

**HIV/AIDS RELATED RISK BEHAVIORS AMONG MALE
INJECTING DRUG USERS (IDUs) IN SON LA PROVINCE,
VIETNAM**

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ABSTRACT

The objective of this study was to examine the risk behaviors and their determinants among Male Injecting Drug Users (IDUs), especially focusing on the effect of an HIV/AIDS intervention program on the risk behaviors of IDUs in Son La province, Vietnam. This study used the data from a cross-sectional survey of 502 male IDUs conducted by the Vietnam HIV/AIDS prevention project of the World Bank.

Results illustrated that 27.5% of IDUs reported sharing needles and syringes. 15.9% of the IDUs reported having sex with female sex workers and 30% of them used condom consistently. 56.4% of IDUs received clean needles/syringes and 33.1% of IDUs received condoms from the intervention program. IDUs with access to the program were 71% less likely to share needles/syringes than those without access ($p < 0.01$). Besides, IDUs receiving free condoms were 17.3% times more likely to use condoms with their wives/girlfriends.

By using logistic regression, it was demonstrated that the intervention program in Son La reduced the amount of these HIV/AIDS related risk behaviors of IDUs. The HIV/AIDS intervention program should be increased to guarantee the availability and accessibility of condoms, clean syringe and needle distribution to IDUs.

**KEY WORDS: HIV/AIDS/ IDUs/ PREVENTION /PROGRAM/INTERVENTION/
RISK BEHAVIOR**

45 pages

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LIST OF ABBREVIATIONS

AIDS	Acquired Immune Deficiency Syndrome
FHI	Family Health International
FSW	Female Sex Worker
HIV	Human Immune-deficiency Virus
IBBS	Integrated Biological and Behavioral Surveillance
IDU	Injecting Drug User
MARP	Most at Risk Population
MOH	The Ministry of Health of Vietnam
PAAC	Provincial Administration of HIV/AIDS Control
PLHA	People Living with HIV/AIDS
STD	Sexually Transmitted Disease
UNAIDS	The United Nations Joint Program on HIV/AIDS
VAAC	Vietnam Administration of HIV/AIDS Control
WB	World Bank
WHO	World Health Organization

CHAPTER I

INTRODUCTION

1. Background

1.1. Global overview

HIV/AIDS is a global issue as well as an emerging health and social problem. HIV infection has now spread to every country in the world. The impact of HIV and the AIDS has been particularly devastating in marginalized groups that continue to be vulnerable to infection. Globally, 2.7 million annual estimated HIV infections occurred in 2007, with 33 million adults and children estimated to be living with HIV/AIDS at the end of 2007 (UNAIDS, 2008). Approximately, 2 million HIV-related deaths in 2007 alone were attributed to HIV/AIDS, with 25 million cumulative deaths estimated to the end of 2007 (UNAIDS, 2008).

The dynamic of HIV transmission differ across the continents and are greatly influenced by culture, economics, and social condition. Sexual transmission accounts for more than 70% of all cumulative HIV infections. A further 5 to 10% is attributed to each of injection drug use, vertical transmission, and blood transfusion. Despite this low proportion of cumulative HIV infections attributed to injection drug use, it is the predominant mode of HIV transmission in most of the Eastern and Western Europe, North America, parts of Asia and increasingly in parts of North Africa. In contrast, sexual contact accounts for the majority of new infection in sub-Saharan Africa, most of the Caribbean and parts of Asia and Latin America (UNAIDS, 2008).

1.2 Country overview

Vietnam is a country which located in South-East Asia. It is bordered by China to the north, Laos to the northwest, Cambodia to the southwest, East Sea (*Biển Đông*) to the east. With a population of over 86 million, Vietnam is the 13th most populous country in the world, 27 percent of population is in rural area and 73% in

urban area, 56% in the age group 15-49. Vietnam's socioeconomic development has been significant in the last two decades and it is believed to play an important role in the development of health model including HIV epidemic in Vietnam.

Since the first HIV case was reported in Ho Chi Minh City (HCMC) in 1990, the HIV epidemic in Vietnam has spread rapidly, primarily due to the expansion of injection drug use throughout the country. Although the majority of HIV cases were IDU during the first period (from 90% in 1993 to 60% in 1997), all provinces in Vietnam currently report persons with HIV infection and an increase in the number of cases due to sexual transmission. The greatest number of reported HIV infection occur in the north, where drug use proliferates along trafficking routes and the borders of China and Laos (Beyrer et al., 2000; Hammett et al., 2005). The HIV prevalence among IDU was as high as 72% in Hai Phong in 2001, reached 75% in Quang Ninh in 2002 (MOH, 2005) and jump from 9% in 1996 to 28% in 2006 in Lang Son.

By the year 1998, HIV has been reported in all provinces and cities in the country (MOH, 2000). The estimated total number of HIV infection in Vietnam is 295.000 in 2008 and 315.000 people who would be living with HIV in 2010 (MOH & FHI, 2005). By the end of 2009, the cumulative number of HIV positive cases has been reported is 235.243 in which 78.341 cases were diagnosed as AIDS and 44.050 patients died caused by AIDS (VAAC, 2010).

1.3 Harm-reduction intervention programs in Viet Nam

The first National Strategy on HIV/AIDS Prevention and Control 2004-2010 with a vision until 2020 was drafted in 2003 and endorsed by the Prime Minister on March 17, 2004. It details a comprehensive response to HIV/AIDS whilst addressing new issues of risk reduction amongst high risk groups (of course including IDUs as one of the highest risk behavior groups), as well as care and support for PLWHA, and also seeks a reduction in stigma and discrimination. The overall objective of the strategy is to contain prevalence of HIV to below 0.3% in the general population by 2010, and to sustain this rate with no further increase beyond 2010 (MOH, 2005). The strategy encourages the involvement of PLHA themselves and also

increased involvement from non-government organizations and the public sector to achieve these goals.

The Law on HIV/AIDS and the Decree 108/2007 ND-CP has set up a solid foundation for harm reduction activities in Viet Nam. The harm-reduction program has been strongly supported by international partners (UNGASS 2006). The program has mainly focused on providing information, condoms and needles/syringes, and referral to VCT services targeting injecting drug users, female sex workers, and mobile populations. However, interventions targeting mobile populations and interventions in closed settings are still limited (UNGASS 2006). Migrants and mobile populations are included in both the National Strategy and Law; however there is no specified strategy or programme to ensure their access to prevention, treatment and care and support services as yet (UNGASS 2006)

1.3.1 Condom promotion

Condom promotion programme have been implemented in 314 out of 639 districts, in 58 provinces/cities and in Centres for Treatment, Education and Social Support for IDUs and SWs in 12 provinces. In 33 provinces covered by the DFID and WB projects, which are currently the biggest projects working on harm reduction in Viet Nam, 13.7 million condoms were distributed in the first 10 months of the year 2007. Condoms are mostly distributed through peer educator networks, with these accounting for 50% of total distributed condoms. In this project area, coverage of harm reduction activities among female sex workers has increased from 26.3% in 2005 to 65% in 2007 (UNGASS 2006)

1.3.2 Needle/syringes exchange program

The needle/syringe provision programme has expanded from 21 provinces/cities in 2005 to 42 provinces/cities by the end of June 2007. 15 There is a rapid increase in the number of needle/syringes distributed in the 33 provinces of the DFID and WB projects. Forty-three per cent (43%) of IDU in the project sites were reached by the HIV prevention programme. The average number of needles/syringes distributed per IDU per month has increased from 2.4 in 2006 to 10.7 in 2007. Positive results were seen in the high proportion of IDU using sterilized injecting equipments - 88.8% in 2006 (UNGASS 2006). However, in some provinces with high HIV prevalence, the number of communes implementing the programme remains low,

accounting for less than 10%. Distributed needle/syringe could also address only 10–15% of the need of approached IDUs (UNGASS 2006)

1.3.3 Methadone substitution treatment

Methadone substitution treatment was approved by the Government to be one of the key harm reduction interventions among IDU populations in late 2007. In the coming period, the programme is going to be piloted for around 1500 IDUs in two cities with severe drug abuse epidemics. Lesson learned from this pilot programme will be implemented when scaling up to other provinces/cities (UNGASS 2006).

2. Research problem statement

During the past 20 years, the epidemiology of drug use in Vietnam has changed, providing new challenges for the control of narcotic use, as well as HIV transmission. Prior to 1996, narcotic drug abuse occurred primarily among older men who smoked or injected black-water opium (Reid and Costigan, 2002). By 2002, approximately 80% of registered drug addicts were under age 35 (UN: “Vietnam: Country profile”, 2002). This increase in drug use among youth largely accounts for the dramatic rise in the proportion of reported HIV infections among young people: 16% of all HIV infections in 1995 were among those less than 30 years of age, compared to 69% in 2004 (MOH., 2005).

