HIV-RELATED CONDOM USE AMONG MIDDLE-AGED MEN IN THAILAND: EVIDENCE FROM THE NATIONAL SEXUAL BEHAVIOR SURVEY OF THAILAND 2006

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Thesis
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HIV-RELATED CONDOM USE AMONG MIDDLE-AGED MEN IN THAILAND: EVIDENCE FROM THE NATIONAL SEXUAL BEHAVIOR SURVEY OF THAILAND 2006

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ABSTRACT

The objective of this research was to analyze HIV-related condom use and factors influencing middle-aged men who engaged in non-marital sex in Thailand.

This study used secondary data from "the National Survey on HIV/AIDS Risk Behavior and Antiretroviral treatment in Thailand", implemented during May, 2006 by the "Institute for Population and Social Research, Mahidol University." The sample size was comprised of 773 middle-aged men (40-59 years) who had sex during the past 12 months of which 132 had engaged in non-marital sex.

Descriptive percentage showed that 90% of the men answered 10 questions correctly about HIV/AIDS knowledge from 21 questions. Public health officers, friends, and physicians were frequently cited as the most important personal sources of HIV/AIDS information, respectively. Television, radio, and newspapers were cited as the most important media sources of HIV/AIDS information, respectively. Bivariate analysis showed that knowledge about HIV/AIDS, and sources of HIV/AIDS information such as radio, and newspapers were associated at a statistically significant level to condom use ($p< 0.05$). Multivariate analysis also showed that knowledge about HIV/AIDS, and sources of HIV/AIDS information such as radio and newspapers were statistically significant ($p < 0.1$).

KEY WORDS: HIV/CONDOM USE/MIDDLE-AGED MEN/ THAILAND

60 pages

การศึกษาความสัมพันธ์ระหว่างโรคเอดส์กับการใช้ถุงยางอนามัยของประชากรชายวัยกลางคนในประเทศไทย: ข้อมูลจากโครงการสำรวจสุขภาพอนามัยและโรคเอดส์ในประเทศไทย พ.ศ. 2549
HIV-RELATED CONDOM USE AMONG MIDDLE-AGED MEN IN THAILAND: EVIDENCE FROM THE NATIONAL SEXUAL BEHAVIOR SURVEY OF THAILAND 2006

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บทคัดย่อ

การศึกษาครั้งนี้ มีวัตถุประสงค์เพื่อวิเคราะห์ปัจจัยด้านอื่นๆที่มีผลกระทบต่อการใช้ถุงยางอนามัยเพื่อป้องกันโรคเอดส์ของชายวัยกลางคนที่มีเพศสัมพันธ์นอกสมรส

ข้อมูลที่ใช้ในการวิจัยครั้งนี้ เป็นข้อมูลทุติยภูมิ จากโครงการ National Survey on HIV/AIDS Risk Behavior and Antiretroviral treatment in Thailand พ.ศ. 2549 จัดทำโดย สถาบันวิจัยประชากรและสังคม, มหาวิทยาลัยมหิดล ประชากรตัวอย่างที่ใช้ในการวิจัยครั้งนี้ เป็นประชากรชายไทยวัยกลางคน จำนวนทั้งสิ้น 773 คน โดยมุ่งเน้นความสนใจไปที่เพศชายที่มีเพศสัมพันธ์นอกสมรส ระหว่าง 1 ปีที่ผ่านมาซึ่งมีความเสี่ยงสูงต่อโรคเอดส์ จำนวน 132 คน

ผลการศึกษาพบว่า ชายวัยกลางคนที่มีเพศสัมพันธ์นอกสมรส สามารถตอบคำถามเกี่ยวกับโรคเอดส์ถูกต้องเกิน ร้อยละ 90 จำนวน 10 ข้อ จากคำถามทั้งหมด 21 ข้อ. เจ้าหน้าที่สาธารณสุข, เพื่อน, และ แพทย์ เป็นสื่อบุคคลที่สำคัญในการให้ข้อมูลเกี่ยวกับโรคเอดส์ ตามลำดับ ส่วนเครื่องมือสื่อสารที่สำคัญในการให้ข้อมูลเรื่องโรคเอดส์ ได้แก่ โทรทัศน์ วิทยุ และหนังสือพิมพ์ ตามลำดับ

ผลการวิเคราะห์ปัจจัยที่มีผลกระทบต่อการใช้ถุงยางอนามัยเพื่อป้องกันโรคเอดส์ของชายวัยกลางคนที่มีเพศสัมพันธ์นอกสมรส โดยใช้การวิเคราะห์แบบสองตัวแปร และ สมการถดถอยแบบลอจิสติก พบว่า ความรู้เกี่ยวกับโรคเอดส์, การสื่อสารข้อมูล/ให้ความรู้โดยผ่าน รายการวิทยุ, และ หนังสือพิมพ์ มีผลต่อการใช้ถุงยางอนามัยของประชากรชายไทยวัยกลางคนที่มีเพศสัมพันธ์นอกสมรส อย่างมี นัยสำคัญ ($p< 0.05$) และ ($p< 0.1$) ตามลำดับ

60 หน้า

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CHAPTER I
INTRODUCTION

1.1Rationale

According to a 2008 UNAIDS publication, most countries in the world are affected by HIV/AIDS. This problem must be considered in the global health. HIV/AIDS reduced life expectancy of people more than 20 years (UNAIDS, 2008). The report on the global HIV/AIDS epidemic, there were 2.2 million deaths due to AIDS in 2005. In 2007, the number of HIV/AIDS death reduced to 2 million cases because people living with HIV/AIDS (PLWHA) can access antiretroviral treatment (ART) in recent years. The report also reported that in 2007, there were 33 million people living with HIV/AIDS, people became infected virus (2.7 million), and 2 million people died because of HIV/AIDS. Even though Anti retroviral treatment (ART) will be provided, the number of HIV/AIDS infection is still rising in many countries including, China, Germany, Indonesia, Mozambique, Papua New Guinea, the Russian Federation, Ukraine, the United Kingdom, and Viet Nam (UNAIDS, 2008).

As HIV/AIDS infection is a global burden, it is necessary to understand the way the epidemic is spread. Those who have risky sexual behaviors such as premarital sex, having multiple sexual partners, having sex with commercial sex workers, undertake unprotected sex, or those who have homosexual behaviors are the high risk group to the spread of HIV/AIDS infection. Moreover, lack of consciousness of being at risk of HIV/AIDS infection is a major problem for transmission.

According to Collin Dictionary, middle-aged people refer to persons who aged 40-60 years old. Although, middle-aged persons have high risk of HIV/AIDS infection, few studies focus on this target. Middle-aged persons lesser opportunity to access media, and HIV/AIDS information, furthermore, middle-aged persons have less awareness of being at risk of HIV/AIDS infection.

HIV/AIDS of middle-aged persons is a challenging issue. Valadales et al., (2010) found that middle-aged persons have high risk to engage HIV infection. Given that middle-aged persons engage in risky HIV sexual practices, it is necessary to understand factors that course these behaviors. Having an understanding of HIV/AIDS prevention can reduce the problem in society and improve the quality of life of people.

1.2 Problem identification and justification

HIV prevalence data indicated that the number of middle-aged persons infected with the disease is increasing. According to a report from the Thai Department of Disease Control, Ministry of Public Health (MOPH) in 2004, 19.4 % of HIV/AIDS cases were among middle-aged people. In 2005, the proportion increased to 21.7 %, and in 2006, it was 24%.

Thailand was one of a few countries that has achieved in reducing HIV/AIDS infection. In 1991, the number of new HIV/AIDS infection was 142,819 cases per year, in 2003 HIV infection dropped down to 21,260 cases. The reduction of HIV/AIDS infection has succeeded because of the action of several ministries, municipalities, NGOs, media, communities, private sectors and the police who have focused on reducing the number of commercial sex workers.

Generally, knowledge about HIV/AIDS of Thai population was quite high. Maticka-Tyndale et al. (1994) also found that married men in northeastern of Thailand involved with commercial sex workers and they did not consider themselves at risk of HIV/AIDS contraction.

Moreover, there were a lot of reports informed about many cases of HIV/AIDS infection among young adults or adolescents, the Thai government provided many intervention programs related to HIV/AIDS. But it was found that middle-aged persons had lesser opportunity to access HIV/AIDS knowledge.

Sexual desire is related to age, many women experience of decreasing sexual response during the year before or after menopause (Raina et al., 2007). This was a leading cause of having multiple sexual partners, minor wife, or having sexual intercourse with commercial sex workers by men.

In December 31, 2009 the Thai Bureau of Epidemiology reported that 5.3% of HIV/AIDS cases were aged 50 years or more. Other study by Im-em, (2001) reported that HIV/AIDS affected older person age 50-74 years in Thailand because they have to take-care their child who had HIV/AIDS infected and some of them were middle-aged adults.

In conclusion, even if the number of HIV/AIDS infection among middle-aged persons continuously increasing year by year, many studies focus on HIV/AIDS among adolescents. Of course, adolescents are more likely to receive HIV/AIDS knowledge and information than those middle-aged persons and others target population. Otherwise, there are other factors related with HIV/AIDS condition. Reviewing the sexual practices of their marital sex and non-marital sex must be considered (MOPH, 2004). It is important to know risky sexual practices of middle-aged people as well as demo-socioeconomic characteristics influencing HIV-related condom use. This study focuses on analyzing HIV-related condom use among middle-aged men who engaged in non-marital sex which may contribute to the more knowledge and concern of condom use among them as well as intervention programs that will be provided for middle-aged men in Thailand.

1.3Research questions

Are there any factors effecting HIV-related condom use among middle-aged men who engaged in non-marital sex?

1.4 Research objectives

1.4.1 General objective

To analyze factors affecting HIV-related condom use among middle-aged men who engaged in non-marital sex.

1.4.2 Specific objective

To determine factors effecting HIV-related condom use among middle-aged men who engaged in non-marital sex.

1.5 Definition of key terms

Middle-aged men

Middle-aged men refer to a man who aged 40 – 59 years. They are divided into two age groups; aged 40 – 49 years is called “younger middle aged” and aged 50 – 59 years is called “older middle aged”.

