


# Inconsistent Condom Use Among Male University Students in Northern Thailand

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## Abstract

University students are at increased risk of HIV infection, but little is known about the determinants of inconsistent condom use among them. The study aims to assess the association of sociodemographic, individual, dyadic, and social factors with inconsistent condom use among male university students. Of 1091 participants, 67.0% had sexual intercourse, though 64.4% had inconsistent condom use. It was found that “did not use a condom at first sexual intercourse” (adjusted odds ratio [AOR] 6.1; CI, 3.7–10.1), “history of STIs” (AOR, 2.1; CI, 1.0–4.2), low “self-efficacy” (AOR, 2.4; CI, 1.3–4.7), “perception that condom use reduces pleasure” (AOR, 1.4; CI, 1.0–2.1), and “high subjective norm” (AOR, 1.9; CI, 1.3–2.8) were associated with increased odds of inconsistent condom use. Condom use should be promoted from the onset of sexual activity to establish a habit of safe sex practices and for improvement in self-efficacy of condom use. Emphasis must be laid on pleasure-enhancing benefits of condom use and changing social norms.

## Keywords

condom use, HIV prevention, university students, sexual risk behavior, psychological factors, developing countries

## Introduction

Many studies have consistently reported a high level of risky sexual behaviors among university students.<sup>1–5</sup> Risk factors in this population include but are not limited to unprotected sexual intercourse, multiple and concurrent sexual partnerships, substance use and abuse, poor human immunodeficiency virus (HIV) knowledge, and low risk perception of HIV infection and sexually

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transmitted infections (STIs).<sup>4,6,7</sup> Unprotected sexual intercourse remains the most frequent route of HIV transmission in this population.<sup>8</sup> In Thailand, substantial evidence points to university students as a particular group at high risk for HIV and STIs due to lower levels of condom use. Previous research indicated that at least 44% of Thai university students are sexually active, and that only 26% to 51% of students have reported consistent use of condoms.<sup>1,2</sup>

Correlates of condom use among Thai university students remain poorly documented. Among other Thai adolescents and youth, including vocational students, factors such as self-reported history of alcohol, attitudes toward condoms, condom use self-efficacy, condom use at first sexual intercourse, perceived benefits of condom use, and HIV-/STIs-related knowledge were identified as predictors of condom use.<sup>2,9-11</sup> In addition, studies that have used psychological models to predict condom use behavior among young Thais are remarkably scarce,<sup>12</sup> and to our knowledge, none had been conducted among university Thai students.

Thailand's HIV prevalence is highest in the northern region. In Northern Thailand, Uttaradit province has the fourth highest HIV infection.<sup>13</sup> The current study expands our previous understanding of HIV by describing the pattern of sexual risk behaviors and by documenting the associations of sociodemographic, individual, dyadic, and social factors with inconsistent condom use among male university students.

## Methods

### *Study Design, Population, and Sampling*

This cross-sectional study was conducted from May to August 2015. The study targeted male university students in Uttaradit province, in Northern Thailand. The sample size was calculated using Wayne's formula,<sup>14</sup> based on the assumption that the prevalence of condom use among university students was 34.6%,<sup>1</sup> with a sampling error of 10%, confidence interval of 95%, and nonresponse rate of 10%. The total participants were estimated at 1,200.

The sampling procedure included two stages. In the first stage, all the participants were stratified into faculties (6 faculties) and university years (second, third, and fourth year). The number of participants from each year was allocated proportionally to the size of respective years. A list of students in each of stratum was used as the sampling frame. In the second stage, participants were selected through systematic random sampling from the sampling frame of each stratum, with a calculated sampling interval ( $I = 3$ ), starting from a randomly selected (through lottery) participant.

### *Data Collection and Measurement*

The researcher visited the classrooms of randomly preselected students and explained the study to them. Students interested participation were directed to the computer laboratory. The informed consent process and data collection occurred there.

