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Prevalence of Condom Use and Its Related Factors Among Men Who Have Sex With Men in Thailand

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Background: The new challenge of human immunodeficiency virus (HIV) prevention exists in men who have sex with men (MSM) and becomes the key population accounting for the vast majority of new HIV infections worldwide. Consistent condom use has been proved to be effective to prevent HIV transmission. Promoting the use of condom is needed; however, knowledge on what factors relevant to the performance of this behavior among MSM in Thailand is limited.

Objectives: To examine the prevalence rate of condom use among MSM in Thailand, and to identify related factors of its use.

Methods: Participants were recruited using convenience sampling with inclusion criteria. The data were collected using an online questionnaire and then analyzed using chi-square test and Spearman rank correlation.

Results: A total of 153 data sets from participants were included in the analysis. The average age was 27.4 ± 5.8 years. The HIV positivity was 6.5%, and consistent condom use was 55.6%. The correlational analysis showed that age ($P = .03$), intention, attitude, subjective norms, and perceived behavioral control ($P < .01$) were significantly correlated with consistent condom use.

Conclusions: The interventions proposed to promote consistent condom use among MSM should focus on increasing intention, attitude, subjective norms, and/or perceived behavioral control, especially among young MSM in Thailand.

Keywords: HIV, Condom use, MSM, Theory of planned behavior

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Introduction

Men who have sex with men (MSM) have become a key population of human immunodeficiency virus (HIV) infection worldwide, with high prevalence and incidence reported in all parts of the world.[1] In 2014, it was reported that 62% of new cases of HIV occurred among MSM.[2] In addition, when the US Centers for Disease Control and Prevention (CDC) conducted a study in 21 cities in the USA in 2008, the rate of infection among MSM had been increasing about 8% per year since 2001.[3] It is notable that, in Africa, Asia, and Latin America, the highest rates of HIV infection are noted in this population.[4] Thailand's first case of HIV was reported in 1984 among MSM before spreading to other populations which mainly in people who inject drugs, sex workers and their clients, and mother to child transmission.[5] The marked change of the transmission route was noticed again in early 2000s with increasing trend among MSM. The HIV prevalence among MSM was 17.3% in 2003, and increased up to 28.3% in 2005 and 30.8% in 2007.[6] The most recent available data by the Bureau of Epidemiology of the Ministry of Public Health revealed that HIV prevalence among MSM was 20% in Bangkok, 14% in Chiang Mai, and 9% in Phuket.[7] This evidence suggests that the HIV epidemic among MSM is a crucial issue and needs on urgent intervention to be brought under control.

Although preexposure prophylaxis (PrEP) is a highly effective HIV prevention tool, it has some limitations. For example, all individuals need to confirm a negative HIV test, normal renal function, and lack of acute HIV symptoms. Strong commitment to drug adherence, regular appointments, and laboratory testing are also required while using PrEP.[8] Thus, condom use still seems to be the most appropriate, cost-effective, and widely used method in Thailand. Nevertheless, condoms can only be effective as far as preventing HIV when they are used 100% of the time, which is called consistent condom use.[9] Unfortunately, there are many studies which have reported a low prevalence of condom use among MSM in various countries.[10-13] In Thailand, the studies revealed that the consistency of using condom among MSM in 2015 was 67.2% in Bangkok, 62.4% in Chiang Mai, and 50% in Phuket.[14] This highlights the fact that interventions to promote consistent condom use among MSM are needed.

In order to conduct condom promotion, it is essential to explore and understand what factors influence condom use among MSM. Therefore, 2 main purposes of this study were to examine the prevalence of consistent condom use among MSM in Thailand; and to determine the relationship of consistent condom use to the demographic characteristics, HIV-related behaviors, and the theory of planned behavior (TPB) variables. If factors related to condom use are noted in the context of MSM in Thailand, this will likely be helpful in implementing interventions to promote consistent condom use that leads to decrease in new cases of HIV infection and control propagation of the HIV epidemic among this population.

