SEXUAL RISK BEHAVIOR ON HIV INFECTION AMONG MILITARY CONSCRIPTS, NAKHON PHANOM PROVINCE, THAILAND

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ABSTRACT

Cross-sectional descriptive study was conducted to study sexual risk behavior on HIV infection among military conscripts in Nakhon Phanom province, Thailand. The aims of the study were to describe independent variables including predisposing factors, enabling factors, reinforcing factors and sexual risk behavior on HIV infection among military conscripts and to identify the relationship between independent variables and the sexual risk behavior on HIV infection. Data was collected on February 4, 2008. 179 conscripts were selected in this study.

53.63% of all conscripts had sexual intercourse and 43.02% of all conscripts had engaged in sexual risk behavior on HIV infection after joining military. Among those who had sexual intercourse, 50% of them reported that the frequency of sexual intercourse increased. The proportion of consistent condom use with a wife or girl friend was only 7.59%, with was commercial sex workers (CSWs) was 50%, with injecting drug user (IDU) was 75% and with men was 0%. It showed that the frequency that always used condoms during sexual intercourse with wife or girl friend and men was quite low. 20.78% of conscripts who had sexual risk behavior engaged in sexual risk behavior with multiple partners after joining the military.

Significant associations were found between sexual risk behavior on HIV infection and having partner, health risk behavior including alcohol use and drug abuse, experience of visiting CSWs, knowing where to obtain condoms, history of sexually transmitted infections (STI), knowing the place for STI treatment in the military camp, and the availability of HIV/AIDS education.

It is recommended that military address and promote consistent condom use not only with vulnerable groups such as CSWs, MSM and IDUs but also with wives or girl friend and with multiple partners for HIV prevention. The availability of STI care service needs to be more available and HIV/AIDS education needs to be improved in the military camp.

KEY WORDS: HIV / SEXUAL RISK BEHAVIOR / MILITARY CONSCRIPTS

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LIST OF ABBREVIATIONS

AFRIMS : Armed Forces Research Institute of Medical Science
AIDS : Acquired Immunodeficiency Syndrome
CSW : Commercial Sex Worker
GPP : Gross Provincial Product
HIV : Human Immunodeficiency Virus
IDU : Injecting Drug Users
MDG : Millennium Development Goals
MOPH : Ministry of Public Health
MSM : Men having Sex with Men
NGO : Non Governmental Organization
RTA : Royal Thai Army
STI : Sexually Transmitted Infections
UNAIDS : Joint United Nations Program on HIV/AIDS
UNICEF : United Nations Children's Fund
VCT : Voluntary Counseling and Testing
WHO : World Health Organization

CHAPTER 1
INTRODUCTION

1.1 Rationale and justification of the study

HIV/AIDS issues are still the most serious infectious disease in the world. More than 96 percent of new HIV infections are in low and middle income countries. New HIV infections were heavily concentrated among young people (15 to 24 years of age) due to 40 percent of new infection among adults aged 15 years and older in 2007. Although the access to antiretroviral treatment and prevention are improving recently, and the number of new HIV infections and people who died because of AIDS related illness and have decreased, more than 6,800 persons still became infected with HIV and more than 5,700 persons died from AIDS each day in 2007 (1).

Thailand was one of the most severely affected countries during the early stage of the AIDS pandemic and is known for its success in tackling the issues on HIV/AIDS**,** one of a very few countries in the world that has managed to reverse the spread of the epidemic. However, HIV/AIDS remains a major challenge in Thailand. The prevalence of HIV is still relatively high, affecting many lives. The projected current cumulative number of HIV infections is more than one million. UNAIDS and WHO estimated that 580,000 [330,000 to 920,000] adults and children were living with HIV and national adult HIV prevalence was estimated at 1.4 percent [0.7% to 2.1%] in 2005 (2). Approximately 500,000 HIV infected individuals had passed away and around half a million is still living HIV infection and AIDS (3).

The epidemic of HIV/AIDS is changing in Thailand. HIV is now threatening young people in general due to the social changes that might also increase the risk of HIV infection. Premarital sex has become more common among Thai young people. Only 20% to 30% of sexually active young people were using condoms consistently and it showed that using condom is typically rare among them (4).

In addition, HIV is a moving target in terms of geography, and is spreading unchecked among some specific vulnerable groups, including injecting drug users, men who have sex with men and informal commercial sex workers. New vulnerability has been recognized in mobile population groups such as seafarers and construction workers in the industrial hubs and border areas (5).

According to present National AIDS strategic plan of Thailand, the new strategic target has been adopted that the program will further reduce half of expected new infection by 2010. An additional intensify effort will be focus on groups of people who still are more vulnerable or at higher risk of HIV infection. They focus on the 5 vulnerable groups of people comprising in this new HIV infection cases. They are discordant couples, men who have sex with men, intravenous drug users, female sex workers and their clients, and lastly, the youth group. HIV prevention program must then put more attention into these groups and develop strategies that will enhance the reduction of new infection in the future (3). However, Thailand's budget for HIV/AIDS awareness and prevention was cut dramatically because government funds previously have been shifted from prevention towards care to treatment of AIDS patients since 2001 (6). As a result of money earmarked for public awareness campaigns getting slashed, a whole new generation of young people who became sexually active in recent years is lacking firm knowledge about how to practice safe sex (7).

The research area of Nakhon Phanom province is located in Northeastern Thailand, which is 735 kilometers from Bangkok. It covers an area of 5,559.12 square kilometers and is comprised of 12 districts. Nakhon Phanom has the border with Lao PDR, and it separated by Mekong River. According to the Department of Provincial Administration (DOPA), in December 2006, Nakhon Phanom had a population of 693,594, of which 95 percent were Buddhist and the remaining were others. Nakhon Phanom's races are diverse, consisting of seven tribal groups: Thai, Lao, Phu Thai, Yow, Sow, Saek and Kaloeng. There are also two races, Chinese and Vietnamese, who arrived in the region after civil wars in their respective countries (8).

Nakhon Phanom is classified as one of the poorest provinces in Thailand. The proportion of population below the national poverty line is 32.27% in 2004 and the gross provincial product (GPP) at that year's price was 20,933 million Baht. The sector producing the highest income for the province was agriculture (34.1%), followed by wholesale, retail and auto repair activities (16.5%). With a GPP of 34,806 Baht, it was ranked low level at 60th out of 75 provinces (8). Moreover, this area is planned to build the 3rd Thailand-Laos Friendship Bridge. This bridge would connect Nakhon Phanom, Thailand and Khammouane, Laos. This project is a part of Asian Highway 15 that connects Nakhon Phanom to Thakhek (Laos) to Vihn (Vietnam) with total distant of 331 kilometers. This route will be another major economic artery of mainland of Southeast Asia in the future. Therefore this are is expected to be the one of business hub (9).

Since Nakhon Phanom is the border area with Laos of Khammouane province, many Laos migrants come to work at Thailand. Lao migrants to Nakhon Phanom province in Thailand are for the most part coming from the Thakhek, Nongbok, Hinboon and Xebangfai districts of Khammuane province in Lao PDR. Most of the migrants do not have passports. They pass to cross into Thailand by ferry at the temporary check points. Employment agents operating in Nakhon Phanom frequently travel into Lao PDR to recruit labors. There are reports that coercion of women to work in sex establishments in Thailand is common in this area of Lao PDR, and that some agents may be government officials. Lao women have been identified as selling sex in Nakhon Phanom at both direct and indirect sex workers. Most women sell sex through the restaurants and karaoke bars in the larger towns, while others solicit customers more directly at the cattle market, "Taladnad Ko-krabuer", and often report that they will take the larger fees for having sex without condoms. While drug injection is uncommon among migrant groups, non-injecting methamphetamine use is reported (10).

According to the surveillance of Ministry of public health of Thailand, the prevalence of HIV among direct sex worker in Nakhon Phanom province is 6.1% in

2003 (10). The other HIV sentinel surveillance showed that the prevalence among sex workers in Nakhon Phanom is 3.1% in 2002, 3.4% in 2003, and 2.5% in 2004 (11).

According to UNAIDS, Military personnel over the world are highly vulnerable to infection on HIV, because they are regularly away from home for long periods, away from their regular sexual partners, and often search for recreation to relieve loneliness and stress. They are in an occupation that encourages risk taking, and their training gives them a sense of strength and invulnerability (12). Furthermore, according to AIDS division of Ministry of Public Health in Thailand, the HIV prevalence of military conscripts in Thailand has been nearly same percentage since 2001. In 2006 the prevalence is 0.9% in Bangkok and 0.5% in country side. The report also showed that the percentage of these groups had sexual intercourse is 87.9% and those have STIs history is 11.8%. Most military conscript has the first sex with the love, girl friend or his wife about 67.3%, with the other partner 8.9%, CSWs 9.9%, and MSM 0.5%. Only 33.5% used condom at the first sex in the behavioral surveillance. It showed the lack of knowledge for prevention of HIV, and their sexual behavior is at risk of HIV infection (13).

In this study, conscripts in military are supposed that they are almost young people, likely to be exposed to drug, can contact with commercial sex workers, alcohol drink, drug abuse and some persons have sex with men. They are also almost same with the target population of national strategic plan as mentioned. Therefore, it is necessary to implement research among Thai conscripts to study the sexual risk behavior and identify the factors associated with the sexual risk behavior on HIV infection.

1.2 Research questions

1) What is the sexual risk behavior on HIV infection among military conscripts, Nakhon Phanom province, Thailand?

2) What are the factors related to the sexual risk behavior on HIV infection among military conscripts, Nakhon Phanom province, Thailand?

1.3 Research Objective

1.3.1 General objective

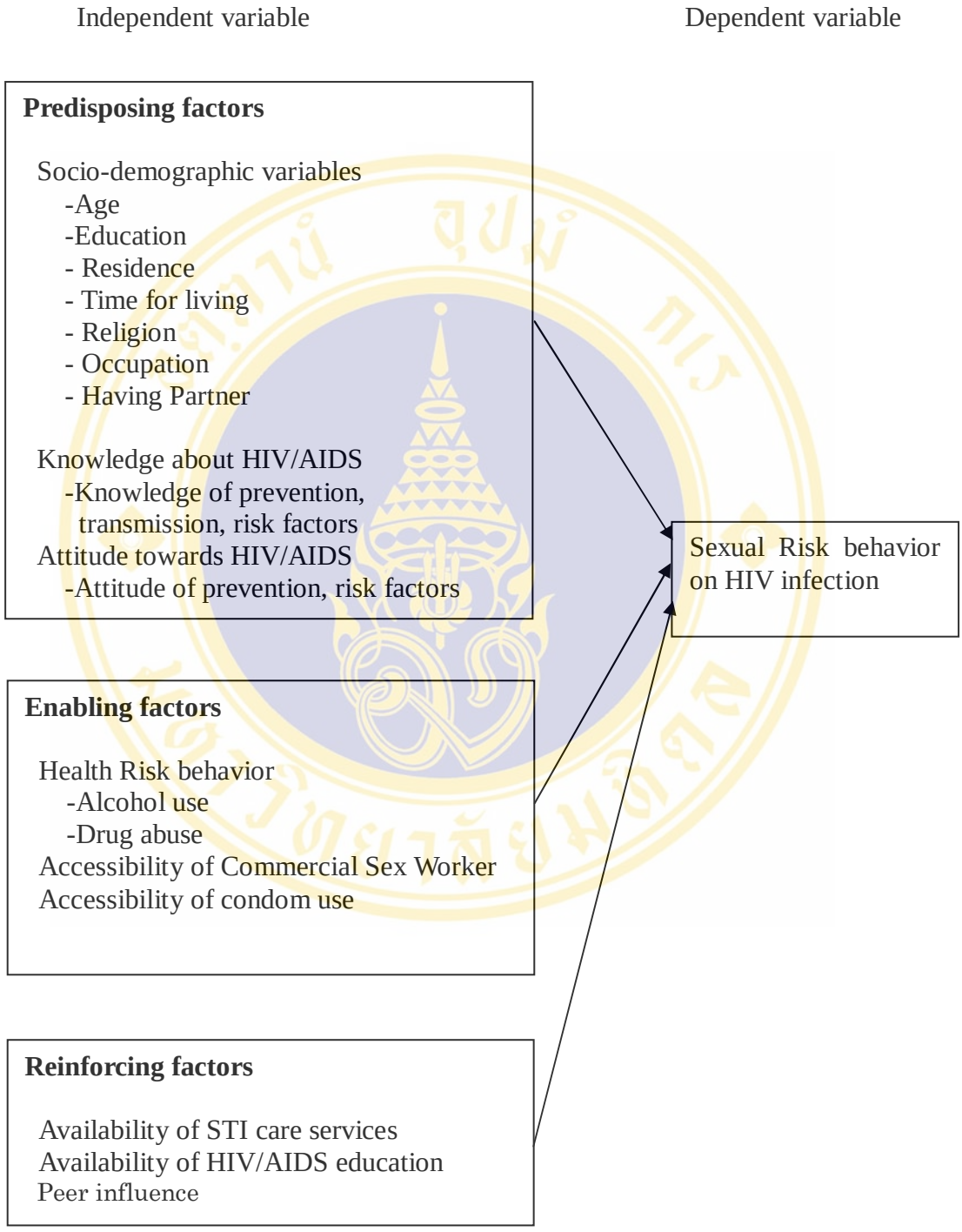
To study sexual risk behavior on HIV infection among military conscripts, Nakhon Phanom province, Thailand

1.3.2 Specific Objectives

1) To describe independent variables including predisposing factors, enabling factors, reinforcing factors and sexual risk behavior on HIV infection among military conscripts, Nakhon Phanom province, Thailand

2) To identify the relationship between independent variables and sexual risk behavior on HIV infection.

1.4 Conceptual framework



1.5 Variables and operational definition

Conscripts: Men who have joined the compulsory military service at the time of research.

Age: refers to 18 to 30 years old

Education: refers to the highest level of school that the respondents graduated such as primary school, secondary school, vocational school and higher education

Residence: refers to where the respondents lived before joining military service as conscripts.

Time for living: refers to the duration of the living in Nakhon Phanom

Religion: refers to what is the religion of the respondents which are categories in Buddhism, Muslim, Christian and others.

Occupation: refers to the main job before they join the military as conscripts.

Having Partner: refers to whether the respondents have a woman partner or not before they join military as conscripts.

Knowledge about HIV/AIDS: refers to knowing and understanding about the route of transmission, prevention and risk factors of HIV/AIDS

Attitude towards HIV/AIDS: refers to what the respondents feel and believe about transmission, preventive behavior and risk factors of HIV/AIDS

Alcohol use: refers to respondent had drinks containing beverage and alcohol drinking in the last 3months

Drug abuse: refers to respondent uses a substance that stimulates the nervous system such as heroine, marijuana, meta-amphetamine (Yaba), Opium and inhalant including glue and thinner.

Accessibility of commercial sex worker: refers to a commercial sex worker refers to male and female who earns money by providing sexual services. In this study, how easy to access to commercial sex worker and how often they go to commercial sex worker.

Accessibility of condom use: refers to knowing where and how to get and buy condom.

Availability of STI care service: refers to the source of STI care service and experience at hospital or clinic.

Availability of HIV/AIDS education: refers to the source of HIV/AIDS education after joining the military

Peer Influence: refers to the peer pressure to lead to have sexual risk behavior

Sexual risk behavior: refers to having a penetrative sexual intercourse with high-risk partner (those who has multiple sex partners such as commercial sex workers, who injects or has ever injected drugs and who having sex with men) and wife or girlfriend without male condom use.

1.6 Limitation of the study

Firstly, the limitation of the study is that only one target group was selected. It was not representative for all population.

Secondly, researcher could not collect data directly because of security reason for military so that the coordinator collected data instead of researcher. The data was collected by self administrated structured questionnaire. Therefore, it was difficult to control the quality of data.

CHAPTER 2
LITERATURE REVIEW

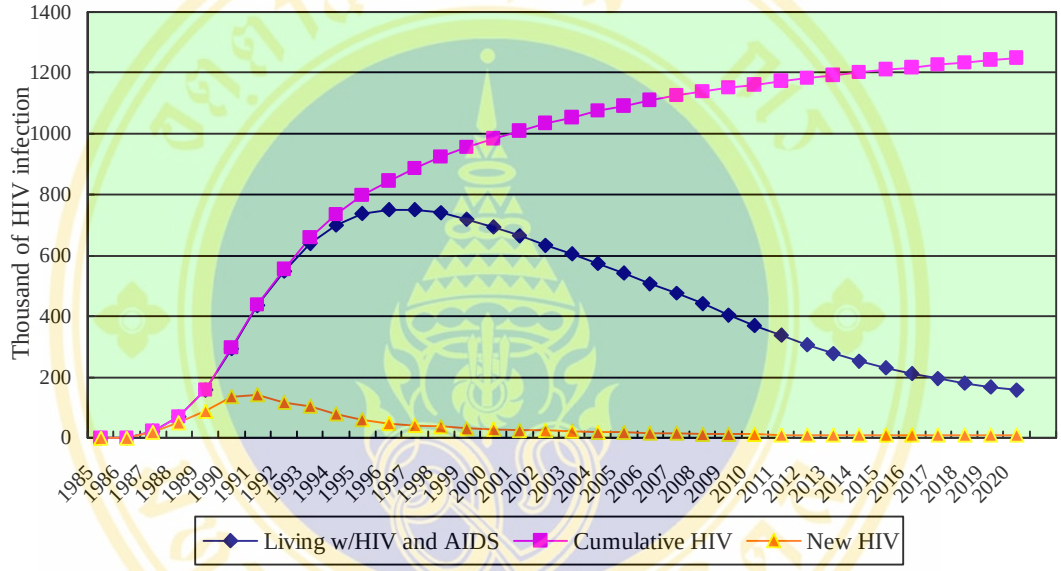
2.1 HIV/AIDS situation

UNAIDS and WHO estimated that a total of 33.2 million [30.6 million to 36.1 million] people were living with HIV in 2007 (14), a reduction of 16% compared with the estimate published in 2006 (39.5 million [34.7-47.1 million]) (1). This number included the estimated 2.5 million [1.8 million to 4.1 million] adults and children who were newly infected with HIV in 2007, down from 3.2 million [2.1million to 4.1 million] in 2001. Besides 2.1 million [1.9 million to 2.4 million] lost their lives because of AIDS in 2007 (14).

The epidemic was becoming increasingly serious in Asian countries. In Asia an estimated 4.9 million [3.7 million to 6.7 million] people were living with HIV in 2007, including the 440,000 [210,000 to 1.0 million] people who became newly infected in the past year. Approximately 300,000 [250,000 to 470,000] died from AIDS-related illnesses in 2007 (14). India was estimated to have 2.5 million people living with HIV in 2006. Other large epidemics were present in China (650,000), Thailand (580,000) and Myanmar (360,000) at the end of 2005 (2). The number of people receiving antiretroviral therapy increased more than threefold since 2003, and the estimated number reached 235,000 [180,000 to 290,000] by June 2006. This represented about 16% of the total number of people in need of antiretroviral treatment in Asia. Only Thailand succeeded in providing treatment to at least 50% of people needing it (2).

Thailand recorded nearly 143,000 new HIV infections in 1990, but Thailand succeeded in decreasing the number of new infections to an estimated 18,000 people per year in 2005 (2) *(See figure 1)*. An early multi-sector response involving several key ministries, municipalities, NGOs, media, communities, private sector and the

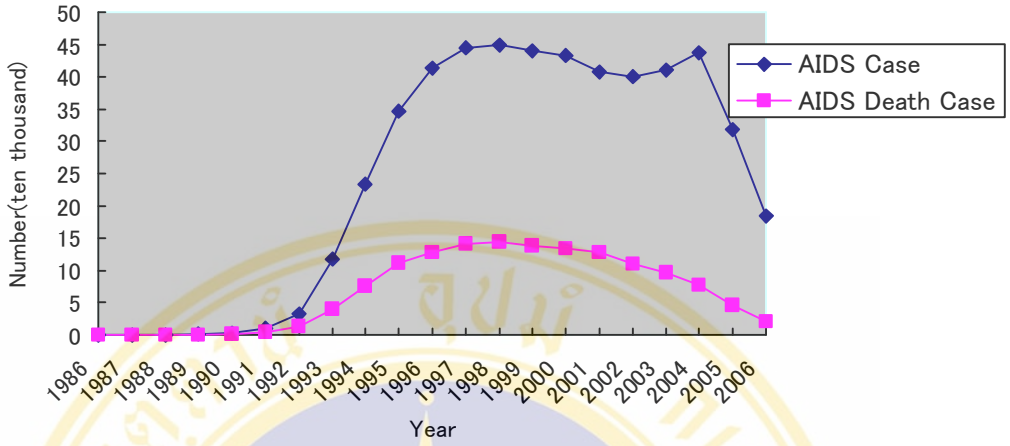
police focused largely on risk reduction in commercial sex workers and they enabled Thailand to achieve this turn-around in HIV infections (15). Due to the continuous effort of the political support and comprehensive prevention programs, it was estimated that more than 6 million Thais were protected from being infected with HIV (3).



