriers	**Number**	**Percentage**
High Level (32-42 scores)	52	12.9
Moderate Level (22-31 scores)	264	65.5
Low level (10-21 scores)	87	21.6
Total:	403	100.0
Mean=24.79, SD=5.06, Maximum=42, Minimum=10		

Perceived barriers to HIV preventive behavior in detail

Perceived Barriers	5	4	3	2	1
It is not easy to talk about condom use with your sexual partners.	8.3	24.9	19.3	31.1	16.4
For you, it is not easy to use a condom correctly.	9.0	29.1	17.6	26.9	17.4
Using a condom during sexual intercourse reduce sexual gratification.	4.4	17.3	41.6	26.2	10.5
Use of a condom with sexual partner is not practicable.	3.4	5.6	12.3	41.4	37.3
Use of a condom makes sex less enjoyable	5.0	17.2	40.5	27.0	10.3
Condoms are too expensive to use regularly.	4.7	9.8	10.5	44.6	30.4
For you, it is embarrassing to buy a condom.	6.1	18.2	19.7	41.0	15.0
Your sexual partner will feel uncomfortable when you are using a condom.	3.2	12.7	54.0	21.3	8.8
A condom is not suitable to use with a regular partner because it will cause them to feel distrusted.	2.0	5.6	21.5	42.5	28.4
Abstinence from sex makes you stressed.	8.8	24.9	34.0	21.3	11.0

Strongly agree=5, Agree=4, Not sure=3, Disagree=2, Strongly disagree=1

4.6 The Relationship of Knowledge about HIV/AIDS and Perceptions of HIV Infection / Preventive Behavior

In Table 34, Pearsons correlation coefficients were used for assessing the degree of association between knowledge and perceptions of HIV infection/preventive behavior. From the analyses of the results, perceived susceptibility to HIV infection did not have a statistically significant relationship with knowledge (r=-0.057, P-value =0.315). Similarly, perceived benefits of HIV preventive behavior also had no significant association (r=0.056, P-value=0.669). On

the other hand, perceived severity of HIV infection had significantly negative relationship with knowledge (r=-0.0153, P-value=0.008). And the perceived barriers to HIV preventive behavior also had significantly negative relationship with knowledge (r=-163, P-value=0.001). Finding from Pearsons correlation coefficients, there was a negative relationship between knowledge and perceived severity of HIV infection. There also was a negative relationship between knowledge and perceived barriers to HIV preventive behavior.

Table 34 Summary of correlation coefficients of knowledge about HIV/AIDS and Perceptions of HIV Infection/Preventive

Correlations of knowledge about HIV/AIDS and Perceptions of HIV infection / Preventive Behavior	n	r	P-value
Perceived susceptibility to HIV infection	376	-0.057	0.269
Perceived severity of HIV infection	306	-0.153*	0.008
Perceived benefits of HIV preventive behavior	397	0.056	0.669
Perceived barriers to HIV preventive behavior	394	-0.163**	0.001

* P<0.005

** P<0.001

4.7 The Relationship between the Perceptions and HIV Preventive Behavior

4.7.1 Perceptions of HIV infection / Preventive Behavior and Sexual Abstinence

T-tests were used to compare the means of the perceptions between two groups: abstinence from having sex and non-abstinence. The results, as shown in Table 35 for the perceived susceptibility to HIV infection, indicate that the mean of abstinence group and mean of the non-abstinence group were nearly the same.

Therefore, there was no statistically significant difference (t=0.481 and P-value=0.315). For perceived severity of HIV infection, the mean of the abstinence group and non-abstinence group also had no significant difference (t=1.126, P-value=0.133). In addition, the mean of perceived benefit of HIV preventive behavior and the mean of perceived barriers to HIV preventive behavior of abstinence group were greater than the means of the non-abstinence group; however, they were not statistically significant different (t=-0.292, P-value=0.385 for perceived benefits) and (t=-0.292, P-value=0.385 for perceived barriers). There was no significant difference between perceptions of HIV infection and sexual abstinence from having sex.

Table 35 Summary of T-test values for perceptions / preventive behavior and HIV preventive behavoirs: data on seual abstinence from having sex

Perceptions of HIV infection / Preventive Behavior	**Mean of Abstinence Group (S.D) (Number)**	**Mean of Non-Abstinence Group (S.D) (Number)**	**t**	**P-value (One-tailed)**
Perceived Susceptibility to HIV Infection	1.90 (0.541) (368)	1.94 (0.475) (36)	0.481	0.315
Perceived Severity of HIV Infection	1.99 (0.405) (373)	2.08 (0.500) (36)	1.126	0.133
Perceived Benefits of HIV Preventive Behavior	2.09 (0.525) (371)	2.00 (0.478) (36)	-0.977	0.164
Perceived Barriers to HIV Preventive Behavior	1.92 (0.573) (368)	1.89 (0.676) (35)	-0.292	0.385

4.7.2 Perceptions of HIV Infections/Preventive behavior and Partner Selection

The results in Table 36 show that the students who had sex might have different behavior concerning partner selection. Some students might select their partners by only having sex with a girlfriend; in contrast, some students had sex with commercial sex workers and girlfriends. By using t-tests, for the perceived susceptibility to HIV infection, the mean of the group that had sex with only a girlfriend (2.00) was slightly higher than the mean of the group that had sex with both a girlfriend and a commercial sex worker (1.91), but no significant difference (t=0.522, P-value=0.302). Regarding the perceived severity of HIV infection, it shows significant difference between the means of the group of students that only had sex with a girlfriend (2.31) and the means of the group who had sex with both a girlfriend and a commercial sex worker (1.96) with t=2.123, P-values=0.020. Nevertheless for both perceived benefits of HIV preventive behavior and perceived barriers to HIV preventive behavior there was no significance between the two groups (t=0.721, P-value=0.238 for perceived benefits and t=1.299, P-value=0.101 for perceived barriers). Finding from the t-tests, there was a significant difference perceived severity of HIV infection and partner selection.

