EFFECT OF LEVEL OF EDUCATION AND ALCOHOL USE ON CONDOM USE AMONG MEN WHO HAVE SEX WITH MEN (MSM) IN HANOI CITY, VIETNAM

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ABSTRACT

Men who have sex with men (MSM) are known to have high-risk behaviors associated with HIV infection in many communities in Vietnam. Using alcohol before or during sex is related to inconsistent condom use in MSM. In addition, educational attainment has been found to be one of the most important factors affecting alcohol use and condom use among MSM.

This cross-sectional study used respondent-driven sampling (RDS) to survey 450 MSM who drink alcohol. The $\chi 2$ test and logistic regression are used to determine the direct effect and interactive effect of level of education and alcohol use on condom use among MSM.

The survey found that 75.3% of MSM drank more than three units of alcohol per drinking session during the previous month. Those with higher drinking levels also had a higher frequency of having sex after drinking during the previous month ($\chi 2= 60.1$; $p = 0.000$). The higher the total amount of alcohol or of beer that was reported during the previous month, the higher the frequency of having sex after drinking ($\chi 2=71.64$; $p = 0.000$ and $\chi 2= 16.2$; $p = 0.002$). Those who drank 40% alcohol or more than 40% during the previous month had a significantly lower frequency of condom use with male partners during the previous month ($\chi 2 = 11.9$, $p = 0.005$).

Those with higher educational levels were associated with lower amounts of beer consumed at one session during the previous month ($\chi 2 = 12.8$, $p = 0.04$). The multivariate model on the determinants of condom use found that there is an interactive effect for alcohol use and educational level. Those with a higher level of education who drank less than 3 units of alcohol per day were 1.69 times more likely to use a condom than who drank more than 3 units, controlling for socio-demographic variables ($p<0.05$).

Consistent intervention programs are necessary to reduce the effect of alcohol use for different educational levels and increase the frequency of condom use among MSM.

KEY WORDS: MEN HAVE SEX WITH MEN/ LEVEL OF EDUCATION/ ALCOHOL USE/ CONDOM USE

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AIDS	Acquired Immunodeficiency Syndrome
ATS	Amphetamine-type stimulants
CCRD	Centre for Community Health Research and Development
HIV	Human Immunodeficiency Virus
HSS	HIV Sentinel Surveillance
HSS+	Integrating a short behavioral survey into the routine HIV sentinel surveillance
IBBS	Integrated Biological and Behavioral Surveillance
ISDS	Institute for Social Development Studies
MSM	Men who have sex with men
STI	Sexually Transmitted Infection
VAAC	Vietnam Authority of HIV/AIDS Control
WHO	World Health Organization

CHAPTER I
INTRODUCTION

1.1. Background on HIV/AIDS in Vietnam and in Hanoi

1.1.1. General background about HIV/AIDS in Vietnam

During the last 20 years of addressing the HIV epidemic, Vietnam has achieved many outstanding accomplishments to gradually gain more control over the disease. While the number of HIV/AIDS cases nationwide is still considerably high, the HIV epidemic in Vietnam remains in a concentrated stage. The first HIV case was found in Vietnam in 1990. By the end of 2012, there was 271,070 HIV cases reported; 208,886 of these are still alive and 62,184 have died due to AIDS-related causes. The number of HIV cases detected and reported decreased 26% in 2012 and the number of fatalities decreased by two times compared to 2011. HIV cases were reported in all 63 provinces, 98% of districts, and 79.1% of communes. Blood transmission through sharing syringes and needles is the main route of HIV transmission (representing over 70% of HIV cases reported (Vietnam Authority of HIV/AIDS Control (VAAC), 2013).

Based on the results of HIV sentinel surveillance in 2011-2012, HIV prevalence among three key affected groups (drug users, female sex workers, and men who have sex with men) decreased from 2011 to 2012. The rate among drug users decreased from 13.4% (2011) to 11.0% (2012), among female sex workers from 2.9% to 2.7% and among men who have sex with men from 5.0% to 2.3 % (Vietnam Authority of HIV/AIDS Control (VAAC), 2013).

1.1.2. General background about HIV/AIDS in Hanoi, Vietnam

Hanoi is the capital city of Vietnam; it is a big city and the center of politics, economy and culture of the country. In recent years, the complex social issues (such as drug use, prostitution) related to HIV/AIDS are increasing with the rate of

economic growth and urbanization. The HIV/AIDS epidemic first appeared in Hanoi 19 years ago. According to the Hanoi Provincial AIDS center (PAC), there were about 8,164 female sex workers (FSW), 30,873 injecting drug users (IDUs) and the number of MSM in Hanoi ranked second in Vietnam with 18,851 MSM by the end of 2011. The number of people living with HIV/AIDS in Hanoi was the second highest in Vietnam. By the end of 2012, there were 22,909 HIV cases, 8,725 AIDS cases and 3,650 AIDS-related deaths (PAC Hanoi, 2012).

In 2011, HIV prevalence among MSM in Hanoi was the second highest among affected groups nationwide, with the main transmission cause being unsafe sexual intercourse.

1.2. Statement of the problem

Studies all over the world found the evidence of risk behaviors among MSM and its effects on the HIV transmission. Risk behaviors among MSM are unsafe sex, substance use, and addiction. Inconsistent condom use is one of the main risk behaviors increasing the risk of HIV transmission among MSM. Besides using drugs (such as heroin, amphetamines and others), many studies have shown evidence of alcohol use among MSM, as well as a relationship between alcohol use and unsafe sex in general and not using condom particularly in the MSM group (Lane, Shade, McIntyre, & Morin, 2008a; Vanable et al., 2004). Alcohol is an important influence on increased sexual risk behavior. Before, during and after drinking alcohol, MSM may have unprotected sex under the influence of alcohol and the behaviors that lead to uncontrolled risk of transmission of STIs and HIV/AIDS in this group.

Educational level has been found to be one of most important factors affecting alcohol use and condom use among MSM. For example, evidence shows that those with higher levels of education drank less and had a higher frequency of condom use (Crosby, Stall, Paul, Barrett. D., & Midanik L., 1996; Fordham, 2005 ; Kiran, Manjunath, Aswin, Patil, & Mahabalaraju, 2011). In Vietnam, MSM were categorized by sexual orientation, educational level, and economic status. The terms of educational level often referred to groups of students or non-students; high, medium and low educated groups. Most of Vietnamese men preferred drinking wine as a cultural

aspect. The Vietnamese study shows that adolescents who have a higher level of education were less likely to have risky sex than other groups (Mai, 2011; Phuong, Hanh, Cuong, & Hien).

For these reasons, MSM have been a key focus of interest for HIV prevention programs in recent years. However, there was not any study on MSM group related to alcohol and condom use in Vietnam until 2010. This study was developed to describe the behavior of alcohol use among MSM and the effect of education level and alcohol use on condom use among MSM. Research is very necessary to increase the rate of using condom among MSM in the context of drinking alcohol and compares the level of drinking, frequency of using condom between levels of education. The results from this analysis will be very useful to provide some programs implementation. Besides, the results can convince some policy-makers to plan activities in MSM group who drink alcohol.

1.3. Research Questions

1. What are the frequency and consumption of alcohol among MSM in Hanoi, Vietnam? Are there any interactive effects between level of education and alcohol use on condom use among MSM in Hanoi, Vietnam?

2. How does the effect of education level and alcohol use on condom use among MSM who use alcohol in Hanoi, Vietnam?

1.4. Research Objectives

MSM in Vietnam has continued to be one of the key affected groups for HIV infection as in other Asian countries. Studies have examined the effect of education level and alcohol use on using condom among MSM that can decrease the effect of these factors on MSM health in general and HIV transmission among MSM particularly. The purpose of this study is to explore the effect of education level and alcohol use on using condom among MSM in Hanoi in order to make appropriate recommendations for reducing effects of using alcohol on inconsistent condom use in this group. The specific aims of the study are:

1. To gain a better understanding of drinking behavior among MSM population in Hanoi, Vietnam by level of education in order to improve reducing alcohol use programs.

2. To measure the interactive effect among education level, alcohol use and condom use among MSM in Hanoi in order to improve the design of promoting condom use programs.

1.5. Contributions of this study

This was the first study among MSM group who use alcohol in Hanoi, Vietnam. The finding of this study will contribute to provide findings to fill the lack of research on MSM and alcohol in Vietnam. From analysis, this study can determined the risk behaviors related to condom use in MSM group who use alcohol in Hanoi, Vietnam. The findings will be useful for program managers such as: Ministry of Health, Vietnam public health association, Ministry of Labour – invalid and social affairs; stakeholders such as: Non-governmental organizations who work in HIV area, community-based organizations (CBOs) in HIV field to contribute the communication strategy about the consequence of risk behaviors. The results of this study can be useful for implementing preventive activities such as: providing knowledge of HIV/AIDS and consequences of sexual behaviors in HIV transmission, communication program about the effect of alcohol on risk behaviors and consequences of drinking to sexual risk behaviors. Besides, it can provide knowledge about using condom to increase the rate of using condom in MSM group. It means this study will be very useful for reducing HIV transmission in this group.

This study will also determine the effect of level of education, alcohol use on using condom among MSM who drink to help policy makers in planning the intervention programs such as: condom distribution, harm reduction program from alcohol use and sexual risk behaviors. The results of the study will provide information to design appropriate intervention models to help prevent HIV transmission among MSM in Hanoi and could be applied to the major cities such as Hochiminh, Haiphong, and QuangNinh, which are characterized similarly with Hanoi by their respective.

The results of this study also provide information for strategic planning in HIV program among MSM in Hanoi, Vietnam, as well as the prevention programs of harm reduction interventions in the framework of projects and organizations that are active in the HIV program. From the finding, this study will provide some conclusions to reduce alcohol use behavior and increase the rate of using condom among MSM. Therefore, it can help reducing HIV transmission through sexual behavior among MSM population in general and MSM who drink in Hanoi and all over Vietnam.

CHAPTER II
LITERATURE REVIEW

2.1. HIV prevalence among MSM globally and in Vietnam

2.1.1. HIV prevalence among MSM globally

MSM have been greatly by the HIV epidemic and have continued to be a major component of the HIV/AIDS epidemic in the world. At the same time HIV prevalence among MSM varies between different areas and depends on the characteristics of the HIV epidemic of each country and area. In the United States, MSM accounted for approximately 45% of newly reported HIV/AIDS diagnoses in 2006 and nearly 54% of cumulative AIDS diagnoses. Feng et al. (2010) showed that MSM accounted for 70% of all of those infected with HIV in Australia, New Zealand and most Western European countries. MSM represent 15% of reported HIV cases in Indonesia, while the figures for Singapore, Hong Kong and Philippines are 29%, 32% and 33% respectively. (Feng et al., 2010).

In the Middle East and North Africa, there were over 13% of HIV infections in three countries (Lebanon, Egypt and Oman) since the first HIV/AIDS case was diagnosed in each country. In other countries, the HIV/AIDS prevalence was under 5% (Mumtaz et al., August 2011).

In East Asia, HIV prevalence among MSM increased from 2010 to 2012. (UNAIDS, 2012). The results of one study in a China showed that “a slight increase of HIV prevalence among MSM from 1.3% in 2002 to 2.2% in 2006” (Feng et al., 2010). There were 17% MSM infected with HIV/AIDS in India and this rate was 20% in Colombia in 2005 (Montano, 2005).) Studies show HIV prevalence increased from 17% in 2003 to 28.3% in 2005 among men who acknowledged having sex with men in Thailand

2.1.2. HIV prevalence among MSM in Vietnam

According to the results of IBBS in 2009, the HIV/AIDS prevalence among MSM was 16.7% (Ministry of Health of Vietnam, 2011). The prevalence was high in big cities: Hanoi (17.3%), Haiphong (16.5%), Hochiminh (14.8%) and Cantho (6.0%) and Hanoi had the highest prevalence.

MSM have become a part of HIV sentinel surveillance annually from 2011. HIV prevalence among MSM decreased from 3.95% to 2.26 % from 2011 to 2012 (Vietnam Authority of HIV/AIDS Control (VAAC), 2012).

According to the results of IBBS, 2009, the HIV/AIDS prevalence among MSM in Hanoi was 8.5% (Ministry of Health of Vietnam, 2011). There were difference between HIV prevalence among MSM who sold sex and MSM who did not sell sex. The HIV prevalence among MSM who sold sex was 8.8% in IBBS 2006 and 14.3% in IBBS 2009. This prevalence among MSM who did not sell sex in two rounds of IBBS was 11% and 19.8%. (Ministry of Health of Vietnam, 2011). Therefore, the prevalence of MSM who did not sell sex was higher than MSM who sold sex.

Beside, from HIV Sentinel Surveillance (HSS) show that there were 6.67% (2010) and 6.5% (2011) MSM infected with HIV/AIDS in Hanoi (M. o. H. Vietnam Authority of HIV/AIDS Control (VAAC), 2011). In addition, this prevalence was higher in MSM who joined in "Integrating a short behavioral survey into the routine HIV sentinel surveillance (HSS+)" with 8.7% MSM infected with HIV/AIDS in 2011 (M. o. H. Vietnam Authority of HIV/AIDS Control (VAAC), 2012).

With regard to other STIs, the IBBS found that only 0.5% of MSM were infected with syphilis; but there was not any case with both of HIV/AIDS and syphilis infection. The HIV/AIDS prevalence among MSM was highest in the over 30 year-old group with 17.7% (2012) and 9.2% (2011) (Vietnam Authority of HIV/AIDS Control (VAAC), 2012).

2.2. Sexual risk behavior and condom use among MSM

2.2.1. Sexual risk behavior among MSM globally

The sexual risk behaviors among MSM that were most often mentioned in studies include multiple partners and inconsistent condom use. The definitions of multiple partners and inconsistent condom use were varied by studies.

Multiple partners mean that MSM reported they had more than two partners in the time that studies focus (last 1 months, 3 months, 6 months or last 12 months). In six cities of United States in 2003, there were 48.0 % reported they had anal sex in the last 6 months with one primary partner or multiple partners among 4,295 men who participated in this study (Koblin et al., 2003). A venue – based study in Kuala Lumpur, Malaysia found that 37.9% (n=196) MSM reported they have 2 – 5 partners and 25.7% reported that they had more than 6 male partners in the past 6 months (Kanter et al., 2009).

Inconsistent condom use was defined in studies as referring to MSM who did not use a condom when having sex with partner (male or female) or had unprotected anal sex with partner. Studies about inconsistent condom use among MSM focused on unprotected anal sex (both of male and female) (Colfax et al., 2001; Houston & McKirnan, 2007). In addition, there were different in the frequency of using condom between different partners (male partner/female partner, regular/casual partner) or type of sexual intercourse (insertive/receptive) (Kanter et al., 2009). The frequency of unprotected sex with regular partner was less than casual partner (37.1%, 44.9%) and the frequency of unprotected insertive anal sex was higher than unprotected receptive anal sex (34.8% and 27.9%) (Kanter et al., 2009).

2.2.2. Sexual risk behavior among MSM in Vietnam

The IBBS was implemented in Vietnam in 2006 and 2009; MSM were one key affected group that the IBBS surveyed. From the results of the IBBS, MSM were found to have risk behaviors including multiple partners, selling sex and inconsistent condom use.

MSM reported that they had sexual relations with multiple types of partners, including female partners (and female sex workers). MSM reported two or more than two partners per month and MSM had sex with three types of male partners (clients, male sex workers and consensual male partners) (Ministry of Health of Vietnam, 2006). From IBBS 2009, 47 – 56% of MSM had consensual sexual

partnerships with woman in past 12 months and 35-46% with men (Ministry of Health of Vietnam, 2011).

