

**FACTORS AFFECTING CONDOM USE WITH FEMALE SEX
WORKERS AMONG CLIENTS IN THE SEVEN HIGHEST
HIV/AIDS PREVALENT PROVINCES, VIETNAM**


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**A THESIS SUBMITTED IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS
FOR THE DEGREE OF MASTER OF ARTS
(POPULATION AND REPRODUCTIVE HEALTH RESEARCH)
FACULTY OF GRADUATE STUDIES
MAHIDOL UNIVERSITY**


2010


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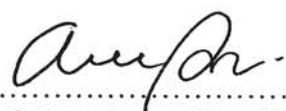
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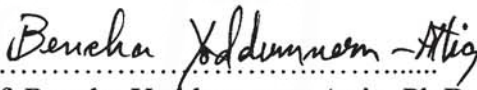

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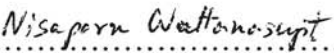
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was submitted to the Faculty of Graduate Studies, Mahidol University
for the degree of Master of Arts (Population and Reproductive Health Research)
on
August 17, 2010

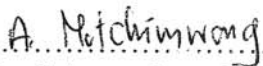

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ACKNOWLEDGEMENTS

First of all, I would like to express my sincere thanks and deepest gratitude to my major advisor Assoc. Prof. Pimonpan Isarabhakdi for her scholarly guidance and valuable support for me. I also would like to extend my sincere thanks to Lect. Dr Chalernpol Chamchan, my co-advisor, for his intensive support and valuable comment from beginning to the end of my thesis preparation. I would like to thank Assoc. Prof. Bencha Yoddummern Attig for her valuable comments. I am grateful to Lect. Dr Nisaporn Wattanasupt, external examiner for her useful suggestion and comments.

I also would like to take this opportunity to pay my esteemed thanks to all teachers in IPSR, who gifted me with guidance, affection and many learning opportunities. I do not forget to express gratitude to staffs of IPSR for their friendship, cooperation, and sharing knowledge and experiences during my stay at IPSR. I am extremely grateful to Khun Luxana Nil-Ubol for her enthusiastic hospitality and unforgettable support during my study. I am sincerely grateful to all of the Thai M.A. students and Ph.D. students for their friendship and mental support. I also thank all of my classmates for their comradeship and helpfulness in my study.

All the appreciation and thanks to Vietnam HIV/AIDS prevention project for providing the budget for my study at Mahidol University. I am especially indebted to leaders of Vietnam Administration of HIV/AIDS Control as well as leaders of Care and Treatment Department for nominating me to this study. I greatly appreciate my colleagues for their support and share of work during my one-year absence.

Lastly, I owe a great debt to my parents and all family members who had given me an important moral support and encouragement during my study. I highly recognize their great sacrifice for my higher education.

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FACTORS AFFECTING CONDOM USE WITH FEMALE SEX WORKERS
AMONG CLIENTS IN THE SEVEN HIGHEST HIV/AIDS PREVALENT
PROVINCES, VIETNAM

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ABSTRACT

This study examines factors affecting condom use among clients of female sex workers (FSWs). Secondary data came from a cross-sectional survey entitled "Assessment of social marketing action about condom and condom using behavior of FSWs and their clients in the seven highest HIV/AIDS prevalent provinces", which was conducted by the HIV/AIDS Prevention Project in Vietnam from October to December 2008. Snowball sampling was used for sampling respondents. The total sample size was 306 clients of FSWs.

The results indicated that perceived susceptibility to HIV infection and HIV/AIDS knowledge had a positive significant association with consistent condom use, while access to condoms, and knowledge about condoms did not. Clients who were older, had a higher level of education, were unmarried, and employed were more likely to use condoms consistently than those who were younger, had a lower educational level, were ever married, and unemployed respectively.

The results suggest that the HIV/AIDS intervention programs must promote perceived susceptibility to HIV infection with training of HIV/AIDS knowledge targeted to clients who are young, have a low level of education, have ever been married or are unemployed.

KEY WORDS: CLIENTS/ FEMALE SEX WORKERS/ HIV/AIDS/ CONDOM
USE/ RISK BEHAVIOR.

45 pages

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LIST OF ABBREVIATIONS

AIDS	Acquired Immune Deficiency Syndrome
DFID	The United Kingdom Department for International Development
FHI	Family Health International
FSW	Female Sex Worker
HIV	Human Immunodeficiency Virus
IDU	Injecting Drug User
MOH	The Ministry of Health
PLWHA	People Living with HIV/AIDS
STI	Sexually Transmitted Infection
UNAIDS	The Joint United Nations Program on HIV/AIDS
WHO	World Health Organization

CHAPTER I

INTRODUCTION

1.1 Problem statements

In recent years, although HIV prevalence has been controlled and the rate has decreased worldwide, the estimated number of people living with HIV/AIDS (PLWHA) was about 33.4 million (31.3 - 35.8 million) by the end of 2008, and is still high due to continuing HIV infection. The total number of PLWHA in 2008 was more than 20% higher than the number in 2000, and the prevalence was threefold higher than in 1990. (UNAIDS, 2009).

In Asia, when considering the percentage of the region's large population, HIV prevalence may seem low but the absolute figures are high. According to UNAIDS estimates, in 2008 there were 4.7 million (3.8 - 5.5 million) PLWHA including 350,000 new cases in that year, and approximately 330,000 deaths from AIDS-related illnesses. The rate of people who are newly infected is still high in Asia, and the national HIV infection levels are highest in the populous countries of Southeast Asia (UNAIDS, 2009).

Modes of HIV transmission differ from region to region. For instance, blood contact transmission due to sharing injection equipment is the major mode in Eastern Europe while sexual transmission is more popular in South and Southeast Asia and in Latin America. In Eastern Europe and central Asia, this epidemic is primarily transmitted among injecting drug users (IDUs), and now, increasing by sexual transmission, while in other part of Asia and sub-Saharan Africa the epidemic is spreading by transmission among heterosexual couples. In new cases, the HIV prevalence by heterosexual means was 29.% in Western Europe and 53% in Central Europe (UNAIDS, 2009).

In Vietnam, by the end of December 2009, cumulative numbers of HIV infection was 160,018 cases. Among them, there were 35,063 AIDS patients and 44,540 deaths by AIDS symptoms. Among age groups, 78.9% were in the age group

20 - 39, and prevalence of males was 73.2%. HIV prevalence in the general population was 0.35%. The HIV epidemic has been in a concentrated phase, with HIV prevalence high among IDUs (18.4%) and female sex workers (3.2%). Modes of HIV transmission tend to transfer from HIV infection through blood to via sexual intercourse. HIV prevalence among IDUs reduced sharply from 29.4 % in 2002 to 18.4% in 2009, while HIV prevalence by unsafe sex increased gradually from 12% in 2004 to 29% in 2009. The epidemic has been found in 70.5% communes, 95.5% in districts, and in 100% provinces, and is concentrated in provinces where the number of female sex workers (FSWs) and IDUs are high (MOH, 2009).

To control the HIV epidemic, the Vietnam government in 2004 enforced "The National Strategy on Prevention and Control of HIV/AIDS Spread Until 2010 with a Vision to 2020". In this strategy, HIV/AIDS Harm Reduction Intervention programs had been the first priority to carry out. This program was applied nationwide (63 provinces) and under the control of the MOH of Vietnam. In the national HIV/AIDS intervention program, because of limited National budget, the amount of condoms distributed for free of charge is very small. With the support from The United Kingdom Department for International Development (DFID) from 2004 to 2008, the program was implemented in 21 provinces where there was high HIV/AIDS prevalence among FSWs and IDUs. The coverage of the DFID project increased every year. At the end of 2008, it covered 46% of all districts and 56% of communes. The key activities of this program were distributing free condoms and syringes to high risk groups. The DFID project strengthened its support in the seven highest HIV/AIDS prevalent provinces, which are Hanoi, Hai Phong, Quang Ninh, Da Nang, Ho Chi Minh city, Can Tho and An Giang. Those provinces had the highest HIV/AIDS prevalence. These 7 provinces are large in land area and are important in terms of political, socio-economic development. For example, Ha Noi is the capital of Vietnam. Ho Chi Minh city and Da Nang are the biggest city in southern and central part of Vietnam. Can Tho is next Ho Chi Minh city and is a gate way to many provinces in Mekong River Delta. An Giang is bordered with Cambodia. International port is located in Hai Phong. Quang Ninh has one of the biggest coal mines in South East Asia. Among those provinces, there are four provinces where the HIV/AIDS prevalence among FSWs was highest such as Can Tho was 33.9% in 2006; An Giang

was 27.6% in 2004; Ha Noi was 15.8% in 2004; Ho Chi Minh was 11.7% in 2006. In those four provinces condoms were distributed free to FSWs and their clients at the brothels or by peer groups of FSWs. The others three provinces, Hai Phong, Quang Ninh, and Da Nang have high HIV/AIDS prevalence among IDUs.

Prevalence of HIV infection among FSWs in the 21 provinces reduced quickly from beginning to the end of the DFID project (from 15.6% in 2004 to 12.2% in 2008) (DFID 2009). In order to support Vietnam government, from July 2009 to December 2011, DFID project continue implementing HIV/AIDS intervention program in 30 provinces in Vietnam.

In order to prevent HIV transmission, clients can get/buy condoms from 3 main sources: 1) Condoms sold commercially in the open market with a wide range of types at varying prices. The price of the most popular condoms is 1.000 VND per package including three condoms (equivalently 1 \$ can buy approximately sixty condoms). 2) Condoms subsidized through social marketing programs, which is conducted by the Vietnam government and an international non-governmental organization, in which, the price of a condom is half that of market price. 3) Free distribution channels through DFID project and others international organization projects.

Although condoms are easy to get and the price of a condom is very cheap, the prevalence of clients using condoms consistently with non-regular partner is not high. In a survey in 2005, it was only achieved 73% of the time (National Institute of Hygiene and Epidemiology., 2005).

Under Vietnam law, prostitution is illegal, so FSWs and their clients are considered as a "social evil". Vietnam culture does not accept buying and selling sex but many Vietnamese males engage with FSWs. An estimate for clients was established at 10% of adult males in the 15 - 49 age groups (Vietnam administration of HIV/AIDS control., 2007). In an assessment of Vietnam youth in 2005, there were 33% young men in the age group 22 - 25 who reported to be sexually active and 1 in 6 of them report having sex with FSWs (MOH of Vietnam., 2005).