Condom use

Condom used is identified as the results of those middle-aged men who engaged in risky sexual practice which is related to HIV/AIDS infections and has not had using the condom.

Marital sex

Regarding, The era of ARV in the generalized HIV epidemic in Thailand: Research approaches indicated that marital sex included spouse registered, and spouse had marriage ceremony but not registered (Chamratrithirong et al., 2007).

Non-marital sex

Non-marital sex included boyfriend, girlfriend, gik, acquaintance, fiancé, commercial sex worker, stranger, and relative (Chamratrithirong et al., 2007).

1.6 Expected Benefit from this study

This study expected to find out factors effecting HIV-related condom use among middle-aged men who engaged in non-marital sex in Thailand. Moreover, the study would be provided useful information to government and non-government organization for further HIV/ AIDS intervention programs.

CHAPTER II
LITERATURE REVIEW

2.1 The Importance of Middle-aged people

Middle-aged is the period of age after young adulthood, but before the old age which is the third quarter of the lifespan of human beings. Collin dictionary (1999) defined middle aged as people approximately 40 to 60 years. The Oxford English Dictionary (1996) also defined similar definition, but start with the later point as 45 to 60 years. The social scientist, Erikson (1963) defined middle-aged persons a little later as 45 to 65. Somprayoon (1990) defined middle-aged people average among 40-60 years. Regarding the limitation of data in this study, it could be used the definition of middle-aged people as following Collin dictionary.

The development of middle-aged persons was separated into 4 categories as follows.

Physical development

The ability of body systems of middle-aged people will be declined such as rough skin, wrinkles, hair fall and white, and gain weight. The visual sight will be longer. Some people have deafness due to degeneration of cells. Taste and scent also changed, inner organ such as blood vessel, heart, lungs, kidney and brain degenerate as well.

Emotional development

Middle-aged persons who succeeded in working life, they satisfied life in the past, forgiveness, and stable personality characteristics. Some people might have depression because they lost of someone in their family such as couple life, parents, or disappointed from their children.

Social development

The society of middle-aged people is living at office and home. Middle-aged people would creative and proud of themselves. They share and care other

people, particularly, people who are younger. But some of them would not share, selfish and no active. Some people in this aged group can adapt themselves as well, but some discourage and may have depression.

Intellectual development

Middle-aged people have intellectual development similar to the early adulthood. They are able to recognize and have ability to manage any confliction. They understand the political system and social regulation and have a good relationship with people by their maturity.

2.2 Theoretical backgrounds

The AIDS Risk Reduction Model (ARRM)

The AIDS Risk Reduction Model (ARRM) was first presented by Catania, Kegeles, and Caotes (1990) which was developed to organize concept related the Health Belief Model (HBM). It is a conceptual model to explain knowledge and attitudes about HIV/AIDS related risky sexual practices (Lanier and Gates, 1996), which is why it was used in this study. There are three stages in the ARRM. The primary stage, knowledge, is an important critical related to behavioral change. Susceptibility, awareness is related to knowledge. People who do not have awareness are more likely to engage in HIV-related condom use. The hypothesis influences of stage one are

- “Knowledge of sexual activities is associated with HIV transmission”
- “Believing that all person susceptible to contracting HIV”
- “Believing that having AIDS is undesirable”
- “Social norms and net working (e.g. having sex with consenting adults, people have sex with opposite sex)”

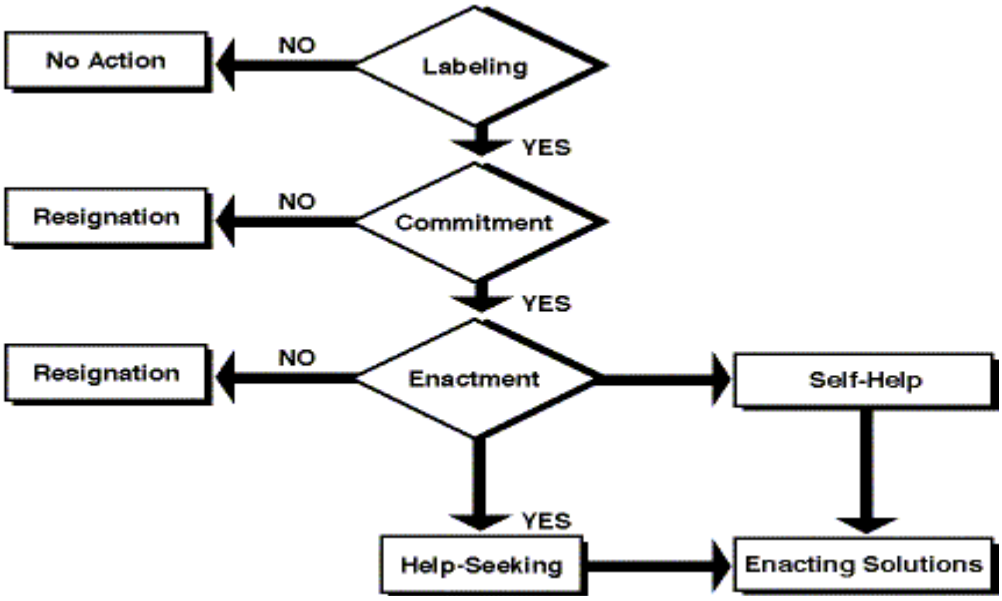
The second stage focuses on social influences and measures of aversive emotions, including self-efficacy. Self-efficacy refers to the perceive ability of people to implement their health practices that the expectation to implement health of respondents will be doing in the next 4 weeks (Gibson, Catania, and Peterson, 1991). The hypothesis influences of the second stage are

- “Cost and benefits (e.g. public education campaign may also cause people to change their sexual behaviors)”
- “Enjoyment (e.g. will the change effect the enjoyment of having sex?)”
- “Response efficacy (e.g. will the change successfully reduce the risk of HIV infection?)”
- “Self efficacy (e.g. the perception of people to implement health practices)”
- “Knowledge of ability of sexual practices and the health utility, as well as social factors (group norms and social support), that influence to individual’s cost and benefit and self-efficacy beliefs.”

The final stage is the behavior outcome. It is results from first stage and second stage, and legislation and adds communication skill to social influences and aversive emotions. The hypothesized influences of the final stage are

- “Social networks and problem-solving choices (self-help, informal and formal help)”
- “Prior experiences with problems and solutions”
- “Level of self-esteem”
- “Resource requirements of acquiring help”
- “Ability to communicate verbally with sexual partner”
- “Sexual partner’s beliefs and behaviors.”

The AIDS Risk Reduction Model (ARRM) shows as.



Source: Catania, J.A., Kegeles, S.M., and Coates T.J. (1990). Towards and understanding of risk behaviors: An AIDS risk reduction model (ARRM).

Correspondingly in this study, middle-aged men who have more knowledge of HIV/AIDS, they are more awareness to use condom with non-marital sex than those who have low knowledge of HIV/AIDS. Moreover, middle-aged men must have perception to use condom by themselves. The outcome of condom practicing is that middle-aged men can protect themselves from HIV/AIDS infection.

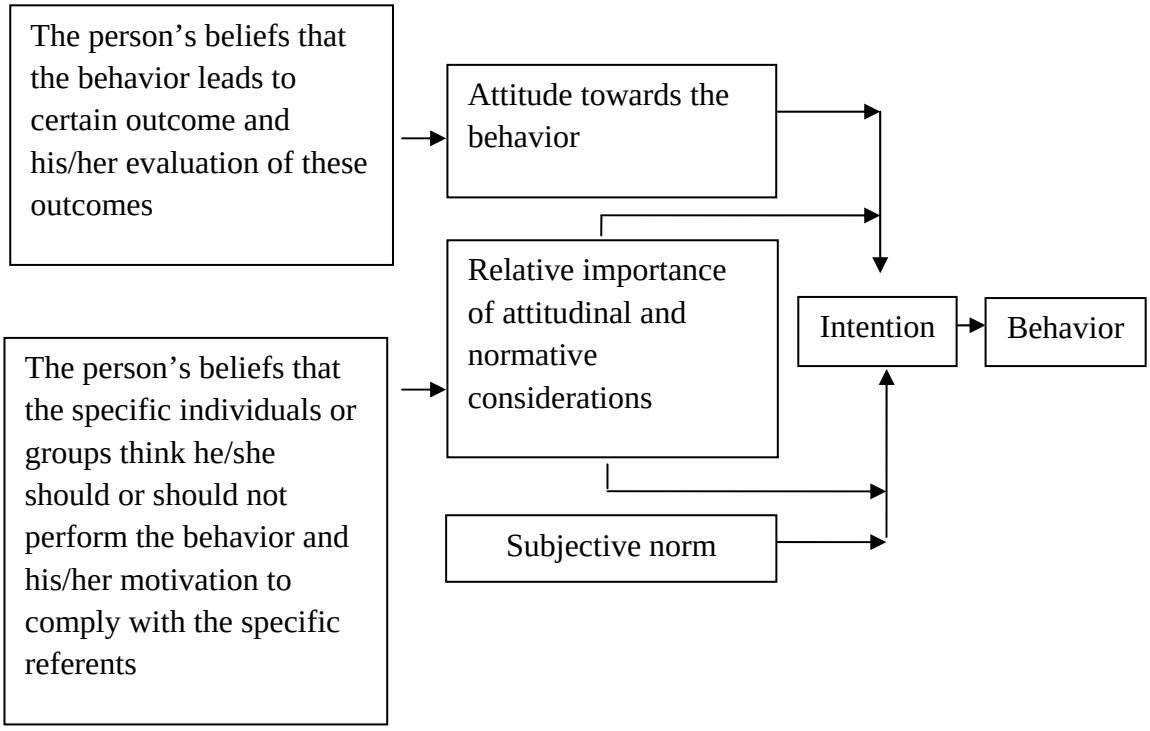
Theory of Reasoned Action

The Theory of Reasoned Action (TRA) is used in predicting HIV-related sexual behavior change (Fishbein & Middlestadt, 1989: Fishbein et al., 1991). The proximal factor of a specific behavior lie in people's behavior intentions was hypothesized in the model. Both beliefs and attitudes toward behaviors shape intentions. For example, the individual who has a positive attitude toward using condoms are more likely to use condoms with their next partner than those who have a negative attitude. These attitudes are a consequence of behavior beliefs and the outcome of the individual of engaging to risky sexual practices.