Source: Bureau of AIDS, TB and STIs Department of Disease Control, Ministry of Public Health, Thailand

Figure 1 Projection of HIV infections and AIDS in Thailand, 1985-2020

In 2007, The Thai Working Group on HIV/AIDS Projection estimated that the cumulative number of people infected with HIV in Thailand since the beginning of the epidemic was 1,102,628 including 558,895 who died and 546,578 currently living with HIV or AIDS (13). As reported by the Bureau of Epidemiology in 1984, the cumulative number of AIDS patients was 307,114 cases and 85,459 AIDS deaths cases (December 31, 2006). Currently, the trends of AIDS morbidity and AIDS mortality showed a decrease from 7 years ago *(See Figure 2)* (13).



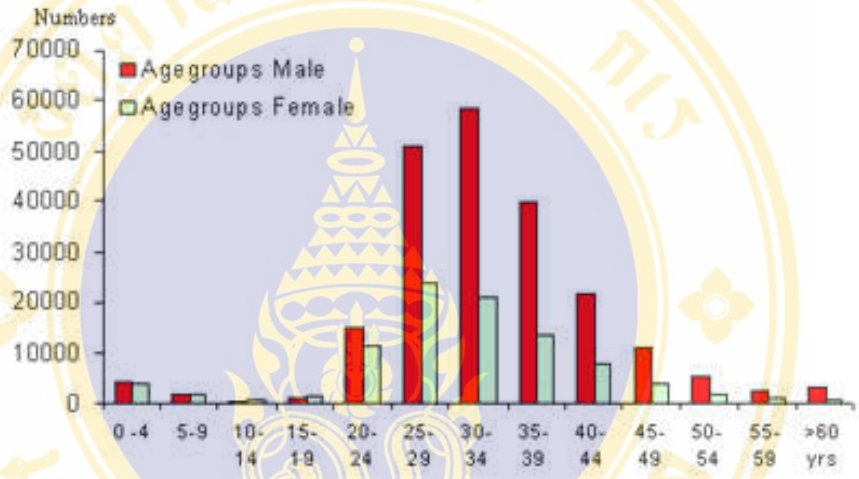
Source: Bureau of Epidemiology, Ministry of Public Health

Figure 2 Distribution of reported AIDS cases and AIDS death cases by year of diagnosis in Thailand, September 1984 to December 31, 2006

In spite of this success of decreasing new infection cases, AIDS became the most serious disease and leading cause of death among young adults (4). *(See Figure 3, Table 1)* Within the Thai population, the percentage of AIDS cases to be 25.84 % in 30 to 34 age groups followed by 24.26 % in 25 to 29, 17.31 % in 35 to 39, 9.42% in 40 to 44, 8.59 % in 20 to 24, and less than 4.18% in 0 to 14 age groups. In 15 to 19 age groups the rate of AIDS cases in young women was higher than that of men (13).

In measuring the health status of Thai people using Disability-Adjusted Life Years (DALYs) as the indicator, it was found that HIV/AIDS was the number one leading cause of DALYs lost in both males and females. The proportion of HIV/AIDS was 17% for males and 10% for females. The second and third causes were road traffic injuries and cerebrovascular disease respectively among males, and cerebrovascular disease and diabetes respectively among females. Besides, when considering the health problems by age group, the differences were found in life-threatening problems. The major health problem for age group 15 to 29 years were HIV/AIDS, road traffic injuries, drug abuse, schizophrenia, and alcohol use. And for age group 30 to 59 years were HIV/AIDS, road traffic injuries, diabetes, and

liver cancer (16). Therefore, it was estimated that there were currently over 500,000 children, who were with one or more parents who live with HIV or have died because of AIDS, directly affected by HIV/AIDS. Among these children were 380,000 orphans who lost at least one parent to AIDS and 30,000 double orphans who lost both parents to AIDS until 1995 (17).



Source: Bureau of Epidemiology, MOPH, Thailand

Figure 3 Distribution of reported AIDS cases by age group of diagnosis in Thailand, September 1984 to December 31, 2006

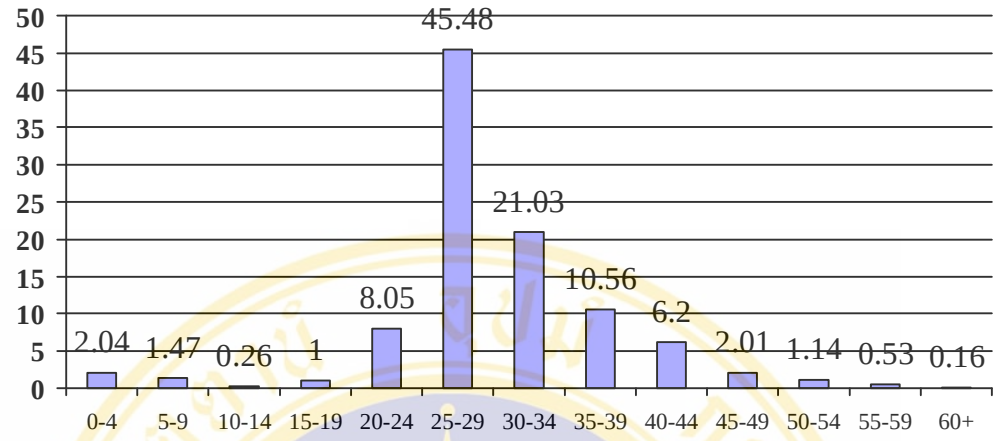
Table 1 The cause of death among young adults in Thailand (2002)

Disease	Deaths per year among 15-44years old	Total number of deaths all ages
HIV/AIDS	41,443	53,375
Traffic accidents	16,381	24,415
Cancer	9,905	66,956
Stroke	2,607	44,078
Heart disease	2,106	20,080

Source: Thailand's response to HIV/AIDS: progress and challenges

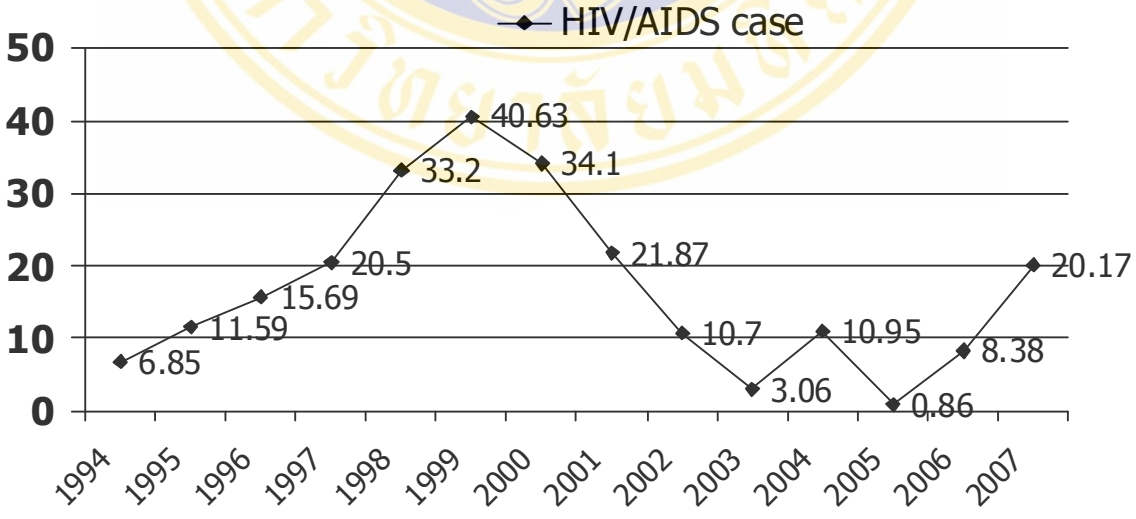
The result of National Sexual Behavioral Survey of Thailand, it was reported reproductive age of 18 to 49 years to have sexual intercourse with multiple partners in the last 12 months at 9.4% in 2006. Condom use in the last sexual intercourse was used 50.9% which women took more risks by using condom only at 14.3% while men at 52.9%. Sexual intercourse with more than single partner in the last 12 months in group 15 to 49 of age was found in male than female (17.9% and 0.95%) in which age 18 to 19 was found the most at 23.6% and 20 to 24 at 17.50% and the least was 25 to 49 years at 7.20%. Besides, the condom use behavior in the last sexual intercourse with more than one partner was reported only 50.9% in which male used at 52.9% more than female which used only 14.3%. Condom use in the last sexual intercourse was found most in group of age 15 to 19 at 63.4% while condom was equally used age 20 to 24 and 25 to 49 at 48.60% and 49.8% respectively (18).

The population of Nakhon Phanom was 688,866 (1st Jan 2006). The HIV/AIDS situation, according to provincial health office in Nakhon Phanom (19), the cumulative number of HIV infection and AIDS cases was 2,527 and the death cases caused by AIDS was 454 in 2007. The sex distribution among these cases was reported that the number of male was 1,786 and female was 1,195. The main occupations of them are agriculture (39.85%), employee (33.04%), house wife (6.17%), unemployed (5.13%) and children (3.48%). The main causes of infection with HIV were the most of them is sexual intercourse (91.90%), the next was not sure (4.09%), mother to child transmission (2.71%) and injected drug (1.30%). The age among these cases was distributed to the reproductive age; the first was 25 to 29 years, the second was 30 to 34years. *(See Figure 4)* The Figure5 shows new the ration of AIDS and HIV infection cases per 100,000 populations in Nakhon Phanom by year. It clearly showed that the ratio of 1,999 reached a peak, later the ratio fell sharply from 40.63 in 1,999 to 3.06 in 2,003. Afterwards the ratio was fluctuating since 2004, especially in 2007 the ratio increased rapidly. *(See Figure 5)*



Source: Nakhon Phanom Provincial health office

Figure 4 Age distribution among HIV/AIDS cases in Nakhon Phanom 1990-2007

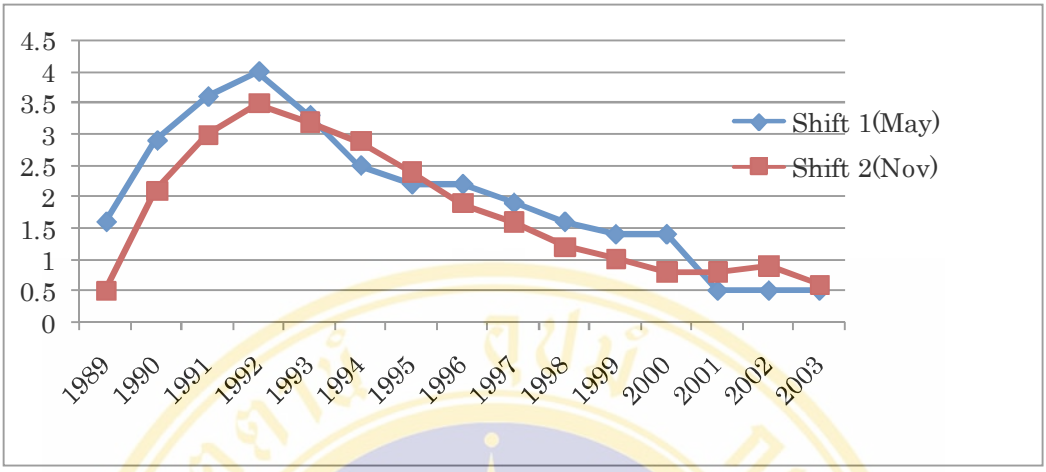


Source: Nakhon Phanom Provincial health office

Figure 5 HIV/ AIDS cases ratio (per 100,000 populations in Nakhon Phanom) 1994-2007

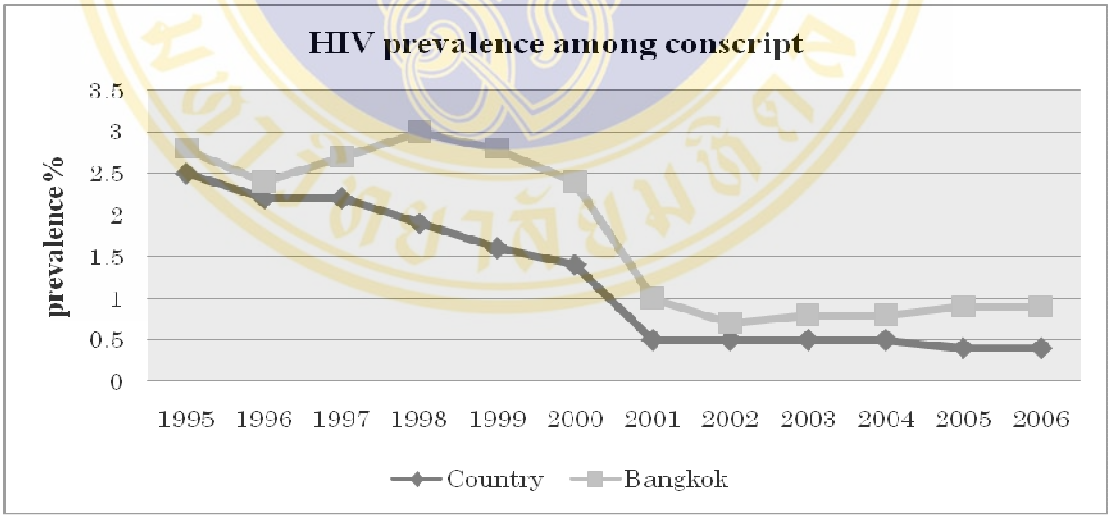
Thai conscripts are young Thai men and may be the representatives of this group with low socioeconomic status. They are selected by a lottery system according to Thai laws to work in the military service, mostly in the army. Approximately one in 10 men who participate in the lottery are randomly chosen in April each year. The total number of participants is about 60,000 new conscripts per year. Enrollment occurs either in May (Batch 1) or November (Batch 2) of each year for duration of 2 years service. To date about 57% of the total conscripts were younger than 21 years old. Therefore, the military conscripts aged 21 years old are an ideal population for epidemiological study because the random selection method used, the data obtained can be generalized to the young male population of Thailand. All of them were tested for HIV in the first month of entry. After 2 years service, some of them will be enrolled as army students, army volunteers, but most of them will be army reserves who can be called to work in case of war (20).

The data of HIV surveillance by RTA are highly valid, because surveillance was conducted as a total population survey, not through a random sampling process. Therefore, the Ministry of Public Health and many agencies have utilized these data as an indicator to monitor the HIV/AIDS situation and trends at both regional and national levels particularly the situation among young men who are considered to be at high risk of contracting HIV sexually (21). Among military recruits or conscripts, the prevalence of HIV increased from 1.6% in 1990 to 4% in 1993, and since then has dropped to 0.5% in 2003(21). *(See Figure 6)* According to AIDS division of Ministry of Public Health, HIV prevalence of conscripts was 0.9% in Bangkok and 0.5% in country side in 2006. *(See Figure 7)*It showed that the prevalence of HIV still keeps the nearly same percentage since 2001 and HIV prevalence of conscripts in Bangkok is always higher than country side.



Source: Armed Forces Research Institute of Medical Sciences, RTA. Institute of Pathology, Phra Mongkutklao Medical Centre, Royal Thai Army.

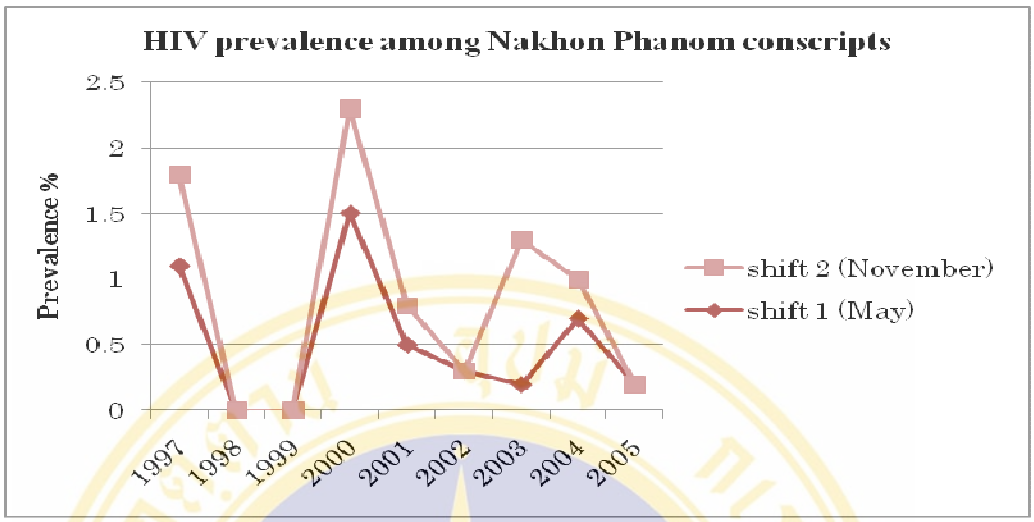
Figure 6 Prevalence of HIV Infections in Thai Male Military Recruits, November 1989 - May 2003



Source: AIDS Control Division, Health Department, BMA, 2007

Figure 7 HIV prevalence among conscripts, 1995 – 2006

In addition, HIV prevalence among Nakorn Phanom's conscripts was found that the trend was gradually going down, but it had some fluctuations. *(See Figure 8)* In 1995 to 2000, the changes of values were in the range of 0 to 1.5 percent, while in 2001 to 2004, the changes were in the range of 0 to 1.1 percent (8).



Source: The Military Medical Science Research Institute, Department of the Medical Science.

Figure 8 HIV prevalence among Nakhon Phanom conscripts, 1997-2005

2.2 Theoretical model

PRECEDE-PROCEED model is a planning model designed by Lawrence Green and Marshall Kreuter (1991) for health education and health promotion programs. This principle is reflected in a systematic planning process which seeks to empower individuals with understanding, motivation, and skills and active engagement in community affairs to improve their quality of life. PRECEDE-PROCEED model has two distinct parts: an “educational diagnosis” (PRECEDE) and an “ecological diagnosis” (PROCEED) .The PRECEDE acronym stands for Predisposing, Reinforcing, Enabling Constructs in Educational/ Environmental Diagnosis and Evaluation. PROCEDE stands for policy, regulatory, and organizational constructs in educational and environmental development (22).

PRECEDE consists of five steps or phases, the first five phases are diagnostic addressing both educational and environmental issues: 1) social diagnosis of the self-determined needs, wants, resources, and barriers to them in the target community; 2) epidemiological diagnosis of the health problems; 3) behavioral and environmental diagnosis of the specific behaviors and environmental factors for the

program to address; 4) educational and organizational diagnosis of the predisposing, enabling, and reinforcing conditions which immediately affect behavior; and 5) administrative and policy diagnosis of the resources needed and available in the organization, as well as the barriers and supports available in the organization and community. PROCEED is composed of four comprise implementation and evaluation of health promotion intervention as following steps. 1) implementation, 2) process evaluation, 3) impact evaluation and 4) outcome evaluation (22). In actual practice, PRECEDE and PROCEED function in a continuous cycle. Applications of the PRECEDE-PROCEED model in the public health field are myriad and varied. The model has been used to plan, design, implement, and/or evaluate programs for such diverse health and quality-of-life issues (23).

In this study, only the PRECEDE model was used, because this model provides a framework for such an examination by positing that there are three types of factors that provide a collective influence on health-related behaviors as follows;

-Predisposing factors: which motivate or provide a reason for behavior; they include knowledge, attitudes, cultural beliefs, and readiness to change.

-Enabling factors: which enable persons to act on their predispositions; these factors include available resources, supportive policies, assistance, and services.

-Reinforcing factors: which come into play after a behavior, has been initiated; they encourage repetition or persistence of behaviors by providing continuing rewards or incentives. Social support, praise, reassurance, and symptom relief might all be considered reinforcing factors (22).

According to the study by Sherry Deren et al (24) in 2003, the PRECEDE model was used as a framework for the development of a project focusing on a comparison of HIV risk behaviors among drug injectors in two locations. The model served as a heuristic device to identify the variables to study, aid in organizing the analyses, and assist in identifying potential intervention points. Although the model has been applied to HIV/AIDS research, this has primarily focused on school-age

populations (e.g., Alteneder *et al.*, 1992; Schaalma *et al.*, 1996). The PRECEDE model was found to be helpful in developing an instrument to assess multilevel influences and in conducting the analyses. The model assisted in the identification of variables to include in each factor domain. The data also indicated that examination of a broad range of possible predictors of risk may provide a more complete picture of influences and help identify those that may require individual or community-wide interventions.