1.2 Problem justification

To achieve the object of the National Strategy on HIV/AIDS Prevention, to reduce HIV prevalence among general population to below 0.3% by 2010, and with no further increase after 2010, Vietnam government needs to put up an HIV Harm Reduction Prevention program. This program should be focus on high risk groups because the HIV epidemic is still in a centralized stage. Due to modes of HIV transmission tending to shift from blood transmission to sexual intercourse, FSWs and their clients will be considered the main causes of the new increasing HIV infection cases.

The number of males who engage in sex with FSWs is immense; therefore, this remains a primary threat in the spread of the epidemic in the next few years. Unsafe sex by clients, especially clients in cities where HIV/AIDS prevalence among FSWs is very high acts as a bridge for HIV transmission from high-risk FSWs to the low-risk general population.

There have been some studies about male clients of FSWs in Vietnam but up to now, risk behavior among this group have not been adequately studied so it is necessary to select basic data to obtain more understanding of factors affecting condom use among clients of FSWs in the seven highest HIV/AIDS prevalent provinces. The results of this study will apply more information to help policymakers construct appropriate HIV/AIDS prevention strategies for clients of FSWs and to encourage the habit of using condoms among them to reduce HIV transmission in the general population.

1.3 Research Question

What are factors affecting condom use among clients of female sex workers in the seven highest HIV/AIDS prevalent provinces of Vietnam?

1.4 Research Objectives

Ultimate objective: To strengthen the Harm Reduction Intervention programs in the seven highest HIV/AIDS prevalent provinces, with a focus on clients of FSWs.

Immediate objective: To identify key factors affecting condom use with FSWs among clients in the seven highest HIV prevalent provinces in Vietnam.

CHAPTER II

LITERATURE REVIEW

This chapter reviews models used to study sexual behavior as well as the findings from previous studies about HIV/AIDS preventive behavior and condom use among clients of FSWs and its relationship with perceived susceptibility to HIV infection, HIV/AIDS knowledge, access to condom and knowledge about condom.

2.1 Models related to sexual behavior

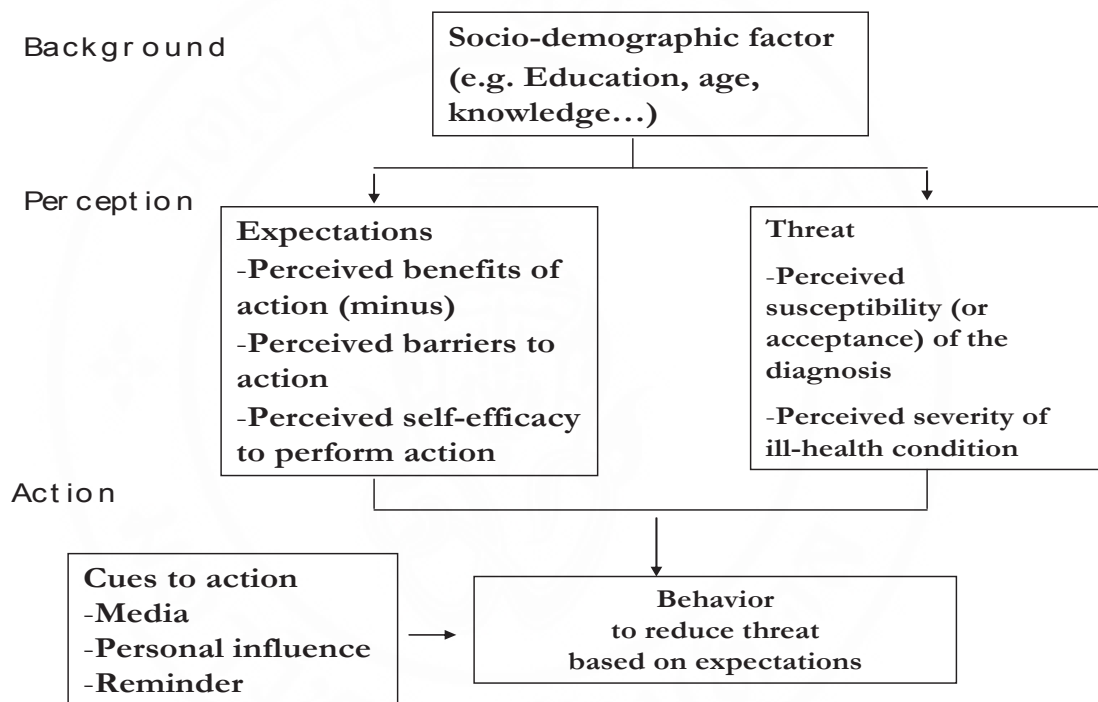
There have been numerous models that have been developed to explain changes in sexual behavior and their relationship to other factors such as in the Health Belief Model (HBM), The AIDS Risk Reduction Model (ARRM), the Social Cognitive Theory, the Information Motivation Behavioral Skills and the Theory of Reasoned Action. Each model focus on the main factors and their relationship with behavior change. HBM is a psychological theory so it explains relationship between individual factors and behavior change. ARRM explain to other factors affecting behavior change (eg: individual, environment, social norm, peer group). HBM and ARRM were together explaining main factors affecting change behavior.

2.1.1 The Health Belief Model

The Health Belief Model (HBM) was developed in 1974 by Maiman and Becker. It was introduced by Rosenstock et al in 1994. and confirms that personal behavior change depends on attitude, knowledge, and beliefs of individuals. HBM discuss the four construct of perceptions which affects behavior change: perceived susceptibility, perceived severity, perceived benefits, perceive barriers. Also according to HBM, people will take positive health action based on their desire to avoid a negative health consequence. For instance, people perceived that HIV causes negative health consequence, they believe that condom can prevent HIV infection, and they

perceive using condom is not convenient, and reduces their pleasure. If they perceive the threat of illness is greater than barriers of using condom; they will always use condom to prevent HIV infection.

Figure 2.1.1 Theoretical Health Belief Model



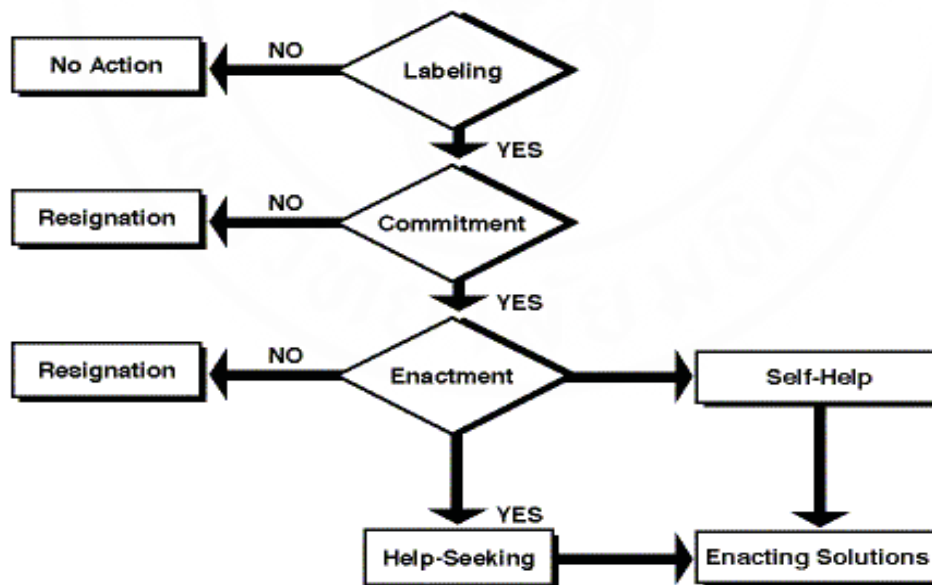
Source: Rosenstock I., Strecher, V., and Becker, M. (1994). The Health Belief Model and HIV risk behavior change. In R.J. DiClemente and J.L. Peterson (Eds.), Preventing AIDS: Theories and methods of behavioral interventions (pp. 5-24). New York : Plenum Press.

2.1.2 The AIDS risk Reduction Model (ARRM)

ARRM was developed by Catania et al., in 1990. It provides a framework for explaining the process of behavior change of the individual specifically in relation with the sexual transmission of HIV/AIDS. This Model includes three stages. *The first stage* - recognition and label of one's behavior as high risk - hypothesized that knowledge about HIV transmission; perceived susceptibility to contracting HIV; and HIV being undesirable (eg. people know HIV can transmit via un safe sex, FSWs is high risk group. If they have sex with FSWs they can catch HIV, if they have positive

HIV they will be stigma and discrimination). **The second stage** - making a commitment to reduce high risk sexual contact and to increase low risk activities - hypothesized that cost, benefit, enjoyment, self-efficacy and social factors have an affect on making commitments (eg: using condom correctly or faithfulness can help people prevent HIV, they will not have to pay money for treatment if they use condom to prevent HIV). **The third stage** - Taking action (Enactment) hypothesized that level of self - esteem, social networks, and problem - solving choices... effluence on taking action. Eg: people decided to use condoms to prevent HIV. They will help themselves by finding out information about condoms (where they can buy, price of condom, kinds of condom) and help- seeking source of condom distribution (where are condoms distributed free? where are subsidized condoms?)

Figure 2.1.2 Theoretical AIDS risk Reduction Model



Source: Catania, J.A., Kegeles, S.M., and Coates T.J. (1990). Towards an understanding of risk behavior: An AIDS risk reduction model (ARRM). Health Education Quarterly, 17(1), 53-72.

2.2 Previous studies on condom use among clients

2.2.1 Perceived susceptibility to HIV infection and condom use

The level of perceived susceptibility to HIV infection of the client varied among studies. Many studies show that clients of FSWs self perceived incorrectly on HIV infection. For example in a study in Mozambique eighty percent of men who considered themselves to have no risk or a small risk of contracting HIV were actually at moderate or high risk (Prata et al., 2001) and in Vietnam some clients refused to use a condom even when FSWs revealed their HIV positive status (FHI Vietnam ., 2008). Rate of perceiving susceptibility to HIV infection is quite high in Madagascar, more than one third of unmarried youth aged 15-24, said that they have high personal risk for HIV and nearly half of the respondents answered they were highly susceptible to HIV infection (Meekers et al., 2003)

Many previous studies showed that there was a positive relationship between perceived susceptibility to HIV infection and condom use. In a study in Kenya, prevalence of men who have a great perceived risk of AIDS were higher to use condoms than prevalence of men with no perceived risk of AIDS (28.3% compare with 20.8%) (Waithka et al., 2001). In Prata's study, prevalence of males who assessed their risk correctly to use condoms is twice that of males who assessed their risk incorrectly (30% vs.14%) (Prata et al., 2001).