The transmission and HIV prevalence among IDUs is a major concern of HIV/AIDS prevention program in Vietnam. Injecting drug use is a key mode of HIV transmission, accounting for 56% of new HIV cases in 2008 (MOH, 2009). According to the results of annually sentinel surveillance, HIV prevalence, HIV prevalence of IDUs at national level increased from 9% in 1996 to 30% in 2005 (MOH, 2005).

Control of HIV infection is linked to control of drug abuse in Vietnam; both are managed within the Committee for AIDS and for Control of Drug Abuse and Prostitution. Since the needles syringes exchange program had implemented on wide scope in 2005, the HIV transmission trend had began to decline among IDUs over time, in 2008, HIV prevalence was down at 20% (MOH, 2009).

Son La is a mountain province in East-North Vietnam with a population of 1,080,641 people, divided into 12 ethnic groups, 82% of Son La population are minority ethnic (Thai ethnic contributes for 54.7%). Son La is located near the border with Lao, China and the National road No.6 which directly links to Ha Noi capital, therefore the area has become one of most seriously hotspots for drug trafficking in the North. Furthermore, due to quick urbanization in Son La, there are more and more seasonal migrants from neighboring areas that come to work and live in Son La, especially through national road No.6. The seasonal migrants contribute to increase the number of IDUs, commercial sex workers and HIV/AIDS cases. As reported, by 31/3/2009, among 16,592 IDUs identified in 201 sub-districts in Son La, there were 6,271 cases were infected with HIV, 1,095 cases were diagnostic as AIDS and 655 deaths caused by AIDS. The Ministry of Health estimated that HIV spreads quickly among IDUs in Son La province (22% of IDUs are infected with HIV) and occurs mainly among people aged 20-30 years old.

With the financial support from an HIV prevention project funded by the World Bank, Vietnam Administration of HIV/AIDS control (under Ministry of Health) had cooperated with Son La Department of Health to implement a 6-year project “HIV/AIDS prevention in Vietnam” in Son La province from 2005 to 2011. A baseline survey (the 1st round survey) among 360 male IDUs in 5 districts in Son La was conducted in 2005 before the implementation of HIV/AIDS prevention intervention program of the project, the result showed that HIV prevalence among IDUs in Son La in 2006 is as high as 41%, 29% of IDUs reported sharing needle/syringe and there is 26.7% among them had cleaned old needle/syringe before reusing (Dung, 2007)

This secondary-analysis research will glean information for raising awareness and understanding of high risk behaviors among IDUs as a public health issue. This research is essential as it will examine whether HIV/AIDS intervention program has any impact on IDU's risk behaviors after 3 years of implementation. It is important to recognize that potential intervention needs to be responsive to help describe the risk factors in which the unsafe behavior occurred. The result of this analysis might have a profound impact on the nature of future initiatives and intervention programming in Son La.

3. Research Question

What are the practices of HIV prevention behavior among IDUs in Son La province?

Does exposure to HIV/AIDS harm-reduction program have any effect on HIV/AIDS related risk behavior of IDUs?

4. Objectives

4.1 Ultimate objective:

Provide significant analytical information for policy and program makers (managers) to formulate a more effective intervention program campaign in the next period in Son La province to prevent HIV infection among injecting drug users.

4.2 Immediate objectives:

- To examine the risk behaviors of IDUs in Son La province
- To identify the determinants of risk behaviors among IDUs in Son La province
- To examine the effect of HIV/AIDS prevention program on risk behavior of IDUs

CHAPTER II

LITERATURE REVIEW

1. HIV infection among injecting drug users

Millions of people worldwide are injecting drug users (IDUs), and blood transfer through the sharing of drug taking equipment, particularly infected needles, is an extremely effective way of transmitting HIV. Around 30% of global HIV infections outside of sub-Saharan Africa are caused by the use of injecting drugs, and it accounts for an ever growing proportion of those living with the virus. HIV infection among injection drug users is a global health concern. HIV infection among injection drug users is a global health concern. Injection drug use has been reported in 148 countries worldwide and HIV infection has been found among IDU populations in 120 countries (Mathers et al., 2008). Extrapolated estimates suggest that 15.9 million (range from 11.0-21.2 million) people might inject drugs worldwide; the largest numbers of injectors were found in China, the USA, and Russia, where mid-estimates of HIV prevalence among injectors were 12%, 16%, and 37%, respectively. HIV prevalence among injecting drug users was 20-40% in five countries and over 40% in nine. It is estimated that, worldwide, about 3.0 million (range 0.8-6.6 million) people who inject drugs might be HIV positive (Mathers et al., 2008)

In Asia, it is estimated that among the 7.4 million people infected with HIV, more than 50% are IDUs from parts of Thailand, Nepal, Indonesia, Myanmar and the state of Manipur in India. Furthermore, HIV epidemic are now occurring among IDUs in various provinces in China and Viet Nam (WHO, 2005). Sharing syringes and needles when injecting drugs is the easiest way of HIV transmitted. As a result, HIV prevalence can increase very quickly among injecting drug users. Several countries and area in Asia have seen HIV infection levels soar from zero to 40% or higher in only few years. In the Nepalese capital, Kathmandu, HIV prevalence was 68% among IDUs in 2003, while in Vietnam's northern port city of Hai Phong, 66% tested HIV positive in 2006. In Lashio, close to Myanmar's border with China, 60% of

injecting drug users found be infected in 2004. In Karachi (Pakistan), HIV prevalence among injecting drug users rose from under 1% in 2004 to 26% in 2005 (Commission on AIDS in ASIA, 2008).

In Vietnam, HIV epidemic is concentrated in high risk population, mainly in IDUs, more than half of new HIV cases who reported annually was IDUs. HIV prevalence of IDUs was 20.3 at national level in 2007, nevertheless, some provinces/cities have very high HIV prevalence among IDUs with more than 40-60% as Ha Noi, Ho Chi Minh city, Hai Phong, Dien Bien, Thai Nguyen, the most provinces with high HIV prevalence of IDUs is in Northern regions (MOH, 2007). It is estimated that there are about 60.000 IDUs living with HIV/AIDS in 2005, it will continue to contribute substantially to the national epidemic (MOH&FHI, 2005).

2. Socio-economic-demographic factors and HIV infection among IDUs

Socio-economic-demographic factors like age, education, occupation, marital status, ethnic group, are characteristic of marginalized populations that have been vulnerable to HIV since the start of the epidemic.

Many studies showed that there was a relationship between socio-demographic factors, HIV/AIDS knowledge, high-risk behavior and HIV infection among IDUs. Identified socio-demographic factors included marital status, low education, young age, unemployment, family financial dependent (Burchell et al., 2003; Hammett et al. 2005; Thao, Lindan, Brickley, &Giang, 2006; Wylie, Shah, &Jolly, 2006), unstable housing (Agha, Parviz, Younus, &Fatmi, 2003), and ethnic minority (Aitken, Higgs, &Bowden, 2008). However, study on IDUs in Son La province, Vietnam in 2006 showed that there was no relationship between the education status, age, mass media exposure, and high risk behavior (Dung, 2007). Other study in China also did not find the relationship between education, income, and HIV infection (Jia et al., 2008).

3. Syringes/needle sharing behavior and HIV infection

Despite widespread knowledge of safer injection behaviors, syringes/needle sharing in populations of IDUs continues. All studies have explored

determinants of syringe/needle sharing related to HIV infection among IDUs (Carey et al., 2005, Quan, Chung, & Abdul-Quader, 1998; Quan et al., 2009). A study in Bac Ninh province, Vietnam showed that IDUs who reported sharing needle in the past six months were 2.8 more likely to be infected HIV than IDUs who reported not sharing needles in the last six months (Quan et al., 2009). Another study in China showed that IDUs who ever shared needle were 1.4 time more likely to get HIV infection than IDUs never shared needle. This study also showed that IDUs who had more than one person shared needle at last injection were 1.8 time more likely to get HIV infection than IDUs who had one person or none shared needle at last injection (Jia et al., 2008). Especially, the result of study in Son La province, Vietnam, 2006 showed that IDUs who shared needles are 71% more likely to be infected with HIV than the IDUs who not shared needles.

4. Sexual risk behavior and HIV infection among IDUs

Male infected IDUs can introduce the virus into the sex trade as buyers (male injectors buy sex from sex workers or non-regular partners whom they infect), or as giver (male IDUs have sex with their wives or girlfriends, whom they infect).