Methods

Study Design and Participants

The TPB by Ajzen[15] was selected for this study because it has been proven to be successful.[16-18] According to TPB, the performance of human behavior is involved by 4 main cognitive variables including intention, attitude, subjective norms, and perceived behavioral control (PBC). Intention is the cognitive representation of a person's readiness to perform any given forms of behavior. Attitude refers to the views of an individual, either positive or negative, concerning any behaviors. Subjective norms are an individual's perception of social pressure (such as their view of the expectations of an important person) to engage in any forms of behavior. The last component is PBC, which refers to an individual's perception of his or her ability to perform given types of behavior.

Beside the variables of TPB, 2 other sets of factors were identified as being relevant to the use of condoms among MSM. First group is demographic characteristics: age, income, educational level, and HIV status. The other is HIV-related behaviors: alcohol use, drug use, and number of sexual partners.

The population for this present study were Thai MSM. For selection, the method of convenience sampling with inclusion criteria was utilized. Each participant had to (1) be Thai nationality; (2) be at least 18 years old; (3) be absence of sex reassignment surgery; (4) been sexually active during the previous 3 months; and (5) be willing and able to provide informed consent online.

The sample size was calculated using a power analysis software program (G*Power version 3.9.1.2) with the level of significance (α) of 0.05, and the power of 0.90. The effect size of 0.268 was applied, based on a review of the previous relevant literature. Using the above process, it was found that the required sample size for this study was at least 150 subjects.

The MSM were voluntarily and anonymously recruited via accessing the questionnaire's web link, as stated on an advertising poster. No incentives were provided as it would affect on participant's anonymity. A prospective participant could obtain this poster through any of 3 main sources: (a) the Rainbow Sky Association of Thailand (RSAT) Health Center; (b) friendly public community websites; or (c) their acquaintances who had received the questionnaire link via the 2 aforementioned channels.

Ethical Approval

The study was conducted from January to June 2017, after receiving ethical approval No. MURA2016/747 on November 18, 2016 from the Human Research Ethics Committee of Faculty of Medicine Ramathibodi Hospital, Mahidol University, Thailand.

Before proceeding to the questionnaire, prospective participants were asked to complete an online informed consent by clicking "Agree" button before proceeding to the questionnaire. Then, before the person could begin the main questionnaire, the questions covered the inclusion criteria were asked. Only those participants who fulfilled all the inclusion criteria could continue to the main questionnaire. The data was sent to SurveyMonkey.com, where it was securely stored and password-protected.

Measurement

An online questionnaire was used to collect the data. The questionnaire composed of 4 sections.

Characteristic questionnaire was developed by the researchers, based on the review of literature about factors related to condom use. The questions included age, educational level, income, and HIV status. In addition, occupation, years of birth, and roles when having sexual intercourse were added. This was done in order to confirm that each participant met the inclusion criteria.

Condom use was measured by self-reporting questions developed by researchers. Participants were asked to estimate their frequency of using condom during sexual intercourse in the past 3 months. Participants who reported "always" use condom would be classified as "consistent condom use", and those reported inconsistent use of condom were asked to fill the reasons for not using it.

HIV-related behaviors were forms of behavior that participants had engaged during the past 3 months. The questions covered alcohol use before or during sexual intercourse, drug use before or during sexual intercourse, and number of sexual partners.

The TPB variables were measured by using a Thai version of TPB instrument developed by Janepanish et al[17] based on Ajzen's TPB. This measurement uses a 7-point Likert-type scale. The Cronbach's alpha for the entire instrument was 0.88 for the original study; and 0.89 for this current study.

Statistical Analysis

The data were coded and entered into SPSS version 21 (IBM SPSS Statistics for Windows, Version 21.0.

Armonk, NY: IBM Corp; 2012). Two-tail hypothesis testing, with significant level of .05 was applied. Mean and standard deviation (SD) were used to describe continuous data. Percentages were used to describe categorical data. To identify relevant relationships, the chi-square or Fisher exact tests for categorical variables and Spearman rank correlation for continuous variables were used.

Results

A total of 292 individual visited the online questionnaire website, and 279 of them agreed to participate in the study. A total of 201 MSM fulfilled the inclusion criteria; however, 19 participants did not begin the questionnaire and 29 did not complete all questions. Therefore, the total number of recruited participants was 153 (Figure 1).