Using binary logistic regression, other studies showed that young men who perceive themselves to be at moderate to high risk of HIV infection are 2.4 times more likely to report having used a condom in their last act with a casual partner (Meeker et al., 2002). Similarly, perceived susceptibility to HIV infection relates positively with consistent condom use (Poyah., 2000, Haque et al., 2009, Adih et al., 1999).

Clients consistent use of condoms depends on perceiving inaccurately the risk of contracting HIV, as they consider FSWs who are young, pretty, and appeared clean, as someone who feel they don't need to use condoms (Fajans et al., 1992).

A study in Kenya found that there are no differences in condom use by self-perceived risk of AIDS (Waithaka et al., 2001).

In Vietnam, almost all FSWs indicated that in many instances when condoms were not used, it was the decision of the male clients. Many FSWs indicated that despite their persuasion and encouragement to use condoms, the male clients often

refused. In a few instances, HIV-positive FSWs revealed their status yet male client still refused to use a condom (FHI Vietnam., 2008).

2.2.2 HIV/AIDS knowledge and condom use

HIV/AIDS knowledge is an important factor to help people self- recognize their high risk behavior and then to take action to change that behavior. If people who perceive that they are at risk of contracting HIV and they understand that using condom correctly can avoid HIV infection, they will consistently use condom to protect themselves.

Level of HIV knowledge of clients is different in each study. A study in Indonesia disclosed that, although clients were varied in their socioeconomic status, they have low level of knowledge concerning HIV transmission (Fajans et al., 1992).

Prevalence of using condom to prevent HIV in a group of men who know that condoms can prevent HIV is higher (29.3%) than the group of men who do not know (12.2%) (Waithaka et al., 2001). Another study found that young men who have good AIDS knowledge are more likely to use condom than those who have moderate and poor AIDS knowledge at a 0.05 level of significance (Tut., 1997). In a multivariable model, there was an overall association of knowledge about HIV with consistent condom use at different levels in each study. In Albania, students who have good STI knowledge are 1.74 times more likely to use condom than students who have poor STI knowledge (Burazeri et al., 2004). In Mexico, young men with high levels of knowledge with regard to HIV/AIDS were 1.4 times more likely to report using condom than those with low levels (Aguirre et al., 2003).

A study in Ghana found that young men who had high HIV knowledge were 16% less likely to use condom to prevent HIV than young men who had low HIV knowledge (Adih et al., 1999).

2.2.3 Access to condoms and condom use

The source of condoms varied from study to study. The studies in Vietnam show that condoms were most frequently obtained from drug stores or pharmacies, were as one fifth of respondents get in hotels or from peer groups (DFID, 2009). Previous studies show that low availability or accessibility to condoms are barriers for

consistent use of condom among clients. Although the price of a condom was not expensive, condoms were not always available at the time and place needed (FHI Vietnam., 2008; Anderson et al., 1998). In some studies, clients said that a condom should be obtained within ten minutes walking distance (Meekers et al., 2003). Among clients in United States, Barrington's proved clients who are a member of a social network are more likely to consistently use condom than those who are not members (Barrington et al., 2009). Males, who perceive supporting condom use were significantly more likely to be involved in consistent condom use than males who not perceive (Diclemente et al., 1991).

In other words, clients who access condoms conveniently seem more likely to consistently use condoms than those who do not. This profile should be studied more specifically.

2.2.4 Knowledge about condom and condom use

Knowledge about condoms further affect condom use, the relationship between two variables was found in many previous studies. In Madagascar, males who know that condoms are effective for family planning were 2.8 times more likely to use condom than those who do not know condom are effective for family planning. Males who know condoms can prevent HIV transmission were 2.3 times more likely to use condom than those who do not know condom can prevent HIV transmission (Meekers., 2002).

Many clients had incorrect knowledge about condom use with partners; they thought that using condom to prevent HIV is not necessary with regular partner. A national survey in India revealed that the proportion of clients using condoms was different as the partner varies. Condom use with commercial partner was 85%, with non-regular was 50%, and with regular partner was 29%. (MOH of India., 2006).

Knowledge about condom in regards to types of sexual activity and when condoms were used is very important to prevent HIV. The highest risk comes from having vaginal, anal, or oral intercourse with a person who has a sexually transmitted disease. If a person has sex with an infected person, he/she is taking a big risk. If he/she knows a partner is infected, the best rule is to avoid intercourse. If a person decides to have sex with an infected partner, it should always be sure a condom is used

from start to finish, every time. There were some problems on knowledge about condoms among clients with types of sexual activities. Most clients understand that vaginal intercourse and anal intercourse condom use is a must to prevent HIV/AIDS. Oral intercourse was also a common practice and there was almost no condom use found (Food and drug Administration U.S., 2009).

In Vietnam, in a dialogue with FSWs, both their client and themselves did not know that HIV could be transmitted through oral or anal sex (FHI Vietnam., 2008).

In general, knowledge about condoms is one of the largest factors that affect consistent condom use among clients.

2.2.5 Socio-demographic factors of clients and condom use

The socio-demographic factors refer to age, marital status, education level, employed status of clients in relation to their sexual preventive behavior.

Age

Any male can be client and, they do not have barrier by age. However most previous studies concentrate on a range of age from 15 to 60. Some studies showed that the mean age of clients is about thirty (Pickering et al., 1992; Fajans et al., 1992).

Age was significantly related to consistent condom use in many studies. For example, it found that among youth males in Madagascar, the rate of consistent condom use increased with the rise of age, the age group 20-24 were more likely using condoms than age group 15-19 (Meekers et al., 2003). There are significant differences in condom use among men by age revealed by research in Kenya, where condom use at last sex was highest among men aged 20-24 years, and lowest in the age group of 40-49 years. (Waithaka et al., 2001). Condom use and its relationship with age has the highest percentage in the age group of 25-39 year olds (Aeksuk., 2007). In other study found using condom was positively related to age only among never married men (Prata et al, 2001).

Many studies found that age and condom use have a relationship but Tut reveals age does not show significant relationship with condom use (Tut., 1997).

Education

Some researchers suggest that education was related to condom use, and that condoms use increased with increasing education level. Higher-educated males were more likely to use condom consistently than lower educated males (Waithaka et al., 2001, Aguirre et al., 2003, Haque et al., 2009, Patara et al., 2001, Anderson et al., 1998). Nevertheless, Adih argue that condom use increased with increasing education level among youth who ever used condoms, but condom use increased with decreasing education level among youth who used condom at last sex (Adih et al., 1999).

Marital status

Marital status was found related to condom use to prevent HIV/AIDS. In a study in Ghana, people who are single and use condom to prevent HIV is higher than those who are married (Adih et al., 1999). The result was similar in Waithaka's study, he found that among men who use a condom at last sex to prevent HIV, it is highest in the never married group, followed by formerly married and lowest by the married group (Waithaka et al., 2001). In some studies showed that marital status had a significant relationship with consistent condom use, people who are married are less likely to use condom than people who are divorced, widowed or separated (Wang., 2009, Aeksuk., 2007). People who never married are more likely to use condom when compared to those who have ever married (Tut., 1997, Haque et al., 2009, Prata et al., 2001)

Employment status

Some studies recently report employment status has a significant relationship with consistent condom use. Wang demonstrated that condom use has a relationship with employment status at the 0.001 level of significance (Wang, 2009). Other study found that condom use has a relationship with occupation, lowest in the student group (11.3%) and highest in those working in the non agricultural sector (39.5%) (Aeksuk, 2007).

2.2.6 Others factor related with condom use

In a study in 1991, there were some factors that associated with using condom. These significant bivariate factors were entered into a multivariate logistic

regression model to identify the independent contribution of each factor. Non-black adolescents who communicate with their sex partner about AIDS were significantly more likely to consistently use condom (Diclemente et al., 1991).

Alcohol is a factor that might interfere with judgment and decision-making, therefore alcohol consumption before having sex might increase the probability of unprotected sexual intercourse. Most male clients who refused to use condoms were drunk, at that time they never accepted FSWs' suggestion (FHI Vietnam, 2008).

The result of Multi-media campaign exposure on using condom for STIs and HIV/AIDS prevention in Uganda showed that campaign exposure was strongly associated with higher condom use (Bessinger et al., 1997).

Attitudes toward condom was found more affection with condom use, proven in Manlove's study, that men who had a positive attitude toward condoms were more likely to use condoms than males who had a negative attitude (Manlove et al., 2008). The same relationship was demonstrated in Bessinger's study, where people who have positive attitude toward condom are more likely to use condom consistently than people who have a negative attitude towards condom (Bessinger et al., 1997).

2.2.7 Condom use with FSWs

The prevalence of condom use with FSWs is different for country to country. In India, 85% of respondents who had sex with commercial sex partner reported using condom at last sex (MOH of India., 2006). In Peru, 85.8% of men respondents reported always using condom with FSWs (Miller et al., 2004). In Indonesia, only 14% of clients reported condom use (in 100% of their vaginal intercourse with FSWs) (Fajans et al., 1992). Males in Dominican Republic said that they used condoms consistently with FSWs in the last 3 months was 64.5% (Barrington et al., 2009).

In Vietnam, a survey in 2005 found three-quarters (73%) of men who have higher-risk intercourse reported using condoms at the most recent episode (Vietnam Institute of Hygiene and Epidemiology., 2005).