Reconstruction of the evolution of the HIV epidemic in Jakarta (Indonesia), shows that the roughly 40,000 people who inject heroin in that city can have a dramatic effect on the HIV epidemic, as illustrated

HIV infection among IDUs has been associated with a range of sexual behaviors with somewhat contradictory results. An increased risk of HIV with an increasing number of sexual partners has been reported in some populations (Mathers et al., 2008; Quan et al., 2009). Some studies showed that there is a relationship between unsafe sexual intercourse and HIV infection (Bruneau et al., 2001; Quan et al., 2009). However, some studies showed there is no relationship between sexual behavior and HIV infection (Dung, 2006; Jia et al., 2008).

5. The effect of HIV/AIDS harm-reduction prevention program on IDU's risk behaviors

Harm reduction is a pragmatic and humanistic approach to diminishing the individual and social harms associated with drug use, especially the risk of HIV infection. It

seeks to lessen the problems associated with drug use through methodologies that safeguard the dignity, humanity and human rights of people who use drugs. This approach is based on the pragmatic acknowledgement that, despite years of trying, there are no known effective interventions for eliminating drug use or drug-related problems in any community, city, or country. In most cultures, adopting a harm reduction approach requires a shift in thinking away from deeply rooted, and understandable, long-term idealistic goals of eliminating drug use and getting all drug users to become drug free.

Harm reduction does not deny the value of helping people become drug free, or the desirability of abstinence as an eventual goal. It simply recognizes that for many drug users these are distant goals and that services to reduce the risk in the interim are therefore essential if personal and public health disasters are to be avoided. Recognizing the reality of drug use, harm reduction programs measure success in terms of individual and community quality of life and health and not in relation to levels of drug use.

Harm reduction entails a prioritization of goals. Given the high individual and social costs associated with AIDS, measures to prevent the spread of HIV are at the forefront of harm reduction priorities. Harm reduction uses a range of services to achieve its goals. Needle exchanges and replacement therapy treatment are the two of the most effective interventions to reduce drug-related harm. These are often complemented by other supportive services for drug users such as health and drug education, HIV and STD screening, psychological counseling, and medical referrals. By providing accessible services that meet drug user needs, harm reduction programs often serve as a meaningful point of contact that can connect drug users with other community, medical, and social service resources.

Numerous studies confirm that the simple act of exchanging clean needles for used ones can have dramatic effects - especially in reducing the rate of HIV infection among drug users. Needle and syringe exchange program has been the subject of widespread scientific evaluation over the past 15 years. These studies have confirmed that needle and syringe programs do not lead to higher rates of illegal drug use or injecting and can: Reduce HIV seroprevalence; reduce the need to use a needle more than once; and provide an access point for a large disadvantaged group to health

and other services. US studies have found that needle and syringe provision can decrease HIV-risk injecting behavior by up to 73%.² A study of 81 cities around the world compared HIV infection rates among injecting drug users in cities that had needle and syringe provision with those that did not. In 52 cities without needle and syringe program for injecting drug users, HIV infection rates increased by an average of 5.9% per year. In 29 cities with needle and syringe program, HIV infection rates decreased by an average of 5.8% per year. An international comparison of five cities which prevented HIV epidemics among injecting drug users for at least five years found that there were three similarities between them:

Prevention efforts were initiated early, when less than 5% of injecting drug users were infected with HIV. Outreach was used to build trust between health workers and injecting drug users, to provide information about HIV testing and counseling and drug treatment and to distribute HIV prevention information, needles, syringes and condoms. Needle and syringe provision was well established and 20-33% of all injectors in each city were regular users of the service.

Needles and syringes were also easily available for sale at low cost in four of the five cities. In California (USA), the effects of needle and syringe provision were studied over a five-year period.⁵ The needle and syringe program did not encourage drug use either by increasing drug use among current injecting drug users, or by recruiting new or young injectors. In fact, injection frequency amongst injecting drug users in the community decreased from 1.9 injections per day to 0.7, and the percentage of new initiates into injecting drug use decreased from 3% to 1%.

Australian needle and syringe programs were evaluated in 1991.⁶ It was found that they had saved an estimated 3,000 lives in that year at a cost per life saved of approximately US \$200. The savings in HIV treatment costs for that year were estimated to be about US \$150 million.

These effects are not achieved by the distribution of injecting equipment alone. In most countries, needle and syringe provision has been accompanied by programs to educate drug users about the need to use sterile injecting equipment, and the development of treatment and other services which can reduce drug-related harm. In the Russian Federation, needle and syringe provision has been established by NGOs in St Petersburg, Yaroslavl, and Volgograd, and by AIDS centers in Pskov, Rostov-on-

Don and Novorissisk. In Penza in the south of Russia, a small needle and syringe program was started by epidemiologists and narcologists from within the city's narcology center, though it later moved to a site more convenient to the area where most of the city's drug users live. More than 35 needle and syringe programs have opened in the Russian Federation during 1999-2000.

In Poltava and Mykolayev, Ukraine, non-government organizations (NGOs) run a needle and syringe program with volunteers who receive comprehensive training. They also produce a wide range of leaflets on drugs, HIV/AIDS, sex and the law. In Odessa, three needle and syringe programs started by the city's AIDS center were later taken over by a NGO; and at least 15 other cities have started programs in the past two years.

Behavioral intervention such as needles and syringes exchange, condom distribution, and behavior change communication for IDUs has been shown to be successful in reducing their risk behaviors. Many studies have been conducted to evaluate preventive intervention aimed at reducing sexual risk and sharing of needles and syringed among IDUs. A meta-analytic review of sharing needles among IDUs in United State showed that such intervention was highly effective in reducing unsafe drug injection (Ksobiech, 2003). A research of behavioral intervention for IDUs in Vietnam found that these interventions were effective in reducing risk behaviors (Huong, 2008; Thanh et al., 2008). Recently, a research in Thanh Hoa, province showed that IDUs who access to the intervention program were 64% less likely to share needles than those who did not have access (Son, 2009).

Unfortunately, HIV prevalence in IDUs does not decline as swiftly as it rises. Once prevalence reaches high levels, it can take many years of intensive and wide-scale prevention efforts to bring infection rates down again. Success stories from industrialized countries show that it takes 7 to 10 years before a substantial drop in prevalence is observed.

The most effective course of action is to prevent HIV infections among IDUs before prevalence soars. In countries and regions where the opportunity still exists, early intervention will be far easier and cheaper than trying to curb rampant HIV spread among IDUs and their sexual partners. In China, Hong Kong Speical

Administrative Region (Hong Kong SAR) opted for this route, and its harm-reduction programme has helped keep HIV prevalence among drug IDUs low for many years. Several countries in Asia (for example, Bangladesh, China, India, Indonesia, Malaysia, Nepal, and Viet Nam) have started programmes to provide sterile needles and methadone or other oral substitutes to IDUs. These are important steps forward. But most of these programmes are small and reach only a fraction of the people who require such services; limited coverage means limited impact on the HIV epidemic. Only in parts of India and China (notably Hong Kong SAR) are HIV prevention programmes for IDUs currently being implemented on a scale large enough to have an effect on HIV spread at the national level.

Preventing an HIV epidemic among IDUs can be a very effective way of avoiding a wider HIV epidemic. First, it would prevent a critical mass of infection building up in the sex trade, and second, it would limit HIV being passed on to the non-commercial sex partners of drug injectors. However, at the current stage of the epidemic, the option of preventing it among networks of IDUs is no longer available; for example, in Indonesia, Malaysia, Myanmar, Nepal, Thailand, Viet Nam, and parts of China and India. In those places, HIV prevalence among injecting IDUs is already high, and a substantial proportion of new HIV infections are the result of the sharing of contaminated injecting equipment or unprotected sex with an infected IDU.

4. Conceptual Framework

Based on literature review, as well as its finding, this study adopts the conceptual framework shown as below:

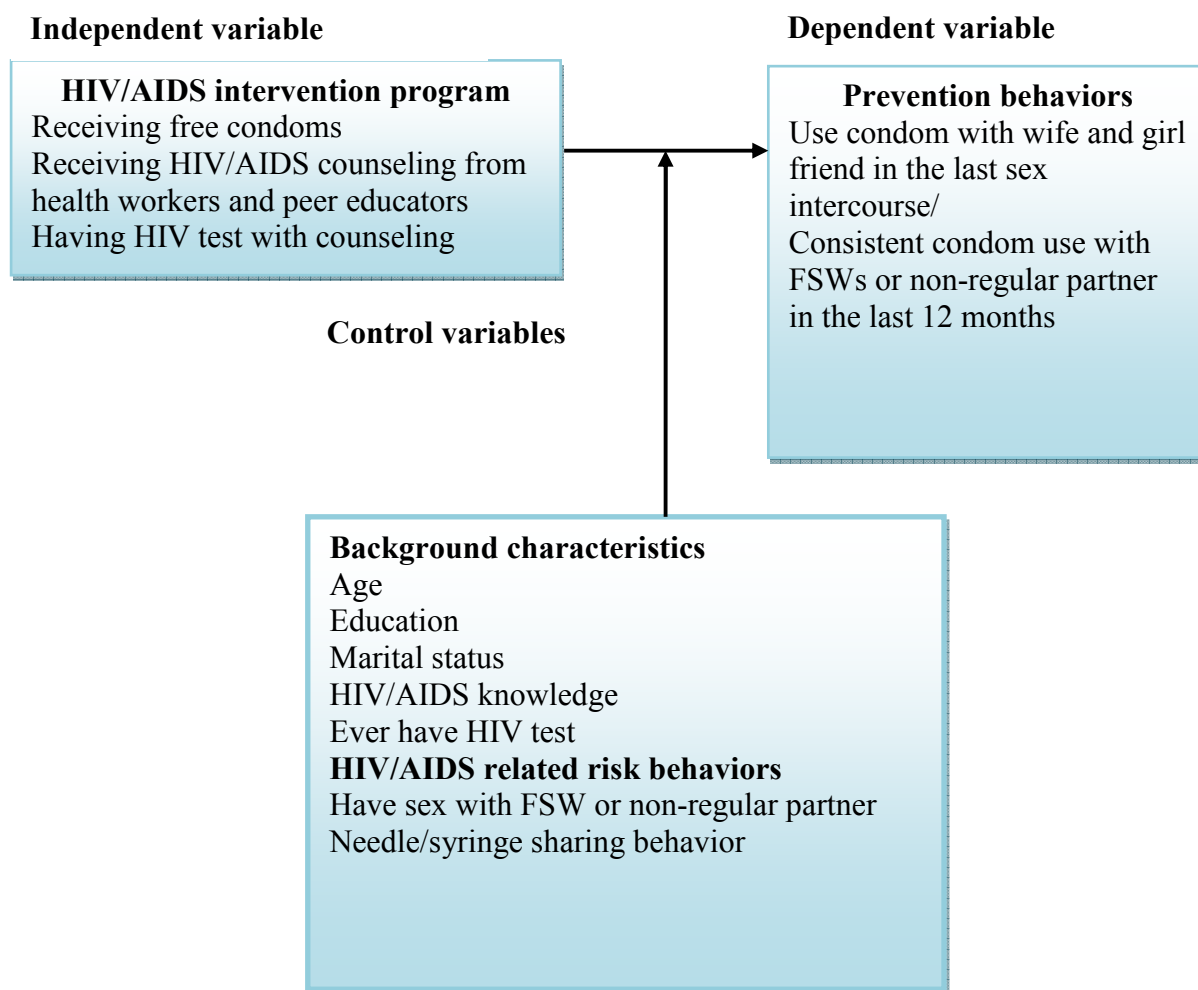


Figure 2.1: Conceptual framework on prevention sexual behaviors of IDUs

In relation to the research question and objectives of interest, the frameworks show the focus of the examination on relationship between the behaviors – non-sharing needle/syringe and using condom among IDUs (dependent variables) and outcomes of HIV/AIDS intervention program – receiving free needle, receiving free condom and receiving HIV/AIDS counseling (independent variables). The

individual characteristic such as socio-demographic factors, HIV/AIDS knowledge, ever had HIV test are considered as control variables.

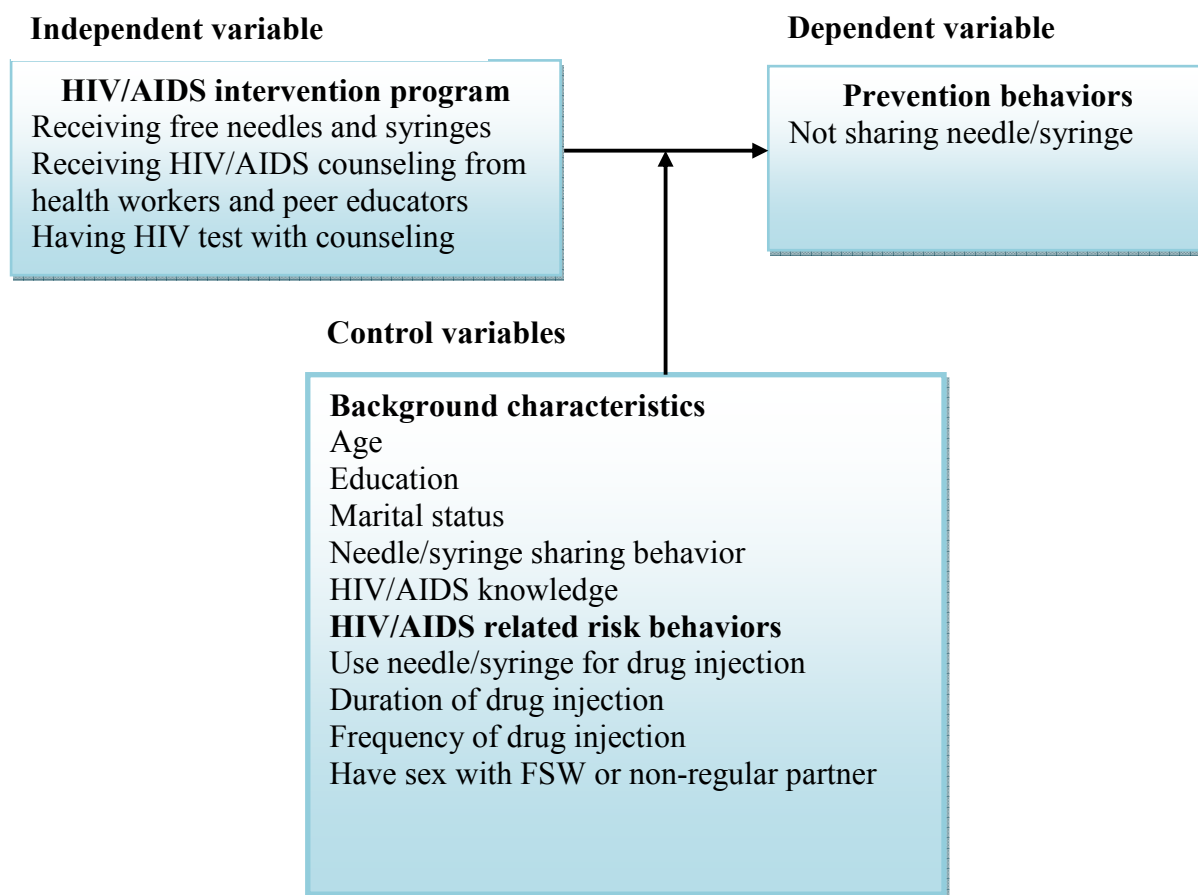


Figure 2.2: Conceptual framework on prevention injecting behaviors of IDUs

5. Hypotheses:

- IDUs with access to the HIV/AIDS harm-reduction program are less likely to practice unsafe injecting behaviors than those without access.
- IDUs with access to the HIV/AIDS harm-reduction program are more likely to engage in safe sexual behaviors than those without access.

CHAPTER III

RESEARCH METHODOLOGY

1. Source of data

This study will use the secondary data from the KABP (Knowledge, Attitudes, Belief and Practice) cross sectional survey of 502 male IDUs on their risk behaviors and HIV status to support an evaluation of HIV/AIDS prevention project funded by World Bank. The survey was conducted from October to December 2009 in 5 districts of Son La province including Son La downtown, Moc Chau, Mai Son, Thuan Chau, Muong La.

2. Study area

The study area is located in Son La province situated in East-North Vietnam with a population of nearly 1.080.641 people, divided into 12 ethnic groups, 82% of Son La population are minority ethnic (Thai ethnic contributes for 54.7%). Son La is located near the border with Lao and China.

3. Sampling and study population

502 IDUs included in this survey were selected to interview by snowball sampling method based on the peer educators of project. Those were 15 years of age or older, residents of the study area, and committed drug injection at least one time during the 6 months from the previous to survey time. The local health care workers in charge of the HIV program at commune health centers then made a contact to invite them to participate in the study.