The effect of social influences is also consolidated in the model by hypothesizing that the expectation of important factors or subjective norms also shape intentions. The subjective norm is created by what is the important desire that motivate the individual to display the behavior and normative beliefs. The TRA assumes that people systematically use their information to inform their intent and actions (Tesser & Shaffer, 1990).

The TRA shows two distinct advantages to the HBM. First, TRA considered both attitude and normative influences on behavior. Second, TRA focused on predicting individually specific behaviors (Fredricks & Dossett, 1983). However, TRA still assumed that the individual has freedom to choose their action and their desire directly without any determinant of behavior occurrences.

The Theory of Reasoned Action Model.



Source: Fishbein (1980). Understanding attitudes and predicting social behavior.

Correspondingly, this study presumes that middle-aged men do not have their personal control (e.g. money, employment status, housing, education, and mobility) that can provide a basis for their behavioral choices. The outcome of behaviors may be associated with their attitudes and beliefs. For those who have positive behavioral beliefs of preventing risk of HIV infection, are more concerned

with low-risk of sexual activity than those who have negative attitude and beliefs toward HIV infection.

2.3 Factors associated with HIV-related condom use

2.3.1 Demo-socioeconomic characteristics.

Age

The center for disease control and prevention reported that before 1995, the incidence of AIDS cases in older adults in The United stated was 10 %, in 1999 the number increased to 14 %. In 2001, patients who ware aged 50 years and older infected HIV/AIDS 19%. In 2006 those patients infected with HIV increased to 25 %. In 2007, a study in New York city reported that 64 % of HIV infected patients was over aged 40 years old, older than 50 years (25%) (Martin et al., 2008)**.**

The two large cross-sectional surveys of National HIV/AIDS behavior surveys in 1990-1991 found several important risk points of HIV/AIDS infection. About 10 % among Americans aged 50 years and older had at least one factor of HIV/AIDS infection. Only one-sixth of Americans aged 50 years were likely to use condoms during sexual intercourse, and only one-fifth of American aged 50 years old were likely to test for HIV/AIDS. A study comparing two groups; people aged older 50 years, and those who were younger and engaged in the same risky sexual behaviors, found that people aged older 50 years and upper were less likely to prevent HIV/AIDS than those younger men (Stall and Catania, 1994).

Education

A study about the relationship between poverty and HIV/AIDS in Uganda reported that HIV prevalence influenced by an individual education level. The individual who had less education had more opportunity to engage in taking risky of HIV infection. Level of education was related to HIV prevalence. The higher education level, the more respondents practice condom use. The proportion of HIV prevalence among people who have no education was 15%, primary education was 10.3%, secondary education was 8.7%, and post secondary education was 2.7%, respectively (Denis, 2007). Similarly, a study of Kalichman (2006) in three South

African communities reported that poor education was related to HIV/AIDS risk practices when knowledge about HIV/AIDS low, the individual more likely to engage risky sexual practices. Moreover, Plowden et al., (2005) found that a major factor associated with high risk practices was lack of basic information about HIV/AIDS.

Marital status

A study by Qin et al., (2009) which was conducted among 1,873 married women in rural areas of China by using a cross-sectional survey method reported that married women had high opportunity to engage in taking risk of HIV infection because their migrating husbands were having sexual intercourse with multiple sexual partners, and did not use condom consistently. During 1990-1994, men aged 40-64 in New South Wales who died from HIV/AIDS had been married at least one time in their life. Even through, the sample population had high education levels that presumably knowledge and prevention about HIV/AIDS will increase. HIV/AIDS was still a part of diseases that influenced the death of men. Burnley, (1999) found that the proportion of men who died from HIV/AIDS among middle-age men in New South Wales was higher than those middle-aged men in Australia.

Occupation

A study from respondents who had unskilled work such as 246 male truckers (age 18-67) in Bolivia by Sorensen et al., (2007) reported that one-third (30%) of trucker drivers had had a sexual transmitted infection (STIs), more than half (56%) had had sex with non-marital sex, and other risk related to unprotected anal sex. The proportion of men who did not use condom with non-marital sex was one-third (31%). According to the Thai Bureau of Epidemiology, 2009 reported that 47.3% of HIV/AIDS patients were labors, employers, factory workers and cab drivers. Those had low-income. The proportion of HIV/AIDS infection among respondents who were agriculture was 19.9%, unemployment (6%), trader (4.3%), Government officer (Civil and Military Police, Officials unknown workplace) (3.0%) respectively. As well as 9.4% was other professionals.

Place of Residence

HIV/AIDS prevention and intervention programs in urban areas were more developed than in rural areas. It was difficult to implement HIV/AIDS prevention and intervention programs in rural areas, due to geographic factors, low HIV/AIDS rates,

stigmatization of HIV/AIDS and risk group. A study found that men in rural areas were more likely to have the sex on their first date than men in urban areas due the difficulty finding a sexual partner and the long length of time between the sexual acts. Rural residents were less likely to reach health care services and health care providers and had less opportunity to get antiretroviral treatment (ART). This isolation often leads to high risk sexual practices. Most of these rural residents were less likely to have health insurance due to poverty and had limited funds compared to urban residents (UCSF, 2006).

Economic status

Economic status was social factors that influenced HIV/AIDS risk practices. Poverty can certainly increase the risk of HIV/AIDS infection and push individuals to exchange sex for money, shelter, and drugs. A study reported that Black American women engaged in high risk behavior depending on their male partners. If their partner had multiple sexual partners, these women had a higher opportunity to engage in taking risk of HIV infection (UCSF, 2006). Plowden et al., (2005) found that individuals were satisfied to do not treatment more likely to engage HIV/AIDS risk practices and HIV/AIDS risk practices have an affect on economic. It was necessary to use economic resources for prevention service and reduced HIV/AIDS risk practices such as support group and substance abuse treatment.

2.3.2 Knowledge of HIV/AIDS and sources of HIV/AIDS information affect HIV- related condom use.

Knowledge of HIV/AIDS

The National Health Survey in 1987 showed that adults in the U.S. had the knowledge of HIV/AIDS, but lack of awareness and did not understand how to protect themselves from HIV/AIDS (Leblanc, 1993). Males were more vulnerable to afraid of sexual transmitted diseases (STDs) and have higher knowledge on HIV/AIDS than women (Ganczak, and Barss, et al, 2007). HIV/AIDS knowledge among older adults was lesser than young adults (Leblanc, 1993). A study by Im-em, 2001 also supported the report of Leblanc, (1993) that knowledge about HIV/AIDS often focused on adolescents and young adults, but older adults had little knowledge, particularly in Thailand. A cross-sectional study of sexual behavior and knowledge of HIV/AIDS

among urban areas, rural areas, and minority residents in Viet Nam reported that knowledge of HIV/AIDS was low in the mountainous areas, and high in the urban and rural areas (TD et.al. 2001).

The opinion and attitudes of HIV/AIDS of older adults in developing countries were more influential than those opinions of people in western countries (Im-em, 2001). The proportion of sample population knew the main route of infection was 90%, but they were confused about HIV/AIDS transmission. Sample population knew that there was no treatment (34%), and no vaccine (31%), abstains from extramarital sex (91%), afraid of sexual transmitted diseases (STDs) because the influence from religion (38%), and advocated HIV/AIDS test before wedding (94%) (Ganczak, and Barss, et al. 2007).

Sources of HIV/AIDS Information

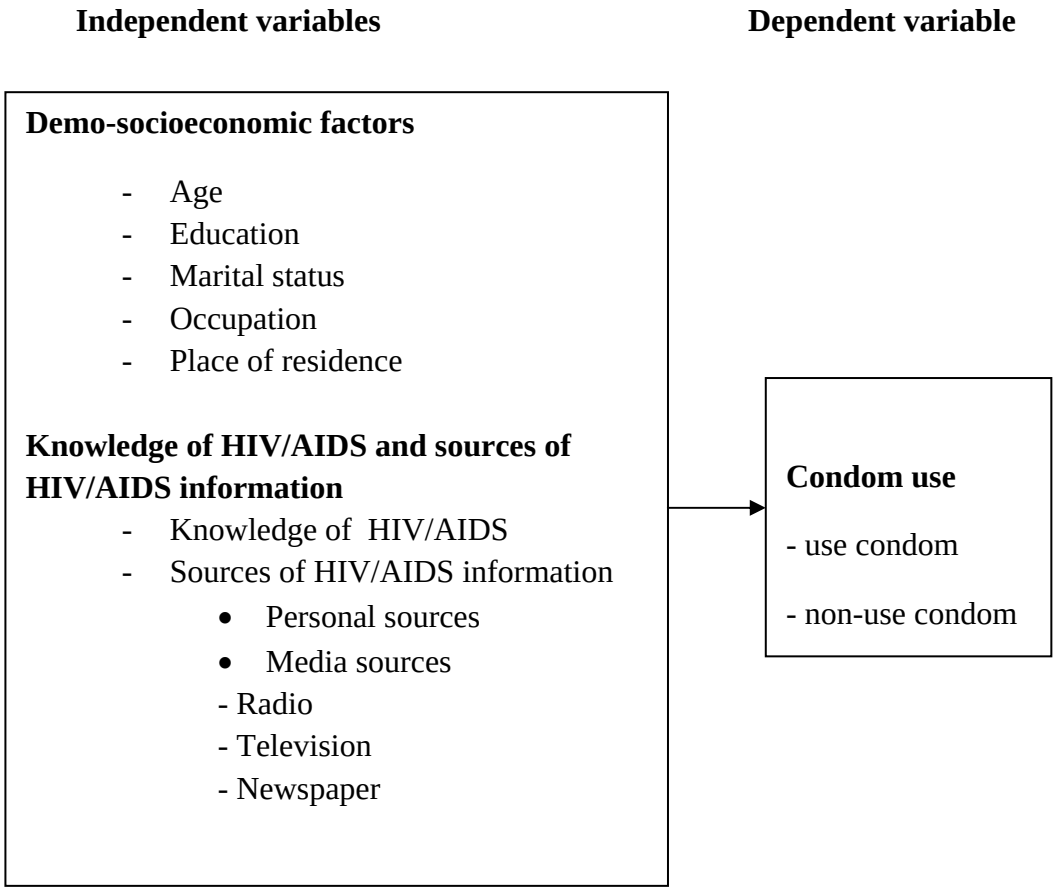
The level of various media about HIV/AIDS among older adults in Thailand was very limited. The older adults were less likely to get information about HIV/AIDS compared to adolescents (Im-em, 2001). In Swaziland, although the Ministry of Health and Social Welfare provided HIV/AIDS information through radio, television, newspaper, and pamphlets to adolescents, most of target groups preferred information from healthcare workers (Buseh, and Glass, et al, 2002). The proportion of women was more likely to quote schoolteachers as a source of HIV/AIDS information compared to male students (53%). Sources of information HIV/AIDS among friends, family members, neighbors, and health professional were a few reported. Female and male students discussed about sexual transmitted diseases (STIs) with friends (70% and 57.7%, respectively). The proportion of male students communicated this issue with their family members (31.3%), and participated with their boy/girlfriend (36.5%) as a source of information (Tung and Ding, et al., 2008).