Table 36 Summary of T-test values perceptions/preventive behavior and HIV preventive behavior: data on partner selection

Perception of HIV infection / Preventive Behavior	Mean of Only Girl friend Group (S.D) (Number)	Mean of Both: Girl Friend and CSWs Group (S.D) (Number)	t	P-value (One-tailed)
Perceived Susceptibility to HIV Infection	2.00 (0.408) (13)	1.91 (0.515) (23)	0.522	0.302
Perceived Severity of HIV Infection	2.31 (0.480) (13)	1.96 (0.475) (23)	2.123	0.020*
Perceived Benefits of HIV Preventive Behavior	2.08 (0.494) (13)	1.96 (0.475) (23)	0.721	0.238
Perceived Barriers to HIV Preventive Behavior	2.08 (0.760) (13)	1.77 (0.612) (22)	1.299	0.101

* P<0.05

4.7.3 Perceptions of HIV Infection/Preventive Behavior and Condom use

Table 37 shows that some students used a condom with their girlfriend, some of the students always used a condom with their partners and other students did not use a condom or only used a condom sometimes. By using the t-tests for the perceived susceptibility to HIV infection, the mean of the group who used a condom (2.07) was slightly higher than the mean of the non and sometimes condom use group (1.75), but there was not a significant difference (t=1.574, and P-value=0.065). For the perceived severity of HIV infection; the mean of those who always used a condom (2.00) was higher than the mean of those who used a condom sometimes or did not use a condom (2.25); therefore, there was no significant difference (t=-1.116, P-value=0.138).

Regarding the perceived benefits of HIV preventive behavior, the mean of the always used a condom group and the mean of the both did not use a condom and used a condom sometimes groups were similar, but not significant (t=0.314, P-

value=0.378). For the last, the perceived barriers to HIV preventive behavior, the mean of those who always used a condom (1.73) was slightly greater than the mean of those who used a condom sometimes or did not use a condom (2.13); however, there was not a significant difference (t=-1.309, and 0.102). There was no significant difference between perceptions of HIV infection and using condom with a girlfriend.

Table 37 Summary of T-test values for perceptions / preventive behavior and HIV preventive behavior: data on using condom with the girl friends

Perception of HIV infection / Preventive Behavior	Mean of Always used condom Group (S.D) (Number)	Mean of Both condom use Group (S.D) (Number)	t	P-value (One-tailed)
Perceived Susceptibility to HIV Infection	2.07 (0.458) (15)	1.75 (0.463) (8)	1.574	0.065
Perceived Severity of HIV Infection	2.00 (0.535) (15)	2.25 (0.463) (8)	-1.116	0.138
Perceived Benefits of HIV Preventive Behavior	2.07 (0.458) (15)	2.00 (0.535) (8)	0.314	0.378
Perceived Barriers to HIV Preventive Behavior	1.73 (0.704) (15)	2.13 (0.641) (8)	-1.309	0.102

Table 38 presents information about the students who used a condom with commercial sex workers. Some of the students always used a condom, in contrast to other students who only used a condom sometimes. For perceived susceptibility to HIV infection, the mean of those who always used a condom (1.95) was higher than the mean of those who did not use a condom or used a condom sometimes (1.00), and there was a significant difference (t=1.922, P-value=0.034). The perceived severity of HIV infection and the perceived benefits to HIV preventive behavior, both the means

of those who always used a condom and the mean of those who used a condom sometimes were nearly the same but no significant difference (t=-0.092, P-value=0.464 for perceived severity, and t=-0.092, P-value=0.464 for perceived benefits). In addition, for the perceived barriers to HIV preventive behavior, the mean of those who always used a condom (1.76) was less than the mean of those who used a condom sometimes (2.00), but not significantly (t=-0.372, P-value=0.357). Finding from T tests, there was a significant difference between perceptions of HIV infection and using condom with commercial sex workers.

Table 38 Summary of T-test values for perceptions / preventive behavior and HIV preventive behavior : data on using condom with commercial sex workers

Perception of HIV infection / Preventive Behavior	**Mean of Always used condom Group (S.D) (Number)**	**Mean of Both condom use Group (S.D) (Number)**	**t**	**P-value (One-tailed)**
Perceived Susceptibility to HIV Infection	1.95 (0.486) (22)	1.00 (0.000) (1)	1.922	0.034*
Perceived Severity of HIV Infection	1.95 (0.486) (22)	2.00 (0.000) (1)	-0.092	0.464
Perceived Benefits of HIV Preventive Behavior	1.95 (0.486) (22)	2.00 (0.000) (1)	-0.092	0.464
Perceived Barriers to HIV Preventive Behavior	1.76 (0.625) (21)	2.00 (0.000) (1)	-0.372	0.357

*p<0.05

CHAPTER 5
DISCUSSION

This study was a cross sectional study. Its main objective was to investigate sexual behavior and HIV preventive behavior among high school male students in Phnom Penh City, Cambodia. However, the study also aimed to investigate the relationship between perceptions of HIV infection and the HIV preventive behavior. This section is presented in five parts. The first part presents sexual and HIV preventive behavior. The second part is about knowledge of the students on HIV/AIDS. The third part describes sources of information on HIV/AIDS. The fourth part presents the perceptions of HIV infection/preventive behavior and their relationships with the knowledge of HIV/AIDS. And the last part covers the relationship between perceptions of HIV infection/preventive behavior and actual HIV preventive behavior.

5.1 The HIV Preventive Behavior of the Respondents

This study found that 36 respondents (8.8 percent) in a high school of Phnom Penh City, Cambodia have had sexual intercourse. This rate was slightly higher when compared with the study of Do DK. (56) on health behavior of adolescents in a high school in Nakhon Pathom, Thailand in 2002, which found that 7.5 percent had ever had sexual intercourse. However, this rate was lower as compared with some western countries. In the literature review (24), a study in the United States showed that 27 percent of the students in this age group had ever had sexual intercourse. The result was different because the research was done in different regional cultures, although the target population was in the same age group. In addition, Cambodia is still a developing country. These days are a period of rapid change in Cambodia with the traditional society and culture combining with western invasive culture. During this period, the young have contact with many new forms of entertainment. Therefore, the sexual intercourse rate in this study might not be a stable one and one would expect to

see a changing proportion of sexual intercourse among young adolescents in Cambodia.