2.3 Conceptual framework

Conceptual framework has been developed based on theory from the HBM, ARRM, and previous studies. There are complicated factors which influence condom use such as socio-demographic (age, education, marital status, employed status), perceived susceptibility to HIV infection, HIV/AIDS knowledge, access to condom, knowledge about condom. Other factors that also influence condom use, as found in many previous studies, such as alcohol consumption, and media campaigns attitude about condom, race are not included in this study due to limitation of the data set. Thus the conceptual framework in this study only includes some main factors: perceived susceptibility to HIV infection, HIV/AIDS knowledge, access to condom, and knowledge about condom for testing the relationship with condom use with FSWs among clients, controlling for the socio-demographic factors of age, education, marital status, employed status. The diagram of conceptual framework is presented below (Figure 2.3.1)

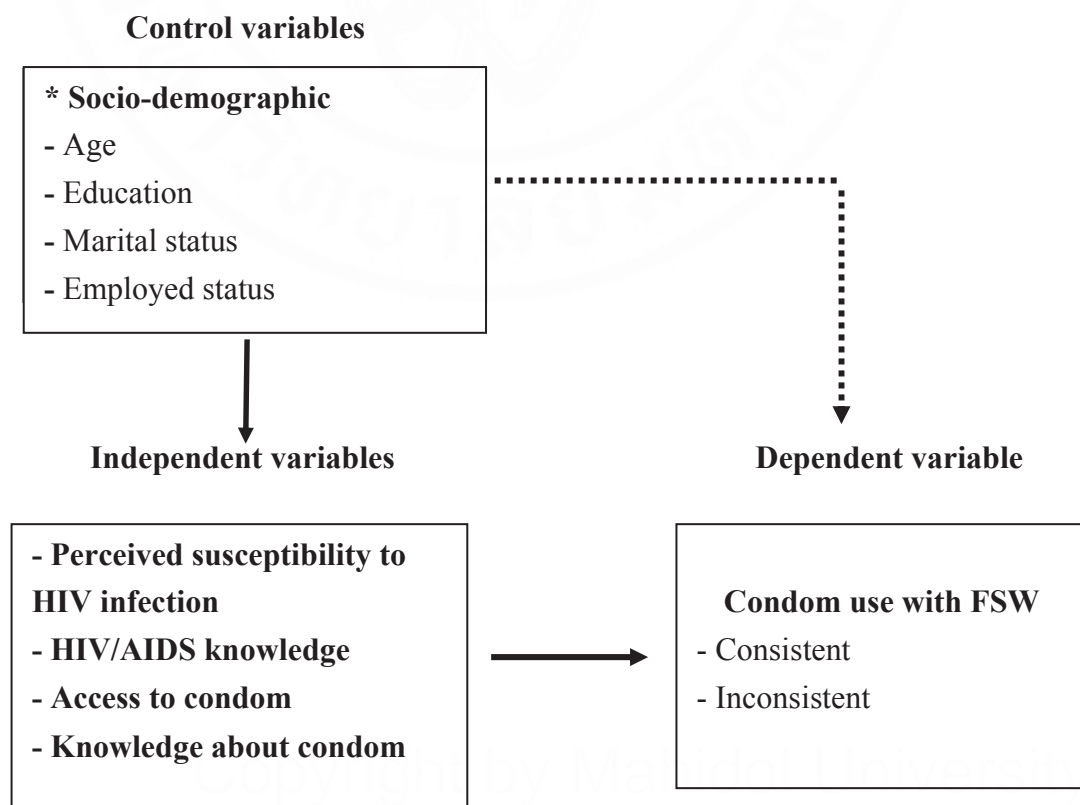


Figure 2.3.1: Conceptual framework

2.4 Research Hypothesis

- Clients who perceived themselves susceptible to HIV infection are more likely to use condoms consistently with FSWs than those who did not perceive HIV susceptibility.

- Clients who have good HIV/AIDS knowledge are more likely to use condoms consistently with FSWs than those who have poor HIV/AIDS knowledge.

- Clients with access to condoms are more likely to use condoms consistently with FSWs than clients without access to condoms.

- Clients with good knowledge about condom are more likely to use condoms consistently with FSWs than those with poor knowledge about condom.

CHAPTER III

RESEARCH METHODOLOGY

3.1 Source of data

Data for this study came from a cross sectional survey "Assessment of social marketing action about condom and condom using behavior of female sex workers (FSWs) and their clients in the seven highest HIV/AIDS prevalent provinces", which was conducted by HIV/AIDS Preventing Project in Vietnam during October through December 2008.

3.1.1 The objectives of the original survey

- To assess level of the available condoms at the places where condoms were distributed free.
- To assess levels of access to condoms among female sex workers and their clients
- To assess the results of social marketing action about condoms through the study of perception susceptibility to HIV infection, HIV/AIDS knowledge, knowledge about condom of two groups FSWs and clients.

3.1.2 Sample design and size

- Selection of provinces and districts: Selected the 7 highest HIV/AIDS prevalent provinces, and then randomly 3 districts in each province.
- Selection of respondents: After calculation, the total respondents in each province was 93. Among the 93 respondents, chose 31 respondents in "hot spot", 31 migration respondents, and 31 IDUs respondents.

Mapping three spots:

- 1 "Hot spot" are where males gather to buy sex such as restaurants, karaoke, "mini" hotels, pubs, and massage parlous.
- 2 The spot are where migration freelance gather (migration freelance in this study means people from other provinces who move to those 7 selected provinces).

3 The spot are where IDU males gather.

Estimating number of males in each spot, then estimating number of males chosen in each spot. If respondents were more than was intended, the study used Snowball Sampling method to select respondents from each spot. If respondents were less than intended, the study chose all.

In total 306 clients of FSWs were recruited for this study, after selecting respondents who answered the questions "having sex with FSWs in the last 12 months" and "ever used condom in last 12 months".

3.1.3 Questionnaire in this study

The variables used in this study were selected from the questionnaire for clients in the original survey that consisted of five parts:

Part 1: Perception of susceptibility to HIV infection

Part 2: HIV/AIDS knowledge

Part 3: Access to condom

Part 4: Knowledge about condom

Part 5: General information

3.2 Ethical aspects

In the original survey, all respondents participated anonymously, voluntarily and willingly in the survey. Before interviewing, the interviewers introduced the purpose and meaning of the interviews, as well as the right of participants to refuse to take part.

3.3 Operational definition of variable

3.3.1 Dependent variable

The dependent variable is condom use with FSWs in last 12 months, which is divided into two categories:

Consistent condom use refers to clients who answer "Yes" for always using condom in the last 12 months when they were involved in sexual intercourse with female sex workers.

Inconsistent condom use refers to clients who answer "No" for always using condom in the last 12 months when they were involved in sexual intercourse with female sex workers.

3.3.2 Independent variables

3.3.2.1 Main independent variables

The main independent variables are perceived susceptibility to HIV infection, HIV/AIDS knowledge, access to condom, and knowledge about condom.

- **Perceived susceptibility to HIV infection** refers to respondents' perception of their risk of contracting HIV. Perceived susceptibility to HIV infection was classified into 2 categories: High risk and no risk.

- **HIV/AIDS knowledge:** refers to respondents' understanding about HIV/AIDS that comprised six questions. In order to analyze the respondent's HIV/AIDS knowledge in this study constructed the variable by summing up the scores for the 6 questions (0 score for each incorrect answer and 1 score for each correct answer). The sum of the scores ranges from 0 to 6, with the higher the score the higher the HIV/AIDS knowledge.

- **Access to condom:** refers to respondents' answer about knowing and ability to access condoms. In order to analyze the respondent's knowledge about access to condom, the study was constructed the variable by summing up the scores for the three questions (1 score for each answer of easy access to condom and 0 score for not easy access to condom). The sum of scores ranges from 0 to 3, with the higher the score the higher the access to condoms.

- **Knowledge about condom:** Refers to respondents' knowledge about the benefit of using condoms. The 4 questions are: Condoms should be used with what type of sex partner? Condoms should be used with what type of sexual activity? When condoms should be used? Respondents were asked these four questions for possible answers. In order to analyze the respondent's knowledge about condom, in this study was reconstructed by summing up the scores for four questions (1 score for each

correct answer and 0 score for each incorrect answer). The sum of scores ranges from 0 to 4. The higher the score the higher the knowledge about condom.

3.3.2.2 Control variables

Control variables are the socio-demographics of clients.

- **Age:** refers to age up to their last birth day in years, which was classified into 4 categories: ≤ 19 years old; 20 - 29 years old; 30 - 39 years old; ≥ 40 years old.

- **Marital status:** refers to current marital status of clients, which was classified into 2 categories: single and ever married.

- **Level of education:** refers to highest education level of clients by the time of the survey and was classified into 3 categories: Illiterate; primary school and secondary school; high school and higher.

- **Employment status:** refers to current employment status of client by the time of the survey and classified into 2 categories: Employed and unemployed.

Table 3.1 Summary of variables and measurement

Variables	Categories	Measurement Level
<i>Control variables</i>		
Age	1 : ≤ 19 years old 2 : 20 - 29 years old 3 : 30 – 39 years old 4 : ≥ 40 years old	Ordinal
Education	1 = Illiterate 2 = Primary school (grade 1- 5)& secondary school (grade 6 – 9) 3 = High school (grade 10 – 12) & higher	Ordinal
Marital status	1 = Single 2 = Ever married	Nominal
Employment status	1 = Employed 2 = Unemployed	Nominal

Variables	Categories	Measurement Level
<i>Main independent variables</i>		
Perceived susceptibility to HIV infection	1 = High-risk 2 = No-risk	Nominal
HIV/AIDS knowledge	Score of HIV/AIDS knowledge (range 0 - 6)	Interval
Access to condom	Score of access to condom (range 0 - 3)	Interval
Knowledge about condom	Score of knowledge about condom (range 0 - 4)	Interval
<i>Dependent variable</i>		
Condom use	1 = Consistent 0 = Inconsistent	Nominal

3.4 Data analysis

The unit of analysis in this study is clients of FSWs, and the statistical analysis is as follows:

- Univariate analysis: Descriptive statistic such as frequency distribution, percentages, means, mode, median, standard deviation, minimum, maximum are applied to describe general characteristics of clients of FSWs.