Participant characteristics were analyzed. Age ranged from 18 to 49 years with a mean ± SD age of 27.4 ± 5.8 years, most were over 24 years old and had an education level at least college/ university or higher. They mostly had a single partner and never used alcohol or drugs before or during having sexual intercourse. About half of them (53.6%) had monthly income between 10 001 and 30 000 Baht. The HIV positivity was 6.5% but 20.3% did not know their HIV serostatus or never had it tested. During the past 3 months, 55.6% of participants reported using condom consistently and 7.2% had never used condoms (Table 1).

The reasons for refusing to use condom were reported by participants who had inconsistent condom use via open-end question. Of the total 68 participants, similar reasons were grouped together and the total 78 reasons furnished were identified (Table 2).

The participant's mean scores of intention, attitude, subjective norms, and PBC was high which ranged from 5.7 to 6.2 (Table 3).

Figure 1. Flow Chart of Participants Enrollment

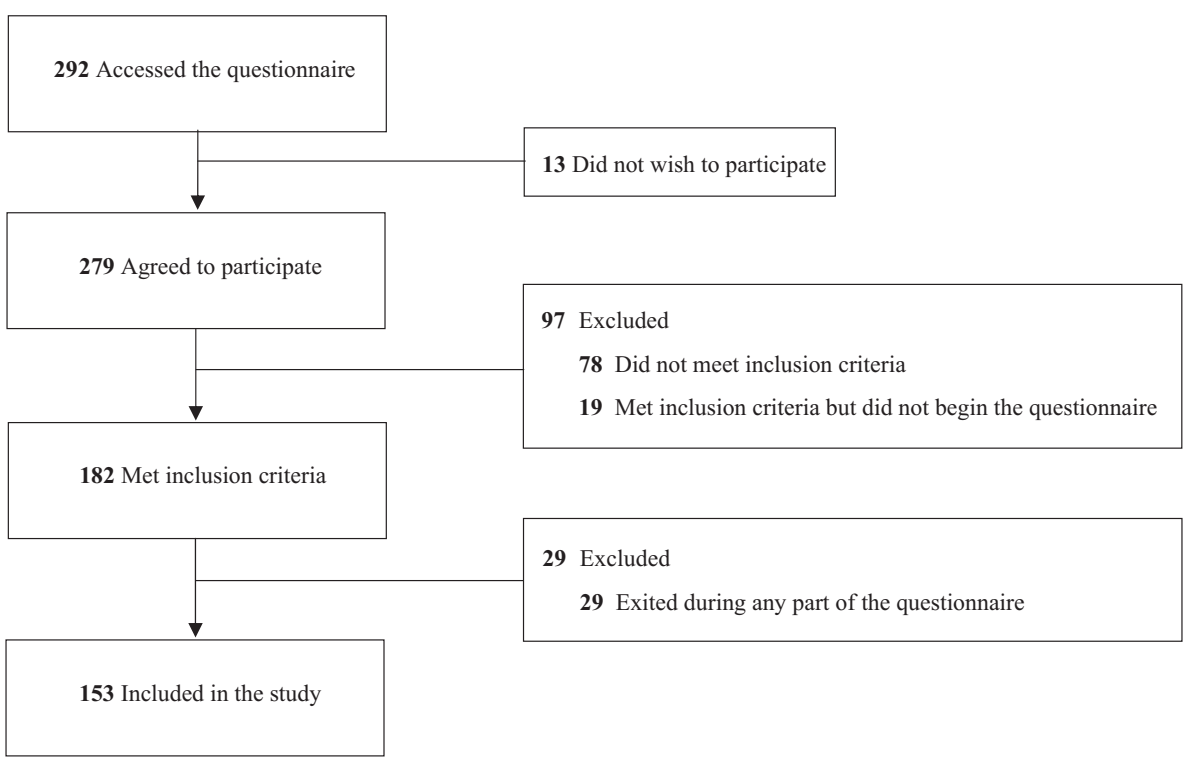

Table 1. Characteristics, HIV-Related Behavior, and Condom Use Behavior of Participants (N = 153)

Characteristic	No. (%)
Age, y	
≤ 24	46 (30.1)
> 24	107 (69.9)
Education	
Secondary school or lower	20 (13.1)
College, university or higher	133 (86.9)
Monthly income (Baht)	
≤ 10 000	28 (18.3)
10 001 - 30 000	82 (53.6)
30 001 - 50 000	25 (16.3)
> 50 000	18 (11.8)
HIV status	
Negative	112 (73.2)
Positive	10 (6.5)
Unknown/never tested	31 (20.3)
Behavior	
Multiple sexual partners	62 (40.5)
Alcohol use before/during having sex	44 (28.8)
Drug use before/during having sex	8 (5.2)
Consistent condom use	85 (55.6)

Abbreviation: HIV, human immunodeficiency virus.