Two rounds of IBBS found that MSM also sold sex. There were 21.8% of MSM in Hanoi and more than 40% of MSM in Ho Chi Minh city reported that they sold sex in last months in 2006 (Ministry of Health of Vietnam, 2006)

2.2.3. Condom use among MSM globally

Condom use has been known to be the best way to protect HIV and STDs and decrease HIV transmission among MSM. Inconsistent condom use was mentioned that MSM do not use condom when having sex with partner (male or female) or had unprotected anal sex with partner. MSM were identified as engaging in unprotected sex three times as often as any other group (Stein et al., 2005).

However, the rate of condom use among MSM decreased in 2012. According to UNAIDS in 2012, HIV epidemic has been persistent among MSM because the level of condom use are insufficient. Most MSM in 69 of 96 countries answered that they used condom in the last sexual intercourse but the frequency of using condom among MSM was more than 75% in only 13 countries (UNAIDS, 2012). US Centers for Disease Control and Prevention (CDC), 2012 reported that condom use among MSM declined although other risk factors remained consistent (Centers for Disease Control and Prevention, 2012). In UK, the rate of using condom decreased among gay and bisexual men and was the reason why HIV infection increases in those groups (BBC, 2013). Therefore, condom use has become very important issue among MSM and increasing the rate of using condom among MSM has become one of the objectives in HIV prevention programs.

Because condom use behavior plays a very important in curbing the HIV epidemic in the MSM group and in the general population, many studies have examined condom use among MSM.

2.2.4. Condom use among MSM in Vietnam

About of 30% MSM reported using condoms consistently when having anal sex with male partners in Hanoi and Ho Chi Minh City (Ministry of Health of Vietnam, 2006). There were differences between condom use and types of partners:

under 50% of MSM who sold sex in all cities where the IBBS 2009 was implemented, reported using condoms and 64% reported consistent condom use with FSWs. Besides, consistent condom use with consensual partners was lower than with consensual male partners in MSM who sold sex (Ministry of Health of Vietnam, 2011). However, MSM who did not sell sex reported that consistent condom use less than MSM who sold sex in Hochiminh city and Cantho. Only 35% of MSM in Hochiminh city reported consistent condom use with consensual male partners in the past month and 24% MSM in Cantho used condoms with female partners in the past year (Ministry of Health of Vietnam, 2011).

In Hanoi, there were 46.7% MSM who sold sex reported consistent condom use with male client, 33.9% used condom with consensual sex partner, 63.9% used condom with FSWs and 24.7% used condom with consensual female sex partner in last 12 months (Ministry of Health of Vietnam, 2011). Therefore, consistent condom use among MSM who sold sex in Hanoi was higher in 2009 than in 2006 for all types of partners. In addition, consistent condom use among MSM who did not sell sex in Hanoi increased from 2006 to 2009 with all type of partners (Ministry of Health of Vietnam, 2011). That could be a significant outcome of the HIV prevention program among MSM in Vietnam.

In addition, the results of "Integrating a short behavioral survey into the routine HIV sentinel surveillance (HSS+) 2011" showed that the percentage of men reporting the use of a condom the last time they had anal sex with a male partner in Vietnam was 75.6% .

2.2.5. Factors related to condom use among MSM

Studies found many factors were associated with condom use behavior among MSM. Research at George Mason University found that MSM's decision to use a condom was influenced by many factors such as individual factors, socioeconomic and sexual factors. According to Dalla Lana School of Public Health, University of Toronto, Toronto, ON, Canada, most socio-demographic variables such as age and occupation were found to be associated with using a condom among MSM. Other studies found that age group, education, income, drug use, place of sexual activity, gender of sexual partner and type of partner were associated with condom use

(Chemnasiri et al., 2010; Crosby et al., 1996; Folch, Esteve, Zaragoza, Muñoz, & Casabona, 2010; Kiran et al., 2011)

Individual factors, socioeconomic factors and condom use among MSM

Studies showed that individual factors (such as age, occupation) and socioeconomic factors (such as income) are associated with condom use among MSM. Younger MSM groups tended to use condoms more frequent than older groups. MSM aged 18 to 24 were more likely to use condoms than other age groups (George Mason University). MSWs who did not live with their family were more likely to use condoms inconsistently when having anal intercourse (Chemnasiri et al., 2010). They found that social and financial support to MSM who lived away from their family was less than others and it affected to negotiation with partner on condom use (Chemnasiri et al., 2010)

In addition, income has affected condom use among MSM. A study of MSM in Ecuador, 2006 found that high and middle socioeconomic status were associated with higher condom use (Gutiérrez, Molina-Yepez, Morrison, Samuels, & Bertozzi, 2006). MSM who have income less than $20,000 had more inconsistent condom use than others (Crosby et al., 1996). Compared to higher income people, those in the middle income group had a higher prevalence of inconsistent condom use in receptive anal intercourse (Mendoza-Pérez & Ortiz-Hernández, 2009).

Kiran et al., (2011) had a study on risk factors associated with inconsistent condom and lubricant use among men who have sex with men in central Karnataka, India showed that low education was significantly associated with inconsistent condom use (Kiran et al., 2011)

Sexual factors and condom use among MSM

Besides the findings reported above, studies have found a relationship between factors related to sexual behavior and condom use such as the gender of partner, type of sexual behavior, place of sex and number of partners. Studies found that there were differences in the frequency of using a condom between different partners (male partner/female partner, regular/casual partner) and for the type of sexual act (insertive/receptive) (Kanter et al., 2009). The frequency of unprotected sex with regular partners was less than casual partner (37.1%, 44.9%) (Folch et al., 2010);(Bouhnik et al., 2007; Kanter et al., 2009). And the frequency of unprotected

insertive anal sex was higher than unprotected receptive anal sex (34.8% and 27.9%) (Kanter et al., 2009). In addition, MSM who had a higher number of partners used condom more than others and condom use among MSM who were married to a woman was lower than other partners (Gutiérrez et al., 2006).

These studies also found differences in condom use by place of sex. Kiran et al., (2011) found that sex in a public place was significantly associated with inconsistent condom use (Kiran et al., 2011). Research from George Mason University also showed the relationship between using a condom and place of sex: MSM used a condom most often in a sexual partner's house or in a hotel or motel as opposed to a car or van.

2.3. Alcohol use among MSM and its relationship to risk behavior

2.3.1. Alcohol use among MSM

Using alcohol has been one of risk behaviors related to health problems among MSM. Abuse of alcohol among MSM has been identified by the Gay and Lesbian Medical Association (GLMA) as a major health disparity within this population (Blackwell, 2012). Evidence about using alcohol among MSM was also found in the previous studies.

Most alcohol studies about among MSM divided levels of consumption and frequency of drinking into three groups: low, moderate and high/heavy. In studies conducted in the U.S during 1970s and early 1990s, the prevalence of alcohol use among MSM was less than 30% and less than 20% of those who participated in these studies reported a heavy frequency of drinking (Lohrenz et al., 1978; Stall & Wiley, 1988; McKiman & Perterson 1989; Skinner & Otis 1992). Overall 29% of MSM reported drinking alcohol (Lohrenz et al., 1978), 19% reported being heavy users in past 12 months (Stall & Wiley, 1988), 70% moderate users, 17% heavy users (McKiman & Perterson 1989) and 13.2% reported heavy use (Skinner & Otis 1992). Alcoholism affects between 20 to 30 percent of homosexual men in the United States (Ziebold & Mongeon, 1982).

Some studies focused on the number of alcohol units consumed or how often MSM drank per day, per week or per month. In 2003, Lesbian, Gay, Bisexual & Transgender (LGBT) Communities reported that 41.4% of their community members had more than 8 alcoholic drinks per week and 41.4% of those described themselves as being a binge drinker (Queensland Association for Healthy Communities, 2003). Also in this year, a study of Beryl et al. about high – risk behaviors among MSM in 6 US cites found that "26.2% of the men reported drinking alcohol at least 3 days per week, and 10.6% were heavy drinkers (they consumed at least 4 drinks per day or consumed an amount equal to 6 drinks per occasion)" (Koblin et al., 2003). In the Kathmandu Valley, 76% of MSM reported drinking alcohol in the past four weeks (Family Health International & UNAIDS, 2005).

In addition, studies have showed that the consumption and frequency of alcohol use and abuse among MSM can be more than three and a half times the rates among heterosexuals (Blackwell, 2012; Saghir & Robins, 1973; Fifield, Latham, & Phillips, 1977; Lohrenz, Connelly, Coyne, & Spare, 1978). .

2.3.2. Alcohol use and sexual behaviors among MSM

Alcohol use has also been found to affect other risk behaviors among MSM. Alcohol use may lead to uncontrolled behavior and reduce awareness, and thus increase unsafe sexual behavior, unprotected sex and drug use.

Alcohol and drugs were very much part of gay culture and it has affected MSM behaviors (Diamond & Wilsnack, 1978; Nardi, 1982; Zehner & Lewis, 1984). It may be easier to have unprotected sex under the influence of alcohol and the behaviors that lead to uncontrolled risk of transmission of STIs and HIV/AIDS among MSM before, during and after drinking alcohol. Therefore, MSM has become "the potential group" at greater risk of HIV/AIDS transmission because of their drinking and risk behaviors.

To date, research has explored the relationship between alcohol use and HIV globally focused on the relationship between alcohol use, drug use, and sex but most of them did not find an association between alcohol and HIV infection (Lane et al., 2008)

Alcohol use and inconsistent condom use among MSM

A relationship has been found between alcohol use and risk behaviors among MSM, in which inconsistent condom use has been one of the most common behaviors. Studies found that alcohol abuse has played an important role in increasing the risk behaviors among MSM groups. A narrative review of articles on alcohol and sexual risk behaviors in China also shows that drinking alcohol is related to sexual risk behavior (Quing Li, Xiaoming Li et al. 2009). Reisner et al., found that "participants reporting at least one episode of unprotected sex with a transgender partner in the past 12 months (OR=5.23; p=0.02) were more likely to have problematic alcohol use compared to participants who did not report unprotected sex with a transgender partner" (Reisner SL et al., 2010:580). In Ciudad Juarez MSM found that alcohol and drug use increased the risk of inconsistent condom use in receptive and insertive oral sex (Mendoza-Pérez & Ortiz-Hernández, 2009).

From the above evidence, it can be seen that a number of studies have shown that alcohol use is a factor that is frequently related to unprotected sexual behaviors.

Frequency of alcohol use, type of alcohol and unprotected sex

An association has been found between unprotected sexual behavior and the number of drinks per day any type of alcohol (Semple et al., 2010);(Lane et al., 2008a);(Stein et al., 2000). In 2010, Semple et al., had a study in 321 HIV – positive MSM and found that the number of drinks on a typical drinking day was positively associated with unprotected sex ($p<0.05$) (Semple et al., 2010).

In study of Lane et al., 2008, participants who reported drinking at least 4 units of alcohol during the most recent sexual intercourse with a non-regular partner have 3 times higher odds of engaging in unsafe anal intercourse than those who did not drink or drank less than 4 units (Vanable et al., 2004). The increase of risk of unprotected anal intercourse was related to drinking alcohol (OR = 4.1, adjusted; 95% CI 1.4-12.6), drinking until being drunk (OR = 2.6, 95% CI 1.0-6.8) and having symptoms of anal damage caused by anal intercourse (OR = 4.3, 95% CI 1.8 to 10.4). In one study, the risk of HIV infection from unprotected anal intercourse among MSM was clearly related to the use of alcohol (Lane, Shade, McIntyre, & Morin, 2008b).

Stein et al., 2005 showed that MSM who drank heavy alcohol engaged in unprotected sex more than 5.64 times than others ($p<0.01$) (Stein et al., 2000; Stein et

al., 2005). The number of drinks on a typical drinking day was positively associated with unprotected sex in 321 methamphetamine using, HIV-positive MSM ($p<0.05$) (Semple et al., 2010).

Alcohol use before sex among MSM and unprotected sex

Drinking alcohol before sex was significantly related to unsafe sexual behaviors with partners who are non-regular partners. A study showed that alcohol use in the context of sexual behavior with a non-primary partner may reduce a person's capacity or motivation to initiate condom use (Vanable et al., 2004). A study of MSM in Wilton in 2008 showed that alcohol use before or during sex was predictive of HIV risk behavior in a sample of 481 mixed HIV serostatus black gay and bisexual men.

In other studies with MSM in the United States of America (USA) has been observed that the consumption of alcohol or drugs or both during sex is associated with receptive anal sex without a condom (Mendoza-Pérez & Ortiz-Hernández, 2009).

2.3.3. Alcohol and condom use among MSM in Vietnam

Using alcohol has been a traditional habit and cultural in many countries, including Vietnam. Use of alcohol can give people the feeling of excitement and euphoria. However, alcohol users can easily become dependent with increased tolerance leading to more alcohol abuse. Alcohol abuse causes serious consequences for public health and society (Cuong & Hanh, 2006). Most of the studies in Vietnam have found that men's drinking behavior was harmful to health, and these behaviors were from peer pressure, personal preference or having a family member affected by alcohol.

Official figures about alcohol consumption are relatively scarce in Vietnam (Kaljee et al., 2004). These studies only focused on adolescents and young adults (Kaljee et al., 2004; Tho, Singhasivanon, Kaewkungwal, Kaljee, & Charoenkul, 2007). From Survey and Assessment of Vietnamese Youth (SAVY), 2003, the rate of alcohol use in adolescents Vietnam was quite high (75%) (Vietnam Ministry of Health, 2003). Another study in 2009 showed that alcohol abuse rate was 18.7% and there were clear differences between the groups by gender, age, occupation, education level, and economic conditions (Phuong et al.)

In Vietnam, studies about the effect of alcohol to sexual behavior and condom use was published until 2012. Nevertheless, these studies also focused on adolescent and young adults (Kaljee et al., 2004; Tho et al., 2007). Therefore, they found that there were a strong association between alcohol use and sexual behavior. Alcohol use was significantly associated with engagement in sexual behaviors ($p < 0.00$) and intention to engage in sexual behaviors ($p < 0.02$) (Kaljee et al., 2004). In Kaljee LM et al., 2004 in Khanh Hoa province found that nearly 70% of adolescents said they drank before anal or vaginal sex ($p <0.00$) and alcohol users also more likely to intend to have sex in the next 6 months $p <0.02$. Next study in 2007 found that 10.1% of respondents who drank had engaged in sexual experiences including vaginal, anal , and/or oral sex and alcohol use was significantly associated with engagement in sexual experiences ($p<0.001$).

Research about the relationship between alcohol use and condom use in Vietnam was limited. A study in 2007 in Nha Trang, Vietnam found that there were differences about condom use between men who drink and who do not drink, "40% of young men who did not use a condom in their last sex and 45% of young men who had multiple sex partners were drinkers compared to 4.8% and 1.6% of non-drinkers" (Tho et al., 2007)

However, many international studies mentioned about the relationship between alcohol and condom use in the general population and among MSM. Therefore, information about the effect of alcohol on using condoms among MSM in Vietnam has been limited. This point requires far more extensive research on alcohol use and its association with condom use among MSM. Research on this issue will be useful to describe the situation in Vietnam and compare it to other countries in the region and around the world.