The questionnaire was set up in 10 parts, as follow:

Part 1: Personal characteristics and level of access with mass media; Part 2: History of drug use; Part 3: Syringes/needles sharing behavior; Part 4: Marital status and sexual partners; Part 5: Sexual history: Number and types of sexual partners; Part 6: Sex with regular partner; Part 7: Sex with commercial sex partners; Part 8: Sex with non-regular

partners; Part 9: Sexually transmitted disease; Part 10: Knowledge, beliefs and attitudes on HIV/AIDS

Table 3-1: Descriptions of variables

Variable	Description	Scale of measurement
Background characteristics of IDUs		
Age	Age of IDUs by the time of survey	Nominal 1: ≤24 2: 25-34 3: ≥35
Education	Highest level of education of IDUs	Ordinal 0 = Illiterate 1 = Primary 2 = Secondary school 3 = High school and higher
Occupation	Occupation for living of IDUs	Nominal 0 = Farmer 1 = Others
Employment status	Employment status of the respondent	Dummy 0 = unemployed, 1 = employed
Knowledge on HIV/AIDS	HIV/AIDS prevention Knowledge of IDUs calculated by score of 11 question and divided into 2 groups	Ordinal 0 = Poor 1 = Good
HIV/AIDS related risk behaviors		
Use needles/syringes for drug injection	Use needles/syringes for drug injection during the last month	Nominal 0 = No 1 = Yes
Have sex with FSW or non-regular partner	Have sex with FSW or non-regular partner during 12 last months	Nominal 0 = No 1 = Yes
Duration of drug injection	Period that IDUs injected drug from first injection to the time of survey	Nominal 0 = less than 4 years 1 = 4 years and more
HIV/AIDS intervention program outcomes		

Receiving HIV/AIDS counseling from health workers, peer educators during last 6 months	IDUs who reported to receive HIV/AIDS counseling from health worker, peer educators during last 6 months	Nominal 0 = No 1 = Yes
Having HIV test with counseling from counselors at VCT rooms	IDUs who reported to receive HIV test with counseling from counselors at VCT rooms during last 6 months	Nominal 0 = No 1 = Yes
Receiving free needles from health workers during last 6 months	IDUs who reported to receive free needle from peer or health worker during last 6 months	Nominal 0 = No 1 = Yes
Receiving free condom from health workers during last 6 months	IDUs who reported to receive free condom from peer or health worker during last 6 months	Nominal 0 = No 1 = Yes
HIV/AIDS related prevention behaviors		
Sharing needles and syringes	Whether an IDU received needles from or passed needles on to other IDUs during the last month	Nominal 0 = No 1 = Yes
Use condom with wife and girlfriend at the last sexual intercourse	Whether an IDU had sexual intercourse and used a condom with wife or girlfriend at the last sexual intercourse	Nominal 0 = No 1 = Yes
Use condom consistently with FSWs or non-regular partners at the last 12 months	Whether an IDU had sexual intercourse and always use condom with FSW or non-regular during last 1 year	Nominal 0 = No 1 = Yes

4. Method of Data Analysis

This analysis will be performed two steps: first uses descriptive statistic and second step will apply the logistic regression.

- Descriptive statistic with frequencies will be used to describe basic demographic characteristics (age, education, marital status, ethnic group...), drug injecting and related characteristics, HIV/AIDS knowledge, current status

on high risk behaviors and accessing level with HIV/AIDS intervention program.

- Bivariate analysis such as cross tabulation, chi-square were used to examine the difference of risk behaviors with different the demographic characteristic, sexuality, drug usage, HIV knowledge and accessing program.
- Multivariate logistic regression analysis will be performed to provide adjusted parameter estimates. The association between possible factors and risk behaviors (predictors and outcome) will be evaluated. The Odds ratio will be calculated to estimate and measure the association.

Table 3-2: Models of multivariate logistic regression analysis

Independent variable	Dependent variable					
	Model 1		Model 2		Model 3	
	Use clean needles/syringes		Use condom with regular partner		Use condom consistently with non-regular partner	
Age	A	B	C	D	E	F
Education	X	X	X	X	X	X
Occupation	X	X	X	X	X	X
Duration of drug use injection	X	X				
Frequency of drug injection	X	X				
Have sex with FSW or non-regular partner	X	X	X	X		
HIV/AIDS knowledge	X	X	X	X	X	X
Sharing needle/syringe		X	X	X	X	X
Receiving HIV/AIDS counseling		X		X		X
Having HIV test with counseling		X		X		X
Receiving free needle/syringe		X				
Receiving free condom				X		X

CHAPTER IV

RESEARCH FINDINGS AND DISCUSSION

This study was conducted among 502 male injecting drug users at the age between 16 and 67, who were living in Son La province (Vietnam) where is supported by a HIV/AIDS intervention program for IDUs funded by World Bank project.

The sections included in this chapter are: (1) Background characteristics of IDUs; (2) HIV/AIDS related injecting and sexual behaviors; (3) Accessibility of HIV/AIDS intervention program's services; (4) Background characteristics and accessibility of intervention program with HIV/AIDS prevention behaviors outcomes of IDUs; (5) Binary logistic regression on HIV/AIDS prevention behaviors outcomes.

A. Research findings

Table 4-1: Percentage distribution of background characteristics of IDUs

Background Characteristics	Frequency	Percentage	
	n	%	
Level of education			
No education	34	6.8	
Primary school	122	24.3	
Secondary school	204	40.6	
High school or higher	142	28.3	
Total	502	100	
Occupation			
Farmer	280	59.1	
Others	194	40.9	
Total	474	100	
Age			Mean:
Less than 25	135	26.9	32.78
			Min: 16

25 - 34	152	30.3	Max: 67
35 and higher	215	42.8	SD: 9.2
Total	502	100	
Knowledge on HIV/AIDS			
Good	384	76.5	
Poor	93	18.5	
Total	477	100	

The general background characteristics of IDUs are displayed in Table 4.1 including level of education, occupation, age and knowledge on HIV/AIDS. Among 502 IDUs participated in the research, 6.8% of them are illiterate, 24.3% of them have primary school level and the major part has secondary school level (40.6%). More than a half of them are farmers (59.1%). Their average age is 32.78 with the youngest is 16 and the oldest is 67. 76.5% of them those answered correctly 7 or more out of 10 questions on HIV/AIDS are considered as having good knowledge on HIV/AIDS in this research.

Table 4.2 Percentage distribution of IDUs regarding their HIV/AIDS related injecting behaviors

HIV/AIDS related injecting behaviors	Frequency	Percentage
	n	%
Frequency of injection		
Less than 1 time per day	116	23.1
1 time per day	181	36.1
More than 1 time per day	200	39.8
Total	497	100.0
Duration of injection		
Less than 4 years	273	55.4
4 years and higher	220	44.6
Total	493	100.0

Sharing needles and syringes during the last month		
Sharing needles/syringes	138	27.5
Not sharing needles/syringes	364	72.5
Total	502	100.0

According to the characteristics of drug injection behaviors, 44.6% of respondents had been injecting for 4 years or longer. 39.8% of those IDUs reported injecting drug twice or more per day.

A result must be paid attention is the proportion of IDUs who reported sharing needles and syringes in the last month is 27.5% which is much higher than the results of other studies like in Thanh Hoa (15%) (Son., 2009), Quang Ninh (16.7%), Da Nang (16.6%), Hai Phong (17.4%) (MOH & FHI, 2006). Although this proportion is lower than the result from the study in year 2006 in Son La (34.7%) (Dung., 2007) but we need to consider and study more about the HIV epidemic in Son La.

Table 4.3 Percentage distribution of IDUs regarding their HIV/AIDS related sexual behaviors

HIV/AIDS related sexual behaviors	Frequency	Percentage
	n	%
Have sex with FSW or non-regular partner during the last 12 months		
Yes	80	15.9
No	422	84.1
Total	502	100.0
Use condom consistently with FSW or non-regular partner during the last 12 months		
Yes	24	30
No	56	70
Total	80	100.0
Use condom with wives or girlfriends at the last sex intercourse		
Yes	111	32.8
No	227	67.2
Total	338	100.0

Table 4.3 showed that during the last 12 months before the research, there are 15.9% of respondents reported having sex with FSWs or un-regular partners. Among those who had sex with FSWs or un-regular partners (n=80), there is only 30% reported using condom all the times.

The proportion of using condom with wives or girlfriends at the last sexual intercourse is 32.8%.

Table 4.4 Percentage distribution of IDUs regarding the accessibility of intervention program

Accessibility of HIV/AIDS intervention program's services	Frequency	Percentage
	n	%
Receiving needles/syringes from the intervention program during the last 6 months		
Yes	283	56.4
No	219	43.6
Total	502	100.0
Receiving condom from the intervention program during the last 6 months		
Yes	166	33.1
No	336	66.9
Total	502	100.0
Receiving counseling on HIV/AIDS prevention during the last 6 months		
Yes	366	72.9
No	136	37.1
Total	502	100.0
Ever had HIV/AIDS test		
Yes	92	22.1
No	324	77.9
Total	416	100.0

Regarding to the accessibility of intervention program, Table 4.4 showed that 56.4% of IDUs reported receiving clean needles/syringes during the last six month, while only 33.1% of them reported receiving condom from the program.

There are 22.1% of respondents had gone to VCT rooms and had HIV test as well as receiving counseling from the counselors.

72.9% of those IDUs also reported receiving counseling on HIV/AIDS from different people (peer educators, health workers, friends...).