Table 2. Reasons for Refusing to Use Condom of Participants (N = 68)

Reason*	No. (%)
Being a couple or staying together	19 (24.4)
Receiving better feeling during sex	12 (15.4)
Having HIV negative testing result	10 (12.8)
Has only a single sexual partner	9 (11.5)
Lack of condom availability	9 (11.5)
Trust/confidence in sexual partner	8 (10.3)
Personal desire not to use	5 (6.4)
Sexual partner refused to use	3 (3.8)
Atmosphere of situation	2 (2.6)
No insertion during intercourse	1 (1.3)

Abbreviation: HIV, human immunodeficiency virus.

* Each participant can report more than one reason.

Table 3. Descriptive Statistics of the TPB Variables

Variable	Mean ± SD
Intention	5.7 ± 1.6
Attitude	6.2 ± 1.0
Subjective norms	6.1 ± 1.3
Perceived behavioural control	6.0 ± 1.2

Abbreviations: SD, standard deviation; TPB, theory of planned behavior.

Characteristics and HIV-risk related factors between participants who reported consistent condom use and those who used condom inconsistently in the past 3 months were compared by using chi-square test. Only age was found to be significant (P = .03) (Table 4).

According to the Spearman rank correlation analysis, consistent condom use significantly associated with intention (r = 0.65, P < .01), attitude (r = 0.39, P < .01), subjective norms (r = 0.48, P < .01), and PBC (r = 0.46, P < .01).

Discussion

This current study found that the HIV positivity was 6.5% and 20.3% unknown or never tested; whereas, the HIV prevalence was under 1% among general population in Thailand.[19] High HIV positivity in MSM is not only due to the greater physiological vulnerability to HIV acquisition of anus than the vagina,[20] but also high risky behavior such as having multiple sexual partner and the low prevalence of consistent condom use among participants.

Table 4. The Relationship Between Consistency of Condom Use With Associated Variables

Variable	No. (%)		*P* Value*
	Condom Use		
	Inconsistency	Consistency	
Age, y			
≤ 24	27 (58.7)	19 (41.3)	.03
> 24	41 (38.3)	66 (61.7)	
Education			
Secondary school or lower	13 (65.0)	7 (35.0)	.08
College, university or higher	55 (41.4)	78 (58.6)	
Monthly income (Baht)			
≤ 10 000	15 (53.6)	13 (46.4)	.29
10 001 - 30 000	39 (47.6)	43 (52.4)	
30 001 - 50 000	8 (32.0)	17 (68.0)	
> 50 000	6 (33.3)	12 (66.7)	
HIV status			
Positive	3 (30.0)	7 (70.0)	.47
Negative	49 (43.8)	63 (56.2)	
Unknown/never tested	16 (51.6)	15 (48.4)	
Number of sexual partners			
Single	42 (46.2)	49 (53.8)	.73
Multiple	26 (41.9)	36 (58.1)	
Alcohol use before/during having sex			
Ever	25 (56.8)	19 (43.2)	.08
Never	43 (39.4)	66 (60.6)	
Drug use before/during having sex			
Ever	6 (75.0)	2 (25.0)	.08
Never	62 (42.8)	83 (57.2)	

Abbreviations: HIV, human immunodeficiency virus; SD, standard deviation.

* The correlations were determined by using chi-square test with a significant level of .05 ($P < .05$).