Regarding partner selection, the results show that 13 of the students (36.1 percent of those who have had sex) had sex with only their girlfriends, and two-thirds of the respondents (63.9 percent of those who have had sex) had sex with both their girlfriends and commercial sex workers, who should be considered to be in the high risk group of HIV transmission. This study revealed that this rate is higher as compared with the study of Do DK. (56) on health behavior of adolescents in a high school in Nakhon Pathom, Thailand in 2002. That study showed that only one student among 200 respondents had sex with a commercial sex worker. The higher rate might be due to an increase of complex entertainment places in the Phnom Penh City, and the lacked of information by the students about HIV/AIDS and how to prevent HIV/AIDS.

With respect to condom use as a way to prevent students from HIV infection, in Cambodia condoms are popular and the cost is very low, but not all of the students used condoms because there is no condom available at the time needed. Moreover, some students stated they trusted their partner, and they could not control themselves in spite of having a condom.

The majority of the students (65.2 percent of those who had sex with their girlfriend) always used a condom when having sexual intercourse with only their girlfriends. This rate was lower as compared with the study of Sovannarith E. (57) among high school student in Phnom Penh, Cambodia in 2002, which found that 78.9 percent of the students had sex with girl/boy friends. However, almost all of them (95.7% of those who had sex with CSW) used a condom when they had sex with commercial sex workers. This rate was slightly higher when compared with the study of Sovannarith E (57), which revealed 82.4 percent of the respondents had sex with commercial sex workers. The rate was still higher when compared with the study of Ostergaard L. (58) on sexual behavior of adolescents before and after the event of AIDS in Thailand 1997. That study showed that 72 percent of the students always

used a condom with commercial sex workers. This might be the impacted of the 100% condom use programme in the whole country of Cambodia. Meaning that all of the sex workers must use a condom with their clients in the brothel: “No condom No sex”.

5.2 Knowledge on HIV/AIDS of the Male Students

Overall, nearly half of this study group (47.2 percent) possessed a moderate level of knowledge about HIV/AIDS and condom use. This is partly due to the fact that all of the students received some formal instructions about AIDS in school curriculum. This result was consistent with the study of Arenth J. (59) on HIV/AIDS prevention among male vocational students in Thailand, 1999 that found that the majority (78 percent) possessed a moderate level of knowledge concerning HIV/AIDS and condom use.

The question of knowledge covered the areas of etiology, mode of transmission, symptom management and prevention of HIV/AIDS. The results revealed that almost all of the students answered correctly 82.1 percent to 98.8 percent of the knowledge questions. Despite this, there were still 7.3 percent of the students with a low level of knowledge. This was mostly due to incorrect answers in specific areas where students seem to be poorly informed. For example: concerning ‘AIDS symptoms to develop after a person get HIV infection’, 45.5 percent of the students answered correctly. Concerning the mode of transmission: the highest risk to contact HIV/AIDS; only a few of the students (7.3%) answered correctly, nearly forty percent of the students (37.9%) thought that HIV could be prevented by having regular health check ups.

This is probably due to the Cambodian HIV/AIDS educational curriculum that had been integrated into the public school for just a few years. It would appear that the Ministry of Education should modify and revise the curriculums and set strategies for preventing HIV/AIDS infections and also collaborate with the Ministry of Health, especially the National Center for HIV/AIDS.

5.3 Sources of Information on HIV/AIDS

The results show that almost all of the students (93.2 percent) get information from mass media. However, they also got information from teachers, peers in school, health workers, family members and peers not in school, ranging from 69.4 percent, 66.5 percent, 57 percent, 53.8 percent and 43 percent respectively. Nevertheless, this is similar to the result of Arenth J. (59) on HIV/AIDS prevention among male vocational students Thailand, in 1999. But the result was slightly higher when compared with the study of Ngyen TLA in Viet Nam (61), which showed that 60.8 percent of the student got information from mass media. This might be due to a lot of mass media and appropriate information in the classroom in the Phnom Penh City, and that mass media is easy to access any place.

Regarding mass media and its strong role in disseminating information about HIV/AIDS, it is easy to access anywhere and frequently used by the students. But there is still a big gap regarding HIV/AIDS information received from teachers, peers in school, health workers, family members, parents, and peers not in school which might be due to inappropriate classroom instruction or the place for example in Vietnam. On the other hand, some parents of students might still not be very comfortable or confident in sharing information with their children. The study of Moore SM, Rosenthal DA. (60) found that students perceived their parents as non-liberal in their sexual attitude and not likely to discuss sex and HIV/AIDS.

For the intervention of an effective programme and to raise the knowledge level of the target audience, educational efforts and content of mass media therefore is an important component. To achieve better results in reducing risk behavior, target populations must be clearly identified. Moreover, messages must be developed for specific groups.

5.4 Perceptions of HIV Infection / Preventive Behavior

Regarding the perceived susceptibility of HIV infection, the study found that nearly forty percent of the students (44.7%) agreed with the statement that their behavior could cause them to get HIV infection. However, forty percent of them (40.5) disagreed with the statement that they were worry that they would be infected with HIV/AIDS. The results were contrary to the study of Arenth J. in Thailand (59) where about 70 percent of the students agreed that it was possible to contact HIV/AIDS by having sex with a healthy looking person. This might be due to a lack of information of HIV/AIDS concerning stigmatization among high school students in Phnom Penh.

When asked about their relation to people with AIDS, almost all of the students (91.4%) agreed with statement that HIV/AIDS was a curable disease. The results were contrary to the study of Ngyen TLA in Vietnam (61) where only 17.4 percent of the students agreed with the same statement. However, almost all of the students (90.2%) disagreed with statement that people with HIV/AIDS should be isolated from their communities, which was comparable with the study of Arenth J. in Thailand (59) where about 57.4 percent disagreed that people with HIV/AIDS should be isolated.

Concerning condom use, almost all of the students (94.3%) believed that the use of a condom was a good model for the young generation in preventing HIV/AIDS. This was a higher percentage than in the study of Ngyen TLA in Vietnam (61) where only seventy percent of the students (70%) answered the same statement. Moreover, three-fourth of the students (75.2%) agreed with the statement that there was no need to use a condom with a steady partner; this percentage was similar the study of Arenth J. in Thailand (59). Reasons for this might be the belief that a steady partner was more trusted and a belief that their partner was not infected with HIV/AIDS.