2.3 Related studies

2.3.1 Sexual risk behavior on HIV/AIDS of conscripts

According to UNAIDS, Military personnel over the world are highly vulnerable to infection on HIV. Off-duty soldiers and navy sailors are free from home and community restraints, often consume alcohol and sometimes drugs, and have money to spend. The special circumstances of the military lead commercial sex workers to be near military bases, indeed, the presence of military bases leads to increases in the number of commercial sex workers (12). Military conscripts also can act as a bridge for HIV transmission, thus transferring HIV vulnerability from high risk groups such as entertainment service workers and soldiers to low risk groups such as families of military personnel (25).

The trend of prevalence of HIV among direct and indirect sex worker by Ministry of Public Health in Thailand showed that about direct female commercial sex workers, the prevalence rose from 3.47% in 1989 to 33.15% in 1994, and fell to 10.63% in 2003. On the other hand, indirect female commercial sex workers, the prevalence escalated from 2% in 1990 to 10.14% in 1996. Since then the rate gradually declined to 3.88% in 2003 (16). The prevalence of HIV was still high compared with general population. Commercial sex workers can be of all ages, most are young and the great majority is female and their clients are mostly male. In many countries, a high percentage of sex workers are migrants. Regarding male CSWs, in 1998, the sentinel surveillance was extended to cover the male CSWs population in four provinces that were major tourist areas. Over the years, the highest prevalence

rates in these provinces ranged between 14% and 23%. A continuous decline in prevalence was found in three of the four provinces during 2000 to 2002, falling from a range of 13.6% -14.2% to 4.2%–10.7% (26).

Result of study by Richard A. Jenkins et al (27) in 1998 showed that correlates of behavior associated with HIV exposure risks were evaluated in cross-sectional data from 3,839 Royal Thai Army (RTA) recruits. Participants were generally 21 years old, unmarried, educated at the primary school level, and previously had been engaged in agriculture or unskilled labor. HIV prevalence in the sample was 1.8%. The frequencies of risk-relevant behavior were nearly 90% of the sample had some sexual experience. Patterns of CSW patronage were investigated in the 868 recruits who reported one or more CSW visit during the previous 6 months. Consistent condom use was reported by most, and only 5.0% reported never condom use with CSW. Alcohol was used during most CSW visits, and most commercial sex establishment visits were made in the company of friends. Brothels, typically the least expensive venues, accounted for about two fifths of all commercial sex establishments visited. More than half of those who reported having had a CSW partner in the past 6 months also reported having had sex with a girlfriend. Sexual experience with girlfriends was more frequent than CSW experience, and the rate of condom use with girlfriends was relatively low. Anal sex with a male was reported rather infrequently. More common were reports of anal sex with a *kathoey*. *Kathoey* is a Thai term that translates as "hermaphrodite," although "transgender" is more descriptive because *kathoey* are biological males who dress, behave, and live as stereotypical females.

The behavior changes in risk behavior between during and after military service were reported in other studies on conscripts by Philip O. Renzullo et al. (28) This study was that a cohort of Royal Thai Army (RTA) conscripts was followed in civilian life after completing 2 years of military service, to identify correlates of participation and to determine the occurrence of risk behaviors for HIV infection after discharge from the military. The cohort was selected from among conscripts who had participated in HIV studies from 1991 to 1993. Risk factors were surveyed at 3, 9 and 15 months after discharge (1993 to 1995). Some behaviors significantly changed

during and after discharging service. Upon entry into the RTA, 53% of them who visited CSWs reported having used alcohol prior to the visit. This proportion rose to 60 to 70% during service and declined upon discharge to 43% at the first follow-up after discharge and further to 24% at 15 months after discharge. The proportion of them reporting always using condoms with CSWs rose from 69% at the first follow-up during service to 94% at the final follow-up after discharge. The proportion of them who reported always using condoms during sex with their wives was low. Only 7% reported regular condom use with their wives upon entry into the RTA. One year later, this proportion rose to 17%, but declined steadily to 1 to 2% after discharge. Although condom use with wives declined significantly, condom use with girlfriends did not show either increasing or decreasing trend, it remained constant at about 20 % after discharge. About 27% of participants reported having used drugs prior to entry into the RTA. During service, this proportion decreased to 11%, but steadily rose to just over 18% by the last follow-up during service. After discharge 6 to 8% of men reported drug use. Prior to entry into the RTA, 37% of them drank alcohol more than on time per week. At the first RTA follow-up, this proportion decreased to 13%, but rose steadily to 28% during service, and to 41% by 9 months after discharge. At the final visit, 34% of them drank alcohol more than one time per week. During service, significant patterns of risk increase over expected patterns were seen with alcohol use prior to CSW visits, condom use with girlfriends, and alcohol use. Condom use with CSWs and wives demonstrated significant risk decreases.

Similar study conducted among southern conscripts in 2000 by Hla Tun Oo (29) found that sexual behavior of irregularity and inconsistency of condom use indicated those conscripts as the population with HIV/AIDS high risk behavior. Out of 210 conscripts in southern Thailand, 198 had sex experiences and 158 had girl friends. Out of these 158, 143 conscripts revealed sex with a girl friend. Only 31 among them reported using a condom every-time and safe sex behavior with a girl-friend. Condom use with sex worker and bar/karaoke waitresses was high, but sex with newly met persons and girl friends reported condom use percentage was relatively very low. Condom use became inconsistent when the number of sex partners increased. Out of 198, one third reflected addict-able drug use history and 85

percent revealed alcohol drinking history. Under influence of those risks taking behaviors half of the conscripts went into sexual intercourse. At that time only 45 percent revealed every-time condom use.

2.3.2 Socio-demographic variables

Age

According to AIDS division of Ministry of Public Health in Thailand, the mean of age among military conscripts for survey in 2006 was 21 years old (13). The age of conscripts was estimated almost the early twenties and classified by young people.

Young people continue to be vulnerable to HIV infection in Thailand. The Ministry of Public Health estimated that in the 15 to 29 year old age group, women accounted for 61 percent of new infection in 2003. Indications were that young people are having sex at earlier ages. Also, one survey suggested that only 27.7 percent of young people were using condoms consistently with any sexual partners in 2002 (5). *(See Table2)*

Table 2 Sexual behavior of young people in Thailand, 1999 and 2002

Grade 11 male students	1999		2002	
	Have sex (%)	Always use condom (%)	Have sex (%)	Always use condom (%)
Any partner	11.3	20.8	13.2	27.7
Have sex with girlfriend	8.6	9.4	8.8	17.5
Have sex with other women	4.4	16.7	4.3	25.7
Have sex with CSW	2.8	37.5	2.2	50.0
Have sex with men	2.1	19.7	2.2	15.4

Source: Bureau of Epidemiology, HIV/AIDS Situation in Thailand, March 2003 (in Thai).

The average of the age of first sex among Thai people was 18 years old (30). The Percentage of 15 to 24 year olds who had sex before age 15 was 10.9 percent for males and 6.6 percent for females in 2005 and the percentage of young women and men aged 15 to 24 who have had sex with a non-marital, non-cohabiting partner in the last 12 months is 56 percent (31). Some studies indicated HIV prevalence as high as 17 percent among this group, but little was being done to provide them with appropriate safe sex education and prevention services (4). It was thought that around 85 percent of Thai youth do not see HIV as something that they should be concerned about, even though 70 percent of all STI cases in Thailand occur among this group (32). As mentioned above, young people in Thailand were becoming active their sexual activity and are at risk of HIV infection. Number of reported STI cases was only around 10,000 cases in 2003 and rose to approximately 13,000 cases in 2004 and 2005, each year. It was noted that majority of this extra cases occurred among young people and the reported route of transmissions had been causal sex with regular or non-regular partners. The finding matched with the observation that a higher proportion of today young people engaged in un-safe causal sex compare to several years ago. Condom used among young generation when they had causal sex was reported to be as low as 20 to 30 percent (3).

Education

Some studies showed that high HIV prevalence and sexual risk behavior was found in people get lower level of education than higher one. Study in Zambia among 15 to 19years old by Fylkesnes et al. (33) that HIV prevalence among them in Lusaka dropped from 23 percent in 1994 to 15 percent in 1998 and in Ndola from 21 to 16 percent in the same period. A significant feature of this decline, which was observed both among those attending antenatal clinics and those in population-based surveys, was that it was most marked in those with higher levels of education, whereas there were signs of continued increase in prevalence among the least educated—a girl attending school was three times less likely to be HIV infected than an age-mate who had dropped out of school.

The result of study by Eric G et al (34) found that those with more education had fewer STI symptoms than less educated military men in Angola. It showed that a greater proportion of more educated participants used condoms with casual or commercial sex workers. It may be that those with more education were less likely to experience STI symptoms because they used condoms more frequently with higher risk partners than less educated participants.

Similar study by Lagarde et al (35) in 2001 found that increasing the educational status of women and men leads to a significant increase in condom use. A survey of over 4,600 non-spousal partnerships in cities in Benin, Cameroon, Kenya and Zambia, showed that higher educational levels led to higher rates of condom use.

As Kelly M.J (36) stated that a general basic education is making its own specific, intrinsic contribution to the reduction of HIV prevalence rates among young people. Education does work against HIV transmission. It is an effective social vaccine.

Religion

According to the study by Pajongsil Perngmark et al (37), most Thai-Muslim communities has strong admonitions against condom use and perceive condom use as forbidden (18). Such beliefs and misperceptions may have made their wives or girlfriends more vulnerable to HIV infection than their Thai-Buddhist counterparts. For the latter, condom use may have been more associated with contraception, however, and when a child is desired, certainly condom use will cease.

The strong religious beliefs held in this context may also play an important role in continuing the sexual transmission of HIV in southern Thailand, and may be partially informative of the finding that Thai-Muslim IDUs were less likely to use condoms in this situation. Additionally, in their study most of the Thai-Muslim IDUs also mentioned that they chose not to know their HIV test results rather than learning that they might be “positive” because they perceived that being drug users and contracting the HIV virus would intensely increase their level of sin. Accordingly, they seemed to seek out VCT less vigorously than the Thai-Buddhist IDUs. These two

factors, stronger religious beliefs and less access to VCT might therefore increase their barriers to condom use.

Occupation

According to the report of AIDS division of Ministry of Public Health in Thailand (13), most of AIDS cases were reported among labor groups, whose occupations include 46.43% laborers such as general employees, industry employees, track driver and the other labors and 20.81% agriculture in 2006.

Furthermore, most of military conscripts have occupation such as general employee, industrial employee, shopkeeper, labors. It showed that the occupations of conscripts before joining military service are almost same with this AIDS cases as mentioned above.

2.3.3 Knowledge and attitude about HIV/AIDS

People have a right to get information, skills and services to help protect them from the risk behavior. But they cannot protect themselves if they do not know the facts about HIV/AIDS. Children and young people must learn the facts before they become sexually active, and the information needs to be regularly reinforced and built on, both in the classroom and beyond. It is essential a basic education of good quality such as knowledge about sexuality, route of transmission of HIV and reduce discrimination/stigma for all children and young people in the school (39).

In 1993, the Preventive Medicine Division of the RTA Medical Department conducted a survey on the knowledge, attitudes and preventive practices among 1,002 RTA personnel. It was found that over 70% had been informed about HIV/AIDS from the RTA medical officers. More than 75% had accurate knowledge about HIV/AIDS and more than 55% consistently used condoms in extra-marital sexual relations. The division had also collaborated with the Sub-committee on Research and Evaluation of HIV/AIDS Prevention and Control of the RTA Medical Department and AFRIMS in the evaluation of HIV control campaigns. In the follow-up to the repeated research

activities, it was found that most RTA personnel at all levels had a good knowledge. However, the attitudes and preventive practices were still not satisfactory, especially among young male personnel (21).

The study of sexual partner and condom use among migrant in Thailand by Kathleen Ford et al. (40) showed that AIDS knowledge was related, both for men and women, for condom use with regular partners. Those with higher levels of knowledge were more likely to use condoms consistently. This association for use with regular partners may have been due to previous experience with prevention programs due to experience with HIV testing, infection of friends, or awareness of risk-taking behaviors of male migrants.

People hold complex relationships between attitudes and behavior that are further complicated by the social factors influencing both. Behaviors usually, but not always, reflect established beliefs and attitudes (41). For example, a man who believes strongly in the effectiveness of the condom will be most likely to use it consistently. Under other circumstances, that same man may engage in unprotected sex, despite his convictions, after being persuaded by friends that condoms reduce sexual pleasure for men. When behavior is inconsistent with attitude, it is sometimes a result of social or peer pressure. This implies that behavior can be influenced by a number of factors beyond attitude such as social influences, monetary factors and convenience. Someone may have strong convictions about the need for condom use, but if the purchase price is high, he may have unprotected sex due to the potential for monetary loss. Or he may not use a condom simply because the condom-buying place is too far away or the weather is bad for moving around (42).

Study about attitude towards condom use in Botswana by Marandu EE et al (42) showed that a good number of respondents agreed that there are emotional reactions to condoms that may have translated into reduced condom usage. The reactions included embarrassment at being seen carrying/purchasing a condom, that condoms interfere with sexual pleasure, difficulty in discussing condom use with a partner, discomfiture in putting on condoms, difficulty in suggesting use of a condom

to a person one had known for a long time, or to a respectable partner or one with whom one was in love.

The result of other study by Ayu ADP (43) found statistically significant association between attitude with HIV/AIDS at risk behavior. In this study among students of polytechnic in Jakarta, the most of them (64.6%) had high level of attitude toward HIV/AIDS, and the proportion of those who had low level of attitude toward HIV/AIDS was 35.4%. The students who had high level of attitude on HIV/AIDS (99.4%) had higher level of HIV/AIDS at risk behavior than those who had low level of attitude on HIV/AIDS (92.4%).

2.3.4 Health Risk Behavior: Alcohol use and drug abuse

People who use alcohol use and drug use are at greater risk for engaging in sexual activity. Consequently, these people also are more likely to engage in sexual risk behaviors.

The study of alcohol use and sexual risk behavior among eight countries by WHO showed that the link between alcohol use and sexual behavior had serious implications for the health of populations particularly due to the advent of HIV infection. Alcohol use was associated with certain types of sexual activity. Crime often played a role in unprotected casual sex, group sex and anal sex when participants in these activities are under the influence of alcohol. Alcohol use had also been linked to early sexual experiences in Belarus, the Russian Federation, Kenya and South Africa. Alcohol use and sexual risk behaviors were particularly prevalent in settings such as nightclubs, bars, dark houses, highway eating joints and motels, and brothels. Furthermore, alcohol was commonly used as a disinhibitor, a sex facilitator, a symbol of masculinity, and a means of relaxation, recreation, socializing and improving communication skills in Mexico and Romania. Alcoholic beverages were also used as a facilitator in approaching the opposite sex. “Masculinity” is often linked to the ability to have multiple partners, drink alcohol and engage in promiscuous behavior. Among women, alcohol use increases involvement in risky sexual encounters and sexual victimization, exposing them to the risk of unwanted

pregnancies and STIs in the Russian Federation and South Africa. Alcohol use, especially among young adolescents, was associated with casual sex encounters, traffic accidents, violence, crime and social problems in Belarus, South Africa and Mexico. Early sexual experience, a high level of risk taking and alcohol use increased the risk of contracting STIs and HIV among adolescents (44).

Children and young people in Asia are facing unprecedented health risks from HIV/AIDS and other diseases due to the rapid spread of amphetamine-type drug abuse. Intravenous drug use accounts for much of the infection. And recent research showed users of amphetamine-type substances were increasingly injecting their drugs of choice. Asia was home to approximately 33 million users of amphetamine-type substances. Approximately two-thirds lived primarily in Thailand, the Philippines, Japan and Taiwan. Children and young people accounted for the majority of new users (45).

Injecting drug use (IDU) is one of the many addictions that often begin during adolescence. IDU among young people, especially young men, increased dramatically in recent years in the world. There were more and more ‘occasional’ injectors, and experimentation is frequent and widespread among young people, most of whom did not consider themselves to be regular users of injecting drugs. People who share needles and syringes for injecting drugs are at very high risk of contracting HIV. Drug dependency increases the likelihood that young people will turn to crime or prostitution to finance their drug habit. When one mixes IDU with commercial sex workers, there is a good chance that the virus will begin to spread from those who inject drugs and their sexual partners to the wider population (39).

Thailand hasn’t been a great deal of success in reducing HIV among injecting drug users. Infection rates among injecting drug users remained extremely high, at 35 to 50%, and are still rising in some areas. HIV spreads not only among drug users but to their partners and their children, and left unchecked the high infection rate among injecting drug users will continue to be a reservoir for HIV transmission to the rest of the population (4).

Sexual risks for HIV transmission among injection drug users (IDUs) in Thailand was not well characterized. Pajongsil Perngmark et al. (37) surveyed 272 male IDUs about their background, sexual behaviors, and drug use at drug treatment clinics in southern Thailand. The study of sexual risks among Southern Thai drug injectors by found that fifty-six percent of participants were sexually active, of whom 88% had sex mostly with a non injecting regular partner (wife or steady girlfriend), reporting low rates (34%) of condom use. Among sexually active IDUs, 43% were HIV infected and only a few were aware of their HIV status. Condom use was associated with history of HIV voluntary counseling and testing (VCT) and poor perceived health status in multivariate analysis. Unprotected sex with regular sexual partners was frequent among IDUs in southern Thailand, where most IDUs had not sought VCT services.

However, there was correlation between drug and alcohol use, and being sexually active – a combination that can increase the risk of HIV infection. 1999 survey in Songkhla province for instance, found that some two thirds of sexually active secondary school students frequently used alcohol compared to less than one third of the students who were not sexually active. A survey in 2001 in Payao province revealed the same pattern, along with high levels of amphetamine use such as “Yaba”. More than one quarter of sexually active students were using the drug. Amphetamine use does not in itself carry risk of HIV infection, but facilitates more sexual risk-taking (4).

Surprisingly high levels of HIV infection have been found among people who use drugs but did not inject them. Research at the Thanyarak Institute on Drug Abuse has shown that HIV prevalence among users of amphetamine type stimulants such as Yaba rose from 1.5 percent in 1995 to as high as 7.6 percent in 1998 before dropping again. Among marijuana users receiving treatment at the Thanyarak Institute, prevalence hovered around 10 percent, and among alcohol users it ranged from 5 percent to 7 percent over the period 1996 to 2001 *(see Table 3)*. Unsafe sexual behavior when under the influence of drugs or alcohol was the most probable cause of infection (4).

Table 3 HIV prevalence among people who are drug or alcohol dependent

Substance used	HIV Prevalence									
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Marijuana	-	2.6	4.5	6.3	9.5	10.4	10.0	7.7	3.1	9.5
Alcoholic beverage	2.2	4.0	2.1	2.3	5.0	6.1	7.2	5.8	2.3	5.7
Inhalant	0	7	4	2.5	5.3	7.8	14.6	8.0	4.8	6.5
Amphetamine type stimulants	0	0	0	1.5	3.4	5.5	7.6	4.9	3.6	3.6

Source: Thanyarak Institute on Drug Abuse, Ministry of Public Health.

2.3.5 Accessibility of commercial sex workers

Commercial sex workers are divided into two types. Direct sex workers are defined as women and men exchanging sex for money on the premises where client and sex worker encounters takes place such as brothels and massage parlors. Indirect sex workers are defined as women and men exchanging sex for money on premises separate from where client and sex workers encounters occur such as restaurants, karaoke bars (17).

The 100% condom program, which enforced mandatory condom use in brothels, played a significant role in reducing Thailand's HIV prevalence in the 1990s. Campaigns that reduced the demand for sex work also contributed to this decline. However, patterns of commercial sex have changed. There has been a huge increase in the number of indirect sex service establishments. The number rose from about 8,000 in 1998 to more than 12,200 in 2003. In Bangkok alone, an estimated 34,000 women were trading sex in such non-brothel settings in 2003. Regulating these forms of sex work using the approach of the 100% condom programme is difficult (46). The sex workers in these indirect establishments are largely unaffected by "100% condom use" programming, which concentrates on brothel-based sex work (31).