2.4. Educational level among MSM and its relationship to alcohol use and condom use

2.4.1. Education and alcohol use among MSM

Although there is some evidence about the relationship between education

level and frequency of drinking among MSM, the link between education and alcohol abuse in MSM was unclear (Mackesy-Amiti ME, Fendrich M, & Johnson TP, 2010; Neuman, Schneider, Nanau, Parry, & Chersich, 2012; Reisner SL et al., 2010).

Some studies found that MSM with higher level of education drank less than MSM with less level of education. Studies of Reisner et al., (2010) in the US and Tripathi et al., (2009) in Estonia showed the link between alcohol and unprotected sex among MSM and unprotected sex was a more frequent problem in MSM without a university degree. Paul et al.(1993) had study gay men in drug and alcohol treatment and found that these gays had fewer years of formal education (Greenwood et al., 2000). Gregory et al., 1999 found that with those with no more than a high school education being more likely to be a heavy level of drinking than MSM who had a college degree (OR-2.60, 95% CI 1.07–6.30)(Greenwood et al., 2000).

Nevertheless, some studies showed opposite results. Mackesy Amiti et al., 2010 showed that "alcohol dependence to be relatively high in a sample of 187 MSM made up predominantly of employed individuals with a college education or higher" (Mackesy-Amiti ME et al., 2010).

2.4.2. Education and condom use among MSM

Education level has been one of factors that exert a powerful influence on condom use among MSM. However, studies about the effect of level of education on condom use among MSM are limited. Most studies found that those with a higher level of education were more likely to use condoms. In a study, lower education level was significantly and independently associated with inconsistent condom use among MSM in Thailand (Chemnasiri et al., 2010). A study in MSM who had anal sex under the effect of alcohol were inconsistent condom users reported having less than a college education ($p = 0.04$) (Crosby et al., 1996). In Spain, MSM who have limited education opportunity was easy to have risk behavior and associated with condom use (Mendoza-Pérez & Ortiz-Hernández, 2009). Other studies did not approach this relationship as assigned by the level of education, it approached in the relationship between year of schooling and condom use among MSM but this study did not find an association between two variables (Gutiérrez et al., 2006).

2.4.3. Effect of level of education, alcohol use and condom use in Vietnam

There were few studies in Vietnam measured the relationship between level of education and alcohol use among males in Vietnam. The result of SAVY in young people found that there were the differences between education and alcohol use (Vietnam Ministry of Health, 2003). The number of adolescents who use alcohol is lower when comparing adolescents with elementary education with those with secondary school, but then it is higher for youth with higher education levels. Men who have primary education and university/college have a higher percentage who ever drunk alcohol compared with other educational groups in the two surveys. Education also has been one of the factors that have influence on condom use. In Vietnam, 2005, Minh et al., found that low education level was associated with HIV infection and may lead to risk behavior (Minh, Binh, & Dzung, 2005). Besides, there were some studies found that level of education has associated with condom use among different groups include female sex worker (Huong, 2010; Tam, 2004), wives of injecting drug users (Huong, 2010), and ethnic groups (Mai, 2011). Level of education is also associated with condom use among adolescent and young adults (Tho et al., 2007).

In addition, as studies globally also show alcohol has affected risk behaviors include inconsistent condom use among MSM. Moreover, drinking has been a popular habit in the lifestyle of Vietnamese male in general and among MSM in particularly. However, there was not any study in Vietnam focus on effect education and alcohol use on using alcohol in this group until 2011. Therefore, there has been not enough study that provides information about effect of education, alcohol use on condom use in high - risk groups to suggest to reducing effect of alcohol use on risk behaviors, especially on condom use among MSM group. Moreover, this study becomes more important. Vietnamese policy makers who active in program related to reduce harmful of alcohol and HIV intervention program will have more information for harm – reduction intervention program for this group and preventive harmful effect of alcohol to sexual behavior among MSM. It also can reduce HIV and STDs transmission among MSM in Vietnam from risk sexual behaviors that related to drinking.

2.5. Conceptual Framework

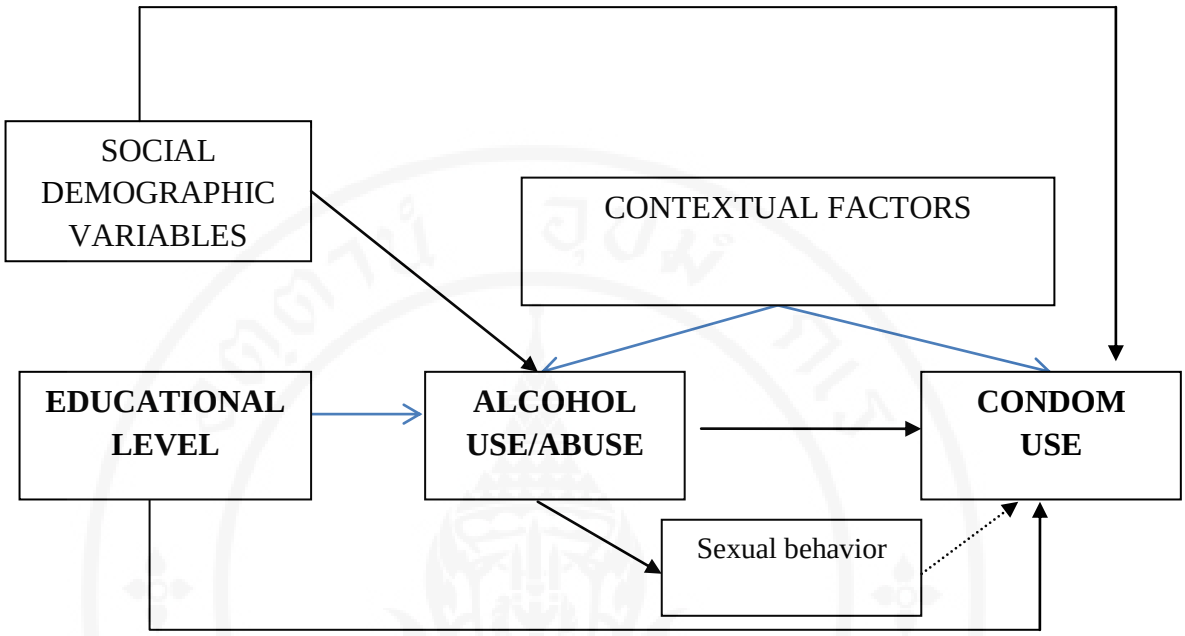

Figure 2.1: Conceptual framework for interactive effect of education, alcohol use and condom use among MSM

From literature review, I found evidence that all socio-demographic factors affect alcohol and condom use. However, there were not enough information for all of the variables and the relationship between socio-demographic variables, alcohol use, and condom use in my study. Therefore, I only focus on four factors: contextual factors, education level, alcohol use/abuse and condom use. In this study, alcohol use/abuse is independent variable, condom use is dependent variables and alcohol use/abuse affects condom use among MSM. Alcohol use is the main independent variable affecting condom use, from literature review, studies found many factors related to condom use among MSM. However, in this conceptual framework, I am only interested in and focus on education level that can has effect to alcohol use/abuse behavior and condom use. Level of education and alcohol use may have interactive effects on condom use among MSM. Interactive effect is one of important point that I would like to find the answer in my study. Contextual factors refers to the drinking environment includes where, with whom, on what occasion of drinking also affect to alcohol use/abuse and condom use of MSM. Measure of alcohol use focus on how

much, how long and how often MSM use alcohol. Using alcohol has direct effect to sexual behavior among MSM. Sexual behavior in my study focus on frequency of MSM who had sex after drinking and type of their partners after drinking, and frequency of using condom when have sex after drinking. It can be related to condom use among MSM. Condom use is defined as inconsistent/consistent condom use. In this study, my main point is effect of educational level and alcohol use on condom use among MSM, so three factors will be mentioned clearly in my study.

2.6. Hypothesis

1. Those with more frequent alcohol use/greater consumption of alcohol are less likely to use condoms.

2. Those with lower educational attainment have a higher level of alcohol use which leads to a lower frequency of condom use

CHAPTER III
RESEARCH METHODOLOGY

3.1. Data sources

Project "Alcohol abuse, stigma and sexual risks: triple burdens among MSM in Hanoi, Vietnam" was a project which the Centre for Community Health Research and Development (CCRD) - a NGOs in Vietnam- implemented in Hanoi. I used the data of this project as secondary data for my thesis with the consent of CCRD.

The project was implemented from August 2010 to January 2011. There are some reasons for my choice:

CCRD is one of the first NGOs to deploy research on MSM in Hanoi. This project that was successfully deployed during the first years when research began to focus on MSM - a group of sensitive subjects - at the time of 2010 and 2011. The data and results of the study are highly specialized and contributes greatly to the scientific research in the field of HIV/AIDS

I found a lot of information from data sources related to the research questions that I have posed, therefore I decided to use data sources from this study to answer my research questions and hypothesis.

3.2. Research design

CCRD choose a cross-sectional study used quantitative methods. The research design comprised of two major phases: (1) Community Assessment Process (CAP) and (2) Integrated Behavioral and Biological Survey (IBBS).

Community assessment process (CAP): This phase aimed to build entry into the networks of MSM in Hanoi, to refine theoretical constructs and variables, and to adapt various parts of the survey instrument for the second phase. CCRD conducted observations and mapped venues frequented by MSM (10 locations), and conducted

in-depth interviews with 5 key informants from the MSM community in Hanoi who are knowledgeable about different types of MSM groups, their drinking and, sexual behaviors. The information collected from these in-depth interviews combined with the consultation of interviewers helped them to revise and complete the research questionnaire.

Integrated Behavioral and Biological Survey (IBBS): In this phase, they conducted the behavioral survey in a sample of 450 MSM in Hanoi. To ascertain whether recruits met eligibility criteria, they developed short screening interviews to screen important issues: whether participants are MSM or not, some MSM can come back to join the study because of incentives. HIV/AIDS counseling and testing were also provided to 450 participants, according to the instructions of the Vietnam Ministry of Health.

3.3. Sample

3.3.1. Sample size

From previous experiences of surveys using RDS to recruit MSM in Vietnam, CCRD desired sample size were about 400. However, when they implemented this project, they collected 450 MSM. I chose all the areas in the sample where CCRD collected data for my study (450 MSM).

Research participants

CCRD had inclusion criteria and exclusion criteria for their project as follows:

Inclusion criteria: Research was implemented in the MSM who met the following criteria: Age from 18 to 49, lived in Hanoi at least 3 months, drank alcohol, had sexual intercourse with a man at least twice within the 3 months before the study, participated voluntarily and agreed to take blood test.

Exclusion criteria: At the time of recruitment, as assessed by interview, if a potential respondent did not agree to participate in the research, or if they agreed to participate in the research feel that they are not safe while interview, they were drop out from research.

Study sites

The study was conducted from 8/2010 to 01/2011 at Hanoi Dermatology Hospital, No. 79B Nguyen Khuyen Street, Dong Da district, Hanoi city. The screening tests for HIV, strictly followed the hospital's standards; the determination HIV tests was carried out at the Center for HIV/AIDS in Hanoi, No. 50C Hang Bai, Ha Noi, Vietnam. There were three private spaces for research: the reception, the interview room and the VCT room.

3.3.2. Sampling method

CCRD used Respondent Driven Sampling (RDS) method to recruit a sample from MSM community in Hanoi, which includes the following steps:

- Step 1: Select "seeds":

Based on field observations and evaluation of the MSM community, CCRD selected 10 "seeds, who are the initial recruits for the study. The seeds met the following criteria:

- They were MSM that represented different segments of the MSM community in Hanoi such as different hometown, different age group, different occupation

- They had different characteristics such as age, occupation, level of education, sexual desire, and sexual identity

- They had large social networks of MSM and good connections

- They were willing to recruit other participants for the study

- Step 2: Recruit survey participants through their peer networks;

After "seeds" completing the survey and blood draw, CCRS were paid for their participation in the study (200.000 VND/person) and were given three coupons to recruit up to three other MSM who were their friends, sexual partners or acquaintances. After two months, because the sample size was not large enough and because some seeds did not recruit participants, CCRD decided to increase the number of coupons given out from 3 to 6. Each coupon contained a unique participant number, information about the study, and the address of where the recruits would come for interviews. The participant number varied according to different waves of recruitment.

The recruitment continued with subsequent recruits turning into recruiters and the number of waves extended until they interviewed 450 study participants (the total screened was 592). Respondents/recruiters received an additional incentive for each successful recruit (50.000 VND/person), and needed to return to ascertain whether their recruits were accepted into the study. They were given a short follow-up questionnaire to collect information about their relationships with the recruits, and about the number and type of refusals, they had while recruiting. In addition, apart from incentives of direct introduction, the MSM participants from wave 1 to 6 of the seeds also received an incentive for direct referral.

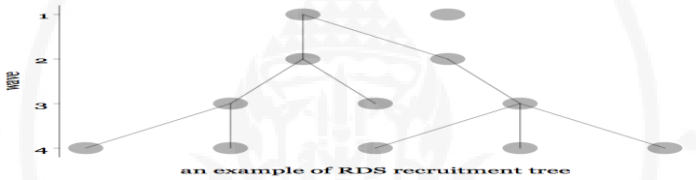

Figure 3.1: Respondent sampling method (RDS) for recruiting participation

3.4. Ethical Aspects

Before study: The study was reviewed by IRB at The Institute for Social Development Studies (*ISDS*) Vietnam, which has been registered with NIH (IRB00006556).

During study: Interviewer explained to participants that the reason and purpose of the study was to help them better understand the research objectives. Research only aims to find out the relationship between alcohol and drug use and sexual risk behavior in MSM in Hanoi, which will be used to develop future intervention programs. The involvement of MSM participants into this study was voluntary. In order to ensure the confidentiality for participants, all personal information such as address, date of birth, identity card number, screening test results were strictly stored and were removed from the questionnaire before inputting and analyzing data .

3.5. Data collection

CCRD used quantitative questionnaires to collect data for their project including a screening interview and the main survey interview.

3.5.1. Instrument

- Screening tool: This tool includes the information about personal characteristics of to collect MSM who had enough inclusion critical

- Quantitative tool: The questionnaire had nine parts as following: The questionnaire included structured key indicators listed bellows

Part A: Demographic characteristics of participants, their gender and mental health

Part B: Information on alcohol use

Part C: Information on drug use

Part D: Information on sexual behavior

Part E: Information on health status

Part F: Knowledge of HIV and prevention

Part G: Accessing intervention programs

Part H: Perceived and Self-stigma and discrimination against homosexuals.

Part I: Questions about the relationship in MSM groups

For my research, I focus on into three main parts of the questionnaire: part A, part B, and part D because they contain the answers for my research questions.