Regarding sexual partners, 33.2 percent of the students agreed that it was not easy to talk about condom used with their sexual partners. This was also different from the study of Arenth J. in Thailand (59) where 58.8 percent of them answered that

way. Consequently from the findings of this study and some previous studies, there is some need to have interventions that include preventive skill, not just only knowledge.

5.5 Association between Knowledge and Perceptions of HIV Infection/Preventive Behavior

Initially, there was a strong belief on the part of health educators that adequate knowledge about HIV/AIDS would lead to a reduction of risk behavior. This assumption is true in the sense that for an individual to change his behavior, it is necessary to know the risky behavior. However, despite the knowledge of the young about the risk and consequences, young people do not seem to behave accordingly and the level of knowledge seems to have limited influence on perceptions of HIV infections/preventive behavior.

There have been many studies to confirm this fact, where the level of knowledge was not relevant to behavioral change. For example in the study of . Miret M, et al. (62) among adolescents in Spain, knowledge was not related to risk behavior change. Another example is the finding reported by Jemmott JB 3rd, Jemmott LS, Hacker CI. (63) for African-American adolescents which indicated that knowledge was necessary but not sufficient for behavior change. These authors noted that the change to an intention to use a condom was not necessarily associated with the level of knowledge. Contrary to the research of the study of Arenth J. in Thailand (59), it found that the majority of the students with a high knowledge level also had a low safe sex intention. Moreover, consistent with this situation, it was found that the students who had a high level of knowledge, also had low intention of safe sex.

Looking at the association between knowledge about HIV/AIDS and perceived severity of HIV infection, this study revealed that students with a high level of perceived severity were more likely to have a low level of knowledge about HIV/AIDS. Students with a low level of perceived severity were more likely to have a high level of knowledge about HIV/AIDS. This correlation indicted a significant association between knowledge about HIV/AIDS and perceived severity of HIV infection, with $r=-0.153$, P-value=0.008.

In case perceptions of HIV preventive behavior, it is shown that students who had high level of perceived barriers of HIV preventive behavior were more likely to have low level of knowledge about HIV/AIDS. In other words, students who had low level of perceived barriers were more likely to have a high level of knowledge about HIV/AIDS. There was a statistically significant association between knowledge about HIV/AIDS and perceived barriers to HIV preventive behavior with r=-0.163, P-value=0.001. Both results, perceived severity and barrier, were more likely higher but the knowledge of students were more likely lower. It might be that they get information about HIV/AIDS from mass media and posters that were educating them by being afraid but it did not provide basic information about HIV/AIDS for the target audience or young people. Moreover, almost all of them got a lot of information about HIV/AIDS from the 100% condom use programme and peers in school during the HIV/AIDS epidemic in Cambodia.

According to the results, the students still need to learn basic information about HIV/AIDS in term of HIV preventive behavior.

5.6 Relationship between Perceptions of HIV Infection / Preventive Behavior and HIV Preventive Behavior

Regarding Table 35 which indicates that the mean score of perceptions for abstinence group were similar to the mean score of perceptions for the non-abstinence group, the t-tests did not find a significant difference between the mean score of perception for both groups, with P-value more than 0.05. It may be due to the fact their parents take care of their child, almost all of their mothers were unemployed that would mean the mothers took care of their family and managed everything in house, especially, they picked up their child at the school. Moreover, the government was commitment to close newspapers that promoted the students to take risky behavior.

As shown in Table 36, there was a significant difference between perceived severity for partner selection for those who had sex with only girlfriends and with both (commercial sex worker and girlfriend) with P-value=0.02. The significance showed that among those who had sex with only a girlfriend, there was a higher mean

score of perceived severity (mean=2.31scores) than when compared to those who had sex both with commercial sex worker and girlfriend (mean=1.96 scores). It might be due to the period of development of the country and a lack of information about HIV/AIDS because HIV/AIDS curriculums have just been integrated in the public school in the past few years. On the other hand, the results also support evidence of changing lifestyles of the young as economic development during this innovative period in Cambodia. The young could have more opportunity to contact many high risk groups such as commercial sex workers and their bad behavior.

This study found a significant difference between perceived susceptibility for the group that always use a condom with CSW and never or sometimes use a condom group with CSW, with P-value=0.034. The significant shows that among those who always use a condom, they had a higher mean score (1.95) than when compared with those who never or sometimes used a condom that had lower mean score (1.00). This result was similar to the study of Ngyen TLA in Viet Nam (61) that showed a significant difference between median score of perception for intention of always and the never or sometime use condom group. Furthermore, the study of Mahuttano K (64) about factors that influencing condom use among vocational education male students in Bangkok, Thailand had the same results. In her study it was found that factors that are associated with condom use among the students were attitude toward condom use, perception of susceptibility to sexual transmitted disease (STD) and AIDS, perception of seriousness of STD and AIDS availability of condoms, cost of condoms and other factors. It might be due to an increase in the number of entertainment places and that the price of sex was very cheap and easy to find. However, the students still lacked information about HIV/AIDS and how to protect themselves from infection in term of HIV preventive behavior. These reasons could explain the young people have early sexual intercourse and multiple sexual partners today.

CHAPTER 6
CONCLUSION AND RECOMMENDATION

6.1 Conclusion

This study aimed to investigate sexual behavior and HIV preventive behavior, including abstinence from having sex, partner selection, and condom use, among high school male students in Phnom Penh City, Cambodia, and describe the association between HIV preventive behavior and perception factors with respects to the Health Belief Model. The research design of this study was a cross-sectional one. The study target population was high school male students in Phnom Penh City. The sample size was four hundred and nine students for this study. The research instrument was a self-administrative questionnaire, and data were analyzed by using statistical methods of Pearson's correlation, t-tests and descriptive statistics.

Regarding socio-demographic characteristics, the data gathered from the questionnaire showed the age range of the respondents was between 14 to 21 years; the mean age was 17.55 years, and standard deviation was 1.46 years. Half of the respondents (50.6%) belonged to middle adolescence (17-18 years-old). The majority, approximately eighty percent of the respondents (79.7%) lived with their parents, and 18.3 percent of the students lived with their relatives. With respect to their monthly spending allowance, nearly half of the students (46.2%) fell in the category of 60,000 Riels to 120,000 Riels, followed by 38.4 percent with lower allowance of 55,000 Riels. Only 15.4 percent of them received more than 139,500 Riels, with the range from 3,000 to 2,100,000 Riels.