Study by Philip O. Renzullo et al. (28) found that the behavior of access to commercial sex worker significantly changed during and after discharging service among conscripts. At the first RTA follow-up, 36% of them reported one or more visits per month to CSWs in the prior 6-month period. This percentage increased to about 50% during service, but declined to 7% after discharge. It showed that those who visited to CSW less frequently may have done so because release from the military made it more difficult to continue these behaviors, or they may have decreased these behaviors out of concern for becoming infected with HIV. Upon discharge the men were older and may have been more likely to recognize the importance of employment and/or marriage.

Regarding the accessibility to CSWs, the result of study in Ranong by Jian Hu (47) found that it was quite easy for migrant fishermen to find commercial sex workers. 72.3 percent of respondents reported that they can easily find CSWs near residency or workplace such as docking or at sea.

2.3.6 Accessibility of condom use

Among barrier contraceptives, the male latex condom offers the best protection against sexually transmitted infections, including HIV/AIDS. When used consistently, male condoms also provide highly effective contraception. Accessibility to condoms may be difficult for especially young people due to cost, stigma, embarrassment and other barriers (48).

The result of study by Jian Hu (47) showed that main sources to obtain condoms are drug stores, sex worker and friend among migrant fishermen in Ranong, Thailand. Among 75 condom users, 44 percent knew that they can buy condoms at drug store, 18.7 percent of condom users knew that they can obtain condom from friends, 33.3 percent reported that they can get condoms from sex workers. Respondents can obtain condoms within one hour.

The similar study by Hula Tun Oo (29) found that majority of conscripts in Nakhornsi Thamarat reported condom was available easily. More than half of the

respondents knew more than three resources. Drug store, medical staff, and clinic were the popular source to obtain condoms.

2.3.7 Availability of STI care service

The predominant mode of transmission of both HIV and other STIs is sexual intercourse. In addition, strong evidence supports several biological mechanisms through which STIs facilitate HIV transmission by increasing both HIV infectiousness and HIV susceptibility. Thus, detection and treatment of individuals with STIs is an important part of an HIV control strategy. In summary, if the incidence/prevalence of STIs is high in a country, then there is the possibility of high rates of sexual transmission of HIV. Clinical services offering STI care are an important access point for people at high risk for both STIs and HIV. Identifying people with STIs allows for not only the benefit of treating the STI, but for prevention education, HIV testing, identifying HIV-infected persons in need of care, and partner notification for STIs or HIV infection (11).

Located across the country, the Fort hospitals have been active in providing care to people living with HIV/AIDS not only to those in the Royal Thai Army (RTA) but also to their families and the general public. The services provided were counseling, diagnosis and treatment, in accordance with the Ministry of Public Health guidelines. The RTA Medical Department initially ruled that conscripts found to be infected with HIV/AIDS would be discharged with consent from their superior and physician. RTA personnel found to be HIV-infected or suffering from AIDS would receive counseling and symptomatic treatment. RTA also provided the HIV/AIDS education including Prevention of STIs and proper STI treatment (21).

2.3.8 Availability of HIV/AIDS education

Royal Thai Army (RTA) has been conducted the AIDS education for conscripts in military. In order to promote knowledge of HIV and its prevention to the conscripts, RTA operated behavioral change campaign in Prachuab Khiri Khan province in the late 1990's. It relied on the influence of the organization personnel structure and the RTA administration as key factors in behavioral change. The

influential personnel were field medics, squadron leaders, chaplains and non-formal-education teachers. These peer educators had an important role, as they understood the behavior and problems their peers might be experiencing. In this model, the peer educators mainly worked to support influential RTA personnel. From the result of programme, a reduction in sexual risk behaviors resulted in fewer visits to sex workers, reduced drinking, and increased and correct use of condoms, both with sex workers and partners. HIV screening of conscripts to assess the modulus effectiveness revealed that the conscripts had a lower HIV incidence. No new infections were detected in their last six months of duty. This confirmed the success of the project in reducing the risky behaviors of the conscripts (21).

The result of similar project in Cambodia also showed that AIDS education among conscripts in military is effective for reduction sexual risk behavior. It was evaluated positively because it was successful in providing trainers and peer educators with improved knowledge and understanding of HIV/AIDS and bringing about behavior change, such as increased condom use. But several topics still needed further clarification, such as the differences between AIDS and other STIs, HIV transmission so on. However those interviewed agreed that peer education was effective in disseminating HIV/AIDS information and participatory learning and that group processes contributed to the programme success (25).

2.3.9 Peer influence

The study by Mark Vanlandingham et al (49) showed that four major mechanisms by which male peers influence the extramarital sexual behavior of one another: by providing opportunities for commercial sex patronage; by fostering the practice of reciprocal treating; by promoting heavy drinking; and by pressuring ambivalent members to participate. Thai Male peer groups were closely linked with both the initiation of and the continued participation in sexual activity involving commercial sex workers. Survey evidence indicated that commercial sex patronage among young unmarried Thai men, often including first intercourse, was very common and that Thai men usually patronized commercial sex establishments in small groups.

Philip O et al (28) found that HIV risk behaviors and their dynamics during versus following military service fit well with a social context model for risk behavior among conscripts. There was considerable social pressure for conformity in peer group settings, especially those characterized by close personal proximity and enforced, intensive interactions, such as the military. These social pressures for risk were reduced dramatically following discharge, where the village peer reference group, characterized by a wider diversity of social interactions (e.g., a more heterogeneous community peer group) played an important role. This reduction in social pressure was associated with diminished behavioral risk.

CHAPTER 3
RESEARCH METHODOLOGY

3.1 Research design

This study design was cross-sectional descriptive study to describe independent variables including predisposing factors, enabling factors, reinforcing factors and sexual risk behavior on HIV infection among military conscripts, Nakhon Phanom province, Thailand and to identify the relationship between independent variables and the sexual risk behavior on HIV infection. Data was collected by using self-administrated structured questionnaire.

3.2 Study population

The study population was conscripts in the military camp in Amphur Muang, Nakhon Phanom, Nakhon Phanom province, Northeastern of Thailand. The inclusion criteria were the conscripts who are men aged 18 to 30 years old in February 2008.

3.3 Sample size estimation

Based on the following formula, the sample size was calculated as follows;

$$n = \frac{z^2 \alpha/_2 (1-p)}{d^2} = 160$$

Where: n = Estimated sample size

Z =Level of statistical significance, set on “alpha 0.05”, therefore (Z=1.96)

d = 0.05

p = Proportion of individual in population processing a characteristic of interest (Proportion of military conscripts who had STIs history was 11.8% in 2006 (13)

From the formula, the required total number of conscripts is 160. However, the data was collected by researcher was 207 cases.

3.4 Sampling technique

At first the researcher selected one base of military of Nakhon Phanom Province in Thailand. The self-administrated structured questionnaires were distributed to the conscripts by a coordinator. Then the conscripts filled up the questionnaire themselves.

3.5 Research instruments for data collection

The self-administrated structured questionnaire was used to collect data. At first, questionnaire was made in English, and was translated in Thai later. The questionnaire has four parts, including predisposing factors, enabling factors, reinforcing factors and sexual risk behavior on HIV infection.

Part 1: Predisposing Factors

Predisposing factors contained the question about socio-demographic variables, knowledge about HIV/AIDS and attitude towards HIV/AIDS. The details were as follow.

a) Socio-demographic variables

This part consisted of 7 questions about age, education, residence, the time for living, religion, occupation and having partner.

b) Knowledge about HIV/AIDS

This part consisted of 16 questions about knowledge of HIV/AIDS. The score was given to 1 for the correct answer and 0 for the wrong answer.

The maximum total score for the knowledge was 15 and the minimum total score was 0. Based on the Benjamin Bloom criteria, the knowledge was classified to three levels as follows:

-Poor level of knowledge: The total score of knowledge is less than 60 percent.
-Fair level of knowledge: The total score of knowledge is from 60 percent to 80 percent.
-Good level of knowledge: The total score of knowledge score is greater than 80 percent.

c) Attitude towards HIV/AIDS

This part consisted of 16 questions which is combined positive and negative statements about attitude towards HIV/AIDS. Based on Likert scale, the score was given as follows:

For positive attitude question

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

For negative attitude question

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

The maximum and minimum of total score were 80 and 16, respectively. Based on the Best's rating criteria, the attitude was classified to three levels from the total score of attitude as follows:

-Poor level of attitude: The score is from 16 to 37.
-Fair level of attitude: The score is from 38 to 59
-Good level of attitude: The score is from 60 to 80.

Part 2: Enabling factors

a) Health risk behavior

This part consisted of 7 questions about health risk behavior such as frequency of alcohol use, experience to drink alcohol and drugs, experience to have sexual intercourse after drinking alcohol and using drugs, type of drugs and frequency of condom use after drinking alcohol and using drug.

The result was divided into two groups, health risk group and no health risk group. Respondents who had history of drinking alcohol or using drug after joining military was classified into health risk group. On the other hand, those who had no history of alcohol drink and drug abuse was categorized into no health risk group.

b) Accessibility of commercial sex workers

This part consisted of 5 questions regarding to accessibility of commercial sex workers. The contents of questions were about their experience to visit commercial sex workers, accessibility of commercial sex workers, place for commercial sex workers, type of commercial sex workers and frequency of visit commercial sex workers.

c) Accessibility of condom use

This part asked the respondents about accessibility of condom use such as whether they know the place to obtain condom and the place that they get or buy condom.

Part 3: Reinforcing factors

a) Availability of STI care service

This part consisted of 3 questions that ask the information about history of STI, experience for treatment and the source of STI care service.

b) Availability of HIV/AIDS education

This part consisted of 2 questions about availability of HIV/AIDS education after joining military such as the experience of HIV/AIDS education and source.

c) Peer influence

Peer influence was asked by 5 questions. The questions were regarding to the factor to encourage respondents to go commercial sex workers, use drugs, drink alcohol, have sexual intercourse with MSM and to use condom.

In this study, peer influence was divided into two types, negative peer influence and positive peer influence. Negative peer influence is that friends in the military encourage conscripts to act sexual intercourse with CSW or MSM or drinking alcohol or drug use after they joined military. On the other hand, positive peer influence is that friends in the military encourage them to act condom use after they joined military. Those who got more than one negative peer influences or did not get the positive influence were categorized as the group of “Have peer influence”, and those who did not get any negative peer influence and got the positive influence from friend in the military were classified into the group of “No peer influence”.

Part 4 Sexual risk behavior

This part consists of 23 questions to measure sexual risk behavior after joining military among conscripts. The questions were asked respondents about the experience of sex, condom use, frequency of using condom, reason for not using condom.

Based on the answers, sexual behavior was divided into two groups.

-Sexual risk behavior: If respondents did not use condom or used condom inconsistently when they have sex with more than one group of partner such as commercial sex workers, IDUs and MSM and wife or girlfriends after they joined the military.

-Non-sexual risk behavior: If respondents always used condom with any partners after they joined the military.

3.6 Pretesting of the questionnaire

For the reliability of questionnaire and validity of the data and result, pre-test for questionnaire was conducted to 30 military conscript in one base of military in Bangkok. Questionnaire was sent to the coordinator for data collection. After receiving the data, the part of knowledge on questionnaire was analyzed for reliability by using KR20. Cronbach's Alpha was used for questionnaire about the part of attitude. KR20 and Cronbach's Alpha were calculated by Minitab software programme, and they were 0.759 and 0.648 respectively.

3.7 Data collection procedure

After completing the self-administrated structured questionnaire by the researcher, firstly the researcher made an appointment with the coordinator to collect data. Secondary questionnaires were given to the coordinator in the military camp. Thirdly the contents of the questionnaire were described to the coordinator by researcher. Finally the coordinator collected the data instead of researcher in the military camp.

3.8 Data analysis procedure

After collecting data, the data was coded and entered by using EPI data. After entering all data to the EPI data, it was transferred to Excel file and to Minitab. Finally the data was analyzed by using Minitab version 13.00.

Descriptive statistics was used to find frequency and percentage distribution of the dependent and independent variables. In order to assess the relationship between independent and dependent variables at significant level 0.05, Chi-square test and Fisher's exact test were applied.

CHAPTER 4
RESULTS

This research was conducted to study the sexual risk behavior on HIV infection among military conscripts, Nakhon Phanom, Thailand. Data was collected through self-administration questionnaire from the 207 military conscripts on February 4, 2008. Since some parts of the data were not completed, after screening it, total number of cases was 179 conscripts finally. The aims of this study were to describe the predisposing factors, enabling factors, reinforcing factors and sexual risk behavior, and to indentify the relationship between independent variables and sexual risk behavior on HIV infection.

The results were divided into two parts; the first was to elaborate descriptive information of respondents. The results were shown in the tables of frequency and percentage distribution for all variables. The latter was presented the association between independent and dependent variables, and it examined by Chi-square test and Fisher's exact test.

4.1 Frequency and percentage distribution of independent and dependent variables

4.1.1 Socio-demographic variables

Table 4 showed the frequency and percentage of socio-demographic variables. The mean of age was 21.98 years old. Majority of conscripts was 20 to 24 years old (92.7%). Minimum age was 18 and maximum age was 28 years old.

Regarding education, most respondents had low education, 29.55 percent of respondents were primary school and 36.93 percent of them were secondary school.

In relation to residence before joining military, most of them were from Nakhon Phanom province (81.18%). With respect to the time for living in Nakhon Phanom, 94.51 percent had stayed in Nakhon Phanom for more than two years.

Religion of respondents indicated that all of respondents were Buddhists. Muslim and Christian were not reported.

Nearly two–third of respondents (61.80%) was employee before joining military, 13.48 percent was agriculture and 9.55 percent was student. Government officer was reported very few (1.69 %).

Among military conscripts, the proportion of having women partner (48.04%), and did not have women partner (51.96%) were equally.

Table 4 Number and percentage by socio-demographic variables

Socio-demographic variables	N	%
Age (Years)	(n=178)	
18-19	7	3.93
20-24	165	92.70
25-30	6	3.37
Mean= 21.98, SD= 1.48, Min=18, Max=28		
Education	(n=176)	
Primary school	52	29.55
Secondary school	65	36.93
High school	38	21.59
Vocational school	8	4.55
College and higher	11	6.25
Other	2	1.14
Residence before joining military	(n=170)	
Nakhon Phanom province	138	81.18
Other province	32	18.82

Table 4 Number and percentage by socio-demographic variables (cont.)

Socio-demographic variables	N	%
Time for living in Nakhon Phanom	(n=164)	
<1Year	4	2.44
2Years	5	3.05
>2Years	155	94.51
Mean= 19.46 , SD= 5.86 , Min=1, Max=28		
Religion	(n=178)	
Buddhist	178	100.00
Occupation before joining military	(n=178)	
Own Business	13	7.30
Agriculture	24	13.48
Laborer	4	2.25
Employee	110	61.80
Government officer	3	1.69
Student	17	9.55
No job	6	3.37
Other job	1	0.56
Having partner	(n=179)	
Yes	86	48.04
No	93	51.96

4.1.2 Knowledge about HIV/AIDS

Table 5 showed the number and percentage distribution of respondents by the level of knowledge about HIV/AIDS. The result of 15 questions was rated by Benjamin Bloom criteria as good, fair and poor.

The proportion of fair level of knowledge was equal to poor level (35.75%). good level was only 29.05 percent of all respondents. Mean total knowledge score was 10.11, standard deviation was 2.39, the minimum score and maximum score were 3 and 15 respectively.

Table 5 Number and percentage by level of knowledge about HIV/AIDS

Level of knowledge about HIV/AIDS	N (n=179)	%
Good	52	29.05
Fair	63	35.75
Poor	64	35.75
(Mean=10.11 , SD= 2.39 , Min=3 , Max=15)		

Score: Poor= <60%, Fair= 60% to 80%, Good= >80%

Table 6 displayed the number and percentage distribution of respondents by each questions of knowledge. More than 90 percent of respondents (91.62%) have heard HIV/AIDS.

Regarding the question about the route of transmission, more than 90 percent of respondents could answer that the causal agent is virus (93.22%) and HIV is transmitted by having sexual intercourse without condom with a person infected with HIV (93.71%). On the other hand, about the similar question, only 75.42 percent answered that person can get HIV even if he or she has sexual intercourse just one time without a condom. Besides, the percent of correct answer of some question was not high. Only 63.13 percent answered that without condom, people can get HIV with a healthy looking partner and 54.75 Percent of them answered correctly that people can get HIV by touching people with HIV/AIDS.

As for prevention, 90.06 percent answered correctly that HIV can be prevented by always use condom every time having sex and 81.01 percent answered correctly that birth control pills can prevent a woman from getting HIV. On the other hand, the percentage of correct answer among the rest of questions was quite low. As an example, a few respondents could answer correctly that people can not prevent from getting HIV by not sharing food with people with HIV/AIDS (30.73%), by having sexual intercourse with only one partner (22.91%) and by avoiding mosquito bites (48.31%).

In respect of the question about risk factors, most respondents answered correctly. 90.50 percent of them knew that IDU with sharing needles and syringes is high risk group. 84.75 percent answered people can get HIV by getting injections with a needle or syringe that was already used by someone else.

Regarding MSM, only 26.40 percent answered correctly that not only people who have sexual intercourse with MSM can get HIV and 67.42 percent answered correctly people can get HIV by having anal sex without a condom.

Table 6 Number and percentage by correct answer of knowledge about HIV/AIDS

Questions of knowledge about HIV/AIDS	Correct N	%
1.Have ever heard HIV/AIDS (n=179)	164	91.62
2.The casual agent of HIV/AIDS (n=177)	165	93.22
3.Transmission of HIV(n=175)	164	93.71
4.HIV can be detected by blood examination (n=179)	174	97.21
5.HIV can be prevented by always use condom (n=171)	154	90.06
6.High risk group for contracting HIV/AIDS (n=177)	150	84.75
7. People can get HIV by having sexual intercourse without condom, with a healthy looking partner (n=179)	113	63.13
8. People can get HIV by touching people with HIV/AIDS (n=179)	98	54.75
9. People can protect themselves from getting HIV by not sharing food with people with HIV/AIDS (n=179)	55	30.73
10. Birth control pills can prevent a woman from getting HIV(n=179)	145	81.01
11. Having sexual intercourse with only one partner can protect from getting HIV (n=179)	41	22.91
12. People can protect themselves from getting HIV by avoiding mosquito bites (n=178)	86	48.31
13. A person can get HIV even if he or she has sexual intercourse just one time without a condom (n=179)	135	75.42

Table 6 Number and percentage by correct answer of knowledge about HIV/AIDS (cont.)

Questions of knowledge about HIV/AIDS	Correct N	%
14. Only people who have sexual intercourse with MSM can get HIV(n=178)	47	26.40
15. People can get HIV by having anal sex without a condom (n=178)	120	67.42
16. A person can get HIV by getting injections with a needle or syringe that was already used by someone else (n=179)	162	90.50

4.1.3 Attitude towards HIV/AIDS

Table 7 showed the number and percentage distribution of respondents by the level of attitude towards HIV/AIDS. Based on the total score, the result of 16 questions was rated by Best's criteria as good, fair and poor.

Most respondents were in the fair level of attitude towards HIV/AIDS (86.59 %), the percentage of good level and poor level were 12.8 and 0.56 respectively. Mean total attitude score was 52.53, and standard deviation was 6.83. Minimum score and maxim score were 36 and 71 respectively.

Table 7 Number and percentage by level of attitude towards HIV/AIDS

Level of attitude towards HIV/AIDS	N (n=179)	%
Good	23	12.85
Fair	155	86.59
Poor	1	0.56
(Mean=52.53 ,SD= 6.83, Min=36, Max=71)		

Score: Poor= 16 to 37, Fair = 38 to 59, Good= 60 to 80

Table 8 showed percentage distribution of the respondents by each question about attitude towards HIV/AIDS. Regarding the route of transmission, 15.73 percent of respondents agreed and strongly agreed with the statement that person can get HIV by using the same bathroom of an infected person, 33.71 percent is not sure. More than half of all respondents (60.12%) agreed or strongly agreed that getting HIV is only happened with people who often have sexual intercourse with commercial sex worker. Only 23.73 percent disagreed and strongly disagreed that men who have sexual intercourse with men or use drugs are the only men who will get HIV.

Concerning condom use to prevent HIV, high proportion of them agreed and strongly agreed that condom is used for prevention of HIV (83.53%), person who always carries condom practice to prevent HIV (71.51%). 65.37 percent disagreed and strongly disagreed that using condom for prevention of HIV is complicated and a waste of time. However 41.01 percent of them agreed and strongly agreed, and 28.65 percent were not sure that using a condom to protect HIV is a sign of not trusting your partner. 46.93 percent of them agreed and strongly agreed and only 1.68 percent was strongly disagreed that using condoms for prevention of HIV reduces sexual pleasure. While high percentage of respondents, 86.44% agreed and strongly agreed that they will use condom with a commercial sex worker. 75.41% agreed and strongly agreed with use condom after drinking alcohol or using drugs. Only 20.12 percent disagreed and strongly disagreed that men should use condom with newly met person but no need to use condom with wife or girl friend to prevent HIV.