Similar to other studies regarding condom use among Thai MSM,[7, 21] slightly more than half of participants reported consistent condom use. The rate of consistent condom use was particularly low among those participants aged below 24 years as compared to the older ones. Moreover, the correlation analysis showed significant positive relationship between these 2 variables. Young people normally have limitations in their ability to make deliberate or rational decisions as a result of the immaturity of the prefrontal cortex of

their brain.[22, 23] This often leads young people to be less thoughtful in their planning and more likely to engage in risky sexual activities, as compared to older adults. In addition, young people tend to have less experience, knowledge, and skills.[24, 25] This may contrast with the higher educational level in this study population; however, the formal education program of Thailand is satisfactory in conveying general knowledge to students.[26] What is lacking in this context is that the teaching methods used in schools do not explain or promote the specific skills associated with safer sex.

In addition to age, concurrent to a meta-analysis regarding condom use behavior among MSM,[16] the current study showed that intention, attitude, subjective norms, and PBC also has positive correlation on consistent condom use among MSM. Although, the researchers had no intention to test the TPB in the context of Thai MSM, This study found intention to be the most powerful, of which reported to be the most significant predictor of behavioral performance. Another crucial finding was that there were significant positive relationships among the TPB variables, indicating that all these variables tend to support each other. Thus, in order to maximize positive results, it would be best to design interventions to increase all four variables. Choosing to promote only one variable is unlikely to be the answer to the problem. Nevertheless, future regression analysis studies are needed to perform for a clearer view of these relationships in order to generate interventions to promote consistent condom use among this population.

Besides the selected factors, among those participants who did not use condoms reviewed that there were other reasons for refusing condom. “Being a couple or staying together”, “their partner had HIV negative testing result”, “trust and confidence in the sexual partners” were frequently reported reasons in 24.4%, 12.8%, and 10.3%, respectively. These reasons reflected a sense of trust either in their partner(s) or relationship and of security. The security precludes the need of using condom with their partner(s).[27] This finding is consistent with the previous study in Khon Kaen province, Thailand that found trust in sex partner as the reason of inconsistent condom use.[21] Moreover, 3.8% reported that they did not use condom because their partners refused to use it. Negotiation skills are shown as significant predictors of appropriate condom use and other aspects of safe-sex behavior.[28, 29] Trust and consistent condom use need more studies to explain the association.

Drug and alcohol use before or during having sexual intercourse were expected to have some relationships to condom use as it impairs cognitive function, judgment, inhibitions, and ability to make decision. Thus, it could increase the opportunity to engage in unsafe sex. However, the aforementioned variables were not found to be significant with consistent condom use. This finding might have been influenced by the questions in this study that focused on the alcohol use experience (ever vs never use). The magnitude of alcohol use was not specifically asked in this study. Further study should include level of alcohol use as one of the study variables.

According to the findings, either community or individual level interventions should be implemented to promote consistent condom use among Thai MSM since its prevalence is still low. The programs should focus on increasing intention, attitude, PBC, and subjective norms of participants. Moreover, the programs should concentrate on MSM those age under 24 years who reported more inconsistent condom use than older age.

Mass media could be used as proactive strategies to communicate key messages in community level, resulting in alter people’s attitude towards condom use. For individual level, health care providers should be able to convince MSM to understand the importance of using condom with consistency and the positive expectation from their important persons. In addition, health care providers also should be able to demonstrate MSM how to use condom correctly, and help them to improve their attitude and skills, strengthen their belief and confidence of using condom. Beside condom promotion interventions, HIV serostatus testing should be publicly promoted as well since one fifth of participants never tested.

The crucial strength of this study is the use of online method to collect the data. It is important to note that MSM are the ones who are difficult to reach. An online questionnaire can promote anonymity and comfort for answering sensitive questions which is likely to increase the validity. Moreover, an online questionnaire can be more easily distributed than the paper-based questionnaire, as it would likely be easier for one MSM to share the questionnaire link with his acquaintances through various media.

Some limitations had also been identified in this present study. First, the reliability of the respondents' sexual identity could be questioned, since the survey was anonymous and cannot verify their sexual identity. Second, it is not possible to determine whether the population that participated in this online survey is representative of the general population of MSM in Thailand. Next, the validity of self-reported data, in general, has been questioned; however, self-reporting seems to be approach is an appropriate method for collecting data about sexual behavior.[30] Last, it is important to note that about 15% of MSM did not begin or complete the questionnaire.