3.5.2. Research procedure

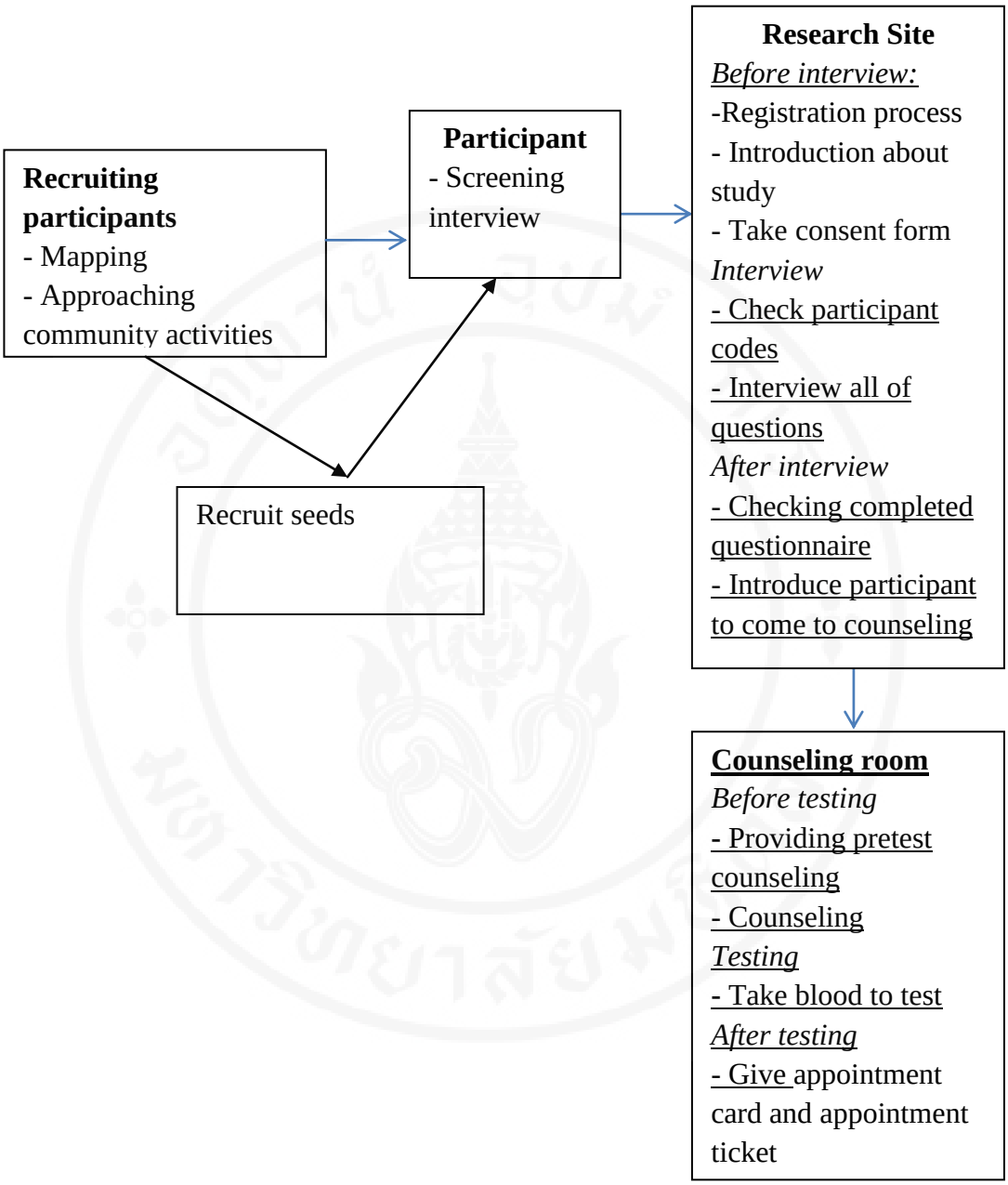

Figure 3.2: Research procedure

The procedure of CCRD's study included three steps:

Staff recruits participants in the study: Staff participated in building maps and had experience in approaching community activities.

Reception staff, interviewer: researchers of the CCRD were trained thoroughly on the research tool as well as have rich experiences on accessing and interviewing community. After completing the registration process, eligible MSM

participants were interviewed for 30 to 45 minutes in a separate room, to ensure privacy. The participant codes were always checked after each step to ensure the precision and consistency of participation's information. At the end of the procedure, reception staff members checked completed questionnaires to ensure that participants did not miss any questions or steps.

The administrative, counseling and voluntary HIV testing staff: the staff works in Hanoi Hospital of Dermatology, No.79B Nguyen Khuyen, whom received Ministry of Health certificates of voluntary HIV test and STIs counseling skill.

Study participants whom have positive HIV tests received or were referred to suitable care and support services. The consultation process and result are carried out:

- Before testing, study participants were always provided pretesting counseling.

- The VCT counselors strictly followed VCT instruction by MOH (Regulation 647 of the Ministry of Health), keeping the collection information notes and consent ticket of the test object.

- Study participants were given an appointment ticket to get HIV testing, result at the counseling room of the hospital. Test results would be returned within 2 weeks after participating in the study. This appointment ticket has detail about consulting services center (address, phone and working time), with addresses and telephone number of officials that are responsible for researching in local, in case of necessary.

Staffs were trained to report result directly to those who are tested (without reply in writing or by telephone) when they came to to receive test results. They also had to show the appointment card to be eligible to take the test results.

3.6. Data Analysis

Data processing:

Data was entered into an Epi Info database and converted to SPSS

Data analysis: Data analysis was conducted with SPSS

Study participants were divided into three groups: low education (include no education and primary school), medium education (secondary school) and high education (college/university) to describe each group's characteristics as well as to compare between them.

Bivariate analysis was conducted using the χ^2 test to examine associations between the three groups. The comparison was statistically significant when * $p < 0.05$, ** $p < 0.01$ and *** $p < 0.001$.

In order to find out direct effect and interactive effect of level of education and alcohol use on condom use, I used logistic regression models in three steps:

- Step 1: Examine the binary correlations between the independent variables in order to check for multicollinearity ($p < 0.05$).

- Step 2: Examine the direct effect of alcohol use and level of education with condom use in multivariate logistic regression models,

- Step 3: Examine the interactive effect of alcohol use and level of education with condom use in multivariate logistic regression models (use interactive variable from two variables: level of education and alcohol use).

3.7. Operational Definition of Variables

Socio-demographic: It was defined in this study such as age, ethnicity, income, occupation

Contextual factors: This variable was defined as drinking environment of MSM, it includes where MSM used to drink alcohol, with whom they drank and on what occasion

Amount of drinking alcohol during the past 30 days: This variable was defined as total units of alcohol drink in last 30 days

+ Alcohol abuse: according to WHO instruction, men who drink more than 21 units of alcohol per week are considered alcohol abusers (one unit is equivalent to a glass of beer (330ml) volume 5%; a glass of wine (125ml) volume 11%; a glass of wine (75ml) volume 20%; or a cup of brandy (40ml) volume 40%. Two point scales: ≤ 21 units (non-alcohol abuse) and> 21 units (alcohol abuse) are used in this study.

Condom use: It refers to using condom every time in last 30 days (anal sex or vaginal sex) with partner (male or female)

Table 3.1: Categories and level of measurement of variables

Variables	Definition	Categories	Measurement
Age	The age of MSM who participated in the study	1 = <20 2 = 20-24 3 = 25-29 4= ≥30	Ordinal
Ethnicity	The ethnic of MSM who participated in the study	1 = Kinh 0 = Others	Nominal
Education level	The highest level of school that MSM participated in the study completed.	1 = Low education 2 = Medium education 3 = High education	Ordinal
Income	The total of money, which MSM earned per month from all sources	1 = <2 million VND 2 = 2 – 5 million VND 3 = ≥ 5 million VND	Ordinal
Occupation	The main work of MSM, which source have brought participation's money in the time when study conducted	1 = Unemployed 2 = Illegal job 3= Hired worker/free worker 4 = Studying 5 = Business man, trader	Nominal
Sexual behavior	Ever have sex after drinking	1 = Yes 2 = No	Dichotomy
Number of partner	Total number of partner after drinking (male/female)		Continuous

Table 3.1: Categories and level of measurement of variables (cont.)

Condom use	Using condom for every time when have anal sex with male partner during last 30 days	1 = Yes 0 = No	Dummy (dependent variable)
Amount of drinking alcohol	Total units of alcohol drink in the last 30 days	1 = Do not drinking 2 = 1-2 units/day 3= 3 units/day 4 = ≥3 units/days	Ordinal
Frequency of drinking	Level of drinking in last 30 days	1 = Every time 2 = Almost every time 3 = Sometimes 4= Never	Ordinal
Alcohol abuse	Drink more than 21 units of alcohol per week	1 = Alcohol use 0= Alcohol abuse	Dichotomy
Interaction variable	Combine 3 categories of level of education and 2 categories of alcohol use.	1 = Primary to secondary school and use less than 3 units/days 2 = Primary to secondary school and use more than 3 units/days 3 = High school and use less than 3 units/days 4 = High school and use less than 3 units/days 5=College/university and use less than 3 units/days 6=College/university and use more than 3 units/days	Ordinal

3.8. Limitation

The research used the method of RDS in order to select the participants. The selected seeds represented different fields of occupation and the level of education, and incomes. However, during the period of recruitment, some of the seeds did not recruit effectively, so the research sampled mainly students and free labour. As a result, the research samples may not be an accurate demographic representation of the Hanoi MSM community.

CHAPTER IV
RESULTS AND DISCUSSION

4.1 Characteristics of the study subjects

Table 4.1 provides information on the demographic characteristics of 451 MSM who participated in the study. Almost all study participants were young (48.1% MSM was under 20 years old and 34.4% MSM was from 20 to 24 years old) and The average age of starting to drink alcohol of MSM was about 15 years old. Most of MSM were Kinh people (96.5%) and born outside Hanoi (68.3%). The percentage of respondent who graduated college/university was highest (65.4%) and there were 10.6% MSM were under graduated or graduated from secondary school. There were 57.2% participants who were studying in the high school or university and 2.2% of them had "illegal jobs", which refers to being a male sex worker. Most of them (93.8%) were single and more than a half of MSM (56.1%) had total income from two to five million VND a month.

Nearly half (48.8%) of the respondents were not sure about their self-reported gender, 26.8% confirmed to be male and 11.8% stated to be female. Therefore, 34.1% participants reported that they were exclusively attracted to males while 4.4% were exclusively attracted to females. The reason could be their uncertainties about their self-reported sexual gender or because they had sexual desires for both sexes.

Table 4.1: Characteristics of the study subjects

Characteristic	Total (N = 451)
Age	
< 20	48.1
20 – 24	34.4

Table 4.1: Characteristics of the study subjects (cont.)

Characteristic	Total (N = 451)
Age	
25 – 29	7.5
≥30	10
Ethnicity	
Kinh	96.5
Others	3.5
Education level	
Primary school and secondary school	10.6
High school	23.9
College/University	65.4
Hometown	
Born in Hanoi	31.7
Born outside Hanoi	68.3
Occupation	
Unemployed	0.0
Hired worker/ free worker	28.2
Studying (high school and university students)	57.2
Business man, trader	4.9
Illegal job	2.2
Others	7.5
Marital status	
Single	93.8
Married	3.3
Separated	0.9
Divorce	2.0
Income (million VND)	
< 2 million	31.3

Table 4.1: Characteristics of the study subjects (cont.)

Characteristic	Total (N = 451)
Income (million VND)	
2-5 million	56.1
≥ 5 million	12.7
Self-reported sexual gender	
Man gender	26.8
Woman gender	11.8
Transgender	8.6
Unsure about gender	48.8
Other (gay, bisexual)	3.8
Sexual desire	
Exclusively attracted to male	34.1
Mainly attracted to male, but sometime to female	28.6
Attracted to both male and female equally	14.9
Mainly attracted to female, but sometimes to male	18.0
Exclusively attracted to female	4.4

4.2 Characteristics of alcohol use

4.2.1 Moderating factors of drinking

Table 4.2 provides information about the environment of drinking among MSM. Results showed that MSM often drank in restaurants (36.0%) and bar or clubs (30.2%) in the previous month. The main reason to drink in the previous month was reported to be for relaxation and/or entertaining themselves (56.3%), feeling lonely (54.0%) or having friends who often drank (50.7%). Sixty point four percent of MSM always drank with their friends during last 30 days.

Table 4.2: Characteristics of alcohol use

Characteristic	Total (N = 444)
Place usually drink in previous months	
Own house	16.7
Parents' house or relatives' house	2.3
Male partner's house	5.9
Female partner's house	5.9
Bar/club	30.2
Pub/café	0.5
Restaurant	36.0
Others	7.9
Reasons of drinking	
To relax and/or entertain myself	56,3
To boost sexual ability	9.2
Because my friends (whom I hang out with) drink	50.7
To release tension, stress	19.8
I felt angry	4.5
I felt lonely	54.5
To forget about personal problems	9.7
Partner drinking	
I drink alone	3.4
Colleagues in my office	1.8
Friends	60.4
Boyfriend/girlfriend/spouse	2.7
Family members	2.7
Regular sexual partner (not spouse)	26.1
Casual non-commercial sex partner	1.1
Casual commercial sex partner	0.7
Person I met for the first time	0.7
Other	0.7

4.2.2 Characteristics of alcohol use during the previous month

Table 4.3 provides information about the characteristics of drinking alcohol between MSM. The average age of starting to drink alcohol was about 15 years old. It can be understood that the participants often started drinking in their teenage years, and then their consumption level increases.

The percentage drinking more than 21 units of alcohol per week during the previous month was 44.8%. This means that 44.8% of participants had alcohol abuse during the previous month.

The percentage of drinking more than three units of alcohol per one time when drinking alcohol during the previous month was high (75.3%) and there was only 11.0% participants drank 1 to 2 units of alcohol per time. When MSM drank beer, they also drank alcohol much with 62.2% of participants drank more than three units of alcohol/time when they drank beer.

Table 4.3: Alcohol use during previous month

Characteristic	**Total (N = 444) (Median; Mean; SD)**
Age of first alcohol drink	Median 16; Mean 15.3; SD 3.0
Amount of alcohol use per week in average	
1-3 units of alcohol/week	10.6
4- 7 units of alcohol/week	11.9
8 -14 units of alcohol/week	16.9
15- 21 units of alcohol/week	15.3
More than 21 units of alcohol/week	44.8
Do not remember	0.5
Number of units of alcohol when drink alcohol during the previous month	
1-2 units of alcohol	11.0
3 units of alcohol	10.1
More than 3 units of alcohol	75.3

Table 4.3: Alcohol use during previous month (cont.)

Characteristic	Total (N = 444) (Median; Mean; SD)
Age of first alcohol drink	Median 16; Mean 15.3; SD 3.0
Amount of alcohol use per week in average	
1-3 units of alcohol/week	10.6
4- 7 units of alcohol/week	11.9
8 -14 units of alcohol/week	16.9
15- 21 units of alcohol/week	15.3
More than 21 units of alcohol/week	44.8
Do not remember	0.5
Number of units of alcohol when drink alcohol during the previous month	
1-2 units of alcohol	11.0
3 units of alcohol	10.1
More than 3 units of alcohol	75.3
Number of units of alcohol when drink beer during the previous month	
1-2 units of alcohol	14.9
3 units of alcohol	14.4
More than 3 units of alcohol	62.2

4.3 Sexual behaviors among MSM

4.3.1 Type of partner

Table 4.4 presents sexual behavior characteristics of MSM. There were 89.4% MSM had sex with male partner during the last 30 days (41.2% had anal sexual intercourse) and 58.5% MSM had sex with female partner during the last 30 days. MSM had an average of 3.59 male partners for any type of sexual activity and 2.51

male partners with whom they engaged in anal intercourse during last 30 days. Average number of female partners was less than average male partner and this number were 1.67 female partners during 30 days. Lover or girlfriend was reported to be major female partners of MSM by 51.3% respondents during last 30 days. Only a small percentage of MSM had sex with a female partner on their first date (3.4%) (Figure 4.4).