As for attitude about risk factors of HIV/AIDS, Most of them agreed that they had any opportunity to get HIV without condom. However, the rest of answers showed that quite negative attitude towards HIV/AIDS. Only 32.96% disagreed and strongly disagree that a healthy looking partner doesn’t have any possibility to be infected with HIV. 64.6 percent agreed and strongly agreed that having only one sexual partner, there is no risk of getting HIV. 53.93 percent disagreed and strongly agreed the statement if a man doesn’t use condom for prevention of HIV with multiple sex partners, he can be proud that he has many partners. 48.05 percent disagreed and strongly disagreed that commercial sex workers are the only women who will get HIV.

Table 8 Percentage of attitude towards HIV/AIDS

Question about attitude towards HIV/AIDS	Strongly Agree (%)	Agree (%)	Not sure (%)	Dis-agree (%)	Strongly Disagree (%)
1. A person can get HIV by using the same bathroom of an infected person (n=178)	5.62	10.11	33.71	35.39	15.17
2. Getting HIV is only happened with people who often have sexual intercourse with commercial sex worker (n=178)	17.42	42.70	15.17	17.42	7.30
3. You have any opportunity to get HIV if you have sexual intercourse without condom (n=178)	43.82	38.20	11.80	4.49	1.69
4. Using a condom to protect HIV is a sign of not trusting your partner. (n=178)	11.80	29.21	28.65	21.91	8.43
5. Person who always carries condom practice to prevent HIV (n=179)	32.40	39.11	17.32	8.38	2.79
6. A healthy looking partner doesn't have any possibility to be infected with HIV (n=179)	6.15	22.35	38.55	23.46	9.50
7. Using condoms for prevention of HIV reduces sexual pleasure. (n=179)	16.76	30.17	29.61	21.79	1.68
8. Using condom for prevention of HIV is complicated and a waste of time. (n=179)	4.47	20.11	10.06	51.96	13.41
9. Even if a man doesn't use condom for prevention of HIV with multiple sex partners, he can be proud that he has many partners. (n=178)	7.30	19.10	19.66	33.71	20.22
10. CSWs are the only women who will get HIV. (n=179)	3.91	21.79	26.26	34.64	13.41
11. Men who have sexual intercourse with men or use drugs are the only men who will get HIV. (n=177)	7.91	31.64	36.72	15.82	7.91
12. Condom is used for prevention of HIV (n=170)	41.18	42.35	7.06	8.82	0.59

Table 8 Percentage of attitude towards HIV/AIDS (cont.)

Question about attitude towards HIV/AIDS	Strongly Agree (%)	Agree (%)	Not sure (%)	Dis-agree (%)	Strongly Disagree (%)
13. Having only one sexual partner, there is no risk of getting HIV (n=178)	25.84	38.76	23.60	8.99	2.81
14. Every time you have sexual intercourse with a CSW, you will use condom (n=177)	48.59	37.85	7.34	3.39	2.82
15. You will use condom to prevent HIV even if you have sexual intercourse after drinking alcohol or using drugs. (n=179)	31.28	44.13	18.99	3.91	1.68
16. Men should use condom with newly met person to prevent HIV but no need to use condom with wife or girl friend to prevent HIV. (n=179)	18.99	39.11	21.79	14.53	5.59

4.1.4 Health risk behavior

Table 9 displayed the frequency and percent of health risk behavior group. Respondents who had drunk alcohol last three month or had used drug after joining military were classified into health risk and if they did not have behavior about alcohol drink and drug abuse, it was categorized into no health risk. The result revealed that 58.1 percent of respondents had health risk behavior.

Table 9 Number and percentage of health risk behavior group

Health risk behavior	N	%
Health risk	104	58.10
No health risk	75	41.90

Table 10 showed frequency and percentage distribution of the respondents by the question about health risk behavior such as drink alcohol and drug abuse.

37.11 percent of respondents had drunk containing alcohol and 35.22 percent had never drunk during last 3 months. Frequency of alcohol use was not often, the answer of every day was only 1.26 percent, and at least once a week was 7.55 percent. The result revealed that the proportion of respondents having and not having sexual intercourse after dinking alcohol were same (50%). Regarding the group that had sexual intercourse, the result found that the respondents did not use condom about 23.08 percent after drinking alcohol.

Table 10 Number and percentage of health risk behavior (Alcohol)

Health risk behavior (Alcohol)	N	%
Had drunk containing alcohol during last 3 months	(n=159)	
Every day	2	1.26
At least once a week	12	7.55
Less than once a week	45	28.30
Can not remember	44	27.67
Never	56	35.22
Had sexual intercourse after drinking alcohol after joining military	(n=108)	
Yes	54	50.00
No	54	50.00
Used condom when you had sexual intercourse after drinking alcohol	(n=52)	
Every time	17	32.69
Sometimes	23	44.23
Didn’t use	12	23.08

Table11 showed the frequency and percentage about drug abuse, 32.58 percent of respondents were reported that they had tried to use drugs after joining military. Among 58 drug users, 64.91 percent of respondents used Yaba, 50.88 percent of respondents used Marijuana.

43.10 percent of respondents had sexual intercourse after using drug. Regarding condom use after using drugs, 23.08 percent did not use condom.

Table 11 Number and percentage of health risk behavior (Drug)

Health risk behavior (Drug)	N	%
Have tried to use drugs after joining military	(n= 178)	
Yes	58	32.58
No	115	64.61
Don't know	5	2.81
Type of drug*	(n=57)	
Marijuana	29	50.88
Heroin	5	8.77
Yaba	37	64.91
Opium	5	8.77
Glue or Thinner	8	14.04
Other	6	10.53
Had sexual intercourse after using drug	(n=58)	
Yes	25	43.10
No	29	50.00
Don't know	4	6.90
Used condom when you had sexual intercourse after using drug	(n=26)	
Every time	9	34.62
Sometimes	11	42.31
Didn't use	6	23.08

* Multiple selection

4.1.5 Accessibility of commercial sex worker

Frequency and percentage of the respondents by the question about accessibility of commercial sex worker (CSW) were presented in Table 12. Only 17.44 percent of respondents had visited commercial sex worker after joining military. Among respondents, they replied that it is not easy to find CSW by their present place (41.94%). The place respondents had visited CSW were mostly in the Amphur Muang (the center of city) or suburb of Nakhon Phanom. Only 7.14 percent was near border of Laos and Laos. The type of CSW was mostly karaoke or bar (78.57%). Frequency of visit commercial sex worker was not so often, 50.00 percent was less than once a month.

Table 12 Number and percentage of accessibility of CSWs

Accessibility of commercial sex workers	N	%
Have visited CSW after joining military	(n=172)	
Yes	30	17.44
No	142	82.56
Easy to find CSW by the present place	(n=31)	
Yes	12	38.71
No	13	41.94
Don’t know	6	19.35
Place you have visited CSW *	(n=14)	
Amphur Muang	7	50.00
Suburb of Nakhon Phanom	3	21.43
Near border of Laos	1	7.14
Laos	2	14.29
Other	4	28.57
Type of CSW you visited during past 12 months *	(n=14)	
Brothel	2	14.29
Karaoke/ Bar	11	78.57
Massage parlor	1	7.14
Other	2	14.29

Table 12 Number and percentage of accessibility of CSWs (cont.)

Accessibility of commercial sex workers	N	%
Frequency to visit commercial sex workers	(n=12)	
More than once a week	2	16.67
Once a week	1	8.33
Once a month	3	25.00
Less than once a month	6	50.00

*Multiple selection

4.1.6 Accessibility of condom use

Table 13 showed the frequency and percentage distribution of the respondents by the question about accessibility of condom use. 72.47 % of respondents knew the place to obtain condom. Convenient shop (81.60%) and medical staff or clinic or health center (72.80%) and drug store (49.60%) were famously to obtain condom.

Table 13 Number and percentage of accessibility of condom use

Accessibility of condom use	N	%
Knowing the place to obtain condom by the present place	(n=178)	
Yes	129	72.47
No	49	27.53
Place to obtain condoms*	(n=125)	
Convenient shop	102	81.60
Drug store	62	49.60
Bar/Hotel	24	19.20
Market	7	5.60
Friend	16	12.80
Medical staff/Clinic/Health center	91	72.80
Public / Free condom distribution box	32	25.60
Other	6	4.80

* Multiple selection

4.1.7 Availability of STI care services

Table 14 showed the frequency and percentage distribution of the respondents by the question about availability of STI care services.

4.62 percent of respondents had a history of genital discharge or a genital ulcer or sore after joining military. Among the person had STI history, 57.14 percent went to the clinic or hospital for the treatment.

Regarding the place of clinic or hospital for STI treatment, more than a half of all respondents did not know the place (53.53%), only 31.76 percent and 28.24 percent knew that there was the clinic or hospital for STI in Amphur Muang and in the military camp respectively.

Table 14 Number and percentage of availability of STI care services

Availability of STI care services	N	%
Had a genital discharge or a genital ulcer/sore after joining military	(n=173)	
Yes	8	4.62
No	154	89.02
Doesn't know	11	6.36
Went to the clinic or hospital for the treatment	(n=7)	
Yes	4	57.14
No	3	42.86
Knowing the place of clinic or hospital for STI treatment*	(n=170)	
In military camp	48	28.24
Amphur Muang	54	31.76
Near military camp	16	9.41
Don't know	91	53.53
Other place	8	4.71

*Multiple selection

4.1.8 Availability of HIV/AIDS education

Table 15 showed the number and percentage of respondents by the result about availability of HIV/AIDS education. Most of respondents (79.21%) reported that they had learned about HIV/AIDS after joining military. Only 15.73 percent of them had never learned about HIV/AIDS.

Table 15 Number and percentage of availability of HIV/AIDS education

Availability of HIV/AIDS education	N	%
Have learned about HIV/AIDS	(n=178)	
Yes	141	79.21
No	28	15.73
Don't know	9	5.06

Table 16 showed the frequency and percentage by the result of the place for HIV/AIDS education. Among respondents who learned HIV/AIDS, majority of respondents had learned about HIV/AIDS in the military (80.43%).

Table 16 Number and percentage of the place for HIV/AIDS education

Place for HIV/AIDS education	N	%
Place you learned about HIV/AIDS*	(n=138)	
Education in the military	111	80.43
Training programme outside	40	28.99
Leaflet or brochure	38	27.54
Poster	37	26.81
Other	5	3.62

*Multiple selection

4.1.9 Peer influence

Table 17 showed the number and percentage of respondents by the result of peer influence. The result found that conscripts got few peer influences from friend in the military camp. Respondents were encouraged to go to commercial sex worker (17.24%), to use drugs (9.77%), to drink alcohol (25.57%), to have sexual intercourse with men (5.78%). On the other hand, 62.21percent of respondents reported that their friends in the military encouraged them to use condom when they had sexual intercourse.

Table 17 Number and percentage of peer influence

Peer influence	Yes		No		Don't know	
	N	%	N	%	N	%
Friend in the military encouraged you to go to commercial sex workers after joining military (n=174)	30	17.24	114	65.52	30	17.24
Friend in the military encouraged you to use drugs after joining military (n=174)	17	9.77	134	77.01	23	13.22
Friend in the military encouraged you to drink alcohol after joining military (n=176)	45	25.57	108	61.36	23	13.07
Friend in the military encouraged you to have sexual intercourse with men after joining military (n=173)	10	5.78	146	84.39	17	9.83
Friend in the military encouraged you to use condom when you have sexual intercourse after joining military (n=172)	107	62.21	36	20.93	29	16.86

4.1.10 Sexual risk behavior on HIV infection

Table 18 showed the number and percentage of respondents by the result of sexual risk behavior on HIV infection. The results indicated that 53.63 percent of respondents had sexual intercourse after joining the military. Among those who had sexual intercourse, 50 percent of them had more frequency of sexual intercourse after joining military.

Table 18 Number and percentage of sexual risk behavior on HIV infection

Sexual risk behavior on HIV infection	N	%
Have had sexual intercourse after joining military	(n=179)	
Yes	96	53.63
No	83	46.37
Had more frequency of sexual intercourse after joining military	(n=94)	
Yes	47	50.00
No	29	30.85
Don’t know	18	19.15

Frequency and percentage of respondents by sexual intercourse with wife or girl friend, commercial sex worker, injecting drug use (IDU) and men sex with men (MSM) have been presented in Table 19.

Regarding sexual intercourse with wife or girl friend, among those who had sexual intercourse after joining the military, 84.21 percent had sexual intercourse with wife or girl friend. Only 26.58 percent of respondents reported to use condom. Among condom user, 38.1 percent decided to use condom themselves and 33.33 percent was joint decision. The reasons that they did not use condom with wife or girl friend that time were used other contraceptive (42.86%), not available (35.71%), and do not like them (33.93%). Frequency of condom use with wife or girl friend was quite low, the answer of sometimes was 53.16% and never was 32.91%.

With regard to sexual intercourse with commercial sex workers (CSW), among those who had sexual intercourse after joining the military, 19.79 percent had sexual intercourse with CSW. Those had sexual intercourse with CSW, 50 percent reported condom use. Among condom user, 44.44 percent was joint decision to use condom 33.33 percent decided to use condom by themselves. The reasons that they did not use condom that time were do not like them and too expensive (42.86%). 50 percent answered that they use condom with CSW every time, 27.78 percent was almost every time.

Concerning sexual risk behavior with IDU, among those who had sexual intercourse after joining military, 5.38 percent had had sexual intercourse with IDU. Among them, 75 percent reported condom use, and they decided to use condom by themselves. 75 percent of them used every time, and 25 percent of them used sometimes. The reason that they did not use condom with IDU that time was too expensive.

In respect of sexual risk behavior with MSM, among those who had sexual intercourse after joining military, 11.96 percent of them had sexual intercourse with MSM. Those had sexual intercourse with MSM, 62.5 percent reported condom use. Among condom user, they decided to use condom by themselves (20%), by partner (20%), by joint decision (20%). The reasons that they did not use condom with MSM at time were not available (50%), do not like them (50%). Frequency of condom use with MSM was no so high, the answer of almost every time was 50% and sometimes was 37.5%, and never was 12.5%.

Table 19 Number and percentage of sexual risk behavior on HIV infection by partner

Sexual risk behavior on HIV infection	Wife or girl friend	CSW	IDU	MSM
	N (%)	N (%)	N (%)	N (%)
Have had sexual intercourse	(n=95)	(n=96)	(n=93)	(n=92)
Yes	80 (84.21)	19 (19.79)	5 (5.38)	11 (11.96)
No	15 (15.79)	77 (80.21)	88 (94.62)	81 (88.04)
Used condom	(n=79)	(n=16)	(n=4)	(n=8)
Yes	21 (26.58)	8 (50.00)	3 (75.00)	5 (62.50)
No	58 (73.42)	8 (50.00)	1 (25.00)	3 (37.50)
Person suggested condom use	(n=21)	(n=9)	(n=3)	(n=5)
Myself	8 (38.10)	3 (33.33)	3 (100.00)	1 (20.00)
My partner	4 (19.05)	2 (22.22)	0 (0)	1 (20.00)
Joint decision	7 (33.33)	4 (44.44)	0 (0)	1 (20.00)
Don’t Know	2 (9.52)	0 (0)	0 (0)	2 (40.00)
Reason for not using condom	(n=56)	(n=7)	(n=1)	(n=2)
Not available	20 (35.71)	2 (28.57)	0 (0)	1 (50.00)
Too expensive	4 (7.14)	3 (42.86)	1 (100.00)	0 (0)
Partner objected	9 (16.07)	1 (14.29)	0 (0)	0 (0)
Don’t like them	19 (33.93)	3 (42.86)	0 (0)	1 (50.00)
Used other contraceptive	24 (42.86)	-	0 (0)	-
Didn’t think it was necessary	11 (19.64)	0 (0)	0 (0)	0 (0)
Other	5 (8.93)	0 (0)	0 (0)	0 (0)
Frequency of condom use	(n=79)	(n=18)	(n=4)	(n=8)
Every time	6 (7.59)	9 (50.00)	3 (75.00)	0 (0)
Almost Every time	5 (6.33)	5 (27.78)	0 (0)	4 (50.00)
Sometimes	42 (53.16)	1 (5.56)	1 (25.00)	3 (37.50)
Never	26 (32.91)	0 (0)	0 (0)	1 (12.50)

Table 20 showed the frequency and percentage of the nationality of commercial sex workers. Among respondents had sexual intercourse with CSW after joining the military, it found that the nationality of CSW was mostly Thai (72.22%) and Vietnamese (16.67%).

Table 20 Number and percentage of nationality of commercial sex worker

Nationality of commercial sex worker	N (n=18)	%
Thai	13	72.22
Vietnamese	3	16.67
Chinese	1	5.56
Other	1	5.56

Table 21 showed the number and percentage distribution of respondents by the level of sexual risk behavior on HIV infection. Based on the answers of the questions about sexual risk behavior, sexual behavior was classified into two groups, sexual risk behavior and non-sexual risk behavior.

It found that 43.02 percent of all respondents had sexual risk behavior, and 56.98 percent did not have sexual risk behavior.

Table 21 Number and percentage of level of sexual risk behavior on HIV infection

Level of sexual risk behavior on HIV infection	N (n=179)	%
Sexual risk behavior	77	43.02
Non-sexual risk behavior	102	56.98

Table 22 showed the number and percentage distribution of respondents by the frequency of sexual risk behavior on HIV infection. The groups of partner divided into four groups such as sex with wife or girl friend, commercial sex worker, IDU and MSM.

Among those who had sexual risk behavior, 79.22 percent had sexual risk behavior with only one group, 20.78 percent of them engaged in sexual risk behavior with multiple partners after joining the military.

Table 22 Number and percentage of frequency of sexual risk behavior on HIV infection

Frequency of sexual risk behavior on HIV infection	N (n=77)	%
With one group of partner	61	79.22
With two group of partner	13	16.88
With three group of partner	2	2.60
With four group of partner	1	1.30

4.2 Association between the independent variables and sexual risk behavior on HIV infection

4.2.1 Association between Socio-demographic factors and sexual risk behavior on HIV infection

Table 23 showed the results of analysis between socio-demographic variables and sexual risk behavior. The proportion of sexual risk behavior and non-sexual risk behavior among age group were not different. Analyzed data of age group indicated that 42.44percent of respondents of younger group (age 18 to 24 group) had sexual risk behavior, and 50 percent of respondents of elder group (age 25 to 28 group) had sexual risk behavior. There was no statistically significant association between age and sexual risk behavior on HIV infection (p-value =1.00).

Regarding association between education and sexual risk behavior on HIV infection, 44.23 percent of respondents was primary school education level, 46.15

percent was secondary school level and 38.98 percent was high school and above were found sexual risk behavior respectively. There was no statistically significant association between education and sexual risk behavior on HIV infection (p-value= 0.711).

Concerning the association between residence before joining military and sexual risk behavior, 39.86 percent of respondents having residence in Nakhon Phanom and 56.25 percent of respondents having residence in the other provinces was found sexual risk behavior on HIV infection. The significant association between residence and sexual risk behavior on HIV infection was not identified (p-value = 0.091).

In respect of the association between time for living in Nakhon Phanom and sexual risk behavior on HIV infection, sexual risk behavior reported that 33.33 percent of less than 2 years and 41.94 percent of more than 2 years lived in Nakhon Phanom were found sexual risk behavior. The result of Chi-square did not indicate any statistically significant association between time for living in Nakhon Phanom and sexual risk behavior on HIV infection (p-value =0.737).

Analyzed data indicated that more than 50 percent of respondents had occupation as agriculture or own business were found sexual risk behavior. The calculated data did not indicate any statistically significant association between occupation before joining military and sexual risk behavior on HIV infection (p-value=0.700).

According to the analyzed data about having partner, 60.47 percent of respondents having partner was more likely to engage in sexual risk behavior than have non-sexual risk behavior. Since p-value was less than 0.001, a statistically significant association was found between having partner and sexual risk behavior on HIV infection.