A study from 132 Taiwanese college students reported that television was their main source of HIV/AIDS information, followed by internet, newspaper, and magazines. Radio as a few reports was cited as source of HIV/AIDS information (Tung and Ding et al., 2008). A study by Bessinger and Katende et al., (2004) to examine the influences of behavior change communication (BCC) campaigns on knowledge and use of condom for prevention of HIV/AIDS and other sexually transmitted infections among 2,597 sample population, and divided into 900 men in

reproductive aged reported that in 1997, 81% of men exposed to STI messages one or more media (including radio, television, newspaper, magazine etc.) and rising to 88% in 1999. Radio was the most popular source of HIV/AIDS information among men. 85% of men who heard advertisement on radio knew that using condom during sexual intercourse can avoid HIV/AIDS. A study by Shapiro, Meekers, and Tambashe, (2002) about an evaluation of a television drama in Cote d'Ivoire found that individuals who exposed to television program were more likely to use condom at last sex than that of who did not expose. Differently, a study evaluating the impact of a radio drama in Zambia by Yoder, Hornik, and Chirwa, (1996) found that radio drama did not change general knowledge of HIV/AIDS and affect for condom use among individuals.

2.4 Conceptual framework

The conceptual framework is constructed by theoretical background, and learning from the literature reviews. Independent variables were selected from demo-socioeconomic characteristics, knowledge of HIV/AIDS, and sources of HIV/AIDS information. It can be assumed that independent variables will increase explanatory power of the dependent variable.


Independent variables
Dependent variable
Demo-socioeconomic factors
- Age
- Education
- Marital status
- Occupation
- Place of residence
Knowledge of HIV/AIDS and sources of HIV/AIDS information
- Knowledge of HIV/AIDS
- Sources of HIV/AIDS information
• Personal sources
• Media sources
- Radio
- Television
- Newspaper
Condom use
- use condom
- non-use condom

1. Demo-socioeconomic characteristics affect HIV-related condom use among middle-aged men who engage in non-marital sex.
2. Middle-aged men who have low knowledge about HIV/AIDS are less likely to use condom when they engage in non-marital sex than those who have high knowledge.
3. Middle-aged men who do not receive HIV/AIDS information are less likely to use condom when they engage in non-marital sex than those who receive HIV/AIDS information

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CHAPTER III
RESEARCH METHODOLOGY

3.1 Source of data

The data used in this study was drawn from the National Survey on HIV/AIDS Risk Behavior and Anti retroviral treatment Knowledge in Thailand, implemented by the Institute for Population and Social Research, Mahidol University. This survey was the third national survey on risk behaviors and ART knowledge and was conducted in May, 2006. It was used as a guide to reduce new HIV infection and the availability of Anti retroviral treatment.

3.1.1 Description of Data

The survey research design employed systematical random sampling and used face-to-face interview with male and female target population. The sample included 1,689 males, and 1,710 females aged 18-24 years and 2,142 males, and 2,009 females aged 25-59 years. The total survey sample size was 6,048 respondents. All respondents were informed of confidentially and provided consent before interviewing. For the latter phase of interviewing, the response rate of each participant group was different, but overall the respondents exceeded 80 %. The sample size selected in this study was 773 middle-aged men 40-59 years who had sex during the past 12 months of which 132 had engaged in non-marital sex. Questionnaires collected the information, including knowledge and attitude of respondents about HIV/AIDS, exposure to HIV/AIDS information, knowledge and attitude about antiretroviral treatment, experience with HIV/AIDS, stigmatization and discrimination, sexuality and sexual behavior, marital status and sexual partners, sexual history (last 5 partners), STI experiences, drug use, youth specific questions, and voluntary counseling and testing.

This study used only certain sections of the survey which included basic demo-socioeconomic information, knowledge about HIV/AIDS, exposure to

HIV/AIDS information, marital status and sexual partners, and sexual history (last 5 partners).

3.1.2 Study Population

This study will focus on middle-aged men (40-59 years old) who had sex during the past 12 months. The sample population was 773 individuals which was divided into 2 categories such as sampled men who engaged in marital sex 641 individuals, and 132 engaged in non-marital sex. Factors effecting condom use among middle-aged men were analyzed by selected those who had engaged in non-marital sex during the past 12 months.

3.2 Operational definition and Measurement of key terms

3.2.1 Independent variables

Independent variables were age, level of education, marital status, occupation, place of residence, knowledge of HIV/AIDS, and sources of HIV/AIDS information.

Age

Age is defined as the current age of respondents at the time of interview, according to the last birthday. It was taken from the question “How old are you at your last birthday?”. Under this question, we selected men who aged 40-59 years. Then, it was categorized into 2 groups; younger middle-aged men as aged 40-49 years, and older middle-aged men as aged 50-59 years old.

Level of Education

Level of education is defined as the highest level of education at the time of interview, if respondents attended in the government formal school. It was taken from the question, “What is the highest level that you completed?” Divided into two categories such as completed primary school or lower (recoded from never attended school, grade 1-4, and grade 5-7), completed secondary school or higher (recoded from junior high school, senior high school and lower vocational, higher vocation, diploma, 2nd year college, bachelor degree and higher than bachelor degree).

Marital status

Marital status is defined as the current marital status of respondents at the time of interview. It was taken from the question "What is your current (legal) marital status?" Divided into two categories such as unmarried or separated but had sex during the past 12 months (recoded from unmarried but ever had sex, widowed/divorced/separated), and married (recoded from both married registered, and married but not registered).

Occupation

Occupation is defined as the current occupation of respondents at the time of interview. It was taken from the question "what is your current occupational work?" Divided into 2 categories such as currently not working/non-government officer (recoded from currently not working, technical work, clerical work, service or sale in shops or market, person and insurance service, models and sale, technical work in agriculture and fishing in market, technical work in agriculture and fishing in subsistence economy, skilled and other enterprise, smelting, extracting and constructing, related to metal, machine and others, related to manufacturing and printing, related to other skills, work related to machine and machinery assemble, machinery control, machinery assembly, moving/driving machine, other primary occupations, sales and service, labor in agriculture and fishing, labor in mining, construction, production, and transportation. Government officer recoded from senior government officer, professional, and military/police.

Place of residence

Place of residence is defined as the current living place of respondents at the time of interview. It was divided into 2 levels namely urban areas and rural areas.

Knowledge about HIV/AIDS

Knowledge about HIV/AIDS is defined regarding to the knowledge of HIV/AIDS that respondents have (their perception). It was taken from the question "What we can do?" There were 21 questions. All questions were asking about knowledge that related to AIDS, and respondents answered on their own. It was treated as continuous variable from question 1 through question 21 to find out number of mean, median, mode. Results fond that number of mean, mode median were similar number (11 scores). Concerning normal distribution of data, median score was

selected to measure level of HIV/AIDS knowledge. After that, divided into two categories such as poor knowledge (median score equals or lower than 11) and good knowledge (median score was higher than 11).

Sources of HIV/AIDS information

Sources of HIV/AIDS information were defined as the opportunity of respondents to access HIV/AIDS information. It was divided into person sources and media sources of HIV/AIDS information. According, person sources of HIV/AIDS information, it was taken from the question “In the past 12 months, from whom did you get information about AIDS?”. If the respondents get the information from any person such as physicians, nurses, public health officers, school teachers, NGO workers, AIDS volunteers, friends, family members/relatives, employers, or others, it was regarded that the respondent exposed to HIV/AIDS information, and if he did not get AIDS information from anyone, it means that he did not expose to HIV/AIDS in the past 12 months. Turn to media sources of HIV/AIDS information, it was taken from the question “In the past 12 months, from what medias did you get AIDS information?” the most important media sources of HIV/AIDS information was separated into 3 categories such as radio, television, and newspapers. ‘Yes’ means respondents received media sources of HIV/AIDS information, and ‘no’ means respondents did not receive media sources of HIV/AIDS information.

3.2.2 Dependent variable

Condom use

In the model, the outcome variable will be built by recoding the answer of question that respondents had sexual intercourse and use condom when they engaged in non-marital sex with most recent partner during the past 12 months. The questions were combined both single, but ever had sex, marital status and widowed/divorced/separated of middle-aged men. The result of those respondents who were not use condoms will be the outcome of HIV-related condom use.

3.3 Variables, categories, and level of measurements.

Variables	Categories	Level of measurements
Age	0.Younger middle-aged 40-49 years 1.Older middle-aged 50-59 years	Ordinal
Education	0.Primary school or lower 1.Secondary school or higher	Ordinal
Marital status	0.Unmarried/separated but had sex during the past 12 months 1.Married	Nominal
Occupation	0.Currently not working/non-government officer 1.Government officer	Nominal
Place of residence	0.Urban areas 1.Rural areas	Nominal
HIV/AIDS knowledge	0.Poor knowledge 1.Good knowledge	Nominal
Source of HIV/AIDS information	**Personal sources** 0.No 1.Yes	Nominal
	Media sources	
	Radio 0. No 1.Yes	Nominal
	Television 0.No 1.Yes	Nominal
	Newspapers 0.No 1.Yes	Nominal

3.4 Method of Analysis

A dependent variable in this study was selected as outcome variable to identify whether middle-aged men used condom with their non-marital sex during the past 12 months or not. The outcome variable will be employed in bivariate analysis.