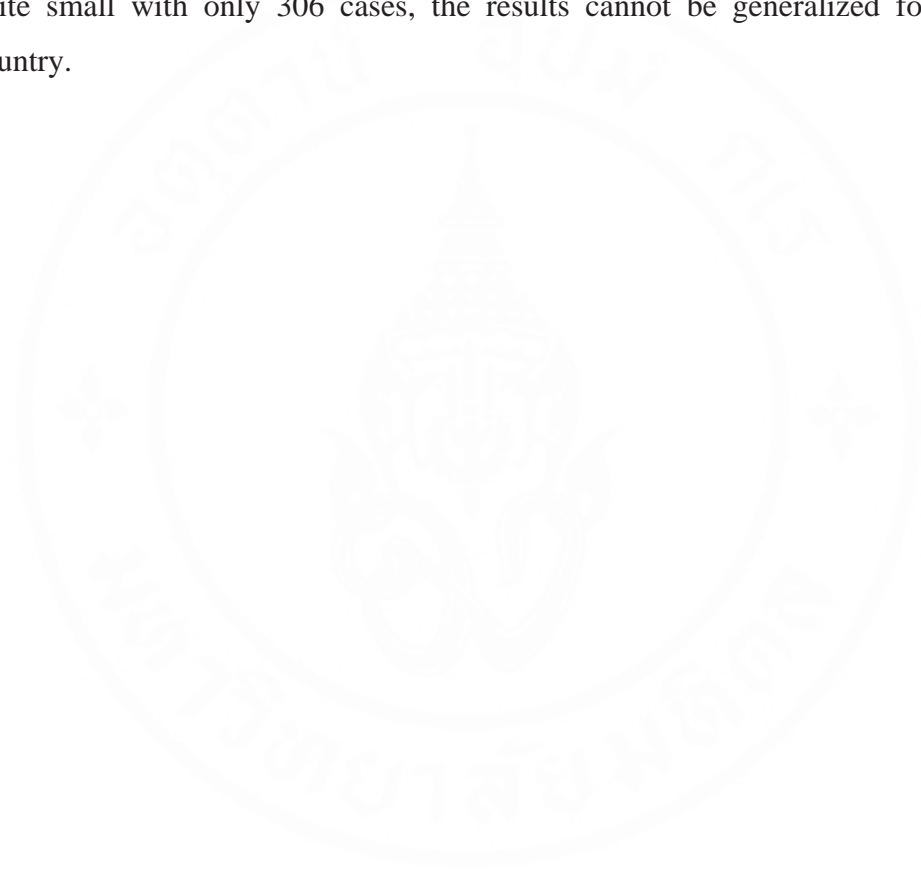
- Bivariate analysis: Cross tabulation, Chi-square test and T-test are used to analyse relationship between dependent and independent variables.

- Binary Logistic Model: Dependent variable with 2 categories consistent condom use and inconsistent condom use with FSWs in the last 12 months are dichotomous (recode 1= consistent and 0= inconsistent), so Binary Logistic Model in an appropriate analysis is used to examine the effect of the main independent variables and dependent variable controlled for socio-demographic variables.

3.5 Limitation of the study

The data of this study is secondary data from a cross sectional study, therefore some significant factors that could affect consistent condom use among clients of FSWs could not be investigated.

Furthermore, the study was taken in 7 provinces and the sample size is quite small with only 306 cases, the results cannot be generalized for the whole country.



CHAPTER IV

RESULTS AND DISCUSSION

This chapter contains four sections. The first section describes the characteristics of the 306 clients of FSWs including socio-demographics, main independent variables and dependent variable. Socio-demographic factors include age, education level, marital status, and employment status. Main independent variables include perceived susceptibility to HIV infection, HIV/AIDS knowledge, access to condom, and knowledge about condom. Dependent variable is condom use with FSWs in the last twelve months. In the second section, bivariate analysis of dependent and independent variables is presented. The third section, Binary Logistic Model was applied to reveal the relationship between the main independent variables and the dependent variable controlling for socio-demographic factors. The fourth section will discuss the results of the analysis.

4.1 Descriptive Analyses

4.1.1 Socio-demographic factors

Table 4.1 highlights the socio-demographic characteristics of respondents such as age, educational level, marital status, and employment status. Respondents came from different age groups, with the mean age of 32 years old although ages ranged from 17 to 60. This result is the same as some previous studies revealed that the mean age of clients is about thirty. (Pickering et al., 1992; Fajans et al., 1992). It is the period of life when libido reaches their peak, and they earn money for themselves so they are more likely to engage with FSWs. The highest prevalence of respondents is in the age group 20 – 29 (37.9%), followed by age group 30-39; 40 and higher; 19 and lower (34.6%, 20.9% and 6.54% respectively). Education level of respondents in this study was not high, as 38.6% had high school and higher, while 57.5% of them had

primary school and secondary school and 3.9% were illiterate. Over half of respondents were single (52.9%) while 47.1% of them were married. In terms of employment status, the major proportion were freelance (59.8%), followed by officer and those who are jobless (17.0% and 16.0% respectively). The proportion in the student and self-employed groups were low (2.3% and 4.9% respectively). The respondents will be later grouped on to 2 categories employed and unemployed according to their employment status.

Table 4.1: Socio-demographic characteristic of respondents

	Characteristics	Percentage	Number
Age			
	≤ 19	6.5	20
	20 – 30	37.9	116
	30 – 39	34.6	106
	≥ 40	20.9	64
	Total	100.0	306
Mean = 32; Mode = 27; Median = 31; Range = 17 – 60			
Education			
	Illiterate	3.9	12
	Primary school & Secondary school	57.5	176
	High school & higher	38.6	118
	Total	100.0	306
Marital status			
	Single	52.9	162
	Ever married	47.1	144
	Total	100.0	306
Employment			
	Officer	17.0	52
	Self-employed	4.9	15
	Freelance	59.8	183
Unemployment			
	Student	2.3	7
	Jobless	16.0	49
	Total	100.0	306

4.1.2 Perceived susceptibility to HIV infection

In terms of personal perception of susceptibility to HIV infection, percentage of respondents who felt they were at "high risk" was 62.4% whereas 37.6% of respondents felt that they were "no risk". (Table 4.2)

Table 4.2 Percentage distribution of respondents by perceived susceptibility to HIV infection

Perceived susceptibility to HIV infection	Percentage	Number
High risk	62.4	191
No risk	37.6	115
Total	100.0	306

4.1.3 HIV/AIDS knowledge

Table 4.3 indicates about two-thirds (67%) of the respondents agree that only a blood result is accurate to conclude positive or negative HIV status. Three main ways of HIV transmission had 60.8% of respondents answering correctly. The percentage of respondents who think that being faithful with only one partner to prevent HIV was 93.8%. Prevalence of respondents who recognize using condoms whenever having vaginal sex was quite high at 99%. Over two-thirds (67.6%) of respondents said that they should be wash sharing clearly before injecting can avoid HIV transmission and those with the knowledge of abstinence was 61.4% of respondents.

Table 4.3 Percentage distribution of respondents by answering correctly the questions about HIV/AIDS knowledge (n = 306)

HIV/AIDS knowledge	Yes		No	
	Percentage	Number	Percentage	Number
Affirming positive HIV status is based on the blood result only	67.0	205	33.0	101
Three main ways of HIV transmission are: Though blood; unsafe sex; from mother	60.8	186	39.2	120

HIV/AIDS knowledge	Yes		No	
	Percentage	Number	Percentage	Number
to child				
Being faithful with only one partner	93.8	287	6.2	19
Using condoms whenever having sex via vagina	99.0	303	1.0	3
Should be wash sharing clearly before injecting can avoid HIV transmission	67.7	207	32.3	99
Abstinence	61.4	188	38.6	118

Table 4.4 presents HIV/AIDS knowledge among respondents. It was constructed by summing up the score for six questions. 1) Affirming positive HIV status is based on blood test result only, 2) Three main ways of HIV transmission are: through blood; unsafe sex; from mother to child, 3) Faithfulness with only one partner, 4) Using condoms whenever having sex via vagina, 5) Should be wash sharing clearly before injecting can avoid HIV transmission, 6) Abstinence. One score was gives for each correct answer, and the sum of scores was classified into two levels: good HIV/AIDS knowledge and poor HIV/AIDS knowledge, based on mean scores. The respondents were classified into good HIV/AIDS knowledge level if the total scores was higher than the mean scores. On the contrary, the respondents were classified into the poor HIV/AIDS knowledge level if the total scores was less than mean scores. Mean scores of HIV/AIDS knowledge was 4.47, and the proportion of respondents in good HIV/AIDS knowledge was higher than the proportion of respondents with poor HIV/AIDS knowledge (52.3% compare with 47.7%).

Table 4.4 Percentage distribution of the respondents by level of knowledge about HIV/AIDS

Level of knowledge about HIV/AIDS	Percentage	Number
Good HIV/AIDS knowledge (> 4.47) point)	52.3	160
Poor HIV/AIDS knowledge (\leq 4.47 point)	47.7	146
Mean = 4.47; Median = 5; Mode = 5; SD = 1.1; Minimum = 2; Maximum = 6		
Total	100.0	306

4.1.4 Access to condom

Regarding the frequency of respondents in access to condom, about 75% of respondents said that it takes less than ten minutes to buy condoms. Nearly 80% of respondents know where condoms are provided free of charge and 62.4% of respondents received free condom within the last six months (Table 4.5)

Table 4.5 Percentage distribution of respondents by access to condom (n = 306)

Access to condom	Yes		No	
	Percentage	Number	Percentage	Number
Time taken to buy condom ≤10 minutes	74.8	229	25.2	77
Know where condom are provided for free	79.4	243	20.6	63
Received free condoms in the last 6 months	62.4	191	37.6	115

4.1.5 Knowledge about condom

Table 4.6 showed that all clients in this study (100%) know that condoms can prevent HIV/AIDS infection. Most respondents (98%) had the correct answer in the question “condoms should be used at the beginning of sexual activity to prevent HIV/AIDS”. The prevalence of respondents that recognized that in order to prevent HIV/AIDS, condoms should be used with all partners such as their wife, one -night partner and FSWs was 87%. A few of the respondents (6.5%) confirmed HIV can be transmitted when they having sex by oral, anal, and vaginal methods.