Table 4.5 Background characteristics of IDUs with their HIV/AIDS prevention behaviors

Variables	Sharing needles/syringes			Consistent use condom with FSW or non-regular partners			Use condom at the last sexual intercourse with wife/girlfriend		
	Yes %	No %	N	Yes %	No %	N	Yes %	No %	N
Level of education									
No education	17.6	82.4	34	66.7	33.3	3	28.6	71.4	21
Primary school	28.7	71.3	122	10.0	90.0	20	29.5	70.5	88
Secondary school	24.5	75.5	204	37.0	63.0	27	35.5	64.5	141
High school or higher	33.1	66.9	142	33.3	66.7	30	33.0	67.0	88
N			502			80			338
Occupation									
Farmer	26.1	73.9	280	29.7	70.3	38	34.0	66.0	197
Others	24.7	75.3	194	26.3	73.7	36	34.4	65.6	122
N			474			74			319
Age									
Less than 25	33.3	66.7	135	33.3	66.7	30	34.2	65.8	73
25 - 34	31.6	68.4	152	32.1	67.9	28	39.3	60.7	107
35 and higher	20.9	79.1	215	22.7	77.3	22	27.8	72.2	158
N			502			80			338

From Table 4.5, base on the level of educational level, the data showed that the highest educational level (high school or higher) have the highest proportion of sharing needles/syringes (33.1%). The primary level group's proportion of using condom with FSWs or un-regular partners is lowest (10%) while the secondary level

group have highest condom use with wives or girlfriends at the last intercourse (35.5%).

Regarding occupation groups, there is not much difference between farmer group and other group in sharing needles (26.1% versus 24.7%), use condom with FSWs (29.7% versus 26.3%) as well as with wives or girlfriends (66.0% versus 65.6%)

Considering the age groups, the group under 25 years old sharing needled much more than group above 35 years old (33.3% versus 20.9%), but the proportion of using condom with FSWs or un-regular partners of group under 25 is higher than group above 35 also (33.3 versus 22.7).

Table 4.6 Drug use behaviors and sexual behaviors of IDUs with their HIV/AIDS prevention behaviors

Variables	Sharing needles/syringes			Consistent use condom with FSW or non-regular partners			Use condom at the last sexual intercourse with wife/girlfriend		
	Yes %	No %	N	Yes %	No %	N	Yes %	No %	N
Duration of injection									
> 4 years	27.3	72.7	220	25.0	75.0	36	32.5	67.5	151
<= 4 years	27.1	72.9	273	34.9	65.1	43	33.9	66.1	180
N			493			79			331
Frequency of injection per day									
Less than 1 time	23.3	76.7	200	26.1	73.9	32	36.3	63.7	127
1 time	30.4	69.6	181	33.3	66.7	24	38.5	61.5	117
More than 1 time	37.0	73.0	116	31.3	68.8	23	25.2	74.8	91
N			497			79			335
Knowledge on HIV/AIDS									
Good	25.5	74.5	384	33.9	66.1	62	34.3	65.7	248
Poor	35.5	64.5	93	18.8	81.3	16	35.6	64.4	73
N			477			78			321

Variables	Sharing needles/syringes			Consistent use condom with FSW or non-regular partners			Use condom at the last sexual intercourse with wife/girlfriend		
	Yes %	No %	N	Yes %	No %	N	Yes %	No %	N
Have sex with FSW or non-regular partner during the last 12 months									
Yes	46.7	53.3	79	30.0	70.0	79	33.0	67.0	50
No	24.9	75.1	422				32.0	68.0	288
N			501						338

The group injecting twice or more per day had the highest proportion of sharing needles (37%). The data showed that the group injecting less than 1 time per day had the lowest condom using with FSWs or un-regular partners (26.1%).

25.5% of IDUs who has good knowledge on HIV/AIDS reported sharing needles/syringes while 35.5% of those who has poor HIV/AIDS knowledge shared needles. Those have good HIV knowledge would use condom with FSW rather than those who have poor knowledge on HIV (33.9% versus 18.8%).

A high proportion of IDUs who had sex with FSWs reported sharing needles/syringes (46.9%). The proportion of IDUs who had sex with FSWs or un-regular partners use condom consistently is 30%. This is a high risk combination behavior which makes the HIV transmission become more serious.

Table 4.7 Accessibility of HIV/AIDS intervention program to IDUs with their HIV/AIDS prevention behaviors

Variables	Sharing needles/syringes			Consistent use condom with FSW or non-regular partners			Use condom at the last sexual intercourse with wife/girlfriend		
	Yes %	No %	N	Yes %	No %	N	Yes %	No %	N
Receiving needles/syringes from the program during the last 6 months									
Yes	15.2	84.8	283						

Variables	Sharing needles/syringes			Consistent use condom with FSW or non-regular partners			Use condom at the last sexual intercourse with wife/girlfriend		
	Yes %	No %	N	Yes %	No %	N	Yes %	No %	N
No	43.3	56.7	219						
N			502						
Receiving condom from the intervention program during the last 6 months									
Yes				50.0	50.0	36	70.1	29.9	117
No				13.6	86.4	44	13.1	86.9	221
N						80			338
Receiving counseling on HIV/AIDS prevention during the last 6 months									
Yes	22.1	77.9	366	35.1	64.9	57	36.4	63.6	250
No	41.9	58.1	136	17.4	82.6	23	22.7	77.3	88
N			502			80			338
Having HIV test with counseling									
Yes	30.4	69.6	92	33.3	66.7	12	46.3	53.7	67
No	30.2	69.8	234	23.2	76.8	56	29.0	71.0	245
N			416			68			312

Table 4.7 indicated that IDUs who received needles and syringes from program during the last 6 months have proportion of sharing needles likely less than who did not (15.2% versus 43.3%).

50% of those who received condom from the intervention program use condom consistently with FSWs or non-regular partners while there is only 13.6% of those who did not received free condom reported use condom. In addition, from the data on this table, it showed that 70.1% of IDUs who received free condoms would

use it with wives or girlfriends at the last sex intercourse and only 13.1% of those who did not received free condom used it with wives or girlfriends.

For IDUs who received counseling on HIV/AIDS, 35.1% of them used condoms consistently with FSWs/un-regular partners and 36.4% of them use condoms with wives/girlfriends; while IDUs who did not received counseling

The proportions use condom consistently with FSWs and at the last sex intercourse with wives of IDUs who have ever had HIV test with counseling at VCT rooms are 33.3% and 46.3% respectively. While these proportions of IDUs who have never had HIV test at VCT rooms are 23.2% and 29% respectively.

Table 4.8 Binary logistic regression analysis on sharing needles/syringes behavior

Variables	Sharing needles/Syringes	
	Model A (OR)	Model B (OR)
Level of education		
No education [®]	1	1
Primary school	1.69	1.63
Secondary school	1.35	1.57
High school or higher	1.77	1.85
Occupation		
Farmer [®]	1	1
Others	1.18	1.38
Age		
Less than 25 [®]	1	1
25 - 34	0.96	0.73
35 and higher	0.50*	0.36*
Knowledge on HIV/AIDS		
Good [®]	1	1
Poor	1.36	1.10
Frequency of drug injection per day		
Less than 1 time per day [®]	1	1
1 time per day	1.24	1.68
More than 1 time per day	1.38	1.86
Duration of drug injection		
Less than 4 years [®]	1	1
4 year and longer	0.87	1.14

Variables	Sharing needles/Syringes	
	Model A (OR)	Model B (OR)
Have sex with FSWs or un-regular partners during the last 6 months		
Yes	2.24*	2.16*
No [®]	1	1
Ever had HIV/AIDS test and get counseling at VCT room		
Yes		0.70
No		1
Receiving needles/syringes from the intervention program during the last 6		
Yes		0.29***
No [®]		1
Receiving counseling on HIV/AIDS prevention during the last 6 months		
Yes		0.60
No [®]		1
<i>N</i>	445	362
<i>Model chi-square</i>	22.65*	59.44***
<i>R square</i>	0.04	0.14

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; [®] Reference group

Model A depicts the adjusted odd ratios of sharing needles/syringes behavior outcome of IDUs by independent variables as: education, occupation, age, knowledge on HIV/AIDS, duration of injection, frequency of injection, having sex with FSWs. Model A including those variables together can explain for 4% of the variation of sharing needles/syringes behavior, significant at level 0.05.

Among control variables, age, having sex with FSWs/un-regular partners have significant associations with the sharing needles/syringes behaviors. IDUs who are 35 years old and older are 50% less likely to share needles/syringes than those who are under 25 years old ($p < 0.05$). Sexual intercourse with FSWs/un-regular partners increased probability of sharing needles of IDUs 2.24 times ($p < 0.05$)

Model B is complemented with HIV/AIDS intervention program variables as: receiving clean needles/syringes, receiving counseling on HIV/AIDS, taking HIV test with counseling. Model B can explain the variation of needles/syringes sharing behavior of IDUs by 14%, significant at level 0.001.