The data for this study was analyzed by using mostly percentages to describe demo-socioeconomic characteristics among middle-aged men, and demo-socioeconomic characteristics among middle-aged who engaged in non-marital sex. Bivariate analysis was employed to find out results of men who used condom with non-marital sex. In multivariate analysis, binary logistic regression was used to examine factors affecting condom use among middle-aged men. The odd ratio will be used to find out the increasing of explanatory power of the independent variables into HIV-related condom use among middle-aged men by controlling the effect of other independent variables. Due to this study has small sample size. The confidence intervals will be evaluated at 90% level.

3.5 Limitation of The study

Regarding variables such as income, and economic status can increase the explanatory power of the dependent variable, but they were not provided in this study. The sample size was only 132 middle-aged men who engaged in non-marital sex, which was a small sample. The result from condom use might be biased due to underreporting and self report.

CHAPTER IV
RESEARCH FINDINGS AND DISCUSSION

Results in this chapter are going to be presented in three sections. The first section explores background characteristics of middle-aged people. The second section explores the relationship among demo-socioeconomic characteristics, knowledge of HIV/AIDS, and sources of HIV/AIDS information in relation to condom use using bivariate analysis. The last section analyzes factors affecting HIV-related condom use using binary logistic analysis. Concerning results in the study, sample weighted were applied to make the sample nationally representative. The results were appropriated weighted by calculating new weights in order to make the number of cases use in the analysis equal to the actual number of samples.

4.1 Demo-socioeconomic characteristics of middle-aged men

Socio-demographic characteristics of sampled men were widely distributed. The proportion of men who were aged 40-49 years was higher than those aged 50-59 years (62.2% and 37.8%, respectively). The education level of men differed as their aged differ. Three-fourth of them completed primary school or lower was very high (76.1%). Generally, the proportion of men who were married was also high (88.3%). Almost of men were currently not working/non-government officers (currently not working/non-government officer equal 92.1% and government officer equal 7.9%, respectively). The proportion of sampled men who lived in rural areas was nearly two times higher than those who lived in urban areas (62.3% and 37.7%, respectively).

Table 4.1 Number and percent distribution of middle-aged men by selected demo-socioeconomic characteristics.

(N; un-weighted = 773, weighted 1,046)

Demo-socioeconomic characteristics		Percent and number of respondents	
		Un-weighted	Weighted
Age	40-49 years	62.7 (485)	62.2 (650)
	50-59 years	37.3 (288)	37.8 (396)
Education	Completed primary school or lower	73.3 (570)	76.1 (796)
	Completed secondary school or higher	26.3 (203)	23.9 (250)
Marital status	Married	87.5 (676)	88.3 (923)
	Unmarried or separated but had sex during the past 12 months	12.5 (97)	11.7 (123)
Occupation	Currently not working/non-government officers	91.5 (707)	92.1 (963)
	Government officer	8.5 (66)	7.9 (83)
Place of residence	Urban areas	63.3 (489)	62.3 (652)
	Rural areas	36.7 (284)	37.7 (394)

The first set of this study is to find out association between middle-aged men by types of sexual partner. Table 4.2 presented demo-socioeconomic characteristics of middle-aged men who engaged in marital and non-marital sex. Results of this study found that, the proportion of men who were aged 40-49 years engaged in marital sex more than those aged 50-59 years (86.9% and 79.8%, respectively). The proportion of men who completed primary school or lower engaged in marital sex a bit lower than those who completed secondary school or higher (83.6% and 86.3%). Ninety-four percent of men were married and currently having marital sex. The proportion of men

who were currently not working/non-government officers engaged in marital sex and those who were government officer more or less equal (84.1% and 85.5%, respectively). The proportion of men who lived in urban areas engaged in marital sex was lower than those who lived in rural areas (82.2% and 85.4%, respectively).

Turn to proportion of sampled men who had non-marital sex, the proportion of men aged 40-49 years who engaged in non-marital sex were lower than those aged 50-59 years (13.1% and 20.2%, respectively). Concerning level of education, the proportion of men completed primary school or lower had a bit higher non-marital sex than those completed secondary school or higher (16.4% and 13.7%). Exactly, the highest proportion of men who engaged in non-marital sex during the past 12 months was unmarried or separated men (88.6%). The proportion of men who were currently not working/non-government officers engaged in non-marital sex was higher than those who were government officer (15.9% and 14.5%, respectively). The proportion of men in urban areas engaged in non-marital sex was higher than those who lived in rural areas.

Table 4.2 Number and percent distribution of demo-socioeconomic characteristics among middle-aged men by types of sexual partner.

N = 773

	Marital sex	**Non-marital sex**
Age		
40-49 years	86.9(416)	13.1 (69)
50-59 years	79.8 (225)	20.2 (63)
Education		
Completed primary school or lower	83.6 (466)	16.4 (104)
Completed secondary school or higher	86.3(175)	13.7 (28)
Marital status		
Married	93.9 (625)	6.1(51)
Unmarried or separated but had sex during past 12 months	11.4 (16)	88.6 (81)
Occupation		
Currently not working/non-government officers	84.1 (584)	15.9 (123)
Government officer	85.5 (57)	14.5(9)
Place of residence		
Urban areas	82.2 (398)	17.8 (91)
Rural areas	85.4(243)	14.1(41)

Turn to the second set, the intention of this study was to understand knowledge of HIV/AIDS of middle-aged men who engaged in non-marital sex. The sampled men (132 individuals) were selected. Table 4.3 was assessed by 21 questions according to their perception (the respondent mentioned on their own). Results separated into correct and incorrect answer. Over 90% of middle-aged men answered correctly for 10 questions such as what we can do to; avoid blood transfusion, avoid medicine injection, avoid mouth-to-mouth kiss, avoid mosquito bite, seek preventive medicine from traditional doctors, use modern medicine, avoid sharing knife, avoid sharing toilet with others, avoid touching HIV-infected person, avoid sharing meals with HIV-infected person.

Proportions of men who answered correctly less than 90% were 11 questions such as avoid sexual intercourse, use condom, have sex with only one

partner, not promiscuous, limit number of sexual partner, avoid sex with male/female sex workers, avoid sex with person who have multiple partners, avoid sex with homosexual person, avoid sex with drug injectors, avoid needle sharing, and avoid touching blood while having a cut. Interestingly, number of men who answered correctly less than or equal 5 persons had 5 questions such as limit number of sexual partner, avoid sex with person who have multiple partners, avoid sex with homosexual person, avoid sex with drug injectors, and avoid touching blood while having a cut.

Table 4.3 Number and percent distribution of knowledge of AIDS among middle-aged men who engaged in non-marital sex.

N = 132

AIDS knowledge questions		Correct answers	Incorrect answers
1.	Avoid sexual intercourse	19.9 (21)	80.1(111)
2.	Use condom	65.9 (87)	34.1 (45)
3.	Have sex with only one partner	6.3(9)	93.7(123)
4.	Not promiscuous	38.2 (52)	61.8 (80)
5.	Limit number of sexual partners	0.6 (1)	99.4 (131)
6.	Avoid sex with male/female sex workers	23.5 (27)	76.5 (105)
7.	Avoid sex with persons who have multiple partners	2.0 (2)	98.0 (130)
8.	Avoid sex with homosexual person	0.6 (1)	99.4(131)
9.	Avoid sex with drug injectors	2.4 (3)	97.6(129)
10.	Avoid blood transfusion	97.0 (128)	3.0 (4)
11.	Avoid medicine injection	97.6 (129)	2.4 (3)
12.	Avoid mount-to mount kiss	97.9 (130)	2.1 (2)
13.	Avoid mosquito bite	97.9 (130)	2.1 (2)
14.	Seek preventive medicines from traditional doctors	96.2 (128)	3.8 (4)
15.	Use modern medicine	97.9 (130)	2.1 (2)
16.	Avoid needle sharing	19.0 (24)	81.0 (108)
17.	Avoid sharing knife	94.8 (124)	5.2 (8)
18.	Avoid sharing toilet with others	97.1 (129)	2.4 (3)
19.	Avoid touching HIV-infected person	97.9 (130)	2.1 (2)
20.	Avoid touching blood while having a cut	3.3 (5)	96.7 (127)
21.	Avoid sharing meals with HIV-infected person	97.9 (130)	2.1 (2)

The third set, table 4.4 focused on the most important source reported. This study also observed only men who engaged in non–marital sex of which 132 individuals. Sources of HIV/AIDS information divided into two categories namely personal sources and media sources. Mostly, men did not expose to personal sources of HIV/AIDS information. For those who were expose to HIV/AIDS information, public health officers were the most frequently cited as one of important personal sources of HIV/AIDS information among middle-aged men (13.8%), followed by friends (10.8%), and physicians (8.8%), respectively. Family member/relatives were more frequently cited as sources of HIV/AIDS information than nurses (5% and 3%). NGO workers were cited as a source of information (1.7%). School teachers or the other sources of information such as health volunteers were the less cited as HIV/AIDS information source (0.7%). Interestingly, employers were not cited as a source of HIV/AIDS information among men in this group. Turn to the important media source of HIV/AIDS information, television was the highest proportion mentioned as a source of HIV/AIDS information by 90%. Radio and newspaper were mentioned as sources of HIV/AIDS information source by 37.5% and 23.5%, respectively.

Table 4.4 Number and percent distribution of exposure to HIV/AIDS information among middle-aged men who engaged in non-marital sex.