The results of this study showed that 373 of the students (91.2%) had not had sex yet, which meant they were abstinent but that 36 of the students (8.8%) have had sex which meant they were non-abstinent. In terms of the age at which they first had sex, the results showed only one student started having sex at 14 years old.

Regarding partner selection and their total sexual experience, 36.1 percent of the students who have had a sexual experience only did so with his girlfriend. On the other hand, 36.1 percent of the students who have had a sexual experience only had sex with commercial sex workers. However, 27.8 percent of them have had a sexual experience with both a girlfriend and commercial sex workers.

With respect to condom use, only 65.2 percent of the students who have had sex always used a condom with their girlfriend and 95.7 percent of the students who have had sex always used a condom with commercial sex workers. However, only one student used a condom just sometimes with commercial sex workers, i.e. those who were in the high risk group for transmission of HIV/AIDS.

Regarding knowledge about HIV/AIDS, 37 percent of the students were in the high knowledge level group. Nearly half of them (47.2%) had moderate level of knowledge, and 15.8 percent of the students were in the low level group. There was a relationship between knowledge and perceptions; however, the results found out weak significant negative correlations for perceived severity of HIV infection with r=-0.153, P-value-0.008, and for perceived barriers to HIV preventive behavior with r=-0.163, P-value=0.001.

For the main sources of information about HIV/AIDS, almost all of the students (93.2%) got information from mass media, especially television / radio. They also expressed that they had access to other material information; for example 54 percent got information from posters; nearly half of the students received information from books (49.1%) and magazines (48.7%). Only one student got information by using the Internet. Interpersonal sources of information such as teachers, peers in school, peers not in school, family members, and health workers, were the biggest ways to dissemination information about HIV/AIDS in contrast to mass media.

About information from school, more than half of the students (58.6%) said the information they received was sufficient, and 12.5 percent of the students said that

they had a lot of information about HIV/AIDS from the school; perhaps even too much. Nevertheless, one-fourth of them (25.7%) thought that information about HIV/AIDS provided in school was too little.

With respect to the perceptions of HIV infection and perceived susceptibility to HIV infection, seventy percent of the students (70.5%) had a moderate level; 9.9 percent of them were in the high level group, and 19.6 percent of the students had a low level of perceived susceptibility to HIV infection. For perceived severity of HIV infection, more than eighty percent of the students (82.9%) had a moderate level, and 8.8 percent of them had a low level of perceived severity. Only 8.3 percent of the students had a high level of perceived severity. Regarding perceived benefits of HIV preventive behavior, 72.3 percent of the students had moderate levels, and only 9.8 percent of the students had a low level of perceived benefit of HIV preventive behavior. Nearly twenty percent of them (17.9%) had a high level of perceived benefits. For perceived barriers to HIV preventive behavior, more than sixty percent of the students (65.5%) had a moderate level; 12.9 percent of them had a high level of perception, and 21 percent of them had a low level.

With respect to the students who have had sex and regarding partner selection, there was a significant difference of perceived severity concerning HIV infection between the students who had sex with only their girlfriend and those who had sex with both a girlfriend and a CSW, with (t=2.123, P-values=0.020). It revealed that among students those who had sex with only their girlfriend, they had a higher mean score (mean=2.31) when compared with those who had sex with the both (mean=1.96).

Regarding the students who used a condom with commercial sex workers, and for perceived susceptibility to HIV infection, the mean of those who always used a condom (1.95) was higher than the mean of those who did not use a condom or used a condom sometimes (1.00), and there was significantly different (t=1.922, P-value=0.034).

In conclusion, this study suggests that young people should be provided sexual education and productive health intervention in public high schools in Phnom Penh City in term of HIV preventive behavior. These findings also indicate that HIV prevention should focus on providing information regarding HIV transmission. In addition, life skills and social norms such as talking about condom use, whether they use condoms correctly and how to avoid risky practices in order to reduce risk behavior among young people, especially among high school students, should also be provided.

6.2 Recommendation

6.2.1 Recommendation for Implementation

1. The finding of this study revealed that the students did not use a condom for their first sexual experience because no condom was available at that moment. Therefore, in order to change this behavior, knowledge about HIV/AIDS should be provided, including the advantages of condom use. The education programmes should cooperated with skill programmes that integrate or are focused on how to acquire condoms, how to use condoms correctly and consistently, and educate the students not to be shy to bring condoms along, especially, for those who have their first sexual contact. Nevertheless, effort needs to be made to make sure that condoms are available at any entertainment places. On the other hand, there should be programmes that create peer groups to support HIV preventive behavior among students in the school.

2. This study indicated that almost all of the students had a moderate level of knowledge and showed a negative relationship between knowledge and perceptions. Therefore, the students had basic information about HIV/AIDS prevention but they still misunderstood how to prevent HIV infection. This is most important. Education programmes should be focused on basic information about HIV/AIDS and the poor knowledge issues such as the highest risk activity to contact HIV/AIDS, prevention by regular health check ups, and recognizing symptoms to develop HIV/AIDS. Qualified and effective training should also be carried out at every school.

3. One of the most important finding of this study was the significant difference of perceived severity between the group of students who had sex only with their girlfriend and the group of students who had sex with both a girlfriend and commercial sex workers. Therefore it is recommended that high school students should create peers groups and provide life skills to them in order to change their behavior. On the other hand, parents and teachers should cooperate and follow up with students who were behaving inappropriately.

4. The results of this study could be used as a guideline to improve sex education courses, along with counseling and strategies for increasing condom use. Moreover, sex education should emphasize the perceived susceptibility and severity of HIV/AIDS, STI, and unwanted pregnancy, including giving information about condoms to female students.

5. Since mass media such as television / radio and posters plays a major role in the dissemination of HIV/AIDS information, as is evident from the results of this study, therefore, it is strongly recommended that mass media should be further strengthened to disseminate correct HIV/AIDS related information in order to remove the misconceptions and misunderstanding of HIV.