Table 23 Association between socio-demographic variables and sexual risk behavior on HIV infection

Socio demographic variables	Sexual risk behavior		Non-sexual risk behavior		χ^2	p value
	N	%	N	%		
Age group	(n=76)		(n=102)			1.000**
18-24	73	42.44	99	57.56		
25-28	3	50.00	3	50.00		
Education	(n=76)		(n=100)		0.681	0.711
Primary school	23	44.23	29	55.77		
Secondary school	30	46.15	35	53.85		
High school/Vocational school/ College and higher/ Other	22	38.98	35	61.01		
Residence before joining military	(n=73)		(n=97)		2.850	0.091
Nakhon Phanom	55	39.86	83	60.14		
Other	18	56.25	14	43.75		
Time for living in Nakhon Phanom	(n=68)		(n=96)			0.737**
<2Years	3	33.33	6	66.67		
>2Years	65	41.94	90	58.06		
Occupation before joining military	(n=77)		(n=101)		2.197	0.700
Agriculture	12	50.00	12	50.00		
Employee /Laborer	49	42.98	65	57.02		
Student	6	35.29	11	64.71		
Own business	7	53.85	6	46.15		
Other / No job/ Government officer	3	30.00	7	70.00		

Table 23 Association between socio-demographic variables and sexual risk behavior on HIV infection (cont.)

Socio demographic variables	Sexual risk behavior		Non-sexual risk behavior		χ^2	p value
	N	%	N	%		
Having partner	(n=77)		(n=102)		20.56	**<0.001***
Yes	52	60.47	34	39.53		
No	25	26.88	68	73.12		

***Significant association (p<0.001)

**Fisher exact test

4.2.2 Association between knowledge about HIV/AIDS and sexual risk behavior on HIV infection

Result in table 24 revealed that 47.62 percent of respondents with fair knowledge level and about 40 percent of them with good (40.38%) and poor (40.63%) knowledge level engaged in sexual risk behavior on HIV infection. Since p-value was 0.657, there was no any significant association between knowledge about HIV/AIDS and sexual risk behavior on HIV infection.

Table 24 Association between level of knowledge about HIV/AIDS and sexual risk behavior on HIV infection

Level of knowledge about HIV/AIDS	Sexual risk behavior		Non-sexual risk behavior		χ^2	p value
	(n=77)	%	(n=102)	%		
Knowledge					0.841	0.657
Good	21	40.38	31	59.62		
Fair	30	47.62	33	52.38		
Poor	26	40.63	38	59.38		

4.2.3 Association between attitude towards HIV/AIDS and sexual risk behavior on HIV infection

The analyzed data in table 25 indicated that 45.83 percent of respondents with good level attitude, 42.31 percent with fair or poor level attitude were found sexual risk behavior on HIV infection. As p-value was 0.618, there was no significant association between attitude and sexual risk behavior on HIV infection.

Table 25 Association between level of attitude towards HIV/AIDS and sexual risk behavior on HIV infection

Level of attitude towards HIV/AIDS	Sexual risk behavior		Non-sexual risk behavior		χ^2	p value
	(n=77)	%	(n=102)	%		
Attitude					0.249	0.618
Good	11	45.83	12	52.17		
Fair/ Poor	66	42.31	90	57.69		

4.2.4 Association between health risk behavior and sexual risk behavior on HIV infection

Table 26 showed the association between health risk and sexual risk behavior. 52.88 percent of respondents who had health risk behavior were observed sexual risk behavior. In addition, only 29.33 percent who did not have health risk behavior had sexual risk behavior. Since p-value was 0.002, there was statistically significant association between health risk behavior and sexual risk behavior on HIV infection.

Table 26 Association between health risk behavior and sexual risk behavior on HIV infection

Health risk behavior	Sexual risk behavior		Non-sexual risk behavior		χ^2	p value
	(n=77)	%	(n=102)	%		
Have health risk behavior					9.860	**0.002***
Health risk behavior	55	52.88	49	47.12		
No health risk behavior	22	29.33	53	70.67		

*Significant association ($p<0.05$)

From the result in table 27, regarding the history of alcohol use, 52.54 percent of them who had drunk alcohol last 3 months engaged in sexual risk behavior. There was a significant association between alcohol use and sexual risk behavior on HIV infection (p-value= 0.016).

Concerning the result of history of sexual intercourse after drinking alcohol after joining military, sexual risk behavior on HIV infection was observed in 68.52 percent of alcohol user. Since p-value was 0.001, there was a significant association between history of sexual intercourse after drinking and sexual risk behavior on HIV infection.

With respect to the analyzed data of condom use after drinking alcohol, respondent did not use condom after drinking, 83.33 percent was reported had sexual risk behavior. It could conclude that there was no significant association between condom use after drinking alcohol and sexual risk behavior on HIV infection (p-value= 0.218).

Table 27 Association between alcohol use and sexual risk behavior on HIV infection

Health risk behavior (Alcohol use)	Sexual risk behavior		Non-sexual risk behavior		χ^2	p value
	N	%	N	%		
Had drunk containing alcohol during last 3 months	(n=48)		(n=67)		5.815	**0.016***
Drink (every day, at least once a week, less than once a week)	31	52.54	28	47.46		
Never	17	30.36	39	69.64		
Had sexual intercourse after drinking alcohol after joining military	(n=56)		(n=52)		12.016	**0.001***
Yes	37	68.52	17	31.48		
No	19	35.19	35	64.81		
Used condom when you had sexual intercourse after drinking alcohol	(n=35)		(n=17)		3.048	0.218
Every time	9	52.94	8	47.06		
Sometimes	16	69.57	7	30.43		
Didn't use	10	83.33	2	16.67		

*Significant association ($p<0.05$)

Table 28 showed the association between drug abuse as health risk behavior and sexual risk behavior on HIV infection. Regarding the history of drug abuse, 56.9 percent of those who had used drug was reported that they engaged in sexual risk behavior. As the result, it showed that there was a significant association between drug abuse and sexual risk behavior on HIV infection (p-value= 0.008).

According the result of history of sexual intercourse after using drug after joining the military, sexual risk behavior on HIV infection was observed in 68 percent among drug user. From the result in table 28, there was no significant association between history of sexual intercourse after using drug and sexual risk behavior on HIV infection (p-value=0.225).

Concerning the analyzed data of condom use after drug use, respondent did not use or used sometimes condom after using drug, 76.47 percent was reported had sexual risk behavior. As p-value was 0.382, there was no significant association between condom use after drug use and sexual risk behavior on HIV infection.

Table 28 Association between drug abuse and sexual risk behavior on HIV infection

Health risk behavior (Drug abuse)	**Sexual risk behavior**		**Non-sexual risk behavior**		χ^2	**p value**
	N	**%**	**N**	**%**		
Have tried to use drugs after joining military	(n=74)		(n=99)		7.109	**0.008***
Yes	33	56.90	25	43.10		
No	41	35.65	74	64.35		
Had sexual intercourse after using drug	(n=32)		(n=22)		1.473	0.225
Yes	17	68.00	8	32.00		
No	15	51.72	14	48.28		
Used condom when you had sexual intercourse after using drug	(n=18)		(n=8)			0.382**
Every time	5	55.56	4	44.44		
Sometimes/ Didn't use	13	76.47	4	23.53		

*Significant association ($p<0.05$)

**Fisher exact test

4.2.5 Association between accessibility of commercial sex workers and sexual risk behavior on HIV infection

Table 29 showed that association between accessibility of commercial sex workers and sexual risk behavior. Since 66.67 percent of respondents who had visited commercial sex workers was observed sexual risk behavior on HIV infection, those who had visited commercial sex workers were more likely to engage in sexual risk behavior than those who had not visited commercial sex workers. As p-value was 0.006, it could conclude that there was a statistically significant association between the experiences of visit commercial sex workers and sexual risk behavior on HIV infection.

Among those who had visited commercial sex workers, 83.33 percent of the respondents answered that it was easy to find commercial sex workers had sexual risk behavior. Since p-value was 0.097, significant association was not identified between accessibility of commercial sex workers and sexual risk behavior on HIV infection.

Concerning frequency to visit commercial sex workers, the result showed that 88.89 percent of the respondents who had visited commercial sex worker once a month or less once a month and had sexual risk behavior. As p-value was 0.127, there was no significant association between frequency to visit commercial sex workers and sexual risk behavior on HIV infection.

Table 29 Association between accessibility of commercial sex workers and sexual risk behavior on HIV infection

Accessibility of commercial sex workers	Sexual risk behavior		Non-sexual risk behavior		χ^2	p value
	N	%	N	%		
Have visited CSWs after joining military	(n=76)		(n=96)		7.446	**0.006***
Yes	20	66.67	10	33.33		
No	56	39.44	86	60.56		

Table 29 Association between accessibility of commercial sex workers and sexual risk behavior on HIV infection (cont.)

Accessibility of commercial sex workers	Sexual risk behavior		Non-sexual risk behavior		χ^2	p value
	N	%	N	%		
Easy to find CSWs by the present place	(n=16)		(n=9)			0.097**
Yes	10	83.33	2	16.67		
No	6	46.15	7	53.85		
Frequency to visit CSWs	(n=9)		(n=3)			0.127**
Once a week / More than once a week	1	33.33	2	66.67		
Once a month/ Less than once a month	8	88.89	1	11.11		

*Significant association ($p<0.05$)

**Fisher exact test

4.2.6 Association between accessibility of condom use and sexual risk behavior on HIV infection

Table 30 indicated the association between accessibility of condom use and sexual risk behavior on HIV infection. Regarding knowing the place to obtain condom, Respondents who knew the place to obtain condom (53.49%) was more likely to engage in sexual risk behavior than those who did not know it (14.29%). As p-value was less than 0.001, there was a significant association between knowing where to obtain condom and sexual risk behavior on HIV infection.

In respect of the place to obtain condom, any significant association were not found between the places to obtain condom and sexual risk behavior on HIV infection.

Table 30 Association between accessibility of condom use and sexual risk behavior on HIV infection

Accessibility of condom use		Sexual risk behavior		Non-sexual risk behavior		χ^2	p value
		N	%	N	%		
Knowing the place to obtain condom		(n=76)		(n=102)		22.306	**<0.001***
Yes		69	53.49	60	46.51		
No		7	14.29	42	85.71		
Place to obtain condom		(n=67)		(n=58)			
Convenient shop	Yes	54	52.94	48	47.06	0.097	0.756
	No	13	56.52	10	43.48		
Drug store	Yes	31	50.00	31	50.00	0.641	0.423
	No	36	57.14	27	42.86		
Bar/Hotel	Yes	13	54.17	11	45.83	0.004	0.951
	No	54	53.47	47	46.53		
Market	Yes	5	71.43	2	28.57		0.449 **
	No	62	52.54	56	47.46		
Friend	Yes	7	43.75	9	56.25	0.716	0.398
	No	60	55.05	49	44.95		
Medical staff / Clinic/Health center	Yes	50	54.95	41	45.05	0.887	0.346
	No	14	45.16	17	54.84		
Public / Free condom distribution box	Yes	16	50.00	16	50.00	0.224	0.636
	No	51	54.84	42	45.16		
Other	Yes	2	33.33	4	66.67		0.415**
	No	65	54.62	54	45.38		

* Significant association (p<0.001)

**Fisher exact test

4.2.7 Association between availability of STI care service and sexual risk behavior on HIV infection

Table 31 showed the association between availability of STI care service and sexual risk behavior on HIV infection. Regarding history of STI, 87.5 percent of respondents who had a genital discharge or a genital ulcer or sore engaged in sexual risk behavior. Since p-value was 0.025, there was a significant association between history of STI and sexual risk behavior on HIV infection.

Among those who had history of STI, 75 percent who went to the clinic or hospital for treatment were observed sexual risk behavior. However, 100 percent who did not go for treatment engaged in sexual risk behavior as well. As p-value was 1.00, association was not identified between went to the clinic or hospital for treatment and sexual risk behavior on HIV infection.

As for the knowing the place for treatment, among those who engaged in sexual risk behavior, 56.25 percent of them knew the clinic or hospital for STI treatment in military camp. There were 35.25 percent of them who did not know the clinic or hospital in military camp reveled had sexual risk behavior on HIV infection. As p-value was 0.012, there was a statistically significant association between knowing place for STI treatment in the military camp and sexual risk behavior on HIV infection. However, the other places for STI treatment were not found association.

Table 31 Association between availability of STI care services and sexual risk behavior on HIV infection

Availability of STI care services	Sexual risk behavior		Non-sexual risk behavior		χ^2	p value
	N	%	N	%		
Had a genital discharge or a genital ulcer / sore after joining military	(n=72)		(n=90)			**0.025***
Yes	7	87.50	1	12.50		
No	65	42.21	89	57.79		

Table 31 Association between availability of STI care services and sexual risk behavior on HIV infection (cont.)

Availability of STI care services	Sexual risk behavior		Non-sexual risk behavior		χ^2	p value
	N	%	N	%		
Went to the clinic or hospital for treatment	(n=6)		(n=1)			1.000**
Yes	3	75.00	1	25.00		
No	3	100.00	0	0		
Knowing the place of clinic or hospital for STI treatment	(n=70)		(n=100)			
In military camp					6.274	**0.012***
Yes	27	56.25	21	43.75		
No	43	35.25	79	64.75		
Amphur Muang					0.349	0.555
Yes	24	44.44	30	55.56		
No	46	39.66	70	60.34		
Near military camp					0.568	0.451
Yes	8	50.00	8	50.00		
No	62	40.26	92	59.74		
Don’t know					1.951	0.162
Yes	33	36.26	63.74	58		
No	37	46.84	53.16	42		
Other place						0.473**
Yes	2	36.26	6	63.74		
No	68	46.84	94	53.16		

*Significant association ($p<0.05$)

** Fisher exact test

4.2.8 Association between availability of HIV/AIDS education and sexual risk behavior on HIV infection

The result in table 32 reflected that 48.23 percent of respondents had learned about HIV/AIDS after joining military reported sexual risk behavior on HIV infection. In addition, 14.29 percent of them who had not learned about HIV/AIDS and 55.56 percent of them who did not know also engaged in sexual risk behavior. Since p-value was 0.003, there was a statistically significant association between learning about HIV/AIDS and sexual risk behavior on HIV infection.

Regarding the places to learn about HIV/AIDS, each variable were not shown any significant association between the place to learn and sexual risk behavior on HIV infection.

Table 32 Association between availability of HIV/AIDS education and sexual risk behavior on HIV infection

Availability of HIV/AIDS education	Sexual risk behavior		Non-sexual risk behavior		χ^2	p value
	N	%	N	%		
Have learned about HIV/AIDS	(n=77)		(n=101)		11.548	**0.003***
Yes	68	48.23	73	51.77		
No	4	14.29	24	85.71		
Don't know	5	55.56	4	44.44		
Place you learned	(n=67)		(n=71)			
Education in the military					0.659	0.417
Yes	52	46.85	59	53.15		
No	15	55.56	12	44.44		
Training programme outside					0.284	0.594
Yes	18	45.00	22	55.00		
No	49	50.00	49	50.00		

Table 32 Association between availability of HIV/AIDS education and sexual risk behavior on HIV infection (cont.)

Availability of HIV/AIDS education	Sexual risk behavior		Non-sexual risk behavior		χ^2	p value
	N	%	N	%		
Leaflet or brochure					0.350	0.554
Yes	20	52.63	18	47.37		
No	47	47.00	53	53.00		
Poster					1.299	0.254
Yes	15	40.54	22	59.46		
No	52	51.49	49	48.51		
Other						1.000**
Yes	2	40.00	3	60.00		
No	65	48.87	68	51.13		

*Significant association ($p<0.05$)

** Fisher exact test

4.2.9 Association between peer influence and sexual risk behavior on HIV infection

Table 33 showed the result of association between peer influences from friend in the military and sexual risk behavior on HIV infection. As mentioned in chapter 3, respondents were divided into two groups, “Have peer influence” those who got more than one negative peer influences or did not get the positive influence and “No peer influence” those who did not get any negative peer influence and got the positive influence.

46.05 percent of respondents who had peer influence engaged in sexual risk behavior. The proportion of sexual risk behavior and non sexual risk behavior among have peer influence group were not so different. The significant association between peer influence from friend in the military and sexual risk behavior on HIV infection was not identified (p-value=0.481).

Table 33 Association between peer influence and sexual risk behavior on HIV infection

Peer influence	Sexual risk behavior		Non-sexual risk behavior		χ^2	p value
	(n=77)	%	(n=102)	%		
Have peer influence	35	46.05	41	53.95	0.497	0.481
No peer influence	42	40.78	61	59.22		

The result of each predicted peer influence indicated association between peer influence and sexual risk behavior on HIV infection in table 34. Regarding peer influence about commercial sex workers, 56.67 percent of respondents who had experience from friend in the military were reported sexual risk behavior. There was no significant association between peer influence and about commercial sex workers and sexual risk behavior on HIV infection (p-value = 0.286).

In respect of peer influence about drug use, 58.82 percent of respondents who were encouraged to use drugs from friends in the military engaged in sexual risk behavior. There was no significant association between peer influence about drug use and sexual risk behavior on HIV infection (p-value=0.411).

Concerning drinking alcohol, 53.33 percent of respondents who had encouragement from their friends in the military to ask them to drink alcohol had sexual risk behavior. There was no significant association between peer influence about drink alcohol and sexual risk behavior on HIV infection (p-value=0.307)

With regard to having sexual intercourse with men, 70 percent of them was encouraged to have sexual intercourse with men from their friend in military was revealed sexual risk behavior. There was no significant association between peer influence about sexual intercourse with MSM and sexual risk behavior on HIV infection (p-value=0.061)

As for condom use, 46.73 percent of respondents who had encouragement from their friend in the military encouraged them to use condom had sexual risk behavior. There was no significant association between peer influence about condom use and sexual risk behavior on HIV infection (p-value=0.425)

Table 34 Association between each peer influences and sexual risk behavior on HIV infection

Peer influence	Sexual risk behavior		Non-sexual risk behavior		χ^2	p value
	N	%	N	%		
Friend encouraged to go to CSWs	(n=76)		(n=98)		2.500	0.286
Yes	17	56.67	13	43.33		
No	47	41.23	58.77	67		
Don't know	12	40.00	60.00	18		
Friend encouraged to use drugs	(n=76)		(n=98)		1.779	0.411
Yes	10	58.82	7	41.18		
No	56	41.79	78	58.21		
Don't know	10	43.48	13	56.52		
Friend encouraged to drink alcohol	(n=77)		(n=99)		2.360	0.307
Yes	24	53.33	21	46.67		
No	43	39.81	65	60.19		
Don't know	10	43.48	13	56.52		
Friend encouraged to have sexual intercourse with men	(n=74)		(n=99)		5.609	0.061
Yes	7	70.00	3	30.00		
No	63	43.15	83	56.85		
Don't know	4	23.53	13	76.47		
Friend encouraged to use condom	(n=74)		(n=98)		1.713	0.425
Yes	50	46.73	57	53.27		
No	14	38.89	22	61.11		
Don't know	10	34.48	19	65.52		

CHAPTER 5
DISCUSSION

The situation of HIV infection in military conscripts reflected the situation of young Thai men of reproductive age. It tended to be reducing continuously and was relatively stable from 2003 up to present at 0.4% to 0.5%. National AIDS strategic plan of Thailand also emphasis on needs to prevent for young people, so that this age group were considered to be one of the vulnerable group in Thailand.

Main findings from this study about sexual risk behavior on HIV infection among military conscripts, Nakhon Phanom province, Thailand were discussed as follows.

5.1 Sexual risk behavior on HIV infection

The result found that 53.63 percent of all respondents had sexual intercourse after joining military. 50 percent of them reported that the frequency of sexual intercourse increased after joining military, and the result also showed that 43.02 percent of all respondents had sexual risk behavior on HIV infection.

Similar study was found among Brazilian military conscripts. Szwarcwald CL et al. (50) found that conscripts engaged in sexual risk behavior on HIV infection. However, the proportion of sexual risk behavior among Thai conscripts was lower than Brazilian conscripts. The reason may be due to the different country, and different in culture.

In addition, this study revealed that 20.78 percent of conscripts engaged in sexual risk behavior with multiple partners after joining the military. According to the result of National Sexual Behavioral Survey of Thailand in 2006 (18) the men of reproductive age of 18 to 49 years had sexual intercourse with multiple partners in the

last 12 months at 17.9%. The difference of proportion between this study and survey could be explained that the range of age was different and most conscripts were young people, so that they may have more frequency of sexual intercourse.

84.21 percent of respondents had sexual intercourse with the wife or girl friend after joining the military. It was found that only 7.59 percent of conscripts who had sexual intercourse with wife or girl friend used condom every time, and the proportion of them who reported always using condom was quite low. The most reason they did not use condom with wife or girl friend was that they used other contraceptive in this study (42.86%). Some respondents answered as other reasons they did not use it because they trusted partner or they had only one partner. These results clearly showed that they used condom as one of types of contraceptive to prevent pregnancy regardless of HIV infection. Besides the result of the persons suggested using condom with wife or girl friend were conscripts themselves (38.1%), joint decision (33.33%) and partner (19.05%).