N = 132

Sources of HIV/AIDS information	Expose to HIV/AIDS information	Do not expose to HIV/AIDS information
Personal sources		
1. Physician	8.8 (10)	91.2 (122)
2. Nurse	3.0 (4)	97.0 (128)
3. Public health officers	13.8 (15)	88.2 (117)
4. School teachers	0.7 (1)	99.3 (131)
5. NGO workers	1.7 (2)	98.3 (130)
6. AIDS volunteers	2.5 (3)	97.5 (129)
7. Friends	10.8 (13)	89.2 (119)
8. Family members	5.0 (5)	95.0 (125)
9. Employers	0.0 (0)	100.0 (132)
10. Others	0.7 (1)	99.3 (131)
Media sources		
1. Radio	37.5 (43)	62.5 (89)
2. Television	90.0 (115)	10.0 (17)
3. Newspaper	23.5 (38)	76.5 (94)

4.5 Bivariate Analysis of HIV-related condom use with non-marital sex among middle-aged men.

The fourth of this study explored the understanding of HIV-related condom use among middle-aged men who engaged in non-marital sex. The sample size in the following table was 132 individuals.

Table 4.5 investigated the proportion of men who practiced condom use with non-marital sex in relation to their demo-socioeconomic characteristics; age, education, marital status, occupation, and place of residence, HIV/AIDS knowledge, and sources of HIV/AIDS information.

Results showed that the experience of condom use among men was different. The proportion of men who had poor knowledge did not use condom with non-marital sex was lower than those who had good knowledge (non-use for poor knowledge 3.8%, non-use for good knowledge 14.1%, respectively). Concerning sources of information, the proportion of men who did not receive HIV/AIDS information from radio did not use condom with non-marital sex was much lower than those men who received it (4.9% and 14.8%, respectively). Similarly, the proportion of men who did not receive HIV/AIDS information from newspapers did not use condom with non-marital sex was very much lower than those who receive HIV/AIDS information from newspapers (4.0% and 23.7%, respectively).

Table 4.5 Percentage of middle-aged men who use condom with non-marital sex.

N = 132

	Use condom	Non-use condom
Demo-socioeconomic characteristics		
Age		
40-49 years	92.9 (63)	7.1 (6)
50-59 years	89.9 (57)	10.1 (6)
Education		
Primary school and lower	90.8 (95)	9.2 (9)
Secondary school and higher	91.4 (25)	8.6 (3)
Marital status		
Married	92.9 (47)	7.1 (4)
Unmarried or separated but had sex during past 12 months	90.7 (73)	9.3 (8)
Occupation		
Currently not working/ non-government officers	91.5(113)	8.5 (10)
Government officer	83.3 (7)	16.7(2)
Place of residence		
Urban area	88.6 (82)	11.4 (9)
Rural area	92.6 (38)	7.4 (3)
Knowledge about HIV/AIDS*		
Poor knowledge	96.3 (65)	3.8 (3)
Good knowledge	85.9 (55)	14.1 (9)
Sources of HIV/AIDS information		
Personal sources		
No	89.8 (84)	10.2 (9)
Yes	93.0 (36)	7.0 (3)
Media sources		
Radio*		
No	95.1 (84)	4.9 (5)
Yes	85.2 (36)	14.8 (7)

*** Chi-square significant; *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$**

Table 4.5 Percentage of middle-aged men who use condom with non-marital sex (cont.)

N = 132

	Use condom	**Non-use condom**
Media sources (cont.)		
Television		
No	94.1 (15)	5.9 (2)
Yes	90.6 (105)	9.4 (10)
Newspapers* **		
No	96.0 (89)	4.0 (5)
Yes	76.3 (31)	23.7 (7)

*** Chi-square significant; ****p* **< 0.05, *****p* **< 0.01, ******p* **< 0.001**

4.6 Multivariate analysis of condom use among middle-aged men in Thailand.

Regarding last section of this study, the dependent variable divided into 2 categories; use condom and non-use condom. The binary logistic regression was used to employ determinants of outcome variable. Model 1 and 2 in Table 4.6 were constructed by using condom use as outcome variable. Demo-socioeconomic factors (age, education, marital status, occupation, and place of residence) were included into the model 1, and knowledge, and sources of HIV/AIDS information were added into the model 2.

The result of the binary logistic regression showed that Chi-square of model 1 and 2 were 2.08 and 16.09, respectively. In the model 2, there was significant at 0.1 level. Log likelihood in the model 1 and the model 2 were -39.17, and -39.20, respectively. Pseudo R-square in the model 1 and the model 2 were 3% ($R^2 = 0.03$) and 20% ($R^2 = 0.20$), respectively.

According to the model 1, all demo-socioeconomic characteristics were not associated with condom use. After adding knowledge of HIV/AIDS, and sources of information such as radio, television, and newspapers into the model 2, knowledge of HIV/AIDS, sources of HIV/AIDS information such as radio, and newspapers have positive association with condom use. Men who had good knowledge were 3.3 times more likely to use condom than those who had poor knowledge with confidence interval 90% ($p< 0.1$). Concerning sources of HIV/AIDS information, men who received HIV/AIDS information from radio were 3.9 times more likely to use condom than those who did not receive it with confidence interval 95% ($p< 0.05$). Another result found that, men who received HIV/AIDS information from newspaper were 2.8 times more likely to use condom than those who did not receive it ($p< 0.1$).

Table 4.6 Results of binary logistic model for condom use among middle-aged men who engaged in non-marital sex.

N = 132

	Model 1			Model 2		
	Coefficients (B)	**Odds ratio**	**Std.err**	**Coefficients (B)**	**Odds ratio**	**Std.err**
Demo-socioeconomic characteristics						
Age (Years)						
Age 40-49 years®						
Age 50-59 years	0.21	1.24	0.83	0.44	1.53	1.25
Education						
Completed primary school or lower®						
Completed secondary school or higher	0.18	1.20	0.90	0.02	1.01	0.91
Marital status						
Married®						
Unmarried or separated but had sex during the past 12 months	0.30	1.36	0.92	0.16	1.12	0.87
Occupation						
Currently not working/non-government officers®						
Government officer	1.12	3.08	2.71	1.54	4.56	5.00
Place of residence						
Urban areas®						
Rural areas	-0.39	0.68	0.48	-0.22	0.81	0.68
Knowledge of HIV/AIDS and sources of HIV/AIDS information						
Knowledge of HIV/AIDS						
Poor knowledge®						
Good knowledge				1.42†	4.30†	3.27

® **Reference category, † *p* < 0.1, * *p* < 0.05**

Table 4.6 Results of binary logistic model for condom use among middle-aged men who engaged in non-marital sex (cont).

N = 132

	Model 1			Model 2		
	Coefficients (B)	**Odds ratio**	**Std.err**	**Coefficients (B)**	**Odds ratio**	**Std.err**
Sources of HIV/AIDS information						
Personal sources						
No®						
Yes				-0.66	0.53	0.44
Media sources						
Radio						
No®						
Yes				1.64*	5.21*	3.87
Television						
No®						
Yes				-0.80	0.43	0.45
Newspaper						
No®						
Yes				1.40*	4.21†	2.84
LR chi-squared	**2.08**			**16.29†**		
Log likelihood	**-39.17**			**-39.20**		
Pseudo R-square	**0.03**			**0.20**		

® **Reference category, † *p* < 0.1, * *p* < 0.05**

4.7 Discussion

This study has found important information to understand HIV-related condom use among middle-aged who engaged in non-marital sex in Thailand. Concerning, the proportion of younger middle-aged men (40-49 years) was higher than older middle-aged men (50-59 years). Mostly, men completed primary school or lower. Related to the Thai Education Act (1980), reported that the compulsory education level during 30 years before was only primary school. So, it is not surprised that middle-aged men still had low level of education. One-tenth of men did not live with their couple (included sampled men who were unmarried, widowed/divorced and separated but had sex during the past 12 months). The proportion of men who were currently not working/non-government officers was higher than those who were government officer. There are many occupations such as service or sale in shops or market, technical work in agriculture and fishing, skilled and other enterprises, work related to machine and machinery assembly, and other primary occupations which were included in currently not working/non-government officer. The proportion of men who lived in urban areas was nearly two times higher than those who lived in rural areas. It is related to a report from the National Sexual Behavior Survey of Thailand 2006 by Chamratrithirong et al., (2007) that the sample population were included Bangkok, the provincial urban areas of 14 provinces, and other in the rural provincial areas. When observed the proportion of men who engaged in non-marital sex, found that 132 men in the study engaged in non-marital sex.

Besides, the study was examined descriptive percentage about HIV/AIDS knowledge (men mentioned on their own), and sources of HIV/AIDS information. Men who engage in non-marital sex answered knowledge of HIV/AIDS correctly over 90% for 10 questions, less than 90% 11 questions. Interestingly, number of men who answered less than or equal 5 persons were correctly 5 questions such as how to; limit number of sexual partner, avoid sex with person who have multiple partners, avoid sex with homosexual person, avoid sex with drug injectors, and avoid touching blood while having a cut.

Results found that men had low perception of HIV/AIDS. Furthermore, HIV/AIDS knowledge that they received might not be correctly. Even though men received knowledge of HIV/AIDS, they confused and did not understand how to apply

that knowledge in their real life. Our study presumed that men did not receive enough knowledge of HIV/AIDS. It was related to a study by Im-em (2001) that older adults in Thailand less likely to get HIV/AIDS information than the adolescents.

Turn to exposure to HIV/AIDS information, public health officers were frequently cited as the most important source of HIV/AIDS information (13.8%), followed by friends (10.8%), and physicians (8.8%) respectively. This result can presume that people who were public health officers work in community. The opportunity of men to access HIV/AIDS information was easier than that of other sources of HIV/AIDS information. Moreover, friends were in same aged group, so, it was more comfortable for them to communicate with their friends who engaged in the same risk behavior. Related to a study by Tung and Ding, et al., (2008) reported that females and males discussed about sexual transmitted diseases (STIs) with friends (70% and 57.7%, respectively).