6.2.1 Recommendation for Research in Future

1. Further research needs to be done to investigate qualitative technique such as in-depth interviews in order to get detailed information regarding students general characteristics, as well as other social influences or culture factors that might affect HIV risk behavior and perceptions of HIV infection.

2. In this study, data was only collected in Toul Pongpong high school and only from male students. So in the future, other research should be focus on the both target group (male and female students). Further investigation should be conducted to compare factors related to HIV/AIDS preventive behavior among high schools between urban and rural student groups.

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APPENDIX

APPENDIX A

Questionnaire

For
HIV preventive behavior among high school male students, Phnom Penh, Cambodia

Code Number:.....

Part I: Socio-demographics

Please, read the questions carefully and do not skip any of the questions, Tick (✓) only one box ☐ that you think that the choice is your answer and complete all the questions.

1 Which grade are you in now ?

☐ (1) Grade 10
☐ (2) Grade 11
☐ (3) Grade 12

2 How old are you ? .....years

3 Where and with whom are you living?

☐ (1) Parents' house ☐ (2) Friend's house
☐ (3) Temple ☐ (4) Relative's house
☐ (5) Other (Specify).....

4 What is the main occupation of your father?

☐ (0) Dead
☐ (1) Farmer ☐ (2) Business owner/Self employed
☐ (3) Government officer ☐ (4) Private employed (NGO_s, companies)
☐ (5) Retired ☐ (6) Unemployed
☐ (7) Laborer ☐ (8) Other (Specify).....

5 What is the main occupation of your mother?

☐ (0) Dead
☐ (1) Farmer ☐ (2) Business owner/Self employed
☐ (3) Government officer ☐ (4) Private employed (NGO_s, companies)
☐ (5) Retired ☐ (6) Unemployed/housewife
☐ (7) Laborer ☐ (8) Other (Specify).....

6 What is the highest education level of your father?

☐ (0) Dead
☐ (1) No school education ☐ (2) Primary school
☐ (3) Secondary school ☐ (4) High school
☐ (5) College or university ☐ (6) Other (Specify).....

7 What is the highest education level of your mother?

☐ (0) Dead
☐ (1) No school education ☐ (2) Primary school
☐ (3) Secondary school ☐ (4) High school
☐ (5) College or university ☐ (6) Other (Specify).....

8 How much allowance do you receive per month in Riels?

Please, write number (only salary for your own expenditure, excluding room rent and educational fees or tutors fees):.....Riels / month.

Part II Knowledge about HIV/AIDS

Please, read carefully each question and do not skip any of the questions. Tick (✓) only one box ☐ that you think is a correct answer for each question.

1 How long does it take for AIDS symptoms to develop after a person gets infected?

☐ (1) Few days to 4 weeks ☐ (2) Several months (but not up to a year)
☐ (3) Few months up to 10 years ☐ (4) More than 15 years

2 Which of the following is not a way of transmission of HIV?

☐ (1) Sexual intercourse ☐ (2) Mosquito bite
☐ (3) Blood transfusions ☐ (4) Mother to unborn baby

3 Which type of sex has the highest risk to contact HIV/AIDS?

☐ (1) Vaginal sex ☐ (2) Oral sex
☐ (3) Anal sex ☐ (4) Self sex

4 What is an exception of HIV infection from positive pregnant woman to her babies?

☐ (1) During pregnancy ☐ (2) During giving breast feeding
☐ (3) During delivery ☐ (4) During giving milk

5 HIV/AIDS disease could be treated by?

☐ (1) By a vaccine ☐ (2) By antibiotics
☐ (3) By an operation ☐ (4) No cure

6 Which of the following is correct condom use ?

- ☐ (1) Leave space on the tip of the condom to collect semen
- ☐ (2) Put the condom on before erection occurs
- ☐ (3) Blow air into the condom.
- ☐ (4) All above answer are correct

Please read each following statement and put a tick mark (✓) only in "true" or " false " box corresponding to "correct statement" or "incorrect statement" respectively.

No	Statement	True	False
A person can contract HIV/AIDS....			
7	from using public toilets.		
8	from sharing utensils(cup, fork....).		
9	from pregnant mothers to their babies.		
10	from hugging and touching.		
11	by sharing unclean syringes/needles.		
12	by mosquito bites.		
13	from kissing.		
14	by having sexual intercourse with commercial sex workers.		
15	from masturbation.		
16	by having many sex partners.		
A person can prevent himself from contracting HIV/AIDS....			
17	by taking antibiotics regularly.		
18	by living abstinence (not having sex).		
19	by having regular health check ups.		
20	by urinating after sexual intercourse.		

Part III: Perception of HIV/AIDS

Please put only a tick mark (✓) if you: Strongly agree=5, Agree=4, Not sure=3, Disagree=2, Strongly disagree=1 with each of the following statements:

No	Statement	5	4	3	2	1
1	HIV/AIDS is a curable disease.					
2	Regarding your sexual behavior, you should not get AIDS.					
3	It is not easy to talk about condom used with your sexual partners.					
4	You worry that you will be infected with HIV/AIDS.					
5	For you, it is not easy to use a condom correctly.					
6	You cannot avoid contracting HIV infection although you use a condom.					
7	People with HIV/AIDS will be isolated from their communities.					
8	Using a condom during sexual intercourse reduce sexual gratification.					
9	Students with HIV/AIDS won't be allowed to attend schools.					
10	Use of a condom with a sexual partner is not practicable.					
11	Use of a condom makes sex less enjoyable.					
12	You think that a condom should be used during sex.					
13	Your behavior could cause you to get HIV infection in the future.					
14	It is important to be abstinent from having sex when you are a student.					
15	Using a condom with all sexual partners prevents you from getting HIV/AIDS.					
16	Use of a condom is a good model for the young generation in preventing HIV/AIDS.					
17	For you, sexual abstinence is good for your health.					
18	There is no need to use a condom with a steady partner.					
19	Your present daily behavior puts you at any risk of being infected by HIV/AIDS.					
20	Condoms are too expensive to use regularly.					