Table 4.6 Percentage distribution of respondents by knowledge about condom to prevent HIV/AIDS (n = 306)

Knowledge about condom	Yes		No	
	Percentage	Number	Percentage	Number
Condoms can prevent HIV/AIDS	100.0	306	0.0	0
Condoms should be used with Wife/girlfriend, One-night partner, and FSWs	83.7	256	16.3	50

Knowledge about condom	Yes		No	
	Percentage	Number	Percentage	Number
Condoms should be used when have sexual activity by oral, anal, and vaginal methods	6.5	20	93.5	286
Condoms should be used at the beginning of sexual activity	98.0	300	2.0	6

Table 4.7 presents respondents' level of knowledge which was constructed by summing up the score for four questions of knowledge about condom to prevent HIV/AIDS transmission 1) Condom can prevent HIV/AIDS, 2) Condom should be used with wife/girlfriend, one-night partner, FSWs, 3) Condoms should be used when having sexual activity by oral, anal, and vaginal method, 4) Condoms should be used at the beginning of sexual activity. One score was provided for each correct answer, and sum of scores was classified into two levels good knowledge about condom and poor knowledge about condom based on mean scores. The respondents were classified into good knowledge about condom level if the total scores was more than the mean scores. On the contrary, the respondents were classified into poor level of knowledge about condom if total scores was less than mean scores. Mean scores of knowledge about condom was 2.1, and proportion of respondents in good level of knowledge about condom group was lower than the proportion of respondents in poor knowledge about condom group (19.6% compare with 80.1%)

Table 4.7 Percentage distribution of the respondent by level of knowledge about condom

Level of knowledge about condom	Percentage	Number
Good knowledge about condom (> 2.1 point)	19.6	61
Poor knowledge about condom (\leq 2.1 point)	80.1	245
Mean = 2.1; Median = 2; Mode = 2; SD = 0.54; Minimum = 0; Maximum = 4		
Total	100.0	306

4.1.6 Condom use with FSWs in last 12 months

During the last twelve months, there were 82.7% of clients in this study who used condom consistently with FSWs and the percentage of using condom inconsistently was 17.3% (Table 4.8)

Table 4.8 Percentage distribution of respondents by using condom with FSWs in last 12 months

Using condom	Percentage	Number
Consistent	82.7	253
Inconsistent	17.3	52
Total	100.0	306

4.1.7 Reasons for not using condoms

It is interesting to explore reasons of not using condom consistently of respondents. Among the 53 respondents who had answered "did not use condom consistently". The four following causes are the most frequent occurrence: Felt that condoms reduce pleasure (26.4%), thinking that it is not necessary (24.5%), worrying condom will affect health (18.9%) and condoms are not available (15.1%) (Table 4.9)

Table 4.9 Percentage distribution by reasons of respondents do not want to use condom

Reason	Percentage	Number
Reducing the pleasure	26.4	14
Thinking that it is not necessary	24.5	13
Worrying condom affect health	18.9	10
Condom not available	15.1	8
Other	15.1	8
Total	100.0	53

4.2 Bivariate Analysis

Table 4.10 showed that respondents who were younger had used condoms less consistently than their counterparts, except respondents in the age group 20 – 29 years old. The percentage of using condom in this group was higher than the

percentage of using condom in the age group 30 – 30 and age group 40 and higher. One reason may be that respondents who are 20 - 29 years old were targets in the HIV/AIDS intervention program. Education level is associated with consistent condom use at 0.05 level of significance. Respondents with less education were less consistent to use condom. The highest percentage of inconsistent condom use (50%) was respondents who are illiterate, followed by respondents who had primary school and secondary school (17.6%) and respondents who had high school and higher (13.6%). Marital status and consistent condom use had a relationship at a 0.01 level of significance. Ever married respondents had a greater percentage of in consistent condom use than single respondents (24.3% vs. 11.1%). Unemployed respondents were more likely to use condoms inconsistently than employed respondents (25.0% compare with 15.6%).

Table 4.10 Percentage distribution of condom use by socio-demographic characteristics of respondents

Characteristic	Condom use			X ² (n)
	Consistent (%)	Inconsistent (%)	Total (%)	
Age				5.316
≤ 19	75.0	25.0	100.0	20
20 – 30	85.3	14.7	100.0	116
30 – 39	77.4	22.6	100.0	106
≥ 40	89.1	10.9	100.0	64
Education *				10.125
Illiterate	50.0	50.0	100.0	12
Primary school & Secondary school	82.4	17.6	100.0	176
High school & higher	86.4	13.6	100.0	118
Marital status**				9.268
Single	88.9	11.1	100.0	162
Ever married	75.7	24.3	100.0	144
Employment status				2.823
Employed	84.4	15.6	100.0	250
Unemployed	75.0	25.0	100.0	56

Significant level: *p<0.05; **p<0.01

Table 4.11 indicated perceived susceptibility to HIV infection have the relationship with condom use at 0.01 level significance, respondents who perceived high risk to HIV infection were more likely to use consistently condom use than those who perceived no risk to HIV infection (87.4% vs 84.8% respectively).

Table 4.11 Percentage distribution of condom use by perceived susceptibility to HIV infection

Factor	Condom use			X ² (n)
	Consistent (%)	Inconsistent (%)	Total (%)	
Perceived susceptibility to HIV infection**				8.024
High risk	87.4	12.6	100.0	191
No risk	84.8	25.2	100.0	115

Significant level: **p<0.01

Table 4.12 revealed respondents who consistently used condoms had higher mean scores of HIV/AIDS knowledge than those whose did not (4.57 vs 4.15 respectively), at a 0.05 level of significance. Respondents who consistently used condom had a higher mean scores for access to condom than those whose did not (2.23 vs 1.87 respectively) at a 0.01 level of significance. The mean scores of knowledge about condoms were not significantly different between respondents who consistently used condom and those who did not (2.19 vs 2.13)

Table 4.12. Mean scores of HIV/AIDS knowledge, access to condom, knowledge about condom between respondents who used condom consistently and those who did not use condom consistently.

Factors	Consistently		Inconsistently		P-value
	Mean	SD	Mean	SD	
HIV/AIDS knowledge*	4.5692	1.0911	4.1509	1.1831	0.013
Access to condom**	2.2292	0.7935	1.8679	0.8095	0.003
Knowledge about condom	2.1976	0.5349	2.1321	0.5560	0.421

Significant level: *p<0.05, **p<0.01

4.3 Multivariate Analysis

In order to examine the key factors affecting consistent condom use with FSWs among clients in the last twelve months, binary logistic regression was applied because of consistent condom use with FSWs among clients was treated as an outcome variable (dichotomous in nature: 1 = consistent and 0 = inconsistent). There were two models to predict the factors effecting condom use. The first Model predicted direct effect of the socio-demographic factors such as age, education level, marital status, and employment status on condom use. The second Model focused on effect of the main independent variables such as perceived susceptibility to HIV infection, HIV/AIDS knowledge, access to condom, and knowledge about condom controlled for socio-demographic factors.

4.3.1 Effects of socio-demographic factors on consistent condom use

Table 4.13 shows that all personal factors were significantly associated with consistent condom use. However, in term of age, only the age group 40 and higher was significantly associated with consistent condom use. Respondents who are over 40 years old were almost 6 times more likely to use condoms than those under 19 years old, at a 0.05 level of significance. The respondents in the age group 20 - 29 and 30 - 39 were more likely to use condom than the age group 19 and lower but this was not significant. Regarding education level of respondents, the results revealed that level of consistent condom use increased with the rise of education level. Respondents at high school and higher levels were 4.8 times more likely to consistently use condom than those at the illiterate level ($p < 0.05$). Respondents at the primary school & secondary school levels were 4.7 times more likely to consistently use condom than those at illiterate level ($p < 0.05$). Respondents who are ever married were 78.9% less likely to consistently use condom than those who are single ($p < 0.001$). Employment status have significant association with consistent condom use as the employed respondents were 3.3 times more likely to use condom consistently than unemployed respondents at the 0.01 level of significance. When all selected socio-demographic variables were employed into model I, it increased explanation for 12% variation of consistent condom use among clients of FSWs at the 0.001 level of significance.

4.3.2 Effects of main independent variables on consistent condom use

In model II of binary logistic regression (table 4.13), after controlling for socio-demographic factors, there were two independent variables that had positive significant association with condom use. They are perceived susceptibility to HIV infection and knowledge about HIV/AIDS while knowledge about condom and access to condom variables did not have significant association with condom use. In more detail, respondents who perceive themselves at high-risk and susceptible to HIV infection were 2.8 times more likely to use condom consistently than those who perceive themselves at no-risk and low susceptible to HIV infection controlling for other factors ($p < 0.01$). Each additional point of HIV/AIDS knowledge increases the predicted consistent condom use by 1.5 times controlling for other factors ($p < 0.05$). Respondents who had knowledge about condom and access to condom are more likely to use condom consistently than respondents who did not have knowledge about condom and no access to condom respectively, but this was not significant. In total, Model II explains for 19% of consistent condom use when considering perceived susceptibility to HIV infection, HIV/AIDS knowledge, access to condom, and knowledge about condom variables, controlled for socio-demographic factors at the 0.001 level of significance. It means that perceived susceptibility to HIV infection, HIV/AIDS knowledge, access to condom, and knowledge about condoms increases 7% explanation of consistent condom use variation (12% vs. 19%).

Table 4.13 Logistic regression analysis of factors related to condom use (n = 306)

Factors	Model 1	Model 2
	Odds ratio	Odds ratio
Control variables		
Age		
≤ 19 (ref)		
20 – 29	2.366	2.342
30 – 39	1.543	1.464
≥40	5.995*	6.119*
Education		
Illiterate (ref)		
Primary school & secondary school	4.703*	4.855*
High school and higher	4.839*	4.833*

Factors	Model 1	Model 2
	Odds ratio	Odds ratio
Marital status		
Single (ref)		
Ever married	0.211***	0.200***
Employment status		
Employed	3.255**	2.765**
Unemployed (ref)		
Main independent variables		
Perceived susceptibility HIV infection		
No-risk (ref)	-	
High-risk		2.822**
HIV/AIDS knowledge		
	-	1.480*
Access to condom		
	-	1.455
Knowledge about condom		
	-	1.117
LR chi square	33.16***	53.59***
Pseudo R square:	0.1176	0.1900

Significant level: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

4.4 Discussion

This study has 4 hypotheses as following.

- Clients who perceived themselves susceptible to HIV infection are more likely to use condom consistently with FSWs than those who did not perceive HIV susceptibility.
- Clients who have good HIV/AIDS knowledge are more likely to use condom consistently with FSWs than those who have poor HIV/AIDS knowledge.
- Clients with access to condoms are more likely to use condom consistently with FSWs than clients without access to condoms.
- Clients with good knowledge about condom are more likely to use condoms consistently with FSWs than those with poor knowledge about condom.

Only two hypotheses on perceived susceptibility to HIV infection and HIV/AIDS knowledge were confirmed in this study.