Table 4.4: Sex with male partners and female partners during the past 30 days

Characteristic	**Total (N = 451)**
Sex with male partner	**89.4**
Number	Mean = 3.59 Median = 2 SD = 4.1 Min = 1, Max = 40
Anal intercourse with male partner during the last 30 days	41.5
Number	Mean = 2.51 Median = 2.0 SD = 3.2 Min = 0, Max = 40
Sexual intercourse with female partners during the last 30 days	58.5
Number	Mean = 1.67 Median = 1.00 SD = 2.7 Min = 0, Max = 35

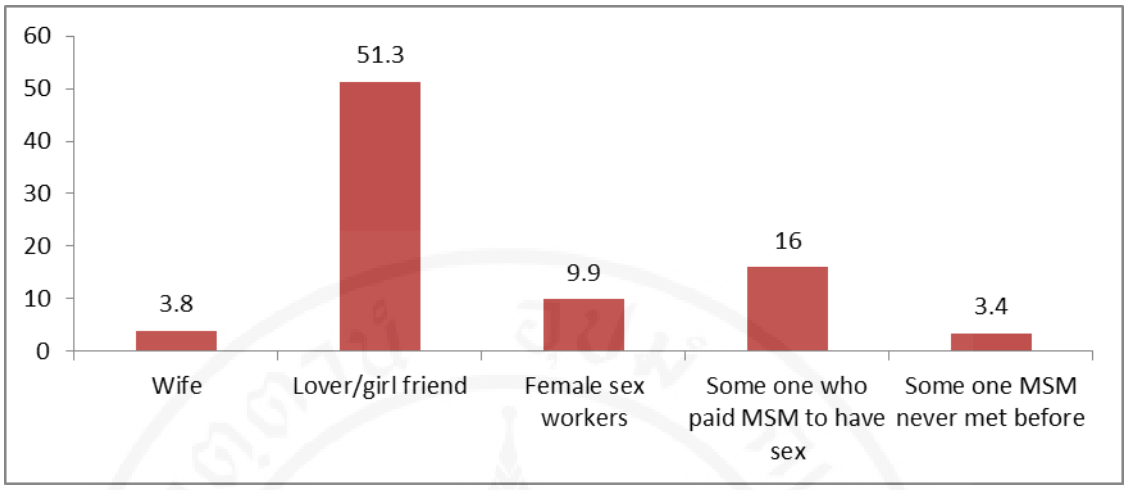

Figure 4.1: Type of female partners during the past 30 days for those who had a female partner

4.3.2 Sexual behavior after drinking during 30 days

Table 4.5 shows information about the risk of sexual behavior of participants. Among the respondents, 31.9% had a drink before or during almost every sexual intercourse with male partners in the previous month and 14.6% did not drink before or during sexual intercourse. Besides, there were 54.4% MSM had sex with female partners during last 30 days; 18.0% and 20.9% MSM drank before and almost every sexual intercourses with female partner during last 30 days respectively.

Drink alcohol affected sexual behaviors among MSM. Because the sample includes only MSM who drink alcohol, nearly all reported that they drank alcohol during last 30 days. And the vast majority (85.4% of those who drank alcohol during last 30 days) of MSM said that they had sex after drinking. Looking at behaviors related to drinking during last 30 days, 38.6% of the respondents had unwanted sex because of drinking, while 48.7% of them have intended sex after drinking.

There were 94.5% of MSM who had sex after drinking during last 30 days (379 MSM); most of them (71.8%) had sex with consensual male partners, 35.4% had sex with wife/girlfriend, 30.9% had sex with male partners who paid them for sex, 7.9% MSM had sex with female sex workers and 6.3% had sex with male sex workers after drinking.

There were 51.7% and 6.6% of 379 MSM had only anal sex and only vaginal sex respectively, of those who had sex after drinking during 30 days.

Table 4.5: Sexual risk behaviors after drinking

Characteristic	Total (N = 444)
Drinking before or during sexual intercourse with male partner in the previous month of those with a male partner	N = 451
Every time	21.5
Almost every time	31.9
Sometime	27.1
Never	19.5
Drinking before or during sexual intercourse with female partner in the previous month of those with a female partner	N = 206
Every time	18.0
Almost every time	20.9
Sometime	3.74
Never	23.8
Sex after drinking during previous month	
Yes	85.4
No	14.6
Had unwanted sex because of drinking < 1 month ago	N = 451
Yes	38.6
No	61.4
Had sex because of drinking partner treated with alcohol in the previous month < 1 month	N = 451
Yes	38.6
No	61.4
Behavior after drinking	
Looked for sex partners and had sex during the previous month	45.0

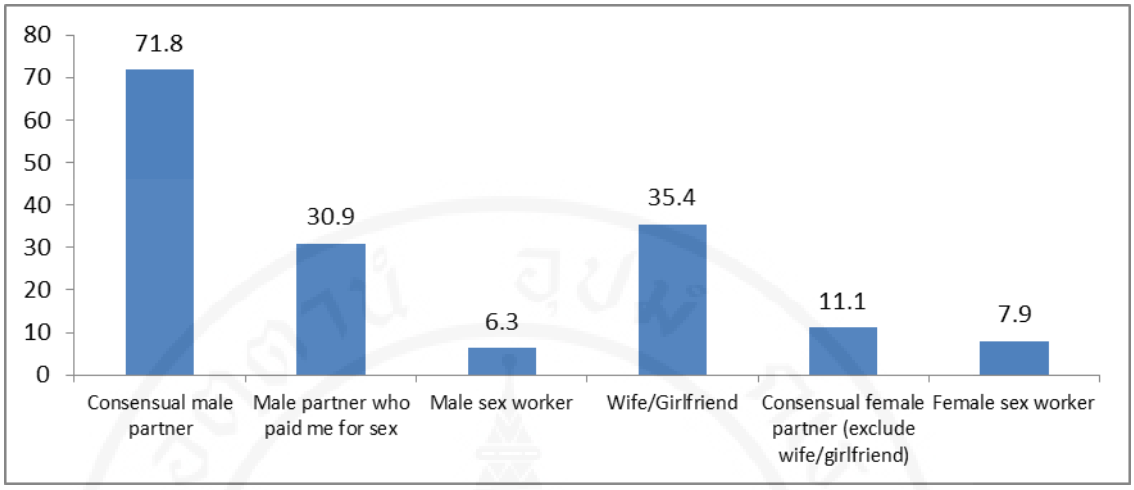

Figure 4.2: Type of sexual partners after drinking in the previous month

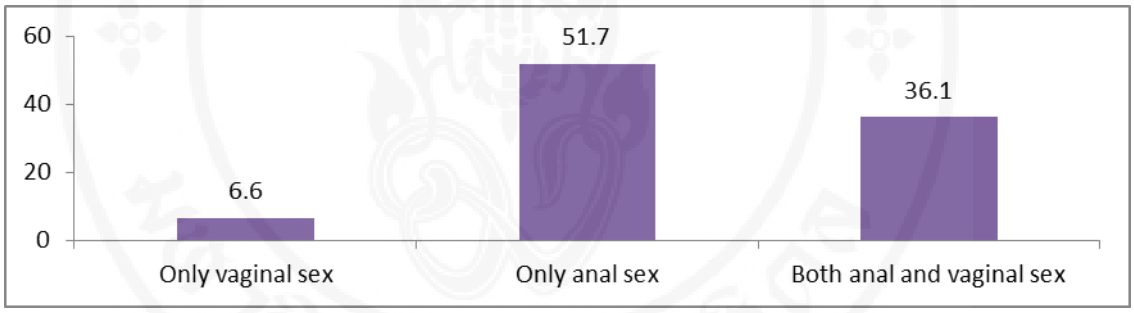

Figure 4.3: Type of sex during the sex after drinking in the previous months

4.4 Condom use among MSM

Table 4.6 shows information about the frequency of using condoms during last 30 days. Firstly, among 379 MSM who had sex after drinking during the last 30 days, the percentage of MSM who often brought condoms was high (74.3%). However, 30.2% MSM had never used condoms during the sexual intercourses for vaginal sex after drinking and only 22.2% used condoms every time when they had vaginal sex.

Secondly, among 336 MSM who had anal sex after drinking, 32.1% MSM had never used condoms and 21.7% MSM used condoms at every sex activity. There

were 174 MSM who had unwanted/unplanned sex because of drinking but only 28.2% of them used condoms.

Thirdly, among 402 MSM who had anal sex with male partners in the last 30 days, only 28.9% of them used condoms at every sexual intercourse and 29.1% had never used condoms.

Finally, among 206 MSM who had sex with a female during last 30 days, the percentage of MSM who used condoms in their every sexual intercourse with female partners was 25.7%, while 33.5% of them had never used condoms.

Table 4.6. Condom use among MSM

Characteristic	**Total % (n)**	
Often brings condom		
Do not bring	74.3	(335)
Bring	25.7	(116)
Use condom during the sexual intercourses that involve vaginal sex after drinking during the previous month		**N = 379**
Every time	22.2	(36)
Almost every time	18.5	(30)
Sometime	29.0	(47)
Never	30.2	(49)
Use condom during the sexual intercourses that involve anal sex after drinking during previous month		N = 336
Every time	21.7	(73)
Almost every time	16.4	(55)
Sometime	28.9	(97)
Never	32.1	(108)
Not remember	0.9	(3)

Table 4.6. Condom use among MSM (cont.)

Characteristic	Total % (n)	
Often brings condom		
Do not bring	74.3	(335)
Bring	25.8	(116)
Use condom during the sexual intercourses that involve vaginal sex after drinking during the previous month		**N = 379**
Every time	22.2	(36)
Almost every time	18.5	(30)
Sometime	29.0	(47)
Never	30.2	(49)
Use condom during the sexual intercourses that involve anal sex after drinking during previous month		N = 336
Every time	21.7	(73)
Almost every time	16.4	(55)
Sometime	28.9	(97)
Never	32.1	(108)
Not remember	0.9	(3)
Use condom during unwanted/unplanned sex because of drinking during the previous month		N = 174
Yes	28.2	(49)
No	70.7	(123)
Not remember	1.1	(2)
Use condom when having anal intercourse with male partners in the previous month		N = 402
Every time	28.9	(116)
Almost every time	15.4	(62)

Table 4.6. Condom use among MSM (cont.)

Characteristic	Total % (n)	
Use condom during the sexual intercourses that involve vaginal sex after drinking during the previous month		**N = 379**
Sometime	29.0	(47)
Never	30.2	(49)
Use condom during the sexual intercourses that involve anal sex after drinking during previous month		N = 336
Every time	21.7	(73)
Almost every time	16.4	(55)
Sometime	28.9	(97)
Never	32.1	(108)
Not remember	0.9	(3)
Use condom during unwanted/unplanned sex because of drinking during the previous month		N = 174
Yes	28.2	(49)
No	70.7	(123)
Not remember	1.1	(2)
Use condom when having anal intercourse with male partners in the previous month		N = 402
Every time	28.9	(116)
Almost every time	15.4	(62)
Sometime	26.6	(107)
Never	29.1	(117)
Use condom when having sexual intercourse with female partners in the previous month		N = 206
Every time	25.7	(53)
Almost every time	13.6	(28)

Table 4.6. Condom use among MSM (cont.)

Characteristic	Total % (n)	
Use condom when having sexual intercourse with female partners in the previous month	N = 206	
Sometime	27.2	(56)
Never	33.5	(69)

4.5 Relationship between alcohol use and sexual risk behavior

Table 4.7 shows that there was a relationship between the number of alcohol units when drinking alcohol on average one time during 30 days and had sex after drinking. Most participants drank more than three units of wine or beer (91.3% and 92.4%) and had sex after drinking. A Chi square test showed that: those with higher drinking levels also had a higher frequency of having sex after drinking during the previous month ($\chi 2 = 60.1$; $p = 0.000$). In addition, the higher the total amount of alcohol or of beer that was reported during the previous month was, the higher the frequency of having sex after drinking was ($\chi 2 = 71.64$; $p = 0.000$ and $\chi 2 = 16.2$; $p = 0.002$). These relationships were statistically significant with $p<0.000$.

Average amount of alcohol that MSM drank peer week also had a relationship with sexual behavior after drinking. There were 95.0% MSM who drank more than 21 units of alcohol per week had sex after drinking. Table 4.7 shows that those with higher amount of alcohol per week had higher frequency of having sex after drinking ($\chi 2 = 71.6$, $p = 0.000$).

Besides, types of common alcohol during the previous month affected to sexual behaviors after drinking. Alcoholic with high alcohol strengths affected sexual behavior more than less concentration alcohol. Table 4.7 shows that those who drank 40% or more than 40% of alcohol of during the previous month had a significantly lower frequency of condom use with male partners during the previous month ($\chi 2 = 11.9$, $p = 0.005$).

Table 4.7: Alcohol use and have sex after drinking

All factors	Having sex after drinking alcohol/beer during the previous month			
	Yes	**No**	**Total**	**χ2**
The number of alcohol units when drinking alcohol during the previous month				
1-2 units	67.3	32.7	100.0 (49)	*60.1****
3 units	80.0	20.0	100.0 (45)	
More than 3 units	91.3	8.7	100.0 (333)	
Total	85.4	14.6	100.0 (444)	
The number of unit of alcohol when drinking beer during the previous month				
1-2 units	68.2	31.8	100.0 (66)	*32.4* ***
3 units	75.0	25.0	100.0 (64)	
More than 3 units	92.4	7.6	100.0 (276)	
Total	85.4	14.6	100.0 (444)	
Amount of alcohol drink per week in average				
1-3 units of alcohol/week	48.9	51.1	100.0 (47)	*71.64* ***
4- 7 units of alcohol/week	75.5	24.5	100.0 (53)	
8 -14 units of alcohol/week	88.0	12.0	100.0 (75)	
15- 21 units of alcohol/week	88.2	11.8	100.0 (68)	
More than 21 units of alcohol/week	95.0	5.0	100.0 (199)	
Type of alcohol most frequency drinking during the previous month				
Beer	74.8	25.2	100.0 (111)	*16.2****
Wine (of 15% or less)	82.1	17.9	100.0 (56)	
Alcohol ≥ 40%	90.4	9.6	100.0 (272)	
Other	80.0	20.0	100.0 (5)	
Total	85.4	14.6	100.0 (444)	

*Note: *p<0.05; **p<0.01; ***p<0.001*

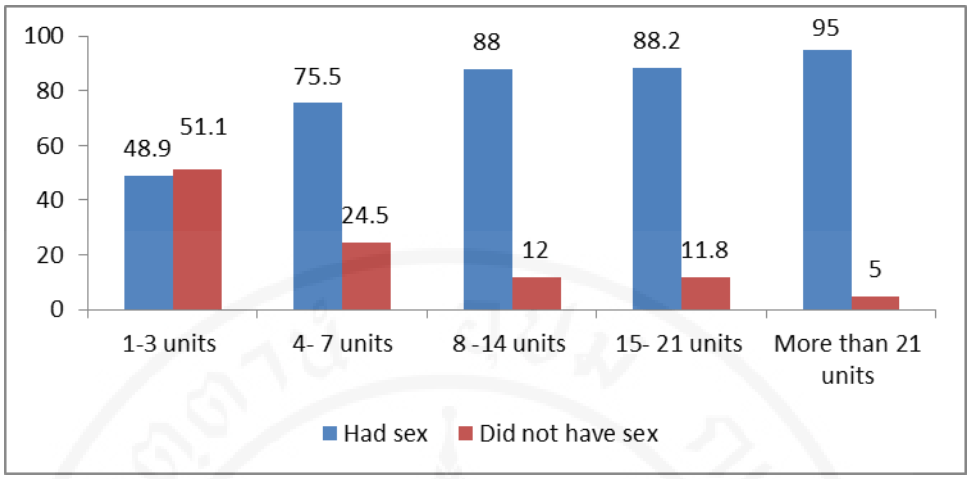

Figure 4.4: Amount of alcohol drinking per week in average and having sex after drinking

4.6 Relationship between alcohol use and education

Table 4.8 shows the relationship between level of education and alcohol use. The percentage of MSM with primary to secondary school and drinking more than 21 units/week was highest (66.7%). A Chi square test found that there was a relationship between educational level and average drinking amount per week during the previous month and between level of education and the amount of beer consumption. Those with higher educational levels were associated with lower average amounts of consumed alcohol per week ($\chi 2 = 29.4$, $p = 0.000$); and those with higher educational levels were associated with lower consumed amounts of alcohol when drinking beer at one drinking session during the previous month ($\chi 2 = 12.8$, $p = 0.04$).