21	It is possible for you to contact HIV/AIDS.					
22	For you, it is embarrassing to buy a condom.					
23	Your sexual partner will feel uncomfortable when you are using a condom.					
24	It is not important to choose a sexual partner.					
25	Sexual abstinent is a method to prevent you from infection with HIV/AIDS.					
26	People with HIV/AIDS will be fired from their jobs.					
27	A condom is not suitable to use with a regular partner because it will cause them to feel distrusted.					
28	Abstinence from sex makes you stressed.					

Part IV: Sources of Information

Please, read carefully questions. Tick only one mark (✓) in box ☐ which corresponds to your answer for each question.

1 What kinds of information concerning HIV/AIDS have you ever received?

(a) HIV/AIDS concerning etiology ☐ Yes ☐ No
(b) HIV/AIDS concerning transmission ☐ Yes ☐ No
(c) HIV/AIDS concerning prevention ☐ Yes ☐ No
(d) HIV/AIDS concerning treatment ☐ Yes ☐ No
(e) HIV/AIDS concerning stigmatization ☐ Yes ☐ No
(f) HIV/AIDS other (specify)..... ☐ Yes ☐ No

2 Which of information about HIV/AIDS did you get most frequently? (only one answer).

☐ (1) HIV/AIDS etiology ☐ (2) HIV/AIDS transmission
☐ (3) HIV/AIDS prevention ☐ (4) HIV/AIDS treatment
☐ (5) HIV/AIDS stigmatization ☐ (6) other (specify).....

3 Which are sources of information about HIV/AIDS that you previously received ? (Answer all possible).

☐ (1) Teachers ☐ (2) Peers in school
☐ (3) Peers not in school ☐ (4) Mass Media: (News papers, TV, Radio)
☐ (5) Family members
☐ (6) Health workers (doctors, nurses and public health personnel)
☐ (7) Other (specify):.....

4 Which are sources of information about HIV/AIDS that you frequently received.? (Answers all possible).

☐ (1) Newspapers ☐ (2) Magazines
☐ (3) Posters ☐ (4) Television/ Radio
☐ (5) Books ☐ (6) Leaflets
☐ (7) Other (specify):.....

5 What kinds of information have you gotten from school?

(a) HIV/AIDS concerning etiology	☐ Yes	☐ No
(b) HIV/AIDS concerning transmission	☐ Yes	☐ No
(c) HIV/AIDS concerning prevention	☐ Yes	☐ No
(d) HIV/AIDS concerning treatment	☐ Yes	☐ No
(e) HIV/AIDS concerning stigmatization	☐ Yes	☐ No
(f) HIV/AIDS other (specify).....	☐ Yes	☐ No

6 How much did you receive information about HIV/AIDS providing in school?

☐ (1) Too little ☐ (2) Sufficient
☐ (3) Too much ☐ (4) Not sure, not comment

Part V: HIV Preventive Behavior

Please, carefully read each question and put only one tick (✓) in the box ☐ that you think corresponds to your answer.

1 Have you ever previously had a feeling of having sex ?

☐ (1) Yes, very much ☐ (2) Yes, but not so much
☐ (3) No, not at all (no feeling)

2 Have you ever had sex with other(s)?

☐ (1) Yes ☐ (2) No

3 If "No", what kinds of methods have you ever used for controlling of yourself when you have sexual drive?

☐ (1) Studying hard
☐ (2) Playing sport
☐ (3) Commitment to abstain from sex until marriage
☐ (4) Having sex by masturbation only
☐ (5) Other (specify).....(**Stop here**)

4 If ”Yes”, what is your first age of having sex?.....year-old

5 Who is your first partner?

☐ (1) Girlfriend ☐ (2) Commercial sex worker

☐ (3) Relative ☐ (4) Boyfriend

☐ (5) Other (specify).....

6 Did you use condom with your first partner?

☐ (1) Yes ☐ (2) No

7 If “No”, why did you not use a condom with your first partner at the time? (only the most important reason)

☐ (1) No condom

☐ (2) Your partner did not like to use a condom

☐ (3) Could not control in spite of having condom

☐ (4) Pressure from your friend

☐ (5) Other (specify).....

8 Including your first partner, what other partners have you previously had a sexual experience with? (answer all possible)

☐ (1) Girlfriend ☐ (2) Commercial sex worker

☐ (3) Relative ☐ (4) Boyfriend

☐ (5) Other (specify).....

9 Did you use a condom when you had sex with your girlfriend?

☐ (1) Always used a condom

☐ (2) Used a condom sometimes

☐ (3) Never use any condom

☐ (4) Other (specify).....

10 Did you use a condom when you had sex with a commercial sex worker?

☐ (1) Always used a condom

☐ (2) Used a condom sometimes

☐ (3) Never use a condom

☐ (4) Other (specify).....

11 Would you please recall how many person or partners have you ever had sex with? Please write the number.....persons

12 On the average how many times do you have sex with your partners per month? Please write the number.....times / month

APPENDIX B

Table A.1 Combination of sources of information

	Sources of information about HIV/AIDS	Number	Percentage
1	Teachers, Peers in school, Peers not in school, Mass media, Family members and Health workers	79	19.3
2	Teachers, Peers in school, Mass media, Family members and Health workers	36	8.8
3	Mass media	32	7.8
4	Teachers, Peers in school, Mass media and Family members	20	4.9
5	Teachers, Peers in school, Mass media and Health workers	18	4.4
6	Teachers, Peers in school and Mass media	15	3.7
7	Teachers, Mass media and Family members	13	3.2
8	Teachers, Peers in school, Peers not in school and Mass media	13	3.2
9	Health workers	12	2.9
10	Teachers, Peers not in school, Peers not in school, Mass media and Family members	11	2.7
11	Teachers, Peers in school, Peers not in school, Mass media and Health workers	11	2.7
12	Teachers, Mass media and Health workers	10	2.4
13	Peers in school, Mass media and Health workers	10	2.4
14	Peers in school	9	2.2
15	Teachers, Mass media, Family members and Health workers	8	2.0
16	Teachers and Television/Radio	7	1.7
17	Peers in school, Peers not in school and Mass media	7	1.7
18	Peers in school, Mass media, Family members and Health workers	7	1.7

Table A.1 Combination of sources of information (cont.)