Furthermore, physicians were cited as a source of HIV/AIDS information. The reason might be due to people confidence and accept in their knowledge. Family member/relatives were more cited as sources of HIV/AIDS information than nurses (5% and 3%). The reason behind might be related to mostly people who were nurses were women. It was difficult for men to discuss about HIV/AIDS information with the one who had different gender. NGO workers also were cited as a source of HIV/AIDS information. School teachers or other sources of information such as health volunteers were the less cited as HIV/AIDS information (0.7%). Men in this aged group were not have a period of times to study, so the opportunity to expose HIV/AIDS information with school teacher was low (The level of education was mentioned above). Amazingly, employers were not cited as HIV/AIDS information. Our study can assume that, regarding Thai culture, the younger respected the older or those who had higher position than them. Men who were employees respected their employer, they would not discuss HIV/AIDS information with their employers. Moreover, if they discuss this information, this may relate to their opportunity in their job, stigmatization, and discrimination from their colleagues.

Considering sources of HIV/AIDS information, sampled men who engaged in non-marital sex received HIV/AIDS information from television (90%), radio (37.5%), and newspapers (23.5%), respectively.

Factor that significant associated to condom use were knowledge of HIV/AIDS, sources of HIV/AIDS information namely radio and newspapers. Considering from results, knowledge of HIV/AIDS had associated to condom use with confidence interval 90% ($p< 0.1$). The proportion of men who had poor knowledge did not use condom with non-marital sex was lower than those who had good knowledge. Related to a study by Ganczak, and Barss, et al. (2007) reported that the proportion of sample population knew the main route of infection was 90%, but they were confused about HIV/AIDS transmission. A study by Leblanc (1993) from the National Health Survey in 1987 supported a study by Ganczak and Barss, et al. (2007) that adults in the U.S. had the knowledge about HIV/AIDS, but lack of awareness and did not understand how to protect themselves from HIV/AIDS.

The proportion of men who received HIV/AIDS information from radio did not use condom with non-marital sex was lower than those who received. Similarly, the proportion of men who did not receive HIV/AIDS information from newspaper did not use condom with non-marital sex was lower than those who receive it. Regarding bivariate analysis was examined by controlling other independent variables. Each of independent variables was not affected others. A sample size was small sample, so it was difficult to predict results that were happen. Furthermore, media sources of HIV/AIDS information did not affect for behavior change among men. Correspondingly, a study evaluating the impact of a radio drama in Zambia by Yoder, Hornik, and Chirwa, (1996) found that radio drama did not change general knowledge of HIV/AIDS and affect for condom use among individuals. Besides, it was difficult for some men who had low education level, they cannot read and received HIV/AIDS information from newspapers.

The binary logistic regression employed HIV-related condom use among middle-aged men who engaged in non-marital sex. There were knowledge about HIV/AIDS, sources of HIV/AIDS information namely radio and newspapers significant associated to condom use ($p < 0.1$). Regard a small sample size, binary logistic regression was examined by using ($p< 0.1$). The hypothesis 2 and 3 remained persistent. Men who had good knowledge were more likely to use condom than those who had poor knowledge. It was related to the AIDS Risk Reduction Model by Catania, Kegeles, and Caotes (1990) that knowledge was an important critical related

to behavioral change. Susceptibility, awareness was related to knowledge. People who had poor knowledge were more likely to engage in HIV-related condom use than those who had good knowledge. A study by Im-em (2001) also supported that older adults in Thailand had a little knowledge of HIV/AIDS.

Another finding interesting in this study was men who received media sources of HIV/AIDS information namely radio and newspaper were more likely to use condom than those who did not receive it. Correspondingly, a study by Bessinger and Katende et al., (2004) reported that radio was the most popular source of HIV/AIDS information among men. Eighty-five percent of men who heard advertisement on radio knew that using condom during sexual intercourse can avoid HIV/AIDS. Differently, a study evaluating the impact of a radio drama in Zambia by Yoder, Hornik, and Chirwa, (1996) found that radio drama did not change general knowledge of HIV/AIDS and affect for condom use among individuals. Tung and Ding et al., (2008) reported that television was their main source of HIV/AIDS information, followed by internet, newspapers, and magazines.

Otherwise, the hypothesis 1 was rejected. Demo-socioeconomic characteristics cannot explain HIV-related condom use among middle-aged men who engaged in non-marital sex in Thailand.

CHAPTER V
CONCLUSION AND RECOMMENDATION

5.1 Conclusion

The objectives of this study are to observe factors affecting HIV-related condom use among Thai middle-aged men who engaged in non-marital sex and to determine factors effecting HIV-related condom use among middle-aged men who engaged in non-marital sex in Thailand. This study use secondary data from the National Survey on HIV/AIDS Risk Behavior and Anti retroviral treatment Knowledge in Thailand, implemented by the Institute for Population and Social Research, Mahidol University. This survey was the third national survey on risk behaviors and ART knowledge which was conducted in May, 2006. A total of 773 middle-aged men 40-59 years were included, of which 132 men had engaged in non-marital sex. Biniary logistic regression was used to determine factor effecting HIV-related condom use.

Our study found that middle-aged men who were unmarried or separated but had sex during the past 12 months was 11.7%. Middle-aged men who engaged in non-marital sex answered knowledge of HIV/AIDS correctly over 90% for 11 questions from total 21 HIV/AIDS knowledge questions. Even, public health officers, friends, and physicians were frequently cited as the most important personal sources of HIV/AIDS information among middle-aged men, the proportion of middle-aged men access personal sources of HIV/AIDS information still less. Concerning media sources of HIV/AIDS information, television, radio, and newspapers were cited as important media sources of HIV/AIDS information, respectively.

Bivariate analysis showed domo-socioeconomic characteristics had no significant associated to condom use whereas knowledge of HIV/AIDS, and media sources of HIV/AIDS information namely, radio and newspaper were significant ($p<$ 0.05). Multivariate analysis also showed demo-socioeconomic characteristics had no significant, after adding knowledge about HIV/AIDS and sources of HIV/AIDS

information into the model 2, knowledge of HIV/AIDS was significantly associated level with condom use. Men who had good knowledge were more likely to use condom than those who had poor knowledge. Moreover, our study found that sources of HIV/AIDS information namely radio, and newspaper were significant associated to condom use. Men who received HIV/AIDS information from radio were more likely to use condom than those who did not receive it, and those who received HIV/AIDS information from newspapers were more likely to use condom than those who did not receive it.

5.2 Recommendations for policy implication

Developing effective intervention programs for reducing HIV-related condom use among middle-aged men should be strengthen in the following manners.

- More opportunities need to be provided for middle-aged people to be exposed to HIV/AIDS information. For example, mass media related with HIV/AIDS information should be distributed for middle-aged men or HIV/AIDS learning centers specific for middle-aged men should be established in the community.
- Behavioral change communication programs (BCC) should be strengthened and future intervention programs should be considered regarding HIV/AIDS knowledge among middle-aged men who engaged in non-marital sex, particular for some questions that they did not well understanding.
- Both local and international government and non-government organizations should participate in implementing HIV/AIDS intervention programs.

5.3 Recommendations for future research

This study could only emphasize some of HIV-related condom use among middle-aged men in Thailand. However, crucial risky sexual practices such as homosexual and sexual transmitted diseases among middle-aged men cannot be taken

into account for this study. Even though, those variables can provide more information to understand HIV-related condom use, some important explanatory variables such as discrimination, stigmatization, drug, and alcohol use by middle-aged men are not involved. Further studies are needed with larger sample size to find out factors affecting HIV- related condom use among middle-aged men in Thailand. Qualitative research should be conducted for more in-depth understanding to indentify demo-socioeconomic characteristics, and find out other risky sexual practices related to condom use among middle-aged men.

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APPENDICES

APPENDIX A

QUESTIONS

Selected questions on HIV-related condom use among middle-aged men.

Question #	Question	Answer	Code
	Place of residence	Bangkok Other urban area Rural area	1 2 3
1.2	How old are you at your last birthday?	Age…….Years Date of birth	
1.4	What is the highest level that you completed?	**Never attended school** Grade 1-4 Grade 5-7 Junior High School (G1-G3) Senior High School (G4-G6)/Lower Vocational Higher Vocation/Diploma/2nu yr college BA Degree Higher than BA Degree Other (Specify)	0 1 2 3 4 5 6 7 8
1.9	What is your current occupational work?	**Currently not working** **Senior government officer** **Professional** **Technical work** **Clerical work** **Service or sale in shop or market** - Personal and insurance service - Models and sale **Technical work in agriculture and fishing** - in market economy - in subsistence economy **Skilled and other enterprise** - Smelting, extracting & constructing - Related to metal, machine and others - Related to manufacturing and printing - Related to other skills	**00** **10** **20** **30** **40** **50** 51 52 **60** 62 **70** 71 72 73 74

Question#	Question	Answer		Code
1.9	What is your current occupational work? (continued)	**Work related to machine and machinery assembly** - Machinery control - Machinery assembly - Moving/driving machine Other primary occupation - Sale & service - Labor in agriculture & fishing - Labor in mining, construction, production, & transportation **Military/police**		80 81 82 83 90 91 92 93 01
2.5	What we can do? **(Do not prompt, record all Valid answers. Probe if there is additional answer)**	**Yes**	**No**	
	Avoid sexual intercourse	1	2	
	Use condom	1	2	
	Have sex with only one partner	1	2	
	Not promiscuous	1	2	
	Limit number of sexual partner	1	2	
	Avoid sex with male/female sex workers	1	2	
	Avoid sex with persons who have multiple partners	1	2	
	Avoid sex with a homosexual person	1	2	
	Avoid sex with drug injectors	1	2	
	Avoid blood transfusion	1	2	
	Avoid medicine injection	1	2	
	Avoid mouth-to-mouth kiss	1	2	
	Avoid mosquito bite	1	2	
	Seek preventive medicines from traditional doctors	1	2	
	Use modern medicine	1	2	
	Avoid needle sharing	1	2	
	Avoid sharing knife	1	2	
	Avoid sharing toilet with others	1	2	
	Avoid touching HIV-infected person	1	2	
	Avoid touching blood while having a cut	1	2	
	Avoid sharing meals with HIV-infected person	1	2	
	Other (specify)……..	1	2	

Question#	Question	Answer	Code	
3.1	In the past 12 months, from whom did you get information about AIDS? (Multiple answer. Do not prompt but make sure to get all the answer)		**Yes**	**No**
		Physician	1	2
		Nurse	1	2
		Public health officer	1	2
		School teachers	1	2
		NGO workers	1	2
		AIDS volunteers	1	2
		Friends	1	2
		Family member/relative	1	2
		Employers	1	2
		Other (specify)……	1	2
3.3	In the past 12 months, from what medias did you get AIDS information (Multiple answer. Do not prompt but make sure to get all the answers)		**Yes**	**No**
		Radio	1	2
		TV	1	2
		Magazine	1	2
		Bill board	1	2
		Poster/stickers	1	2
		Internet	1	2
		Flyers, journal	1	2
		Newspaper	1	2
		Exhibits	1	2
		VDO/CD	1	2
		Cable service	1	2
		Other (specify)……	1	2
8.1	What is your current (legal) marital status?	**Unmarried and never had sex**		1
		Unmarried but ever had sex		2
		Married (registered)		3
		Married (not registered)		4
		Widowed/divorced/separated at the court's order		5

Question#	Question	Answer	Code
9.2	Think about the partner you had sex with most recently during the period of past 12 months. What would you describe relationship you have with this partner?	Spouse (registered) Minor wife/husband Cohabiter (not registered) Fiance' Boy/girlfriend A "Gik" Acquaintance Friend Someone you just met Drink girl/Beer girl Commercial sex worker Other (specify)…….	01 02 03 04 05 06 07 08 09 10 11 12

APPENDIX B
TABLES

Table 4.2 (a) Number and percent distribution of demo-socioeconomic characteristics among middle-aged men by types of sexual partner.