Table 4.8: Relationship between level of education and alcohol use

Level of education	Amount of drinking per week in average during previous month							
	1-3 units	4-7 units	8-14 units	15-21 units	More than 21 units	Do not remember	Total	$\chi 2$
Primary to secondary	12.7	4.2	10.4	6.3	66.7	0.0	100.0 (48)	29.4***

Table 4.8: Relationship between level of education and alcohol use (cont.)

Level of education	Amount of drinking per week in average during previous month							
	1-3 units	4-7 units	8-14 units	15-21 units	More than 21 units	Do not reme m-ber	Total	χ2
High school	10.5	11.4	7.6	14.3	56.2	0.0	100.0 (105)	
College/university	10.3	13.4	21.3	17.2	37.1	0.7	100.0 (291)	
Total	10.6	11.9	16.9	15.3	44.8	0.5	100.0 (444)	
Level of education	**The number of units of alcohol when drinking alcohol during the previous months**							
	Do not drink	1-2 units	3 units	More than 3 units	Do not remem -ber	Total		χ2
Primary to secondary	4.2	16.7	6.3	70.8	2.1	100.0 (48)		7.8
High school	3.8	12.4	6.7	77.1	0.0	100.0 (105)		
College/university	2.7	9.6	12.0	74.9	0.7	100.0 (291)		
Total	3.2	11.0	10.1	75.0	0.7	100.0 (444)		
Level of education	**The number of units of alcohol when drinking beer during the previous months**							
	Do not drink	1-2 units	3 units	More than 3 units	Total			χ2
Primary to secondary	16.7	14.6	10.4	58.3	100.0 (48)			12.8*
High school	8.6	15.2	6.7	69.5	100.0 (105)			
College/university	7.2	14.8	17.9	60.1	100.0 (291)			
Total	8.6	14.9	14.4	62.2	100.0 (444)			

*Note: *p<0.05; **p<0.01; ***p<0.001*

4.7 Relationship between alcohol and condom use

4.7.1 Condom use when have sex with male partners during the previous months

Having sex after drinking and type of alcohol during the previous months were associated with condom use in every sexual intercourse among 444 MSM. There were 78.1% MSM who had sex with male partners after drinking and did not use condom. Having sex after drinking was easily led to inconsistent condom use, those had sex after drinking used condom less than those did not have sex after drinking ($p = 0.000$). In addition, MSM who drank beer with less alcohol strength were more often use condom than others (36.9%). Therefore, those who drank stronger alcohol performed lower rate of condom use on having sex ($\chi2= 11.9$, $p = 0.005$). While those who drank more than 3 units of alcohol in the past month were less likely to use condoms, the relationship was not statistically significant ($p = 0.1$).

Table 4.9: Relationship between alcohol use and condom use when have sex with male partners during the previous months

All factors	**Always use condom**			
	Yes	**No**	**Total**	**Chi square ($\chi2$)**
Have sex after drinking during the previous month				
Yes	21.9	78.1	100.0 (379)	15.1***
No	44.6	55.4	100.0 (65)	
Total	25.2	74.8	100.0 (444)	
Type of alcohol most frequency drinking during the previous month				
Beer	36.9	63.1	100.0 (111)	11.9 **
Wine (of 15% or less)	21.4	78.6	100.0 (56)	
Alcohol of 40% or more	21.7	78.3	100.0 (272)	
Others	0.0	100.0	100.0 (5)	
Total	25.2	74.8	100.0 (444)	
The number of unit of alcohol when drinking alcohol during the previous month				
<3 units	34.9	65.1	100.0 (36)	3.2
≥3 units	24.2	75.8	100.0 (388)	
Total	25.7	74.3	100.0 (451)	

*Note: *p<0.05; **p<0.01; ***p<0.001*

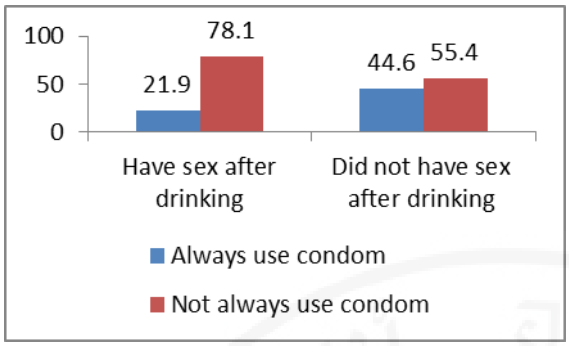

Figure 4.5: Condom use when have sex after drinking

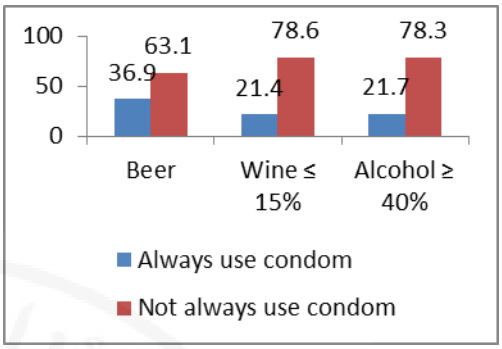

Figure 4.6: Condom use when have sex after drink types of alcohol

4.7.2 Alcohol and condom use when having sex with female partners during the previous month.

Table 4.10 shows that there was no relationship between alcohol consumption and condom use when MSM had sex with female partners during the previous month. MSM who had sex with female partners after drinking had less frequency of condom use than MSM who did not have sex after drinking, 97.8% MSM did not use condom in sexual encounters after drinking. However, this relationship was not statistically significant ($p>0.05$). Types of alcohol and amount of alcohol did not affect condom use in heterosexual relationships during last 30 days with $p>0.05$. The frequency of no condom use was very high (more than 97%).

The effect of the type of alcohol and amount of alcohol were not statistically significant with always use condom when have sex with female partner during last 30 days with $p>0.05$

Table 4.10: Relationship between alcohol and condom use when having sex with female partners during the previous month

All factors	Always use condom when have sex with female partners during the previous month				
	Yes	No	Total		Chi square ($\chi 2$)
Have sex after drinking during the previous month					
Yes	2.2	97.8	100.0	(186)	0.3

Table 4.10: Relationship between alcohol and condom use when having sex with female partners during the previous month (cont.)

All factors	Always use condom when have sex with female partners during the previous month				
	Yes	No	Total		Chi square ($\chi 2$)
Have sex after drinking during the previous month					
No	6.3	93.8	100.0	(16)	
Total	2.5	97.5	100.0	(202)	
Type of alcohol most frequency drinking during the previous month					
Beer	2.3	97.7	100.0	(44)	0.8
Wine (of 15% or less)	0.0	100.0	100.0	(24)	
Alcohol of 40% or more	3.0	97.0	100.0	(132)	
Others	0.0	100.0	100.0	(2)	
Total	2.5	97.5	100.0	(202)	
The number of unit of alcohol when drinking alcohol during the previous month					
<3 units	0.0	100.0	100.0	(20)	1.5
≥3 units	2.7	97.3	100.0	(180)	
Total	2.2	97.5	100.0	(205)	

*Note: *p<0.05; **p<0.01; ***p<0.001*

4.7.3 Level of education and condom use

This part shows the relationship between levels of education and condom use in different sexual behaviors (vaginal/anal/intercourse) and different type of partners (male/female). However, there was no association between level of education and condom use in each type of sex and types of partners (p>0.05). Ninety percent of MSM did not use condom at every vaginal sexes after drinking. MSM who graduated from college/university performed a highest frequency of using condom (10.2%). Twenty two percent of MSM used a condom when having anal sex with male partners and 29.2% of the MSM who graduated from primary to secondary school among these MSM. The percentage of MSM who graduated from primary to secondary school also

used a condom when having sex with female partners at a higher rate than others (4.3%). However, these results presented the differences were not statistically significant (p>0.05) (table 4.11)

Table 4.11: Relationship between level of education and condom use

Level of education	Using condom during sexual intercourse that involve vaginal sex after drinking during the previous month			
	Yes	No	Total	Chi square (χ2)
Primary to secondary	9.8	90.2	100.0 (41)	0.5
High school	7.6	92.4	100.0 (92)	
College/university	10.2	89.8	100.0 (246)	
Total	9.5	90.5	100.0 (379)	
Level of education	**Using condom while having anal sex with male partner during the previous month**			
	Yes	**No**	**Total**	**Chi square (χ2)**
Primary to secondary	29.2	70.8	100.0 (48)	0.34
High school	25.0	75.0	100.0 (108)	
College/university	25.4	74.6	100.0 (295)	
Total	25.7	74.3	100.0 (451)	

Level of education	Using condom while having sexual intercourse with female partner during the previous month			
	Yes	No	Total	Chi square (χ2)
Primary to secondary	4.3	94.7	100.0 (23)	1.2
High school	0.0	100.0	100.0 (33)	
College/university	2.7	97.3	100.0 (150)	
Total	2.4	97.6	100.0 (206)	

*Note: *p<0.05; **p<0.01; ***p<0.001*

4.8 Correlation and interactive effect of level of education, alcohol use on condom use

4.8.1 Logistic regression of level of education, alcohol use and condom use when having anal sex with male partners during last 30 days , controlling for socio-demographic variables

The logistic regression model with two categories (yes/no) was used to examine the effects of educational level and alcohol use on using a condom every time during anal sex with a male partner during last 30 days, controlling for socio-demographic variables. Alcohol use was defined as an average amount of alcohol during last 30 days. Table 14 shows the logistic regression results, their dependent variable was "always using condoms in all anal intercourse with male partners in the last 30 days". There were eight independent variables categorized in three groups of characteristics related to demographic factors: characteristics, alcohol consumption and education level related to alcohol use.

Following are the logistic regression results between independent and dependent variables. In term of demographic characteristics, there are six significant factors including hometown, ethnicity, marital status, age group, income and occupation. Results showed that: the odds of always using condoms in participants who were born in Hanoi was 2.37 times higher than MSM who were not born in Hanoi. Place of birth was very closely related to the no condom use in all sexual intercourses, with $p < 0.001$. In term of ethnicity, Kinh people was less likely to use condom than MSM who belonged to other ethnicities 69% ($p<0.05$). Having sex after drinking has relationship with always using condom when have anal sex with female partner. Those have sex after drinking were less likely to use condom than those do not have sex after drinking 62% (OR = 0.38, $p<0.05$).

However, the relationship between marital status, age group, income, occupation and "always using condom" were not statistically significant. Besides, there was not statistically significant between the average amount of alcohol use during last 30 days and level of education with "always use condom when having anal sex with male partners during last 30 days" ($p>0.05$), controlling all socio-demographic variables.

Table 4.12: Logistic regression of the effect of educational level and alcohol consumption on consistent condom use when having anal sex with male partners during last 30 days, controlling for socio-demographic variables

	Factors	Always using condom when have anal sex with male partner		
		Coef.	S.E.	Odds ratio
Hometown	Hanoi Outside Hanoi (ref.)	0.86	0.27	2.37**
Ethnicity	Kinh Others (ref.)	-1.17	0.57	0.31*
Marital status	Married Unmarried (ref)	0.28	0.60	1.33
Age group	<20 (ref)			
	20-24	0.26	0.31	1.3
	25-29	-0.25	0.51	0.78
	≥30	-0.08	0.59	0.92
Income	<2000000 (ref)			
	2000000 – 5000000	-0.25	0.28	0.78
	More than 5000000	-0.41	0.46	0.67
Occupation	Hired worker/ free worker (ref)			
	Studying (high school and university students)	0.19	0.42	1.2
	Business man, trader	-0.79	0.72	0.46
	Sex worker	0.12	0.92	1.12
	Others	0.36	0.58	1.43

Table 4.12: Logistic regression of the effect of educational level and alcohol consumption on consistent condom use when having anal sex with male partners during last 30 days, controlling for socio-demographic variables (cont.)

Factors		Always using condom when have anal sex with male partner		
		Coef.	S.E.	Odds ratio
Have sex after drinking	Yes	-0.98	0.32	0.38*
	No (ref)			
Alcohol use	≥ 3 units (ref)	0.15	0.36	1.16
	< 3 units			
Level of education	College/University (ref)			
	Primary to secondary	0.31	0.52	1.36
	High school	0.21	0.40	1.23
Constant = 0.41				
Chi square = 40.31				
p= 0.001				

*Note: *p<0.05; **p<0.01; ***p<0.001*

From the result of multivariate logistic regression showed that the appearance of independent variables in the model was statistically significant ($\chi 2$ = 34.32, p = 0.003)

4.8.2 Logistic regression of the effect of level of educational level categories and alcohol use on consistent condom use, controlling for socio-demographic variables

In this part, logistic variable was use to examine the effects of each of category of education and alcohol use on dependent variable when controlling for three socio-demographic variables (hometown, ethnicity, occupation). The results of

multivariate logistic regression in this model also showed the same results with model 1, hometown, ethnicity and having sex after drinking were associated with always use condom. The odds of always use condoms in participants who were born in Hanoi were 2.3 times higher than MSM who were not born and grew up in Hanoi. Place of birth was very closely related to the no condom use in all sexual intercourses, with p <0.001. In addition, the model shows that MSM who were Kinh people were less likely to use condom than MSM who belonged to other ethnicities (p<0.05) 65%. However, this result is likely due to the small percentage of non-Kinh respondents and the fact that ethnicity is correlated with educational level and hometown. In addition, those have sex after drinking use condom were less likely to use condom than those do not have sex after drinking 61% (OR = 0.39, p<0.01).The correlation between occupation and always use condom in this model was not statistically significant.

There was not statistically significant between each category of average amount of alcohol use during last 30 days and level of education with always use condom when having anal sex with male partners during last 30 days (p>0.05).

Table 4.13: Logistic regression of the effect of level of educational level categories and alcohol use on consistent condom use , controlling socio-demographic variables

	Factors	**Always using condom when have anal sex with male partner**		
		Coef.	**S.E.**	**Odds ratio**
Hometown	Hanoi	0.84	0.25	2.3***
	Outside Hanoi (ref.)			
Ethinicity	Kinh	-1.6	0.55	0.35*
	Others (ref.)			
Occupation	Hired worker/ free worker (ref)			
	Studying (high school and university students)	-0.03	0.37	,968

Table 4.13: Logistic regression of the effect of level of educational level categories and alcohol use on consistent condom use , controlling socio-demographic variables (cont.)