Several studies have been made on frequency of condom use with wife or girl friend, and it showed that small proportion of every time condom use was reported. Hla Tun Oo (29) studied sex experience on using condom in last there month. The result showed that 17.6 percent of respondents used condom every time. Another study on RTA conscripts by Philip O. Renzullo et al (28) reported that the behavior changes in risk behavior. It also revealed that after joining military one year later, the proportion of consistently condom use with wife was 17.2 percent, and with girl friend was 27.1 percent.

The study of Cheewanan L et al (52) also mentioned that norms in Thailand make it difficult for women to initiate suggestions about condom use with their partners. Therefore these results may account for the reasons why the proportion of condom use with wife or girl friend was small.

With respect to condom use with CSW and IDU, it was reported that 50% and 75 % always used condom respectively. The proportion of frequency of condom use was quite higher than wife or girl friend and MSM in this study.

Some studies about frequency of condom use also showed high proportion of consistent condom use with CSW. The study by Richard A. Jenkins et al (27) showed that among conscripts having had sex with CSW in the 6 months, 59.9% of them had used condoms consistently. Kenrad E.N et al. (51) also found the proportion reporting consistent condom use among conscripts with CSW was 61percent in 1991, 92.6 percent in 1995. The result showed that not using a condom with CSW was associated with a higher prevalence of HIV. Although the use of condoms with female sex workers had become the norm by 1995, those who reported not using condoms had about twice the rate of HIV infection of those who did.

Compared with the study of Kenrad E et al., the proportion of consistent condom use in this study was lower. In the early 1990s, 100% condom campaign was conducted and promoted to use condom use for CSW in Thailand. This campaign was very famous as case of success for prevention over the world. It is quite likely that the reason why the proportion was quite high in the study of Kenrad E was effect of campaign. Since this campaign was no longer effective recently, the result of this study showed the lower proportion of sexual risk behavior than the others.

Concerning IDU, the proportion of consistently condom use was quite high (75%) in this study. Other study about southern Thai IDU by Pajongsil P et al (37) showed that participants were sexually active used condom at only 34 percent. It revealed that the result of condom use was much higher than the other study. The reason of gap could explain that the region of research was different.

In respect of condom use with MSM, no respondents used condom consistently among those who had sexual intercourse with MSM. It showed that those who had sexual intercourse with MSM was at highest risk of sexual behavior on HIV infection.

Previous study by Gordon Mansergh et al. (53) revealed that inconsistent condom use among MSM in Bangkok was reported by 45% of those with steady partners and 21% of those with casual partners in the prior three months.

The result of this previous study was different from this study in that proportion of consistent condom use was higher. It may be due to the effect of prevention program, because many prevention programs for MSM were conducted by NGO and MSM groups in Bangkok. That's why they were more likely to use condom consistently than conscripts in this study. Additionally in this study, since many reasons that they did not use condom when they had sexual intercourse with MSM, it seemed that they did not recognize the importance of condom for prevention on HIV, and sexual intercourse with men was not necessary to consider pregnancy. Otherwise it may be they consider sex is for pleasure.

5.2 Socio-demographic variables

Age

Since the age of conscripts was set at 18 to 30 years old, results of this study were showed the range of age was 18 to 28 years old and mean age was 21.98 years old. 96.63 percent of their age was classified into young people (15 to 24 years) by definition of UNAIDS. 42.44 percent of 18 to 24 years and 50 percent of 25 to 28 years engaged in sexual risk behavior on HIV infection. However there was no significant association between age and sexual risk behavior on HIV infection.

The previous study conducted about safe sex behavior among Southern conscripts by Hla Tun Oo (29) presented by different results. It found that there was a significant association between age group and safe sex behavior among conscripts. Elder group (23 to 25) had safe sex behavior than young group (20 to 22).

Reason for difference from this study may be the research conducted in different region.

Education

This study reflected that most of conscripts had low education, most of them had education in primary school (29.55%) and secondary school (36.93 %). 44.23 percent of conscripts with primary school education level, 46.15 percent with secondary school level and 38.98 percent with high school and above engaged in sexual risk behavior respectively. Significant association was not identified between education and sexual risk behavior on HIV infection

In the previous study of Eric G et al (34) found that those with more education had fewer STI symptoms than less educated military men in Angola. The other study by Lagarde et al (35) in Africa found that increasing the educational status of women and men leads to a significant increase in condom use. The result of these studies showed that those with higher educational level were less likely to engage in sexual risk behavior than those with lower educational level. However the result of this study was different from others. The reason may be the difference of educational environment.

Residence before joining military

Most of conscripts (81.18%) were from Nakhon Phanom. Those who lived in other place (56.25 %) were more likely to engage in sexual risk behavior on HIV infection than Nakhon Phanom (39.86%). However significant association between residence and sexual risk behavior on HIV infection was not found.

The reason for no association may be that those who were from Nakhon Phanom could go home at the day off so that they easily had sexual intercourse with wife or girl friend. That’s why the significant difference about sexual risk behavior was not found between the residence in Nakhon Phanom and the other province. As this study focused on only conscripts in Nakhon Phanom province, previous related study about residence in Nakhon Phanom was not found.

Time for living

Most respondents (94.51%) had lived in Nakhon Phanom. It reflected that most of them were from Nakhon Phanom or they moved from the other area to Nakhon Phanom before joining military. 33.33 percent who lived there less than 2 years and 41.94 percent who lived there more than 2 years were engaged in sexual risk behavior on HIV infection. The significant association was not found with time for living and sexual risk behavior on HIV infection.

The reason for no association could be explained that military selected the conscripts who were from Nakhon Phanom. Since this was focus on the limited area, related study about time for living in Nakhon Phanom was not found.

Religion

As all respondents were Buddhist, we could not compare with sexual risk behavior on HIV infection among religions. The reason for all Buddhists may be due to this study area; it was north eastern Thailand and most of them were from Nakhon Phanom.

Occupation before joining military

This study showed that the proportion of employee and agriculture were reported 61.8 percent and 13.48 percent of all respondents respectively. The proportion of sexual risk behavior was highest in those had own business. However, this study was not found significant association between occupation before they joined military and sexual risk behavior on HIV infection. The reason for no association may be due to the difference of income. Having more income, it will make opportunities for sexual risk behavior.

According to the report of AIDS division of Ministry public health in Thailand, most of AIDS cases were reported among employee groups included labor (46.43%) or agriculture group (20.81%).

Having partner

In this study, 48.04 percent of all respondents had a woman partner as a wife or girl friend at that time. The result showed that conscripts who had partner engaged in sexual risk behavior (60.47%) more than those did not have partner (26.88%) and the statistical significant association was found.

The study was the same as study about sexual risk behavior in Nakhonsawan, Thailand by Cheewanan Lertpiriyasuwat et al (52). It revealed that for the single participants, the proportion of consistent condom use with commercial partners (66.7%; 95% CI, 44.2–89.1) was higher than that of married or partnered participants (41.7%; 95% CI, 25.9–57.4). In addition, UNGASS country report (18) indicated that as of 2003, the HIV prevalence among married military recruits was almost twice that of single recruits (1% versus 0.47%).

As mentioned before, most of respondents who had sexual intercourse with wife or girl friend did not use condom consistently. From these findings, it is likely that those who had no partner tried to prevent pregnancy or STI including HIV more carefully by condom use than those who had a partner.

5.3 Knowledge about HIV/AIDS

The level of knowledge among all respondents reflected that three level was almost similar proportion (good: 29.05%, fair: 35.75%, poor: 35.75%). The results showed that three knowledge levels were not so much different among those who engaged in sexual risk behavior on HIV infection, and fair knowledge (47.62%), good (40.38%) and poor (40.63%). There was no statistically significant association between knowledge about HIV/AIDS and sexual risk behavior.

Although almost conscripts answered correctly about the route of transmission, high proportion of answer were wrong with some question about prevention and risk factors. For instance, a few respondents could answer correctly that people can not prevent HIV by not sharing food with people with HIV/AIDS

(30.73%), by having sexual intercourse with only one partner (22.91%) and by avoiding mosquito bites (48.31%). Regarding MSM, only 26.4 percent answered correctly that not only people who have sexual intercourse with MSM can get HIV.

Similar study was found in the work of Hula Tun Oo (29). It found that most of respondents had high knowledge on HIV/AIDS mode of transmission, and there also was no association between knowledge and safe sex behavior. However, the study among male and female migrants by Kathleen Ford et al. (40) found the differences. It showed that AIDS knowledge was related with condom use with regular partners. Those with higher levels of knowledge were more likely to use condoms consistently.

This could explain that the respondents may get knowledge from HIV/AIDS education in military or get peer influence to use condom, and their having knowledge about HIV/AIDS was not strong enough for behavioral change to have safe sex.

5.4 Attitude towards HIV/AIDS

Most respondents (86.59 %) were in the fair level of attitude. The percentage of good level and poor level were 12.8 and 0.56 respectively. Most of them agreed and strongly agreed that condom is used for prevention of HIV (83.53%). However, some result showed negative attitude towards HIV/AIDS. 58.1 percent agreed and strongly agreed that should use condom with newly met person but no need to use condom with wife or girl friend to prevent HIV. 46.93 percent agreed and strongly agreed and only 1.68 percent was strongly disagreed that using condoms for prevention of HIV reduces sexual pleasure. 64.86 percent agreed and strongly agreed that there is no risk of getting HIV, because of having only one sexual partner. The result revealed that they believed condom was useful for prevention for HIV. However, they sometimes used condom, because they perceived that they needed to change the way of use condom in accordance with the purpose of sex. The results also showed that 45.83 percent of respondents with good level attitude, and 42.31 percent with fair

and poor level attitude were found sexual risk behavior on HIV infection. There was no significant association between attitude and sexual risk behavior on HIV infection.

According to Aleksandar S et al.,(54) found the same result that there was no association between attitude and sexual risk behavior on HIV infection in this study. The reason is likely that the present attitude was already formed before so that if they had any positive attitude at first, that attitude had influenced on their behavior to date. The same thing may be said of this study. It may be for this reason that conscripts had negative attitude towards HIV/AIDS before joining military.

However, there was different from the result of other study by Ayu ADP (43). It found that a statistically significant association was found between attitude and HIV/AIDS at risk behavior. The numbers of the students with high attitude have low risk HIV/AIDS at risk behavior than the student with low attitude. Aleksandar S et al (54) showed that condom use at first intercourse and positive attitudes toward condom use were the most robust predictors of condom use at last intercourse and consistent condom use.

5.5 Health risk behavior

The proportion of respondents who had health risk behavior was 58.1 percent. Among those who had health risk behavior, 52.88 percent were observed sexual risk behavior. It showed that there was statistically significant association between health risk behavior and sexual risk behavior on HIV infection.

Health risk behavior was elaborated by the part of alcohol use and drug abuse. In the part of alcohol use, there was a significant association between alcohol use during last 3months and sexual risk behavior. Those who drank alcohol were more likely to engage in sexual risk behavior (52.54%). Another finding showed that nearly 70 percent of respondents who had sexual intercourse after drinking alcohol had sexual risk behavior (68.52%). Additionally those who had tried to use drugs also were found association with sexual risk behavior. 56.9 percent of them engaged in

sexual risk behavior on HIV infection.

The other result of research of Thanyarak Institute (3) on drug abuse revealed that high HIV prevalence have been found among people who used drugs but do not inject them or alcohol use. In 2001, they reported that the prevalence of Marijuana user, inhalant type of drug user, Amphetamine type user and alcohol user was 9.5, 6.5, 3.6 and 5.7 respectively. It showed that sexual risk behavior under the influence of drugs or alcohol was the most probable cause of HIV infection.

Although not injecting drug use and alcohol drink cannot carry risk on HIV infection themselves, they may contribute to engage in more sexual risk taking behavior. These findings make it clear that health risk behavior such as alcohol use or drug use is relevant to sexual risk behavior on HIV infection.

5.6 Accessibility of commercial sex workers

The result of the study presented only 17.44 percent of respondents had visited CSW after joining military. 66.67 percent of them who had visited CSW had sexual risk behavior. This result showed significant association between experience of visit CSWs and sexual risk behavior on HIV infection.

Regarding accessibility of CSWs, among those who had visited CSWs, only 38.71 percent of them reported it is easy to find CSW by their present place. The place respondents had visited CSW were mostly in the Amphur Muang or suburb of Nakhon Phanom. The result was supported by the work of Jian Hu (47), that the respondents can easily find CSWs near residency or work place. Frequency of visit commercial sex worker was not so often, 57.14 percent was less than once a month. Most of them visited Karaoke or bar for CSWs. (78.57%) Significant association was not found between accessibility of CSWs, frequency of visit, type of commercial sex workers and sexual risk behavior on HIV infection.

The reason for low accessibility of CSWs that the military camp of this study located at suburb of city; it is about 25 km from the center of Nakhon Phanom. It is trouble to find transportation to visit CSW at night. In addition, those who were from Nakhon Phanom was able to go back home at the day off so that they did not have enough time to visit and could release their stress there.

5.7 Accessibility of condom use

72 percent of respondents knew the place to obtain condom. Nearly one half of respondents who knew the place to obtain condom (53.49%) was more likely to engage in sexual risk behavior than those who did not know it (14.29%). Additionally the proportion of sexual risk behavior (53.49%) and no sexual risk behavior (46.51%) among respondents who knew the place to obtain condom were not much different. The significant association was found between knowing where to obtain condom and sexual risk behavior on HIV infection.

The previous study by Jian Hu (47) showed that those who knew the place to obtain condom, the proportion of sexual risk behavior was low, in contrast to the result of this study. The explanation of study may be that only knowledge of access could not lead to practice about condom use.

5.8 Availability of STI care services

This study revealed that 4.62 percent of all respondents had STI history and 6.36 percent were not sure after joining military and among them 87.50 percent engaged in sexual risk behavior. Significant association was found between STI history and sexual risk behavior.

In the cohort studies by Kenrad E.N et al. (51), a history of sexually transmitted disease was strongly associated with HIV infection. For these reason, it showed that person had STI history was more likely to engage in sexual risk behavior on HIV infection.

Regarding the availability of STI care service, among those who had STI history, 42.86 percent did not go for treatment. However significant association was not found between availability of STI care service and sexual risk behavior on HIV infection. Study of Jian Hu (47) also showed that one half respondents reported clinic or hospital was available for STI treatment near their work place or residency. However, significant association also was not identified between availability and sexual risk behavior on HIV infection.

Additionally 31.76 percent and 28.24 percent of conscripts reported that they knew the place of STI clinic or hospital in Amphur Muang and in military camp respectively. Among those who knew the clinic or hospital in the military camp, 56.25% of respondents were more likely to engage in sexual risk behavior than those who did not know it (35.25%).

In this study, significant association was identified between knowing the place of clinic or hospital in military camp and sexual risk behavior. It can be explained that those who knew the place for treatment had idea something about sexual risk behavior themselves so that they got information themselves or through HIV/AIDS education in the military. Since conscripts already knew the place for STI care service, the proportion of availability of STI care service was not so high. It showed that even if they had some symptoms of STI, they just judged their symptom themselves and waited for recover. It was quite clear that it was insufficient information about STI and STI care services.

5.9 Availability of HIV/AIDS education

Since most conscripts (79.21%) had learned about HIV/AIDS after joining the military, it showed that HIV/AIDS education was available for them. In addition, 48.23 percent of respondents had learned about HIV/AIDS engaged in sexual risk behavior on HIV infection, and statistically significant association was found between learning about HIV/AIDS and sexual risk behavior on HIV infection.

Previous studies reflected that HIV/AIDS education for conscripts in the military was effective for prevention on HIV. Study by Nopkesorn T et al (55) indicated that peer education about HIV/AIDS was an appropriate, acceptable, feasible intervention for young men on military bases. The other study by David D.C et al (56) showed that incident STIs were 7 times less frequent among men assigned to the intervention about STI included HIV than the combined controls (relative risk, 0.15; 95% confidence interval, 0.04-0.55), after adjusting for baseline risk factors ($P<0.05$). Their intervention decreased incident HIV by 50% in the intervention group.

In this study, Majority of them learned about HIV/AIDS in military camp (80.43%), because regular HIV/AIDS education may have at there. According to previous study (55, 56), HIV/AIDS education helped them to avoid sexual risk behavior on HIV. However, the result showed that conscripts who learned about HIV/AIDS were more likely to have sexual risk behavior. This reason can be explained that they got insufficient information by HIV/AIDS education so that did not practice the safe sexual behavior. Otherwise they may have had sexual risk behavior before learning HIV/AIDS.

5.10 Peer influence

Almost one half respondents (46.05%) who got at least one type of peer influence such as going to CSWs, alcohol drink, drug use, having sexual intercourse with MSM and support condom use engaged in sexual risk behavior. The significant association was not found between peer influence from friend in the military and sexual risk behavior on HIV infection.

Some studies clearly showed that peer influence could lead to change their behavior both positive and negative way. Mulder N (57) reported that the peer group is as playing a critical role in the lives of Thai men. The individual is provided with a chance to relax and be himself and can engage with his friends in a number of relaxing peer group activities such as conversation, eating and drinking, and group

visits to brothels or other commercial sex establishments. UNAIDS (58) reported that typically, the young recruit on a weekend pass has both the time and motivation, particularly under the influence of peer pressure, to indulge in high-risk behavior such as go to commercial sex worker and sexual intercourse without condom.

Regarding condom use, Diclemente RJ (59, 60) revealed that adolescents who perceive peer norms as supporting condom use were significantly more likely to be consistent condom users. For adolescents psychosocial factors strongly associated with consistent condom use are the perception of peer support for condom use.

The reason for no association could be that some peer influences affected on conscript's sexual risk behavior from friends in the military camp but it was not strong enough to change their behavior to both positive and negative ways.

CHAPTER 6
CONCLUSION AND RECOMMENDATION

6.1 Conclusion

The objective of the research was to study sexual risk behavior on HIV infection among military conscripts, Nakhon Phanom province, Thailand. The study was to describe independent variables including predisposing factors, enabling factors, reinforcing factors and sexual risk behavior on HIV infection among military conscripts and to identify the relationship between independent variables and the sexual risk behavior on HIV infection.

The study was conducted on February 4, 2008 at military camp in Nakhon Phanom, 207 conscripts were selected self-administration questionnaire. Since some parts of the data were not completed, 179 questionnaires were used for this study. The data were analyzed by using statistical techniques. Descriptive statistics was used for frequency and percentage distribution of the dependent and independent variables**.** Chi-square test and Fisher's exact test were applied to find the association between independent and dependent variables at significant level 0.05.

The results of this study were presented based on dependent variable and independent variables as follows;

- Sexual risk behavior on HIV infection

The result found that 53.63 percent of all respondents had sexual intercourse after joining military. Among those who had sexual intercourse, 50 percent reported the frequency of sexual intercourse increased, and consistent condom use when having sexual intercourse was among CSW (50%) and IDU (75%). However, using condom was quite low among wife or girl friend. The results also revealed that 43.02 percent had sexual risk behavior on HIV infection.

- Predisposing factors

Among socio-demographic variables, only conscripts who had a woman partner such as wife or girl friend were found association significantly with sexual risk behavior on HIV infection. 48.04 percent of all respondents had a woman partner, and most of those having partner (60.47%) were likely to engage in sexual risk behavior more than those did not have partner (26.88%). The age of conscripts was 18 to 28 years old and the mean of age was 21.98 years old. Most of them had low education (primary school (29.55%) and secondary school (36.93 %)). Most of conscripts were from Nakhon Phanom (81.18%) and lived in Nakhon Phanom for more than 2 years (94.51%). All respondents were Buddhist, and their occupation before joining military was employee and agriculture.

The level of knowledge among all respondents reflected that three level was almost similar proportion (good: 29.05%, fair: 35.75%, poor: 35.75%). There was no statistically significant association between knowledge about HIV/AIDS and sexual risk behavior. Although almost conscripts answered correctly about the route of transmission, high proportion of answer were wrong with some question about prevention. For instance, a few respondents could answer correctly that people can not prevent HIV by not sharing food with people with HIV/AIDS (30.73%), by having sexual intercourse with only one partner (22.91%) and by avoiding mosquito bites (48.31%).