Existing literature has shown mixed results on the association between perceived susceptibility to HIV infection and risk behavior. There are no differences in condom use by self-perceived risk of AIDS (Waithaka et al., 2001). Other studies found that perceived susceptibility is positively associated with consistent condom use (Meekers et al., 2003, Poyah., 2000, Haque et al., 2009, Adih et al., 1999). This study shows a similar trend, it is reported that respondents who perceive themselves at high-risk and susceptible to HIV infection were 2.8 times more likely to use condom consistently than those who perceive themselves at no-risk and not susceptible to HIV infection. The results from this study reveal 37.6% of respondents said they were in the no-risk (Table 4.2), though actually they are high risk because they had sex with FSWs who are a high risk group. The possible reason for this is that respondents may not have sufficient knowledge of HIV transmission.

Studies on the influence of HIV/AIDS knowledge on condom use have reported mixed results. Some have found the positive association (Waithaka et al., 2001, Tut, 1997, Burazeri et al., 2004, Aguirre et al., 2003), others found a negative association (Adih et al., 1999), and no association (Zellner., 2003). However, these studies have involved different population subgroups at different risk levels (e.g., young man 15 – 24 years of age, students at University, public school student). In addition, they have used an array of questions to measure knowledge of HIV/AIDS, from general knowledge about HIV transmission and accuracy of response given about HIV/AIDS, to a general understanding of the disease (e.g., how one can become infected or how one can avoid contracting HIV). In this study, data was taken from the seven highest HIV prevalent provinces in Vietnam that were supported by the Harm Reduction Intervention program. To measure knowledge of HIV/AIDS an array of questions such as how to determine positive HIV status, the types of sexually activity that put one at higher risk of HIV infection, and how one can avoid contracting HIV was applied. Results from this study showed that HIV/AIDS knowledge had a positive significant relationship with consistent condom use at a 0.05 level of significance.

In term of access to condom, research showed that clients with high score of access to condoms were more likely to use condom consistently with FSWs than those with low score of access to condoms (Meekers et al., 2003, Diclemente et al., 1991). However, the finding from this study did not find same results as previous

studies. In this study access to condom did not have a relationship with consistent condom use. The possible reasons may be because condoms were supplied free of charge in the study areas. Condom is very cheap and available to everyone, respondents need not to buy and take time to get it.

Recent researchers found that knowledge about condoms has a positive association with condom use (Meekers et al., 2000, MOH of India., 2006). The result of this study is different as knowledge about condom did not have an effect on condom use. Percentage of clients who misunderstood the question “type of sexual activities that one should use condom” was quite high (93.5% in table 4.6). It suggests a need to raise knowledge in this field among clients.

Prevalence of respondents using condom consistently was 82.7%. This prevalence was higher than the prevalence of clients reporting always using condom in commercial sex in China which is 37.7% (Xia et al., 2010) and 39.8% a study in India (MOH of India., 2006). As well prevalence of condom use in this study was higher than prevalence of condoms use in the survey Assessment of Vietnam Youth in 2005 (82.7% compare with 73%). Prevalence of consistent condom use in this study was high because this study used data from seven provinces, which were supported by the Harm Reduction Intervention project, in which condoms were distributed free for FSWs and their clients, thus access to condom in those provinces was easier than in others. Behavior change communication and training HIV/AIDS knowledge were strengthened in those provinces. Nearly one fourth (24.5%) of clients in this study thought that condom are not necessary when having sexual activity with FSWs. It suggests the Harm Reduction Intervention programs have to raise the knowledge of HIV/AIDS transmission among clients.

For the socio-demographic factors, it was found that age, marital status, education and employment status had effects on consistent use of condoms among male clients. Older clients are more likely to use condom with FSWs than younger clients, and is similar to a previous study in Mozambique (Parata et al., 2001). It may be explained that older clients are more have more concern about HIV infection and are more experienced in safe sex than younger clients.

In this study, education level had a significantly positive relationship with condom use among respondents, as others found (Waithaka et al., 2001, Aguirre et al., 2003, Haque et al., 2009, Prata et al., 2001, Anderson et al., 1998), but unlike a study in the United States (Adih et al., 1999). The level of consistent condom use increased with the rise of education level. It is explained that clients who are illiterate cannot approach some written HIV/AIDS intervention programs so they have low HIV/AIDS knowledge compared to others. Clients who attended high school and higher are more likely to be involved in consistent condom use than clients with primary and secondary school. It may be clients who are illiterate may not be able to access written HIV/AIDS intervention medium such as posters and pamphlets so they are unaware of risk of inconsistent use of condoms. Moreover, in Vietnam knowledge about condom was taught only in high school and university, it is not allowed to be taught in lower grade.

A significant association between marital status and consistent condom use was found. The respondents who are ever married were 78.9% less likely to be engaged in consistent condom use than those who are single ($p < 0.001$). This result is similar to studies (Adih et al., 1999, Waithaka et al., 2001) but against results from other ones (Tut., 1997, Haque et al., 2009, Prata et al., 2001). The reason may be due to single males being a more likely target group for HIV/AIDS intervention program, and they have more free time to attend the meeting to share experiences on safe sex, HIV/AIDS transmission, and knowledge about condoms. This may suggest that there is a need to design appropriate programs focusing on both single and married males.

Employment status has statistically significant relationship with consistent condom use. Table 4.11 indicates the employed respondents were 2.3 times more likely to use condoms consistently than unemployed respondents. Normally, clients who are employed are generally better educated so they use condoms more than clients who are unemployed. It may also imply that clients who can earn money can afford to buy condoms.

CHAPTER V

CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

This study aims to examine the main factors affecting condom use among clients of FSWs when controlling for socio-demographic factors. The dependent variable is condom use with FSWs in last twelve months. Four main independent variables are perceived susceptibility to HIV infection, HIV/AIDS knowledge, access to condoms, and knowledge about condoms. The four control variables are age, education level, marital status, and employment status.

The key findings from this research are that there are two main variables which affect condom use. They are perceived susceptibility to HIV infection and HIV/AIDS knowledge. Respondents who perceive themselves to be high-risk and susceptible to HIV infection were 2.8 times more likely to use condom consistently than those who perceive themselves no-risk susceptibility to HIV infection controlling for other factors ($p < 0.01$). Each additional point of HIV/AIDS knowledge increases the predicted consistent condom use by 1.5 times controlling for other factors ($p < 0.05$). Access to condom and knowledge about condom did not have a significant relationship with condom use.

The results also reconfirmed that the socio-demographic factors were associated with condom use. Respondents who are more than 40 years old were almost 6 times more likely to use condom than respondents who are under 19 years old at the 0.05 of level significance. Regarding education level of respondents, the results revealed level of consistent condom use increased with the rise of education level. Respondents at high school and higher were 4.8 times more likely to use condoms consistently than those who are illiterate ($p < 0.05$). Respondents at primary school and secondary school group were 4.7 times more likely to use condoms consistently than

those in the illiterate group ($p < 0.05$). Respondents who are ever married were 78.9% less likely to use condoms consistently than those who are single ($p < 0.001$). Employment status had a significant association with consistent condom use as respondents who were employed were 3.3 times more likely to use condom consistently than respondents who are unemployed at the 0.01 level of significance.

Prevalence of consistently using condom with FSWs in the last twelve months in this study was 82.7%. It is higher than the prevalence of using condoms consistently to prevent HIV/AIDS in the Vietnam population and AIDS indicator survey in 2005 (82.7% compare with 73%). One of the reasons of respondents did not use condom consistently was misconceptions about condoms being used when clients have sexual activities by vaginal, anal, and oral methods was high (93.5% in table 4.5).

In conclusion, the two main factors perceived susceptibility to HIV infection and HIV/AIDS knowledge have a positive relationship with condom use. All socio-demographic factors in this study such as age, education level, marital status, and employment status have a positive relationship with consistent condom use as well.

The finding in this study and previous studies will help policy makers to understand the comprehensive situation of clients in the seven highest HIV/AIDS prevalent provinces of Vietnam in order to design appropriately Harm Reduction Intervention programs in those provinces. A further suggestion is to facilitate the integration of a national program in order to increase the effectiveness of the programs.

5.2 Recommendations

5.2.1 Recommendation for HIV/AIDS intervention program

The results from this study shows that perceived susceptibility to HIV infection and HIV/AIDS knowledge which had a positive significant effect on consistent condom use with FSWs among clients. Moreover, according to HBM, HIV/AIDS knowledge is the foundation to change risk behavior. Clients who have

good HIV/AIDS knowledge will perceive themselves correctly to be susceptible to HIV infection and they will use condoms consistently when they have sexual activity. Therefore, the results lead to recommendations as following.

1. The Harm Reduction Intervention program should continue to emphasize on training HIV/AIDS knowledge, and raising awareness on susceptibility to HIV infection when having sex with FSWs.

2. Although index of knowledge about condoms did not have significant relationship with condom use, however, the proportion of respondents who had misconceptions condom should be used when having vaginal, anal, oral activities method was very high (93.5% in table 4.5). Therefore, the retraining about knowledge about condom should focus on this aspect.

3. Proportion using condom consistently in this study was higher than in the Assessment of Vietnam Youth survey in 2005 (82.7% compare with 73%). This suggests “One Hundred Percent Condom Use program” should continue to promote condom use among clients and their partners as well as to limit the spread of HIV among population in Vietnam.