	Factors	Always using condom when have anal sex with male partner		
		Coef.	S.E.	Odds ratio
Occupation	Business man, trader	-0.53	0.55	0.59
	Sex worker	0.15	0.91	1.16
	Others	-0.13	0.48	0.88
Have sex after drinking	Yes	-0.93	0.31	0.39**
	No (ref.)			
Alcohol use	≥ 3 units (ref)	0.02	0.33	1.02
	< 3 units			
Level of education	College/University (ref)			
	Primary to secondary	0.08	0.37	1.08
	High school	0.20	0.28	1.22
	Constant = 1.31			
	Chi square = 35.07,			
	p = 0.000			

*Note: *p<0.05; **p<0.01; ***p<0.001*

From the result of multivariate logistic regression showed that the appearance of independent variables in the model was statistically significant (X2 = 22.98, p = 0.006)

4.8.3 Logistic regression of interactive effect of educational level, alcohol use and condom use, controlling socio-demographic variables

Tables 4.12 and 4.13 showed that not only educational level and alcohol consumption but also each category of them also were not associated to condom use among MSM. Therefore, the third model was developed to examine interaction effects between educational level, alcohol consumption on condom use among MSM, controlling socio-demographic variables.

In this model, hometown and ethnicity were associated with always using condom. Those with hometown in Hanoi used condoms 2.29 times higher than others ($p<0.001$) and Kinh people always used condom less than the others 66%. However, this result is likely due to the small percentage of non-Kinh respondents and the fact that ethnicity is correlated with educational level and hometown. Having sex after drinking also were associated with always using condom when have anal sex with male partner, because those have sex after drinking were less likely to use condom than those do not have sex after drinking 60% (OR = 0.40, $p<0.05$). However, no correlation between occupation and always using condom was found in table 4.14.

Particularly, there was an interactive effect between educational level and alcohol use on always using condom. Those who graduated from college/university and consumed less than three units of alcohol during the last 30 days performed 1.69 times higher of using condoms than the others ($p<0.05$).

Table 4.14: Logistic regression of interactive effect of educational level, alcohol use and condom use, controlling socio-demographic variables

	Factors	**Always using condom when have anal sex with male partner**		
		Coef.	S.E.	Odds ratio
Hometown	Hanoi	0.83	0.25	2,29***
	Outside Hanoi (ref.)			
Ethinicity	Kinh	-1.09	0.56	0.34*
	Others (ref.)			
Occupation	Hired worker/ free worker (ref)			
	Studying (high school and university students)	-0.01	0.38	0.99

Table 4.14: Logistic regression of interactive effect of educational level, alcohol use and condom use, controlling socio-demographic variables (cont.)

Factors		Always using condom when have anal sex with male partner		
		Coef.	S.E.	Odds ratio
Occupation	Business man, trader	-0.65	0.56	0.52
	Sex worker	0.12	0.91	1.13
	Others	-0.14	0.48	0.87
Have sex after drinking	Yes	-0.91	0.31	0.40*
	No			
Interaction of level of education and alcohol use	Primary to secondary school and use less than 3 units/days	-0.7	0.88	0.50
	Primary to secondary school and use more than 3 units/days	0.11	0.51	1.11
	High school and use less than 3 units/days	-0.83	0.69	0.44
	High school and use more than 3 units/days	-0.03	0.39	0.97
	College/university and use less than 3 units/days	0.52	0.41	1.69*
	College/university and use more than 3 units/days (ref)			
	Constant = 1.73			
	Chi square = 35.07			
	p= 0.000			

*Note: *p<0.05; **p<0.01; ***p<0.001*

From the result of multivariate logistic regression showed that the disappear of independent variables in the model was statistically significant (X^2 =

28.29, p = 0.003)

4.9 Discussion

In this study, there were several areas of concern among MSM behavior in Hanoi city, Vietnam, such as; the frequency and the amount of alcohol consumption , sexual risk behavior after drinking, frequency of condom use and interactive effect of level of education and alcohol use on condom use. This study found that the average age of starting to drink alcohol of MSM was about 15 years old. It could be explained that the younger they start drinking alcohol, the higher the amount of alcohol they consume when they are adults. Like other studies, this inquiry also focused on the number of alcohol units. The percentage of drinking and drinking more than three units of alcohol at one time in last 30 days was high (over 75%). This result is similar to previous study which also assumed that the reason was the starting age to drink (Family Health International & UNAIDS, 2005). The percentage of MSM who drink more than eight units per week was higher than previous studies (78.5%), and the percentage of participants who alcohol abused during the previous months was high (44.8%). The difference of sample size might cause this result. Because of the secondary data, the information on level of consumption and frequency of drinking among MSM in three levels (low, moderate and high/heavy) like in AUDIT score could not be found. However, same results were found in comparison to other studies in terms of rate of drinking in MSM was high (Stall & Wiley, 1988), (McKiman & Perterson, 1989) (Skinner & Otis, 1992) (Koblin et al., 2003) (Family Health International & UNAIDS, 2005).

The study found that MSM also tend to have had sex with male, female and even multiple partners (during the last 30 days, male partners and female ones were counted for 3.60 and 1.67, respectively). There were 34.1% MSM who exclusively attracted to male and 28.6% of MSM mainly was attracted to male, but sometimes to female. These may be considered to be bisexuals. Accordingly, this finding corresponds to other studies which found that one of risk behaviors among MSM was having multiple partners, different self – reported sexual identities and sexual desires (Kanter et al., 2009; Koblin et al., 2003). The previous studies found

that the frequency of alcohol use and type of alcohol was associated with sexual behaviors among MSM such as unprotected sex and inconsistent condom use (Lane et al., 2008a; Stein et al., 2000; Vanable et al., 2004). The results indicated that drinking affected sexual behaviors and leads to high-risk behavior among MSM. The association between the frequency and amount of drinking, type of alcohol and sexual behaviors among the respondents was explored. Alcohol affects alertness and may lead to uninhibited behaviors, including sexual behaviors. The frequency of MSM having sex after drinking was very high (85.4%) among those who drank during last 30 days. The higher the total amount of alcohol that was reported during the previous month was, the higher frequency of having sex after drinking or the higher concentration of alcohol and the lower frequency of condom use were. Because the higher total amount of alcohol and the higher concentration of alcohol, the more effect to the brain and behaviors of alcohol, therefore it will be easier to lead to uncontrolled behaviors among alcohol users. The percentage of condom use for sexual intercourse after drinking was very low. Less than 30% MSM used condoms in every intercourse after drinking, for example the percentage of MSM who used condoms for vaginal sex and anal sex was 22.2% and 21.7%, respectively. The study found that having sex after drinking is related to inconsistency of condom use (OR = 0.35, $p<0.000$) and the higher the alcohol concentration, the less likely the use of condoms ($p<0.005$). Alcohol could make MSM out of control and have sexual risk behaviors. Therefore, inconsistency of condom use was one of risk behaviors among the MSM. This finding is similar to previous studies globally (Colfax et al., 2001; Houston & McKirnan, 2007; Kanter et al., 2009). However, these studies found that there was association between the inconsistency of condom use and individual factors (such as age group, education, and income) and sexual factors (such as type of partner, number of partners and place of sex) (Bouhnik et al., 2007; Folch et al., 2010; Gutiérrez et al., 2006; Kanter et al., 2009). These results were not found in this study. Level of education was found to have an association with the frequency and amount alcohol consumption among MSM. Those with higher educational levels were associated with lower average amounts of consumed alcohol per week ($\chi 2 = 29.4$, $p = 0.000$). Previous studies found this result as well (Greenwood et al., 2000). It can be explained that the

awareness of those with higher education about alcohol was higher than that of those with lower education.

Studies globally have found that those with the higher level of education showed a higher frequency of using condom (Chemnasiri et al., 2010; Crosby et al., 1996; Mendoza-Pérez & Ortiz-Hernández, 2009). However, there was no association between level of education and condom use in each type of sex and types of partner found in this study. The large percentage of respondents who graduated in college/university (65.4%) might lead to this result.

Multivariate logistic regression found that hometown and ethnicity were associated with condom use among MSM controlling for socio-demographic variables. Those who were born in Hanoi were more likely to use a condom when have sex with another male (more than 2 times in 3 models). It can be explain that Hanoi is the capital city of Vietnam, and the programs for HIV / AIDS, especially HIV / AIDS for MSM was deployed earlier in Hanoi than other provinces/cities. There are many government agency and international organizations who actively work in HIV/AIDS programs in Hanoi, including intervention program on HIV/AIDS among MSM. Therefore, many projects and studies related to MSM in Hanoi has been implemented including condom and lubricant distribution. Therefore, MSM who were born in Hanoi have more opportunity to access condoms compared to those who were born outside Hanoi. MSM who were born in other localities in the study moved in and lived in Hanoi at least 3 months had access to condom distribution services less than the MSM who grew up in Hanoi. That leads to the rate of condom use among MSM who were born in Hanoi being higher than MSM who were born in other localities. The study indicates MSM who were Kinh ethnicity used condoms less than other ethnic groups. This can be explained by the limitation of sample size. The percentage of Kinh were very high (96.5%), the sample of MSM who was not Kinh is very small. The small sample size made the results in the model look strange because of the standard error. These result from three models are likely due to the small percentage of non-Kinh respondents and the fact that ethnicity is correlated with educational level and hometown.

However, the logistic regression model found that there is an interactive effect of educational level, alcohol use and condom use among the MSM (controlling

for socio-demographic variables). Those with higher education and less alcohol consumption during last 30 days performed more frequent condom use than the others (OR = 1.69, $p<0.05$). It can be explained that those with higher education had higher knowledge about safe sex (condom use), they understood that using condom is the best way to protect themselves from sexual transmission diseases such as STDs, HIV, etc. They are knowledgeable that if they have sex with any partners, they should use a condom every time to protect their heath. In addition, higher education may be associated with holding higher level occupations; thus this group might have less free time and opportunities to drink than MSM who have lower education and lower level occupations. They also are more likely to understand about the effect of alcohol on their heath and their behaviors. In addition, if MSM drink or do not drink, those with higher educational level know that they should use a condom. However, if they drink less, the probability of condom use are higher than those who drank a lot. This finding is very important for policy maker or program officer. Because we can understand that if one person has higher level of education, the probability of using condom will increase. It means that if we want to increase the frequency of using condom, we should priority of increase the level of education or the knowledge. Therefore, the most important thing we think from this results that it is necessary to promote intervention programs to improve their knowledge about safe sex, the consequences of alcohol use to sexual behavior and the importance of condom use.

CHAPTER V
CONCLUSION AND RECOMMENDATION

5.1 Conclusion

This study examined the frequency and amount of alcohol consumption among MSM in Hanoi, Vietnam. In addition, it examined the interactive effects of educational levels and alcohol use on condom use in this group. The survey found that 75.3% of MSM drank more than three units of alcohol per drinking session during the previous month. Drinking alcohol has affected to sexual behaviors among MSM. There was an association between the average amount and total amount of alcohol per week with having sex after drinking. Those with higher drinking levels also had a higher frequency of having sex after drinking during the previous month ($\chi2 = 60.1$; $p = 0.000$). The higher the total amount of alcohol or beer that was reported during the previous month, the higher the frequency of having sex after drinking ($\chi2 =71.64$; $p = 0.000$ and $\chi2 = 16.2$; $p = 0.002$). The percentage of condom use in every sexual intercourse after drinking among MSM was very low, the percentage of MSM had never used condom for anal sex after drinking was 32.1%. The average amount of alcohol per week and most frequent type of alcohol during the previous month were associated with having sex after drinking among MSM ($p<0.05$).

The percentage using a condom among MSM when having sex after drinking was very low (less than 30%) and the percentage of MSM who never used a condom for anal sex after drinking was 32.1%. Type of alcohol also was associated with frequency of using condom. Those who drank 40% or more than 40% of alcohol during the previous month had significantly lower frequency of condom use with male partners during the previous month ($\chi2 = 11.9$, $p = 0.005$).

There were relationship between level of education and amount of drinking per week. Those with higher educational levels were associated with lower average amounts of consumed alcohol per week. There were no relationship between level of education and condom use among MSM with $p<0.05$.

To investigate the relationship between educational level and alcohol consumption, educational level was divided into three groups (low, median and high) and consumption of alcohol into two groups (less than 3 units and more than 3 units). Those with higher educational levels were associated with lower amounts of beer consumed at one session during the previous month ($\chi 2 = 12.8$, $p = 0.04$). The multivariate model on the determinants of condom use found that there was an interactive effect of alcohol use and educational levels. Those with a higher level of education drank less than 3 units of alcohol per day were 1.69 times more likely to use condom than who drank more than 3 units, controlling for socio-demographic variables ($p<0.05$).

5.2 Recommendation

The previous studies in Vietnam found that sexual risk behaviors, such as multiple partners, inconsistent condom use and drug use, were the main risky behaviors among MSM. However, the results of this study may indicate that alcohol use is one of the high-risk behaviors among MSM in Hanoi, Vietnam. Because drinking leads to risky sexual behaviors (had sex after drinking and inconsistency of condom use). This is the first study about alcohol use and condom use among MSM in Hanoi, Vietnam, the result of this study is useful and important for intervention program among MSM group. From the results of study, there are some main points should be implemented in Hanoi in particularly and in Vietnam in generally.

Firstly, it is necessary for policy makers to make programs or activities to communicate about effect of alcohol on risk behaviors and its consequences to sexual risk behaviors, provide knowledge about using condom to increase the rate of using condom in MSM group. Because the study found that those with higher level of education was associated with higher frequency of condom use, unless they drink heavily. Therefore, the most important thing is increase the knowledge about condom use, the consequences of alcohol use to behavior and health status to increase the frequency of condom use. Condom distribution or condom social marketing should be continued and expanded in the future. These programs can increase the accessibility of MSM to use condoms and to increase condom use when having sex. In addition, the

video communication on condoms and safe sex with these illustrations, compelling content, easy to understand messages should be used to increase the effectiveness of communication about condom use. These activities should be actively implemented to strong impact on behavior change and increase the percentage of condom use among MSM to help them avoiding the consequences of unsafe sex.

Secondly, intervention programs among MSM should be interested in limiting alcohol use among MSM (specially using alcohol before or during have sex). For example, policy makers should have rules about the level of alcohol use in the general population. These rules of behavior sanctioned alcohol use should also be strengthened to limit the harmful effects of alcohol for human use. It is necessary to have regulation uptime in entertainment venues such as bars, restaurants to limit the level of alcohol use at this location. In addition, it can to help limit the extent of use of alcohol by individuals often drink alcohol at the venues including MSM. The communication of information about the effects of alcohol advertising and how to get rid of alcohol should be strengthened in all mass media.

Thirdly, consistent intervention programs are necessary to reduce the influence of alcohol use for different education levels and increase the frequency of condom use among MSM. Condom and lubricant distribution program should be continued and prioritized for the MSM group. Therefore, it can help to reduce HIV transmission through sexual behaviors among MSM in general and MSM with drinking in Hanoi and for the country. However, because of limited resources, the program should focus on the lower education group because this group tends to have more risk behaviors than higher educational groups.

Fourthly, only a few members of the sample were from non-Kinh ethnic groups, therefore the results cannot represent all ethnicities in Vietnam. Therefore, it is necessary to have quantitative research among MSM who drink alcohol for more ethnic groups in Vietnam by expanding the sample size to have more probability by recruiting MSM from different ethnic groups. For example, the sample size should be more than 1000 sample and from many provinces. It can be started from the seeds, the study should focus on ethnic of seeds more because seeds will help recruiting MSM from different ethnicity.

Lastly, future studies need to determine where the MSM often have sex after drinking. It is very useful for HIV/AIDS program because we can prioritize to province condom distribution services at these place to provide harm reduction services for MSM in context of limiting human sources and financial of Vietnam in recent years when the funding will decrease over time.