Regarding attitude towards HIV/AIDS, there was no significant association between attitude and sexual risk behavior on HIV infection. Most respondents were in the fair level (86.59 %). Most of them agreed and strongly agreed that condom is used for prevention of HIV (83.53%). However, some result showed negative attitude towards HIV/AIDS. 58.1 percent agreed and strongly agreed that should use condom with newly met person but no need to use condom with wife or girl friend to prevent HIV. 46.93 percent agreed and strongly agreed and only 1.68 percent was strongly disagreed that using condoms for prevention of HIV reduces sexual pleasure. 64.86 percent agreed and strongly agreed that there is no risk of getting HIV, because of having only one sexual partner.

- Enabling factors

The proportion of respondents who had health risk behavior was 58.1 percent. There was statistically significant association between health risk behavior and sexual risk behavior on HIV infection. Among those who had health risk behavior, 52.88 percent were observed sexual risk behavior.

Significant association was also found between alcohol use during last 3months and sexual risk behavior. Those who drank alcohol were more likely to engage in sexual risk behavior (52.54%). Another finding showed that nearly 70 percent of respondents had sexual intercourse after drinking alcohol and 68.52 percent had sexual risk behavior. There was also association between those who used drugs and sexual risk behavior on HIV infection. More than one half of them (56.9%) engaged in sexual risk behavior.

Significant association was found between experience of visit CSWs and sexual risk behavior on HIV infection. The result presented 66.67 percent of respondents who had visited CSW had sexual risk behavior.

On the other hand, significant association was not found between accessibility of CSWs and sexual risk behavior on HIV infection. Among those who had visited CSWs, only 38.71 percent of them reported it was easy to find CSW by their present place. The place respondents had visited CSW were mostly in the Amphur Muang or suburb of Nakhon Phanom. Most of them visited Karaoke or bar. Frequency of visit commercial sex worker was not so often.

Concerning accessibility of condom use, the significant association was found between knowing the place to obtain condom and sexual risk behavior on HIV infection. 72 percent of respondents knew the place to obtain condom. Nearly one half of respondents who knew the place to obtain condom (53.49%) was more likely to engage in sexual risk behavior than those who did not know it (14.29%). Most of them knew the place to obtain condom at convenient shop (81.6%).

- Reinforcing factors

Significant association was found between STI history and sexual risk behavior. 4.62 percent of all respondents had STI history after joining military and among them 87.5 percent engaged in sexual risk behavior. Regarding the availability of STI care service, among those who had STI history, 42.86 percent did not go for treatment. Significant association was not found between availability of STI care service and sexual risk behavior on HIV infection. Additionally 31.76 percent and 28.24 percent of conscripts reported that they knew the place of STI clinic or hospital in Amphur Muang and in military camp respectively. Nearly one half of them did not know the place for STI treatment (53.53%). Among those who knew the clinic or hospital in the military camp, 56.25% were more likely to engage in sexual risk behavior than those who did not know it (35.25%). In this study, significant association was identified between knowing the place of clinic or hospital in military camp and sexual risk behavior.

HIV/AIDS education was available for most conscripts (79.21%) after joining the military. 48.23 percent of respondents who had learned about HIV/AIDS engaged in sexual risk behavior on HIV infection and statistically significant association was found between availability of HIV/AIDS education and sexual risk behavior on HIV infection. In this study, majority of them learned about HIV/AIDS in the military camp (80.43%), and generally HIV/AIDS education helps them to avoid sexual risk behavior on HIV. However, the result showed that conscripts who learned about HIV/AIDS were more likely to have sexual risk behavior.

The significant association was not found between peer influence from friend in the military and sexual risk behavior on HIV infection. However, almost one half respondents (46.05%) who got at least one type of peer influence such as going to CSWs, alcohol drink, drug use, having sexual intercourse with MSM and support condom use engaged in sexual risk behavior.

6.2 Recommendation

6.2.1 Recommendation for implementation

Firstly, based on above findings, Sexual risk behavior among those had sexual intercourse with wife and girl friend was appeared. The results suggest that military need to address and promote not only importance of faithful, but also condom use with wife or girl friend for HIV prevention.

Secondary, the findings suggest that more continuous efforts are also needed to strengthen implementation consistent condom use with multiple partners or vulnerable group such as CSW, MSM and IDUs.

Thirdly, military need more attention to improve the availability of STI care service and proper information about STIs in military. Those who consistently engaged in sexual risk behaviors are needed to encourage going to voluntary HIV testing.

Finally, there is also the need to develop continuous availability of HIV education and more effective HIV/AIDS education in the military camp including prevention of HIV, health risk behavior such as alcohol drink and drug abuse and life skill so on specific for military.

6.2.1 Recommendation for further study

Firstly, this study showed that most of military conscripts were local people in Nakhon Phanom. It was difficult to identify the typical characteristics of conscripts such as they were away from home for long periods, away from family and felt loneliness. In order to emphasis on the characteristics and explore the variance of region, it is necessary to select the military camp that conscripts gather from the various regions.

Secondary, in this study, regarding multiple partners was found only the proportion of the conscripts who had multiple partners. Future research into sexual

risk behavior on HIV infection among military conscripts is needed to characterize what factors are associated with having multiple types of exposure risk.

Thirdly, this study used self administrated questionnaire, and researcher couldn't collect it because of security reason. Therefore, it was difficult to control the quality of data. To avoid this condition, future study is needed to instruct the coordinator very carefully and in detail. Additionally self administrated questionnaire is better to make shorter and easier for conscripts.

Finally, this study was collected only quantitative data by self administrated questionnaire. In order to conduct the completed research, quantitative technique such as interview and focus group discussion is necessary to obtain more information about sexual risk behavior on HIV infection.

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APPENDIX

APPENDIX A

QUESTIONNAIRES

SEXUAL RISK BEHAVIOR ON HIV INFECTION AMONG MILITARY CONSCRIPTS, NAKHON PHANOM PROVINCE, THAILAND

Number _____ Date of response_____

Instruction for the responses:
Please give answer to all of the following questions. The information collected from this questionnaire is served for the research purpose only. Your information will be kept confidential and will not let other people know. Thank you for your cooperation.

PART 1: Predisposing Factors
Please read the question carefully and do not skip any of the questions. Mark in the ✓with a ✓for the answer you are choosing.

1-1. Socio Demographic variables

(1) How old are you?	.....
(2)What is your education level	❑ 1.Primary school (Prathom 1-6) ❑ 2.Secondary school(Mattayom 1-3) ❑ 3.High school (Mattayom 4-6) ❑ 4.Vocational school ❑ 5. College and higher ❑ 6. Other (Specify)……..
(3)Where did you live before becoming conscript?	Province…….....
(4)How long have you lived in Nakhon Phanom?	.....Years
(5)What is your religion?	❑ 1.Buddhist ❑ 2.Muslim ❑ 3.Christian ❑ 4.Other (Specify) .....
(6) What is your main occupation before joining military?	❑ 1.Own Business ❑ 2.Agriculture ❑ 3.Labor ❑ 4.Employee ❑ 5.Government officer ❑ 6.Student ❑ 7.No job ❑ 8.Others(Specify) .....
(7)Do you have a woman partner before joining military?	❑ 1.Yes ❑ 2.No

1-2. Knowledge about HIV/AIDS

(8) Have you ever heard HIV/AIDS?	❑ 1.Yes ❑ 2.No
(9) What is the causal agent of HIV/AIDS?	❑ 1. Bacteria ❑ 2. Virus ❑ 3. Fungus ❑ 4. Parasite
(10) Which one is correct about the transmission of HIV?	❑ 1. By hugging a person with a person infected with HIV ❑ 2. By using drinking glasses and utensils used by a person infected with HIV ❑ 3. By having sexual intercourse without condom with a person infected with HIV ❑ 4. By kissing with who a person infected with HIV
(11) How can HIV be detected?	❑ 1. Physical examination ❑ 2. Urine examination ❑ 3. Blood examination ❑ 4. X-ray
(12) How HIV can be prevented?	❑ 1. Have sexual intercourse with virgin ❑ 2. Always use condom every time have sexual intercourse ❑ 3. Avoid sexual intercourse with person who have many partners ❑ 4. Avoid sexual intercourse with commercial sex workers
(13) Which one the following groups are at high risk for contracting HIV/AIDS?	❑ 1. Commercial sex workers who consistently use condom ❑ 2. MSM (Men sex with men) who consistently use condom ❑ 3. People who injected drug who share needles and syringes ❑ 4. Young people who consistently use condom with girlfriend
(14)People can get HIV by having sexual intercourse without condom, with a healthy looking partner.	❑ 1.Yes ❑ 2.No ❑ 3.Don't know
(15)Can people get HIV by touching people with HIV/AIDS?	❑ 1.Yes ❑ 2.No ❑ 3.Don't know
(16) Can people protect themselves from getting HIV by not sharing food with people with HIV/AIDS?	❑ 1.Yes ❑ 2.No ❑ 3.Don't know
(17) Can birth control pills prevent a woman from getting HIV?	❑ 1.Yes ❑ 2.No ❑ 3.Don't know
(18) Can having sexual intercourse with only one partner protect from getting HIV?	❑ 1.Yes ❑ 2.No ❑ 3.Don't know
(19) Can people protect themselves from getting HIV by avoiding mosquito bites?	❑ 1.Yes ❑ 2.No ❑ 3.Don't know
(20) Can a person get the HIV even if he or she has sexual intercourse just one time without a condom?	❑ 1.Yes ❑ 2.No ❑ 3.Don't know
(21) Can only people who have sexual intercourse with MSM (homosexual) get HIV?	❑ 1.Yes ❑ 2.No ❑ 3.Don't know
(22) Can people get HIV by having anal sex without a condom (anal sex means putting a penis in another person's anus)	❑ 1.Yes ❑ 2.No ❑ 3.Don't know
(23) Can a person get HIV by getting injections with a needle or syringe that was already used by someone else?	❑ 1.Yes ❑ 2.No ❑ 3.Don't know

1-3. Attitude towards HIV/AIDS

Please mark (×)in the answer which is appropriate to your idea.

SA= Strongly Agree A=Agree N= Not sure D=Disagree SD=Strongly Disagree

	S A	A	N	D	S D
(24)A person can get HIV by using the same bathroom of an infected person					
(25) Getting HIV is only happened with people who often have sexual intercourse with commercial sex worker					
(26) Do you have any opportunity to get HIV if you have sexual intercourse without condom?					
(27) Using a condom to protect HIV is a sign of not trusting your partner.					
(28) Person who always carries condom practice to prevent HIV.					
(29) A healthy looking partner doesn't have any possibility to be infected with HIV.					
(30) Using condoms for prevention of HIV reduces sexual pleasure.					
(31) Using condom for prevention of HIV is complicated and a waste of time.					
(32) Even if a man doesn't use condom for prevention of HIV with multiple sex partners, he can be proud that he has many partners.					
(33) Commercial Sex workers are the only women who will get HIV.					
(34) Men who have sexual intercourse with men or use drugs are the only men who will get HIV.					
(35) Condom is used for prevention of HIV					
(36) Having only one sexual partner, there is no risk of getting HIV					
(37) Every time you have sexual intercourse with a commercial sex worker, you will use condom					
(38) You will use condom to prevent HIV even if you have sexual intercourse after drinking alcohol or using drugs.					
(39) Men should use condom with newly met person to prevent HIV but no need to use condom with wife or girl friend to prevent HIV.					

PART 2: Enabling factors

2-1. Health risk behavior

(40) During the last 3 months how often have you had drinks containing alcohol (e.g. Whisky/Beer/Rice wine)?	❑ 1.Every day ❑ 2.At least once a week ❑ 3.Less than once a week ❑ 4.Can not remember ❑ 5.Never (Skip to Q43)
(41) Have you had sexual intercourse after drinking alcohol after joining military?	❑ 1.Yes ❑ 2.No (Skip to Q43) ❑ 3.Don't know (Skip to Q43)
(42) Did you use condom when you have sexual intercourse after drinking alcohol?	❑ 1.Use every time ❑ 2.Use sometimes ❑ 3.Didn't use
(43) Have you ever tried to use drugs after joining military?	❑ 1.Yes ❑ 2.No (Skip to Q47) ❑ 3.Don't know (Skip to Q47)

(44) Which of the following, if any, have you ever tried? (You can answer more than one)	❑ 1.Marijuana ❑ 2.Heroin ❑ 3.Yaba ❑ 4.Opium ❑ 5.Glue or Thinner ❑ 6. Other (specify)……
(45) Did you have sexual intercourse after using drug?	❑ 1.Yes ❑ 2.No (Skip to Q47) ❑ 3.Don't know(Skip to Q47)
(46) Did you use condom when you have sexual intercourse after using drug?	❑ 1.Use every time ❑ 2.Use sometimes ❑ 3.Didn't use

2-2. Accessibility of commercial sex worker

(47) Have you ever visited commercial sex worker after joining military?	❑ 1.Yes ❑ 2.No (Skip to Q52)
(48) Is it easy for you to find commercial sex worker by the present place?	❑ 1. Yes ❑2. No (Skip toQ52) ❑ 3.Don't know (Skip toQ52)
(49) Where have you ever visited commercial sex workers (You can answer more than one)	❑ 1.Amphur Muang ❑ 2.Near military camp ❑ 3.Suburb of Nakhon Phanom ❑ 4.Near border of Laos ❑ 5.Laos ❑ 6.Other (Specify)……
(50) Which type of commercial sex worker did you visit during past 12 months? (You can answer more than one)	❑ 1.Brothel ❑ 2.Karaoke/ Bar ❑ 3.Massage parlor ❑ 4. Other (Specify)……
(51) How often do you visit commercial sex workers?	❑ 1.More than once a week ❑ 2.Once a week ❑ 3.Once a month ❑ 4.less than Once a month

2-3. Accessibility of condom use

(52) Do you know of any place or person from which you can obtain condoms by the present place?	❑ 1.Yes ❑ 2.No (Skip to Q54)
(53) From which place or persons you can obtain condoms? (You can select one more answer)	❑ 1.Convenient shop (e.g.Seven-Eleven) ❑ 2.Drug store ❑ 3.Bar/Hotel ❑ 4.Market ❑ 5.Friend ❑ 6.Medical staff/Clinic/Health center ❑ 7.Public / Free condom distribution box ❑ 8. Other (specify)……

PART 3: Reinforcing factors

3-1. Availability of STI care services

(54) Have you had a genital discharge or a genital ulcer/sore after joining military?	❑ 1.Yes ❑ 2.No (Skip to Q56) ❑ 3.Don't know (Skip to Q56)
(55) Did you go to the clinic or hospital for the treatment?	❑ 1.Yes ❑ 2.No (Skip to Q56) ❑ 3.Don't know (Skip to Q56)
(56) Do you know? Where is a clinic or hospital available for STI treatment? (You can select one more answer)	❑ 1.In military camp ❑ 2.AmphurMuang ❑ 3.Near military camp ❑ 4.Don't know ❑ 5. Other (specify)……..

3-2. Availability of HIV/AIDS education

(57) Have you ever learned about HIV /AIDS after joining military?	❑ 1. Yes ❑2. No (Skip to Q59) ❑ 3.Don't know (Skip to Q59)
(58) Where did you learn it? (You can select one more answer)	❑ 1.Education in the military ❑ 2.Training programme outside ❑ 3.Leaflet or brochure ❑ 4.Poster ❑ 5. Other (specify)…….

3-3. Peer influence

(59)Have your friend in the military encouraged you to go to commercial sex worker after joining military?	❑ 1.Yes ❑ 2.No ❑ 3.Don't know
(60)Have your friend in the military encouraged you to use drugs after joining military?	❑ 1.Yes ❑ 2.No ❑ 3.Don't know
(61)Have your friend in the military encouraged you to drink alcohol (e.g. Whisky/Beer/Rice wine) after joining military?	❑ 1.Yes ❑ 2.No ❑ 3.Don't know
(62)Have your friend in the military encouraged you to have sexual intercourse with men after joining military?	❑ 1.Yes ❑ 2.No ❑ 3.Don't know
(63)Have your friend in the military encouraged you to use condom when you have sexual intercourse after joining military?	❑ 1.Yes ❑ 2.No ❑ 3.Don't know

PART 4: Sexual risk behavior

(64) Have you ever had sexual intercourse after joining military?	❑ 1.Yes ❑ 2.No (Stop)
(65) Did you have more frequency of sexual intercourse after joining military?	❑ 1.Yes ❑ 2.No ❑ 3.Don't know
(66) Have you ever had sexual intercourse with your wife or girl friend after joining military?	❑ 1.Yes ❑ 2.No (Skip to Q71)
(67) The last time you had sexual intercourse with your wife or girl friend; did you and your partner use a condom?	❑ 1.Yes ❑ 2.No (Skip to Q69)
(68) Who suggested condom use that time?	❑ 1.Myself (Skip to Q70) ❑ 2.My partner (Skip to Q70) ❑ 3.Joint decision (Skip to Q70) ❑ 4.Don't Know (Skip to Q70)
(69) Why didn't you use a condom with your wife or girl friend that time? (You can select one more answer)	❑ 1.Not available ❑ 2.Too expensive ❑ 3.Partner objected ❑ 4.Don't like them ❑ 5.Used other contraceptive ❑ 6.Didn't think it was necessary ❑ 7.Other(specify)_____
(70) With what frequency did you and your wife/girl friend use a condom?	❑ 1.Every time ❑ 2.Almost Every time ❑ 3.Sometimes ❑ 4.Never
(71) Have you ever had sexual intercourse with commercial sex worker after joining military?	❑ 1.Yes ❑ 2.No (Skip to Q77)

(72) For last visit of commercial sex worker, do you know which nationality the women are?	❑ 1.Thailand ❑ 2.Vietnam ❑ 3.Laos ❑ 4.China ❑ 5. Other (Specify)……..
(73) The last time you had sexual intercourse with this commercial sex worker, did you and your partner use a condom?	❑ 1.Yes ❑ 2.No (Skip to Q75)
(74) Who suggested condom use that time?	❑ 1.Myself (Skip to Q76) ❑ 2.My partner (Skip to Q76) ❑ 3.Joint decision (Skip to Q76) ❑ 4.Don't Know (Skip to Q76)
(75) Why didn't you use a condom with commercial sex worker that time? (You can select one more answer)	❑ 1.Not available
	❑ 2.Too expensive
	❑ 3.Partner objected
	❑ 4.Don't like them
	❑ 5.Didn't think it was necessary
	❑ 6.Other(specify)_____
(76) With what frequency did you and commercial sex workers use a condom?	❑ 1.Every time ❑ 2.Almost Every time ❑ 3.Sometimes ❑ 4.Never
(77) Have you ever had sexual intercourse with IDUs (Injection drug users) after joining military?	❑ 1.Yes ❑ 2.No (Skip to Q82)
(78) The last time you had sexual intercourse with an IDU; did you use a condom?	❑ 1.Yes ❑ 2.No (Skip to Q80)
(79) Who suggested condom use that time?	❑ 1.Myself (Skip to Q81) ❑ 2.My partner (Skip to Q81) ❑ 3.Joint decision (Skip to Q81) ❑ 4.Don't Know (Skip to Q81)
(80) Why didn't you use a condom with IDU that time? (You can select one more answer)	❑ 1.Not available
	❑ 2.Too expensive
	❑ 3.Partner objected
	❑ 4.Don't like them
	❑ 5.Used other contraceptive
	❑ 6.Didn't think it was necessary
	❑ 7.Other(specify)_____
(81) With what frequency did you and IDUs use a condom?	❑ 1.Every time ❑ 2.Almost Every time ❑ 3.Sometimes ❑ 4.Never
(82) Have you had sexual intercourse with any of your male partners after joining military?	❑ 1.Yes ❑ 2.No (Stop)
(83) The last time you had sexual intercourse with a male partner; did you use a condom?	❑ 1.Yes ❑ 2.No (Skip to Q85)

(84) Who suggested condom use that time?	❑ 1.Myself (Skip to Q86) ❑ 2.My partner (Skip to Q86) ❑ 3.Joint decision (Skip to Q86) ❑ 4.Don't Know (Skip to Q86)
(85) Why didn't you use a condom with male partner that time? (You can select one more answer)	❑ 1.Not available
	❑ 2.Too expensive
	❑ 3.Partner objected
	❑ 4.Don't like them
	❑ 5.Didn't think it was necessary
	❑ 6.Other(specify)_____
(86) With what frequency did you and your male partner use a condom?	❑ 1.Every time ❑ 2.Almost Every time ❑ 3.Sometimes ❑ 4.Never

That is the end of our questionnaire. Thank you very much for taking time to answer these questions. We appreciate your help.

APPENDIX B

Table 35 Number and percentage of frequency of health risk behavior

Frequency of health risk behavior	N (n=179)	%
No health risk	74	41.34
One type of health risk behavior	93	51.96
Two types of health risk behavior	12	6.70

BIOGRAPHY

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