19	Peers in school, Mass media and Family members	6	1.5
20	Teachers, Peers not in school, Mass media, Family members and Health workers	6	1.5
21	Peers not in school, Mass media and Health workers	5	1.2
22	Teachers	5	1.3
23	Peers not in school and Mass media	5	1.2
24	Peers in school, Peers not in school, Mass media, Family members and Health workers	4	1.0
25	Mass media and Health workers	4	1.0
26	Mass media and Family members	4	1.0
27	Teachers, Peers not in school and Mass media	4	1.0
28	Peers not in school, Mass media, Family members and Health workers	3	0.8
29	Teachers, Peers not in school, Mass media and Health workers	3	0.8
30	Peers in school, Peers not in school, Mass media and Health workers	3	0.8
31	Teachers, Peers not in school, Mass media and Family members	3	0.8
32	Peers not in school, Peers not in school, Mass media and Family members	3	0.8
33	Peers in school, Peers not in school and Health workers	3	0.8
34	Teachers, Peers in school, Peers not in school, Mass media, Family members, Health workers and Friends	3	0.8
35	Teachers and Family member	3	0.8
36	Peers in school and Mass media	3	0.8
37	Teachers, Peers in school, Family members and Health workers	2	0.5
38	Teachers and Peers in school	2	0.5
39	Peers not in school and Friends	1	0.2

Table A.1 Combination of sources of information (cont.)

40	Teachers, Peers in school, Mass media and Friends	1	0.2
41	Teachers, Mass media, Family members and Friends	1	0.2
42	Teachers, Peers in school, Mass media, Family members and Friends	1	0.2
43	Family members and Health workers	1	0.2
44	Teachers, Family members and Health workers	1	0.2
45	Teachers, Peers not in school, Family members and Health workers	1	0.2
46	Peers in school, Peers not in school, Family members and Health workers	1	0.2
47	Mass media, Family members and Health workers	1	0.2
48	Teachers and Peers in school	1	0.2
49	Peers not in school	1	0.2
50	Teachers , Peers in school and Peers not in school	1	0.2
51	Family members	1	0.2
52	Peers not in school and Family members	1	0.2
53	Teachers, Peers not in school and Family members	1	0.2
54	Teachers, Peers in school, Peers not in school and Family members	1	0.2
55	Peers in school and Health workers	1	0.2
Total:		409	100.0

Table A.2 Combination of materials about HIV/AIDS

	Kinds of material about HIV/AIDS (Frequently)	Number	Percentage
1	Television/Radio	57	13.9
2	Newspaper, Magazine, Posters, Television/ Radio and Books	34	8.3
3	Newspaper, Magazine, Posters, Television/Radio, Books and Leaflets	33	8.1
4	Posters, Television/ Radio and Books	32	7.8
5	Posters, Television/ Radio and Leaflets	28	6.9
6	Newspaper, Magazine, Television/Radio and Books	21	5.1
7	Posters and Television/ Radio	19	4.7
8	Newspaper, Magazines and Television / Radio	19	4.7
9	Newspaper, Magazines, Posters and Television / Radio	15	3.7
10	Television/Radio and Books	12	2.9
11	Magazine, Television/Radio and Books	10	2.5
12	Newspapers, Magazine, Posters, Television/ Radio and Leaflets	10	2.5
13	Posters, Television/Radio, Books and Leaflets	9	2.2
14	Newspaper, Magazine, Television/ Radio and Leaflets	8	2.0
15	Newspaper, Magazine, Television/Radio, Books and Leaflets	8	2.0
16	Magazine, Posters, Television/ Radio and Books	6	1.5
17	Television/Radio, Books and Leaflets	6	1.5
18	Magazines, Posters and Television / Radio	6	1.5
19	Television/ Radio and Leaflets	5	1.2
20	Newspapers, Posters, Television/ Radio and Leaflets	5	1.2
21	Newspaper, Posters and Television/ Radio	4	1.0
22	Posters	4	1.0
23	Newspaper, Television/Radio and Books	4	1.0

Table A.2 Combination of materials about HIV/AIDS (cont.)

24	Magazine, Posters, Television/ Radio and Leaflets	4	1.0
25	Leaflets	4	1.0
26	Magazine, Television/Radio, Books and Leaflets	4	1.0
27	Magazine, Posters, Television/Radio, Books and Leaflets	4	1.0
28	Posters, Books and Leaflets	4	1.0
29	Newspaper	3	0.7
30	Magazines	3	0.7
31	Newspaper and Television/Radio	3	0.7
32	Magazines and Television / Radio	3	0.7
33	Books	3	0.7
34	Newspaper, Television/ Radio and Leaflets	3	0.7
35	Magazine, Television/ Radio and Leaflets	3	0.7
36	Newspaper, Magazines and Books	2	0.5
37	Newspaper, Magazine, Books and Leaflets	2	0.5
38	Newspaper, Television/Radio, Books and Leaflets	2	0.5
39	Newspaper and Books	1	0.2
40	Newspaper, Posters, Television/ Radio and Books	1	0.2
41	Newspaper, Television/Radio and Leaflets	1	0.2
42	Magazine, posters, Leaflets	1	0.2
43	Books and Leaflets	1	0.2
44	Newspaper, Posters, Television/Radio, Books and Leaflets	1	0.2
45	Newspaper, Magazine, Posters, Television/Radio, Books, Leaflets and Internet	1	0.2
Total:		409	100.0

BIOGRAPHY

NAME	Dr. CHON VICHEA
DATE OF BIRTH	December 30, 1969
PLACE OF BIRTH	Phnom Penh City, Cambodia.
NATIONALITY	Cambodian
INSTITUTION ATTENDED	University of Health Sciences, Faculty of Medicine, Phnom Penh, Cambodia, From: 1989 –1996.
	The 8th International Course on AIDS Prevention and Care in ASIA, Tokyo, Japan On September 17 to October 26, 2001.
	ASEAN Institute for Health Development Mahidol University, Thailand, 2004-2005. Master of Primary Health Care Management.
FELLOWSHIP/ RESEARCH GRANT	Japan International Cooperation Agency and Department of Technical and Economic Cooperation, Thailand. (JICA / DTEC)
PRESENT POSITION	Vice of Chief Behavior Change and Communication Unit National Center For HIV/AIDS, Dermatology and STI (NCHADS) Ministry of Health, Cambodia.