4. HIV/AIDS educational material should be designed for both literate and illiterate people.

5. The training on HIV Prevention should target at young and unmarried men.

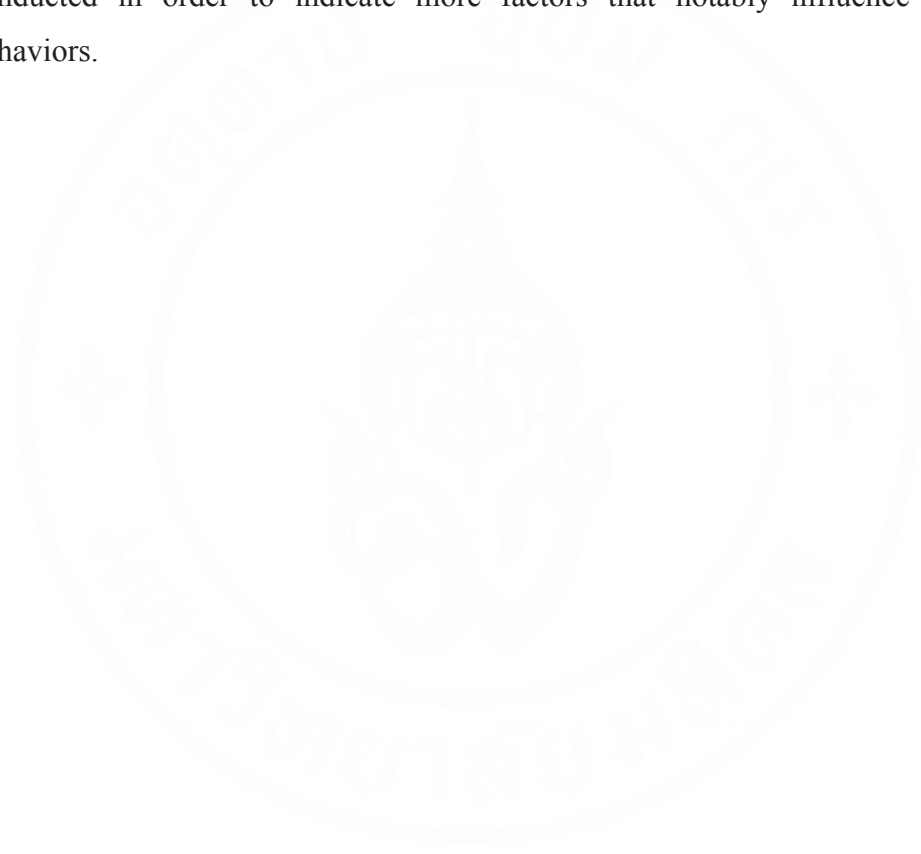
5.2.2 Recommendation for further study

Firstly, due to limitation of using secondary data, this study could not demonstrate sufficiently the factors affecting condom use with FSWs in the seven highest HIV/AIDS prevalent provinces. Therefore, it is necessary to collect primary data that can give more important information to reflect all of the factors affecting condom use with FSWs in those provinces, for example factors involving alcohol drinking behavior, economic status, types of FSWs (direct or indirect), and number of partners.

Secondly, the small sample size is a problem as data was only gathered from the provinces where the Harm Reduction Intervention projects are implemented

strongly and condoms were available free of charge. Therefore, it is necessary to collect national representative samples represent clients of FSWs in Vietnam.

Thirdly, information from the quantitative research seems inadequate to explain underlying reasons of clients' condom use behavior in this study and nationwide. Therefore a combination of qualitative and quantitative research should be conducted in order to indicate more factors that notably influence clients risk behaviors.



BIBLIOGRAPHY

- Adih, W.K., Alexander, C.S. (1999). Determinants of condom use to prevent HIV infection among youth in Ghana. *Journal of Adolescent Health* 1999; 24:63-72
- Aeksuk, G (2007). Socio-demographic factors affecting condom use among men in Kachanaburi DSS. *Unpublished Master of Art, Mahidol University, Thailand.*
- Agguirre, V.T., Santillan, E.A., Allen, B., Llerenas, A.A., Valdez, A.c., Ponce, E.L. (2003). Associations among condom use, sexual behavior and knowledge about HIV/AIDS. A study of 13,293 public school students. *Archives of Medical Research* 35, 334-343
- Anderson, J.E., Willson, R., Doll, L., Jones, T.S., Barker, P. (1998). Condom use and HIV risk behavior among U.S adult: Data from nation survey. *Family planning Perspectives, volume 31, Number 1.*
- Barrington, C., Latkin, C., Michael, D.S., Moreno, L., Ellen, J., Kerrigan, D (2009). Talking the talk, walking the walk: Social network norm, communication patterns, and condom use among the male partners of female sex workers in La Romana, Dominican Republic. *Social Science & Meedicine* 68, 2037-2044.
- Bessinger, R., Katende, C., Gupta, N. (1997). Multi-media campaign exposure effects on knowledge and use of condom for STI and HIV/AIDS prevent in Uganda. *Science Direct – Evaluation and program Planning*. Volume 27, Issue 4, November 2004, P 397-407
- Burazeri, G., Roshi, E., Tavaxhi, N (2004). Does knowledge about sexually transmitted infections increase the likelihood of consistent condom use? *Preventive Medicine* 39, 1077-1079.
- DFID (2009). HIV prevention Project final report preventing HIV in Vietnam (2009)
- Diclemente, R.J. (1991). The Predictors of HIV-prevention sexual behavior in a high-risk adolescent population. The influence of perceive peer norm and sexual

- communication on incarcerated adolescent' consistent use of condom.
Pubmed – index for Medline: 1751507
- Fajans, P., Ford, K., Wirawan, D.N. (1992). Aids knowledge and risk behavior among domestic clients of FSWs in Bali Indonesia. *Social Science & Meedicince*. Vol 41, No 3, pp, 409-417, 1995
- Family Health International (2002). Behavior change - A summary of four major Theories.
<http://www.fhi.org/nr/rdonlyres/ei26vbslpsidmahhxc332vwo3g233xsqw22er3vofqvrffjvubwyzclvqjcbdgexyzl3msu4mn6xv5j/bccsummaryfourmajortheories.pdf>
- Family Health International Vietnam 2005-2006 Report (2008). A dialogue with female sex workers: Their perspectives on behavior change for HIV prevention.
<http://www.fhi.org/NR/rdonlyres/ekycpfhwp4vsn62nttuudmxu5x4cvdxh55fv6btarp4n2fg3msnzmmjib4brfdbtheyrhepfnaneo/DialogueFSWVNHV.pdf>
- Food and drug Administration U.S (2009), who should use a condom?
<http://www.fda.gov/ForConsumers/byAudience/ForPatientAdvocates/HIVandAIDSActivities/ucm126372.htm>.
- Ford, K., Wirawan, D.N., Fajans, P. (1993) knowledge, condom beliefs and AIDS sexual behavior among male sex workers and male tourist clients in Bali, Indonesia. *Health transition review*. Vol. 3 No. 2. 1993.
- Grady, W.R., Klepinger, D.H., Tanfer, K. (1993). Condom characteristics: The perceptions and preferences of man in the United State. *Family Planning Perspectives*. Vol 25. No. 2 (Mar- Apr), 1993. Pp 67-73
- Haque, M.R., Soonthornhdada, A. (2009). Risk perception and condom use among Thai Youths: Finding from Kanchanaburi. *Health Popul Nutr Dec* 27 (6), 772 -783
- Manlove, J., Ikamullah, E., Humen, E.T. (2008). Condom use and consistency among male adolescent in the United state. *Journal of Adolescent Health* 43, 325-333
- Meekers, D., Klein M. (2002). Determinates of condom use among young people in Urban Cameroon. *Family Planning*, 33 (4), 335-46.

- Miller, G.A., Mendoza, W., Krone, M.G., Meza, R., Caceres, C.F., Coates, T.J., And Klausner, J.D. (2004). Client of FSWs in Lima Peru, A bridge population for STD/HIV transmission? *Sexually Transmitted Disease*, June, 2004, Vol.31, No. 6, p. 337-342
- MOH and Family Welfare Government of India (2006), National behavioral surveillance survey-FSWs and their clients, *National AIDS control organization*.[http://www.nacoonline.org/upload/NACO%20PDF/Female_Sex_Workers_\(FSWs\)_and_Their_Clients.pdf](http://www.nacoonline.org/upload/NACO%20PDF/Female_Sex_Workers_(FSWs)_and_Their_Clients.pdf).
- MOH of Vietnam (2005). Survey Assessment of Vietnamese Youth 2005 http://www.gso.gov.vn/Modules/Doc_Download.aspx?DocID=4402
- MOH of Vietnam (2009), report of HIV/AIDS epidemic in 2009, No. 1991 /BYT-AIDS. <http://www.vaac.gov.vn/>
- Lowndes, C.M., Alay, M., Labbe', A.C., Gnintoungbe, C., Mukenge, C., Meda, H., Ndour, M., Anagonou, S., Gbaguidi, A. (2007). Interventions among male clients of FSWS in Benin, West Africa: an essential component of targeted HIV preventive interventions. *Sex Transmission Infection* 2007 83: 577-581 originally published online October 17, 2007.
- National Institute of Hygiene and Epidemiology (2005). Vietnam population and AIDS indicator survey 2005. http://pdf.usaid.gov/pdf_docs/PNADG507.pdf
- Pickering, H., Todd, J., Dunn, D., Pepin, J., Wilkins, A. (1992). Prostitutes and their clients: a Gambian survey. *Soc.Sci.Med.* Vol. 34, No. 1, PP 75-88
- Poyah, G. (2000). Safe sex practice in the context of HIV/AIDS: an analysis of the 1988 and 1994 Zimbabwe demographic and health surveys. *Unpublished Master of Art, Mahidol University, Thailand.*
- Prata, N., Morris, L., Mazive, E., Vahidnia, F., Stehr, M. (2001). Relationship between HIV risk perception and condom use: Eviden from a population - base survey in Mozambique. *International Family Planning Perspectives* Volum 32, Number 4, December 2006.
- Tut, M.Y. (10077). Demographic surveillance system site in Thailand Condom use among young Thai men. *Unpublished Master of Art, Mahidol University, Thailand.*

- Vietnam administration of HIV/AIDS control – MOH (2007). Vietnam HIV/AIDS estimates and projections 2007 – 2012.
<http://www.unaids.org.vn/sitee/images/stories/EPP%20report%20EN.pdf>
- UNAIDS (2009), AIDS Epidemic update 2009,
http://data.unaids.org/pub/Report/2009/JC1700_Epi_Update_2009_en.pdf
- Xia, J., Kumi, S., Ray, C., Guowei, D., Yan, Y., Haibo, W., Zhu, Q.H., Dongfang, C., Guixiang, W., Ning, W. (2010) HIV prevalence and risk behaviors among male clients of FSWs in Yunnan, China. *JAIDS Journal of acquired immune deficiency syndromes*, January 2010 – volume 53 – Issue 1 – PP
- Waithaka, M., Bessinger, R. (2001). Sexual behavior and condom use in the context of HIV prevention in Kenya.
pdf.usaid.gov/pdf_docs/Pnada257.pdf
- Wang, D (2009). The impact of life on consistent condom use among Thai male youth, a study in Kachanaburi DSS, Thailand. *Unpublished Master of Art, Mahidol University, Thailand.*
- Zellner, S.L. (2003). Condom use and the accuracy of AIDS knowledge In Cote d'Ivoire, *International Family Planning Perspectives*, 29(1) 41-47

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