(N; un-weighted = 773, weighted 1,046)

	Marital sex	Non-marital sex	Marital sex	Non-marital sex
	Un-weighted		Weighted	
Age				
40-49 years	85.8 (416)	14.2 (69)	86.9 (565)	13.1 (85)
50-59 years	78.1 (225)	21.9 (63)	79.8 (316)	20.2 (80)
Education				
Completed primary school or lower	81.8 (466)	18.2 (104)	83.6 (666)	16.4 (131)
Completed secondary school or higher	86.2 (175)	13.8 (28)	86.3 (265)	13.7 (34)
Marital status				
Married	92.5 (625)	7.5 (51)	93.9 (867)	6.1 (56)
Unmarried or separated but had sex during past 12 months	16.5 (16)	83.5 (81)	11.4 (14)	88.6 (109)
Occupation				
Currently not working/non-government officers	82.6 (584)	17.4 (123)	84.1 (810)	15.9 (153)
Government officer	86.4 (57)	13.6 (9)	85.5 (71)	14.5 (12)
Place of residence				
Urban areas	81.4 (398)	18.6 (91)	82.2 (324)	17.8 (70)
Rural areas	85.6 (243)	14.4 (41)	85.4 (556)	14.1 (95)

Table 4.3 (a) Number and percent distribution of knowledge of AIDS among middle-aged men who engaged in non-marital sex.

(N; un-weighted = 132, weighted = 165)

	AIDS knowledge questions	Correct answers	Incorrect answers	Correct answers	Incorrect answers
		Un-weighted		Weighted	
1	Avoid sexual intercourse	15.9 (21)	84.1 (111)	19.9 (33)	80.1 (132)
2	Use condom	65.9 (87)	34.1 (45)	65.9 (109)	34.1 (56)
3	Have sex with only one partner	6.8 (9)	93.2 (123)	6.3 (10)	93.7 (155)
4	Not promiscuous	39.4 (52)	60.6 (80)	38.2 (63)	61.8 (102)
5	Limit number of sexual partners	0.8 (1)	99.2 (131)	0.6 (1)	99.4 (164)
6	Avoid sex with male/female sex workers	20.5 (27)	79.5 (105)	23.5 (39)	76.5 (126)
7	Avoid sex with persons who have multiple partners	1.5 (2)	98.5 (130)	2.0 (3)	98.0 (162)
8	Avoid sex with homosexual person	0.8 (1)	99.2 (131)	0.6 (1)	99.4 (164)
9	Avoid sex with drug injectors	2.3 (3)	97.3 (129)	2.4 (4)	97.6 (161)
10	Avoid blood transfusion	97.0 (128)	3.0 (4)	97.0 (160)	3.0 (5)

Table 4.3 (a) Number and percent distribution of knowledge of AIDS among middle-aged men who engaged in non-marital sex (cont).

(N; un-weighted = 132, weighted = 165)

	AIDS knowledge question	Correct answers	Incorrect answers	Correct answers	Incorrect answers
		Un-weighted		Weighted	
11.	Avoid medical injection	97.7 (129)	2.3 (3)	97.6 (161)	2.4 (4)
12.	Avoid mouth-to-mouth kiss	98.5 (130)	1.5 (2)	97.9 (162)	2.1 (3)
13.	Avoid mosquito bite	98.5 (130)	1.5 (2)	97.9 (162)	2.1 (3)
14.	Seek preventive medicines from traditional doctors	97.0 (128)	3.0 (4)	96.2 (159)	3.8 (6)
15.	Use modern medicine	98.5 (130)	1.5 (2)	97.9 (162)	2.1 (3)
16.	Avoid needle sharing	18.2 (24)	81.1 (108)	19.0 (31)	81.0 (134)
17.	Avoid sharing knife	93.9 (124)	6.1 (8)	94.8 (157)	5.2 (9)
18.	Avoid sharing toilet with others	97.7 (129)	2.3 (3)	97.1 (161)	2.4 (4)
19.	Avoid touching HIV-infected person	98.5 (130)	1.5 (2)	97.9 (162)	2.1 (3)
20.	Avoid touching blood while having a cut	3.8 (5)	96.2 (127)	3.3 (5)	96.7 (160
21.	Avoid sharing meals with HIV-infected person	98.5 (130)	1.5 (2)	97.9 (162)	2.1 (3)

Table 4.4 (a) Number and percent distribution of exposure to HIV/AIDS information among middle-aged men who engaged in non-marital sex.

(N; un-weighted = 132, weighted = 165)

Sources of HIV/AIDS information	Expose to HIV/AIDS information	Do not expose to HIV/AIDS information	Expose to HIV/AIDS information	Do not expose to HIV/AIDS information
	Un-weighted		Weighted	
Personal sources				
1. Physician	7.6 (10)	92.4 (122)	8.8 (15)	91.2 (151)
2. Nurse	3.0 (4)	97.0 (128)	3.0 (5)	97.0 (160)
3. Public health officers	11.4 (15)	88.6 (117)	13.8 (23)	86.2 (142)
4. School teachers	0.8 (1)	99.2 (131)	0.7 (1)	99.3 (164)
5. NGO workers	1.5 (2)	98.5 (130)	1.7 (3)	98.3 (162)
6. AIDS volunteers	2.3 (3)	97.7 (129)	2.5 (4)	97.5 (161)
7. Friends	9.8 (13)	90.2 (119)	10.8 (18)	89.2 (147)
8. Family members	5 (3.8)	125 (96.2)	5.0 (8)	95.0 (157)
9. Employers	0 (0)	100 (132)	0 (0)	100 (165)
10. Others	0.8 (1)	99.2 (131)	0.7 (1)	99.3 (164)
Media sources				
1. Radio	32.6 (43)	67.4 (89)	37.5 (62)	62.5 (103)
2. Television	87.1 (115)	12.9 (17)	90.0 (149)	10.0 (16)
3. Newspaper	28.8 (38)	71.2 (94)	23.5 (39)	76.5 (126)

Table 4.5 (a) Percentage of middle-aged men who use condom with non-marital sex.

(N; un-weighted = 132, weighted = 165)

	Use condom	Non-use condom	Use condom	Non-use condom
	Un weighted		Weighted	
Demo-socioeconomic characteristics				
Age				
40-49 years	91.3	8.7	92.9	7.1
	(63)	(6)	(79)	(6)
50-59 years	90.5	9.5	89.9	10.1
	(57)	(6)	(71)	(8)
Education				
Primary school and lower	91.3	8.7	90.8	9.2
	(95)	(9)	(119)	(12)
Secondary school and higher	89.3	10.7	91.4	8.6
	(25)	(3)	(32)	(3)
Marital status				
Married	92.2	7.8	92.9	7.1
	(47)	(4)	(52)	(4)
Unmarried or separated but had sex during past 12 months	90.1	9.9	90.7	9.3
	(73)	(8)	(98)	(10)
Occupation				
Currently not working/ non-government officers	91.9	8.1	91.5	8.5
	(113)	(10)	(140)	(13)
Government officer	77.8	22.2	83.3	16.7
	(7)	(2)	(10)	(2)
Place of residence				
Urban area	90.1	9.9	88.6	11.4
	(82)	(9)	(62)	(8)
Rural area	92.7	7.3	92.6	7.4
	(38)	(3)	(88)	(7)
Knowledge about HIV/AIDS and sources of HIV/AIDS information				
Knowledge about HIV/AIDS*				
Poor knowledge	95.5	4.5	96.3	3.8
	(65)	(3)	(74)	(3)
Good knowledge	86.4	13.6	85.9	14.1
	(55)	(9)	(76)	(12)

*** Chi-square significant; *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$**

Table 4.5 (a) Percentage of middle-aged men who use condom with non-marital sex (cont).

(N; un-weighted = 132, weighted = 165)

	Use condom	Non-use condom	Use condom	Non-use condom
	Un weighted		Weighted	
Sources of HIV/AIDS information				
Personal sources				
No	90.3 (84)	9.7 (9)	89.8 (97)	10.2 (11)
Yes	92.3 (36)	7.7 (3)	93.0 (53)	7.0 (4)
Media sources				
Radio*				
No	94.4 (84)	5.6 (5)	95.1 (98)	4.9 (5)
Yes	83.7 (36)	16.3 (7)	85.2 (52)	14.8 (9)
Television				
No	88.2 (15)	11.8 (2)	94.1 (16)	5.9 (1)
Yes	91.3 (105)	8.7 (10)	90.6 (135)	9.4 (14)
Newspaper* **				
No	94.7 (89)	5.3 (5)	96.0 (121)	4.0 (5)
Yes	81.6 (31)	18.4 (7)	76.3 (29)	23.7 (9)

*** Chi-square significant; *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$**

BIOGRAPHY

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