Conclusions

HIV prevalence among MSM in Thailand is high, whereas the rate of consistent condom use remains low. Therefore, either community or individual level of condom promotion interventions aimed to promote condom use are needed. These interventions should be planned so that they work on increasing intention, attitude, subjective norms, and/or PBC. Furthermore, the population age under 24 years have more inconsistent condom use than older age thus the interventions should concentrate on this aged group.

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ความชุกของการใช้ถุงยางอนามัยและปัจจัยที่เกี่ยวข้องของกลุ่มชายที่มีเพศสัมพันธ์กับชาย

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บทนำ: ความท้าทายของการป้องกันการติดเชื้อเอชไอวีในปัจจุบันเกิดขึ้นในกลุ่มชายที่มีเพศสัมพันธ์กับชาย โดยงานวิจัยทั่วโลกพบความชุกและอุบัติการณ์ของการติดเชื้อเอชไอวีที่สูงขึ้นในกลุ่มประชากรนี้ การใช้ถุงยางอนามัยทุกครั้งที่มีเพศสัมพันธ์ได้รับการพิสูจน์จากงานวิจัยต่างๆ ว่าเป็นวิธีที่มีประสิทธิภาพในการป้องกันการติดเชื้อเอชไอวี อย่างไรก็ตาม การศึกษาทั้งในประเทศไทยและต่างประเทศพบว่า ความชุกของการใช้ถุงอย่างอนามัยในประชากรกลุ่มนี้ยังอยู่ในเกณฑ์ที่น่าเป็นห่วง

วัตถุประสงค์: เพื่อศึกษาความชุกของการใช้ถุงยางอนามัยอย่างสม่ำเสมอ รวมถึงศึกษาความสัมพันธ์ของการใช้ถุงยางอย่างสม่ำเสมอกับตัวแปรจากทฤษฎีพฤติกรรมตามแผน ตัวแปรส่วนบุคคล และตัวแปรด้านพฤติกรรมเสี่ยงของกลุ่มชายที่มีเพศสัมพันธ์กับชาย

วิธีการศึกษา: การศึกษาใช้แบบสอบถามออนไลน์ กลุ่มตัวอย่างถูกสุ่มโดยใช้การสุ่มตามความสะดวก และมีเกณฑ์การคัดเข้า ร่วมกับการเก็บข้อมูลโดยใช้แบบสอบถามออนไลน์ การวิเคราะห์ข้อมูลใช้สถิติ Chi-square test และ Spearman rank correlation

ผลการศึกษา: กลุ่มตัวอย่างชายที่มีเพศสัมพันธ์กับชาย จำนวนทั้งสิ้น 153 คน อายุเฉลี่ย 27.4 ± 5.8 ปี ความชุกของการติดเชื้อเอชไอวี คิดเป็นร้อยละ 6.5 ความชุกของการใช้ถุงยางอนามัยอย่างสม่ำเสมอคิดเป็นร้อยละ 55.6 ปัจจัยที่มีความสัมพันธ์กับการใช้ถุงยางอนามัยอย่างมีนัยสำคัญทางสถิติ ได้แก่ อายุ ($P = .03$) เจตนาที่จะใช้ถุงยางอนามัย เจตคติต่อการใช้ถุงยางอนามัย การคล้อยตามกลุ่มอ้างอิงเกี่ยวกับการใช้ถุงยางอนามัย และการรับรู้ความสามารถในการใช้ถุงยางอนามัย ($P < .01$)

สรุป: โปรแกรมส่งเสริมการใช้ถุงยางอนามัยในกลุ่มชายที่มีเพศสัมพันธ์กับชายควรให้ความสำคัญในการเพิ่มความตั้งใจที่จะใช้ถุงยางอนามัย เจตคติต่อการใช้ถุงยางอนามัย การคล้อยตามกลุ่มอ้างอิงเกี่ยวกับการใช้ถุงยางอนามัย และการรับรู้ความสามารถในการใช้ถุงยางอนามัย

คำสำคัญ: เอชไอวี การใช้ถุงยางอนามัย ชายที่มีเพศสัมพันธ์กับชาย ทฤษฎีพฤติกรรมตามแผน

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