In model B, the result shows that IDUs who received clean needles/syringes from intervention program are 70% less likely to share needles/syringes than those who did

not ($p < 0.001$). The data does not indicate that receiving counseling on HIV/AIDS and taking HIV test have significant effect on needle sharing behavior.

Model B can explain for more variation of needles sharing behavior than model A (14% versus 4%). Age and having sex with FSWs have significant effect on needle sharing behavior on both models ($p < 0.05$).

In conclusion, the intervention program variables have a significant effect on increasing the prevention behavior (not sharing needles/syringes) of IDUs.

Table 4.9 Binary logistic regression analysis on condom use with FSWs or un-regular partners of IDUs

Variables	Consistent use condom with FSWs or un-regular partners during the last month	
	Model C (OR)	Model D (OR)
Level of education		
No education [®]	1	1
Primary school	14.4	11.9
Secondary school	2.50	2.68
High school or higher	4.27	2.80
Occupation		
Farmer [®]	1	1
Others	0.80	0.92
Age		
Less than 25 [®]	1	1
25 - 34	0.88	0.85
35 and higher	1.27	2.32
Knowledge on HIV/AIDS		
Good [®]	1	1
Poor	1.26	1.84
Frequency of drug injection per day		
Less than 1 time per day [®]	1	1
1 time per day	0.55	0.44
More than 1 time per day	0.49	0.60
Duration of drug injection		
Less than 4 years [®]	1	1
4 year and longer	0.87	0.55

Variables	Consistent use condom with FSWs or un-regular partners during the last month	
	Model C (OR)	Model D (OR)
Sharing needles/syringes during the last months		
Yes	1.17	0.65
No [®]	1	1
Ever had HIV/AIDS test and get counseling at VCT room		
Yes		2.21
No [®]		1
Receiving condoms from the intervention program during the last 6 months		
Yes		1.51
No [®]		1
Receiving counseling on HIV/AIDS prevention during the last 6 months		
Yes		0.50
No [®]		1
<i>N</i>	71	59
<i>Model chi-square</i>	8.54	10.94
<i>R square</i>	0.09	0.16

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; [®] Reference group

Model C and model D both depict odd ratios of consistently condom use behavior of IDUs by background characteristic variables (model C) and intervention program variables (complement in model D).

Among control variables such as: education, occupation, age, HIV/AIDS knowledge, duration and frequency of injection and needles sharing behavior, there are no variables those have significant effects on condom use with FSWs/un-regular partners of IDUs.

In model D, even after adding intervention program variables, there is still no any significant effect on condom use with FSWs/un-regular partners of IDUs.

Table 4.10 Binary logistic regression analysis on condom use with wives or girlfriends of IDUs

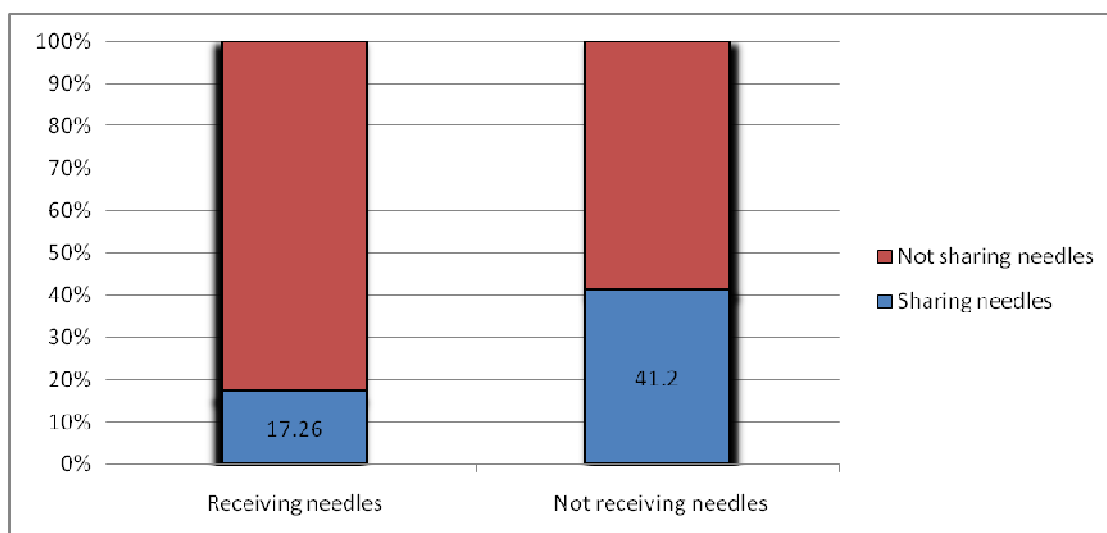
Variables	Consistent use condom with wives/girlfriends	
	Model E (OR)	Model F (OR)
Level of education		
No education	1	1
Primary school	1.01	1.38
Secondary school	0.76	1.17
High school or higher	0.78	1.20
Occupation		
Farmer	1	1
Others	0.83	1.07
Age		
Less than 25	1	1
25 - 34	0.98	0.98
35 and higher	1.53	1.74
Knowledge on HIV/AIDS		
Good	1	1
Poor	1.26	0.61
Frequency of drug injection per day		
Less than 1 time per day	1	1
1 time per day	1.99	1.81
More than 1 time per day	0.89	0.81
Duration of drug injection		
Less than 4 years	1	1
4 year and longer	1.06	1.12
Sharing needles/syringes during the last		
Yes	0.96	1.52
No [®]	1	1
Have sex with FSWs or un-regular partners during the last 6 months		
Yes	1.12	1.61
No [®]	1	1
Ever had HIV/AIDS test and get counseling at VCT room		
Yes		2.29
No [®]		1

Receiving condoms from the intervention program during the last 6 months		
Yes		17.30***
No [®]		1
Receiving counseling on HIV/AIDS prevention during the last 6 months		
Yes		1.04
No [®]		1
<i>N</i>	300	276
<i>Model chi-square</i>	13.62	112.23***
<i>R square</i>	0.03	0.31

Model E which includes education, occupation, age, characteristics of injection and sexual intercourse with FSWs variables has no significant effect on condom use with wives/girlfriends behavior. Result reveals that model E can explain the variation of condom use with wives/girlfriends behavior by only 3% (not significant).

There is a big difference after adding intervention program variables including receiving free condom, receiving HIV/AIDS counseling and taking HIV test in model F. This model can explain the variation of condom use with wives/girlfriends by 31% at significant level of 0.001. Among all variables of model F, there is only receiving free condom from intervention program variable has significant effect on condom use with wives/girlfriends behavior. The result reveals that IDUs who received free condom from program are 17.3 times more likely to use condom with wives/girlfriends than those who did not.

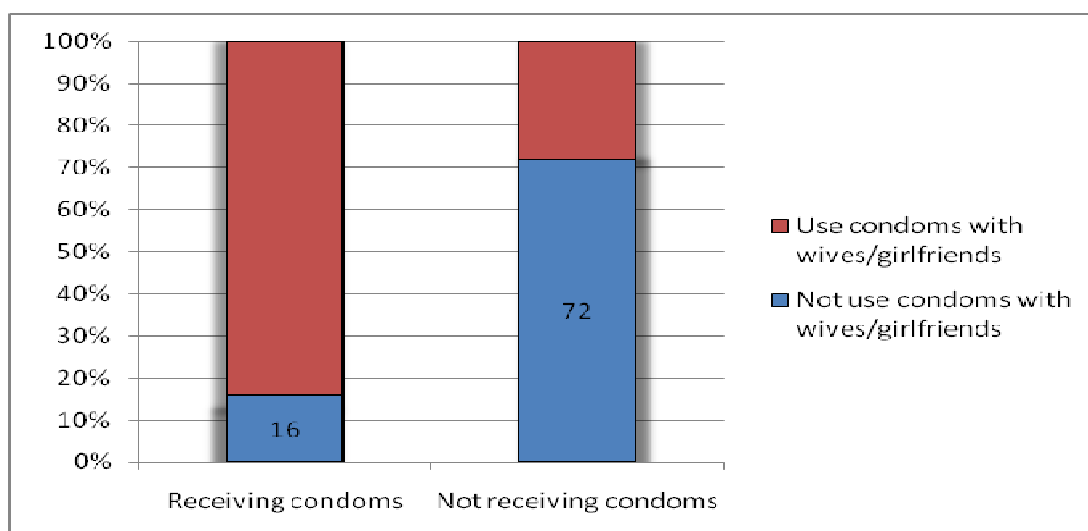
Figure 4.1 Predicted probabilities of needles/syringes sharing behavior by receiving needles from intervention program variable



Comparing the difference on probability of occurring behavior between exposed or not with the program among IDUs is used to examine how completely in model accounts for variation in patterns of IDU's behavior. Based on the logistic regression model, prediction and simulation are used to calculate the values of predictors after we had excluded variables that did not have actual effect on dependent variables. The following table presents the predicted probability of occurring behavior when IDUs was exposed the program components or not.