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APPENDIX

QUESTIONAIRE

Unique Identification Code ☐☐☐☐☐☐☐☐☐☐

MEN'S SEXUAL HEALTH AND ALCOHOL USE QUESTIONNAIRE

SECTION A – BACKGROUND CHARACTERISTICS

Firstly, I would like to ask some questions about your background

No.	Questions	Answers	Codes	Skip to
A1	In what year were you born?	Year _____ Do not remember/ Do not know	 98	
A2	What is your ethnicity?	Kinh Tay Hoa Mong Thai Other (Specify)_____	1 2 3 4 5 90	
A3	To which religion group do you belong?	No religion Buddhism Catholicism Protestant Cao dai Hoa hao Mulism Other (specify)_____	1 2 3 4 5 6 7 90	
A5	Were you born in Hanoi? And how long have you been living	I was born and have lived in Hanoi ever since I was born outside of Hanoi	1 2	

No.	Questions	Answers	Codes	Skip to
	in Hanoi?	I have lived in Hanoi for ____ years and ____months *(if staying less than 1 month, write 01; 1 – 2 month, write 02 etc)*		
A6	What is the place where you often stay overnight in the last 30 days? *Only 1 answer is chosen. If the respondent's choice is private house, ask whether it's his house or anyone else's house to reach the correct answer.*	Parents' house Male partner's house Female partner's house My own house Hotel/ guest house/ temporary home (incld. University dormitory) Rented house No stable places Public places (park, bus station) Other (specify)_____ Refuse	1 2 3 4 5 6 7 8 90 99	
A7	At the moment, who are you living with? (check all that apply)	Parents, relatives Legally married spouse Male partner Female partner Friends (Not partners) Alone Other (specify)_____	1 2 3 4 5 6 90	
A8	Are your married?	Single Married Separated Divorced Widow/widower	1 2 3 4 5	1=>A11

No.	Questions	Answers	Codes	Skip to
		Live with partner(s)	6	
		Refuse/ No answer	99	
A9	How many children have you got?	Number of children: _____		
A10	What is the highest level of school that you completed?	Never been enrolled in school	1	
		Some primary education	2	
		Completed primary education	3	
		Some secondary education	4	
		Completed secondary education	5	
		Some high-school education	6	
		Completed high-school education	7	
		Technical and vocational education	8	
		College diploma	9	
		Undergraduate degree	10	
		Postgraduate degree	11	
		Other (Specify_____)	90	
A11	Currently, what is your main work? *(The work in which you invest the most time)*	Agricultural work	1	
		Fishery work	2	
		Factory worker	3	
		Public civil sector	4	
		Non-state not-for-profit sector	5	
		Business/Service sector owners	6	
		Hired labor	7	
		Retired	8	
		Student	9	
		Service sector	10	
		Other informal economic activities (including illegal activities)	11	
		Jobless	12	

No.	Questions	Answers	Codes	Skip to
		Other (specify)_____ _____	90	
A12	During the last month, which of the following sources have brought you money? (*Let the participant list all sources of income and check all that apply)*	Agriculture	1	
		Construction work	2	
		Tailoring/ Shoes repairing	3	
		Education service jobs	4	
		Household servants	5	
		Opium selling/transporting	6	
		Factory work	7	
		Family support	8	
		Health service jobs	9	
		Laundry service	10	
		Office work	11	
		Manual labor work such as porters	12	
		Shop assistants	13	
		Restaurant assistants	14	
		Hygiene/Cleaning work	15	
		Security guard	16	
		Entertainment service	17	
		Prostitution service	18	
		Pimping	19	
		Burglar/ Robbing	20	
		Mobile street vendors	21	
		Stable street vendors	22	
		Taxi/bus driver	23	
		Motorbike taxi driver	24	
		Gambling	25	
		Other (Specify):_____	90	

No.	Questions	Answers	Codes	Skip to
		_____		
A13	In the previous month, how much money did you earn from all these sources?	_____VND Don't remember Refuse/ No answer	 98 99	
A14	Currently, do you own any of the followings? *(Read options to respondent and check all that apply)*	A private house/apartment Car Motobike Bicycle Mobile phone Desktop computer/laptop	1 2 3 4 5 6	
A15	Which of the following best characterizes your gender? *(Read the options and check only one)*	I am a man I am a woman I am a transgender I am not sure about my gender Other (specify)_____ Refuse	1 2 3 4 90 99	
A16	Which of the following best characterizes your sexual desire? (*Read the options and check only one)*	I am exclusively attracted to male I am mainly attracted to male, but sometime to female I am attracted to both male and female equally I am mainly attracted to female, but sometimes to male I am exclusively attracted to female Do not know No answer	1 2 3 4 5 98 99	

SECTION B: ALCOHOL AND/OR BEER DRINKING HABIT

Next, I would like to ask some questions related to your drinking habits (include beer, alcohol and alcoholic drink).

No.	Questions	Answers	Codes	Skip to
B1	At what age did you first drink alcohol and/or beer?	_____ years old		
		Do not remember/ Do not know	98	
		Never had alcohol or beer	0	0 => C1
B2	With whom did you drink alcohol on that first occasion?	Alone	1	
		Colleague	2	
		Friends	3	
		Relatives	4	
		Partner	5	
		Other (Specify)_____	90	
		Don't remember	98	
Information of drinking alcohol/beer/alcoholic drinks during the previous month				
B14	During the previous month, where did you most USUALLY drink alcohol, beer or alcoholic drinks?	My own house	1	
		Parents' house or relatives' house	2	
		Male partner's house	3	
		Female partner's house	4	
		Bar/club	5	
		Pub/café	6	
		Restaurant	7	
		Other (Specify)_____	90	
B15	During the previous month, what reasons made you USUALLY drink alcohol or beer or alcoholic drinks? *(Check all that apply)*	To relax and/or entertain myself	1	
		To boost sexual ability	2	
		Because my friends (whom I hang out with) drink	3	
		To release tension, stress	4	
		I felt angry	5	
		I felt lonely	6	
		To forget about personal problems	7	

No.	Questions	Answers	Codes	Skip to
		Other (Specify)_____	90	
B16	During the previous month, with whom did you most frequently drink alcohol, beer or alcoholic drinks?	I drink alone Colleagues in my office Friends Boyfriend/girlfriend/spouse Family members Regular sexual partner (not spouse) Casual non-commercial sex partner Casual commercial sex partner Person I met for the first time Other (Specify)_____	1 2 3 4 5 6 7 8 9 90	
B17	During the previous month, what kinds of alcohol and/or beer did you most frequently drink?	Beer Wine (of 15% or less) Alcohol of 40% or more (Vodka, Whisky,etc,) Other (Specify) _____	1 2 3 90	
B18	During the previous month, how many glasses of alcohol, beer or alcoholic drinks did you drink per week in average?	1-3 units of alcohol/week 4- 7 units of alcohol/week 8 -14 units of alcohol/week 15- 21 units of alcohol/week More than 21 units of alcohol/week Do not remember	1 2 3 4 5 99	
B19	During the previous month, how many units of alcohol did you have when you drink alcohol?	Did not drink alcohol 1-2 units of alcohol 3 units of alcohol More than 3 units of alcohol Do not remember	1 2 3 4 99	
B20	During the previous	Did not drink beer	1	

No.	Questions	Answers	Codes	Skip to
	month, how many units of alcohol did you drink when you drink beer?	1-2 units of alcohol 3 units of alcohol More than 3 units of alcohol Do not remember	2 3 4 99	
B21	During the previous month, what did you USUALLY do after drinking?	Went home to sleep Went out with friends Went out alone Looked for sex partners and had sex Other (Specify) _____	1 2 3 4 90	
B22	During the previous month, have you ever had sex after drinking alcoho and/or beer ?	Yes No Do not remember No response	1 2 98 99	 2=>B27 98=>B27 99=>B27
B23	During the previous month, with whom did you have sex after drinking alcohol and/or beer ? (Check all that apply)	Consensual male partner Male partner who paid me for sex Male sex worker Wife/ Girlfriend Consensual female partner (exclude wife/girlfriend) Female sex worker Other (Specify)_____ _____	1 2 3 4 5 6 90	
B24	During the sex after drinking alcohol in the previous month, did you engage in vagina and/or anal intercourse?	Only vaginal sex Only anal sex Both anal and vaginal sex No sex Do not remember No answer	1 2 3 4 98 99	 2=>B26 4=>B27 98=>B27 99=>B27

No.	Questions	Answers	Codes	Skip to
B25	During the sexual intercourses that involve vaginal sex after drinking, how often did you use condoms?	Every time Almost every time Sometimes Never Do not remember	1 2 3 4 98	
B26	During the sexual intercourses that involve anal sex after drinking, how often did you use condoms?	Every time Almost every time Sometimes Never Do not remember	1 2 3 4 98	
B27	How many among your close friends in the previous month had similar drinking frequency as you?	_____ People Do not know/ Do not remember	98	
B28	How many among your frequent sexual partners in the previous month had similar drinking frequency as you?	_____ People Do not know/ Do not remember	98	
RELATIONSHIP BETWEEN SEX AND ALCOHOL				
B39	Have you ever had unwanted sex because of drinking? When was the most recent time?	Not yet < 1 month ago 1-3 months ago 3-6 months ago > 6 months ago Do not remember No response	1 2 3 4 5 98 99	

No.	Questions	Answers	Codes	Skip to
B40	Have you ever had unwanted sex because your partners drank? When was the most recent time?	Not yet	1	
		< 1 month ago	2	
		1-3 months ago	3	
		3-6 months ago	4	
		> 6 months ago	5	
		Do not remember	98	
		No response	99	
B41	Have you ever had sex because your partner treated you with alcohol/beer or alcoholic drinking? When was the most recent time?	Not yet	1	1=>B46
		< 1 month ago	2	
		1-3 months ago	3	
		3-6 months ago	4	
		> 6 months ago	5	
		Do not remember	98	
		No response	99	
B42	In this occasion, what was your partners' gender?	Male	1	
		Female	2	
		Transgender (male to female)	3	
		Transgender (female to male)	4	
		Undetected	5	
		No response	99	
B43	In this occasion, what sexual behaviors had you got?	Oral sex (giver)	1	
		Oral sex (receiver)	2	
		Anal sex (giver)	3	
		Anal sex (receiver)	4	
		Do not have oral/vaginal/anal sex	5	
		Other (Specify)_____	90	
		No response	99	
B44	In this occasion, did you or your partner use condom?	I did	1	
		My partners did	2	
		Both of us did	3	

No.	Questions	Answers	Codes	Skip to
		No one	4	
		Do not remember	98	
		No response	99	
B45	In this occasion, did you or your partner use lubricant?	I did	1	
		My partners did	2	
		Both of us did	3	
		No one	4	
		Do not remember	98	
		No response	99	

SEX WITH MALE PARTNERS				
D5	During the previous 30 days, how many male partners had you had sexual intercourse?	____ people		Recheck the screening form
		Do not remember	98	
		No answer	99	
D6	How often did you drink alcohol and/or beer before or during such sexual intercourses?	Everytime	1	
		Almost everytime	2	
		Sometimes	3	
		Never	4	
D7	During the previous 30 days, how many of your male partners drank alcohol and/or beer before having sexual intercourses?	____ people		
		Do not remember	98	
		No answer	99	
D8	During the previous 30 days, how/where did you seek for male partners? *(Check all that apply)*	Public places	1	
		Public entertainment places	2	
		Brothels/ Massage services	3	
		Via internet	4	
		Via telephone	5	
		Via prostitution mediators	6	

		Newspaper/Magazines ads	7	
		Partners' office	8	
		Have only one partner	9	
		Other	90	
		(specify)_____		
D9	During the previous 30 days, who was your male partners? *(Check all that apply)*	Close friends	1	
		New friends	2	
		Family member/ Relatives	3	
		Lover	4	
		Sex worker	5	
		Someone who paid me to have sex	6	
		Someone I never met before	7	
		Other	90	
		(specify)_____	99	
		No answer		
D10	During the previous 30 days, how many people with whom did you engage in anal intercourse?	____ people		0=>D15
		Do not remember	98	
		No answer	99	
D11	During the previous 30 days, how many times did you have anal intercourse?	____times		
		Do not remember	98	
		No answer	99	
D12	During the previous 30 days, how often did you or your partner use condoms while having anal intercourse?	Everytime	1	
		Almost everytime	2	
		Sometimes	3	
		Never	4	4=>D15
		No answer	99	99=>D15
D13	How often did you drink alcohol and/or beer before or	Everytime	1	
		Almost everytime	2	

	during such sexual intercourses?	Sometimes Never No response	3 4 99	 4=>D15
D19	During the previous 30 days, how many people with you did you have oral sex?	____ people Do not remember No answer	 98 99	0=>D22
D20	During the previous 30 days, how often did you or your partner use condoms while having oral sex?	Everytime Almost everytime Sometimes Never No answer	1 2 3 4 99	
D24	Do you often have condom with you?	Yes No	1 2	 =>D26
D25	Would you mind showing me your condom now?	___ # of condoms subject show *(If subject show no condom, write down 0)* No response	 99	
SEX WITH FEMALE PARTNERS				
D27	During the past 30 days, how many female partners did you have sexual intercourse with?	____ people Do not remember No response	 98 99	0=>D32
D28	During the past 30 days, how often did you drink alcohol and/or beer before or during such sexual intercourses?	Everytime Almost everytime Sometimes Never No response	1 2 3 4 99	
D29	During the previous 30 days, how many of your female partners drank alcohol	____ people Do not remember No response	 98 99	

	and/or beer before having sexual intercourses?			
D30	During the past 30 days, who was your female partners?	Wife Lover/Girlfriend Female sex workers Someone who paid me to have sex Someone I never met before Others (specify)_____	1 2 3 4 5 90	
D31	During the previous month, how often did you use condom when you have sexual intercourse (vaginal or anal) with female partners?	Every time Almost every time Sometime Never No response	1 2 3 4 99	

SECTION I – QUESTION FOR RDS METHOD

Finally, I would like to ask for your relationship in MSM groups.

No	Questions	Answers	Code	Skip to
I1	How many people living in Hanoi have you ever known? (excluding people under 18 years old)			
		a. Among them, how many people reamains mutual relationship with you?		
		b. Among them, how many people whom have sex with men within 90 days ago and met you within the previous 30 days?		

No	Questions	Answers	Code	Skip to
I2	Hence the number of MSM living in Hanoi have mutual relationship with you and met you within 30 days ago is _____people?			
I3	Among them, how many people to whom you may contact today?			
I4	Among them, how many people do you think of to introduce to this study?			
I5	Among them, how many people do you often trust in?			
I6	What kind of relationship between you and your introducer?	Strange person Close friend Acquaintance Flatmate Person having sex with me Lover/Frequent partner Not frequent partner Relatives/ family member Neighbour Colleague Partner's friend Other (specify)_____	1 2 3 4 5 6 7 8 9 10 11 90	
I7	How many times did you met him within the last week? Within the previous 30 days?	_____times/ 7 days ago _____times/30 days ago		
I8	How old is he?	_____years old		
I9	How long have you got accquaintance with him?	_____months		

No	Questions	Answers	Code	Skip to
I10	Why do you want to take part in our study? *(Check all that apply)*	To get money To be tested freely Because of respect/pressure from my introducer Because this study is benefit for people Have free time Other (specify)_____	1 2 3 4 5 6	

Interviewer: _____ *Signature*: _____

Interviewed Date: ____/ ____/ ____

Supervisor: _____ *Signature*: _____

Supervised Date: ____/ ___/ ____

Data Management

	Revision and Data Cleaning	Receipt Coding	Entering Data 1st Time	Entering Data 2nd Time	Checked
Name					
Date					

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