Results of prediction in figure 4.1 shows that if IDUs received needles/syringes from the harm-reduction program, there are 17.26% of them would share needles, while there would be 41.2% of IDUs who did not receive needles share needles with other drug users. Receiving needles/syringes from intervention program has a positive effect on increasing prevention injection behavior of IDUs.

Figure 4.2 Predicted probabilities of condom use with wives/girlfriends behavior by receiving condoms from intervention program variable



Regarding condom use with wives/girlfriends behavior, the prediction result in figure 4.2 shows that there are only 16% of IDUs who did not receive condoms from program would use condoms with wives/girlfriends at the last sexual intercourse, but if they received condom this probability would increase to 72%.

From the result, it can be concluded that receiving condoms from intervention program has a positive effect on condom use with wives/girlfriends behavior of IDUs.

B. Discussion

HIV/AIDS prevention behaviors of IDUs regarding the accessibility of intervention program were examined in this study with above findings.

The results shows that the proportion of sharing needles/syringes among IDUs in Son La province is keeping in high level in compare with other provinces in Vietnam. There are 27.5% of IDUs in Son La reported sharing needles during the last month prior to the survey while in other studies the results are 15% in Thanh Hoa (Son., 2009), 16.7% in Quang Ninh, 17.4% in Hai Phong, 18.5% in Ho Chi Minh City (MOH&FHI, 2006). This high rate must be considered in comparison with other provinces by characteristics of each local area as well as HIV/AIDS prevention program effect. These findings might indicate that needles and syringes are not easily obtained in the research sites. Qualitative research in Son La indicated that IDUs were

sharing needles and syringes due to the unavailable sources providing clean needles/syringes such as limited number of drug stores as well as number clean needles/syringes they received from peer educators were not enough. It is argued that the proportion of IDUs sharing equipment, accompanied with the high HIV prevalence rate (29%) is why the HIV epidemic in Vietnam is predominantly concentrated among IDUs. Although the spread of HIV through sharing needles and syringes is high in some countries in Asia, unsafe sexual intercourse is still the major way of HIV transmission in the world (UNAIDS, 2008).

There are 15.9% of IDUs (80 people) reported having sex with FSWs or non-regular partners during the previous 12 months, while only about 30% of them (24 people) reported using condoms consistently with those FSWs or un-regular partners. Correspondingly, “condom not available” and “dislike use condoms” were among the major reasons for not using condoms among IDUs.

Otherwise, the majority (72.9%) IDUs reported receiving counseling (from peer educators, friends, health workers...) and 22.1% of them reported sharing needles/syringes, 35.1% of them reported use condom consistently with FSWs/non-regular partners, 36.4 of them reported use condom with wives/girlfriends at the last sexual intercourse. However, in six binary regression models, there is no evidence confirm that receiving counseling on HIV/AIDS has significant effect on HIV/AIDS prevention behaviors of IDUs. Therefore, not only the quantity but also the quality of counseling on HIV/AIDS for IDUs should be more concerned in the intervention program and in researches.

This study also found that IDUs who have had sex with FSWs/un-regular partners are 2.16 times more likely sharing needles than those who did not ($p < 0.05$) (model B), and combining with the proportion of not use condom consistently with FSWs/un-regular partners of IDUs is high. In addition, from model D, receiving condom from program did not have significant effect on condom use with FSWs of IDUs. These results warns a high risk of HIV transmission between IDUs group and FSWs group which makes the HIV epidemic become more serious and complicated.

In other side, receiving condoms from program has a significant effect on condom use with wives/girlfriends of IDUs. Accessing free condom from program

increases the probability of using condom with wives/girlfriends 17.3 times among IDUs who received condom as compared to those who did not ($p < 0.001$).

Regarding sharing needles and syringes, this research shows that IDUs who are 35 years old and above are 64% less likely to share needles and syringes than those who are under 25 years old ($p < 0.05$). This result suggests that the youngest IDU group in Son La should be more concerned in intervention program with appropriate accessibility. An important result in this study is receiving clean needles/syringes from intervention program decreases the proportion of sharing needles/syringes of IDUs by 71%, this proportion is higher in comparing with the study in Thanh Hoa in which the proportion of sharing needles/syringes of IDUs reducing by 52% by the effect of receiving needles/syringes from intervention program (Son., 2009).

Many studies demonstrate that HIV/AIDS prevention programs can reduce HIV risk behaviors among IDUs (Ksobiech, 2003; Thanh et al., 2008). In addition, a meta-analytic review of 12 controlled trails among IDUs indicated that HIV/AIDS prevention interventions were highly effectively in reducing unprotected sex and unsafe drug injection among IDUs. However, effects of interventions on needle sharing were non-significant (Crepaz et al., 2006). This study's results also indicates that IDUs who received free needles and syringes are less likely to share needles/syringes than those who did not receive needles and syringes. Also, those who received free condoms are more likely to use them with their wives and girlfriends but there is not a significant result confirm that receiving condom increasing their condom use with FSWs or non-regular partners. However, the receiving counseling from intervention program not have any significant effect on needle sharing behaviors and using condom with FSWs/non-regular partners or wives/girlfriends of IDUs.

CHAPTER V

CONCLUSION AND RECOMMENDATION

A. Conclusion

The objectives of this study are to describe HIV/AIDS prevention behaviors of IDU group in Son La province and to determine the effects of HIV/AIDS intervention program on their practice outcomes. This study used the secondary data from a cross sectional survey by “HIV/AIDS prevention project” funded by World Bank in Son La. A total of 502 male IDUs aged 16-67 were included in this study. Binary logistic regression was used to determine the effects of intervention program factors on HIV/AIDS prevention practices of IDUs. In this study, dependent variables were needle and syringe sharing behavior in previous month at survey time, use condom with their wives or girlfriend in last sex intercourse, and use condom consistently with female sex workers or non-regular partners.

Our study found that there are 27.5% of IDUs in Son La reported sharing needles during the last month prior to the survey. There are 56.4% of IDUs received clean needles from intervention program. The needle and syringe sharing was more common among IDUs who are under 25 years old (OR 2.7, $p < 0.05$), and among IDUs who have had sex with FSWs/un-regular partners (OR 2.16, $p < 0.05$). IDUs who received needles/syringes from intervention program are 71% less likely to share needles/syringes than who did not ($p < 0.01$).

Regarding the HIV/AIDS prevention on sexual behaviors, 15.9% of IDUs reported having sex with FSWs/un-regular partners; 30% of them reported consistently use condom with FSWs/un-regular partners. There are 33.1% of IDUs reported receiving condoms from intervention program. But there is no evidence confirms that receiving condoms from program has significant effect on condom use with FSWs/un-regular partners of IDUs. In other hand, receiving condoms program increases using condom with wives/girlfriends 17.3 times among IDUs who received condom as compared with those who did not ($p < 0.001$).

In term of HIV/AIDS counseling and testing, there is not enough evidence to confirm those services have significant effect on HIV/AIDS prevention practices of IDUs in Son La.

B. Recommendation

5.1. For HIV/AIDS program in Thanh Hoa province

The intervention program period 2006-2009 in Son La reduced the HIV risk behaviors of IDUs. Receiving condom and clean needles and syringes was the main factor associated with this effect. The program should make sure the availability and accessibility of condom, and clean syringes and needles by strengthen activities to disseminate condoms, and needles and syringes. Particularly, the needle and syringes exchange, and condom distribution should be promoted through multi-channels such as peer educator, commune health station, pharmacy and hotels...

In Son La, having HIV test and receiving counseling do not show significant effect on reducing the high-risk behaviors. Thus, the program should improve the quality of HIV/AIDS counseling services by strengthening capacity of health workers and peer educators. Scaling up the voluntary counseling and HIV testing services as well as condom and needles provide services to make sure that all IDUs can easily access these services and they will practice HIV/AIDS prevention behaviors.

Finally, the result of research should be used to advocate policy makers and other stakeholders for better understanding the situation of IDUs and providing more effective and practical supports for prevention program to reduce impacts of HIV/AIDS epidemic among this group in Son La as well as throughout Vietnam. They can even facilitate to the integration of state programs in order to increase the effectiveness of this program.

5.2. For future research

Conducting qualitative research is suggested to identify the reasons why the proportion of needles/syringes sharing of IDUs in Son La is kept in high level in compare with other provinces where applying the same intervention program and why

they still do not use condom with FSWs/un-regular partners although they received condom from program.

The future researches should discover more information from health workers, peer educators and program manager to measure more factors that influence the intervention program's quality and effectiveness.

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