Participants were invited to complete the questionnaire anonymously through the Computer-Assisted Self-Interviews (CASI), which is known to reduce response bias for sensitive questions.<sup>15</sup> The questionnaire was developed based on the review of the relevant literature<sup>2,9,10,12</sup> and consultation with the local experts on this topic. For the purpose of this study, we grouped the variables into sociodemographic background, individual variables, dyadic variables, and social variables. The results of individual, dyadic, and social variables measurement were summed and divided in 2 groups at midpoint.<sup>16</sup>

*Sociodemographic background* included age, year of study, type of accommodation, financial status, parental marital status, and so on.

*Individual variables* response format used a 5-point Likert-type scale from strongly disagree (0) to completely agree (4), including

- Perceived susceptibility consists of 3 items. The participants indicated their degree of agreement with “It is possible that I could be infected with HIV,” “It is possible that I could be infected with STIs,” and “It is possible that I could have made someone pregnant.” The results were divided into “low” (sum 0-5) and “high” (sum 6-12) perceived susceptibility to STI/HIV.
- Perceived severity consists of 4 items. The participants indicated their degree of agreement with “HIV/AIDS cause many complications before death,” “AIDS is not curable and it is a fatal disease,” “STIs can turn into a serious illness,” and “STIs can impact your studies.” The results were summated and divided into “low” (sum 0-7) and “high” (sum 8-16) perceived severity of STI/HIV.
- Perceived benefit of condom use consists of 3 items. The participants indicated their degree of agreement with “Condoms can reduce the risk of contracting HIV and STIs,” “Condom use is the sign of a responsible male,” and “Condoms can create arousing and erotic sensations.” The results were summated and divided into “low” (sum 0-5) and “high” (sum 6-12) perceived benefit of condoms.
- Self-efficacy of condoms consists of 2 items. The participants indicated their degree of agreement with “I can use condoms correctly from beginning to the end of sexual intercourse” and “I feel confident that I can use a condom correctly.” The results were summated and divided into “low” (sum 0-3) and “high” (sum 4-8) condom use self-efficacy.
- Condom use at first sexual intercourse, condom use at last sexual encounter, history of STI, ever drank alcohol before sex, ever tested for HIV, and ever made someone pregnant responses format was Yes or No.
- Number of sexual partners in the past year response format had four categories: 1; 2-4; 5-6; and >6.

*Dyadic variables* response format used a 5-point Likert-type scale from strongly disagree (0) to completely agree (4), including

- Condom embarrassment consists of 2 items. The participants indicated their degree of agreement with “It would be embarrassing to buy a condom” and “I feel embarrassed with my partner if I have to use a condom.” The results were summated and divided into “low” (sum 0-3) and “high” (sum 4-8) condom embarrassment.
- Communication about condom with partner consists of 2 items. The participants indicated their degree of agreement with “I can discuss using condoms with a partner” and “I am able to refuse sexual intercourse if my partner does not use a condom.” The results were summated and divided into “low” (sum 0-3) and “high” (sum 4-8) communication with partner.

*Social variables* consisted of a 3-item response format using a 5-point Likert-type scale from completely refused (0) to accepted (4). The participants indicated their degree of agreement with “my partner agrees with sexual intercourse without condoms,” “my parents agree with sexual intercourse without condoms,” and “my peers agree with sexual intercourse without condoms”. The results were summated and divided into “low” (sum 0-4) and “high” (sum 5-9) subjective norm.

The main outcome of interest was “inconsistent condom use,” measured using the item “Did you use a condom every time during sexual intercourse in the past 12 months?” The response options ranged from every time to never. The participants who answered “every time” were categorized into the consistent condom use group. Participants who answered

“most of the time,” “sometimes” or “never” were categorized into the inconsistent condom use group. Condom use was also assessed by type of partners, including regular, casual, and commercial sex worker.

### ***Ethical Considerations***

The study was approved by the Human Experimentation Committee of the Research Institute for Health Sciences, Chiang Mai University. Written informed consents were obtained from all participants prior to participation in the study.

### ***Statistical Analysis***

The data analysis was performed using SPSS for Windows 17. Descriptive statistics of the selected variables were calculated for the entire sample. Bivariate and multivariate associations with inconsistent condom use were assessed for the subgroup of participants who were sexually active, using chi-square and multiple logistic regressions, respectively. We specified 3 regression models in the multivariable analysis. The first model included sociodemographic variables and individual variables. The second model expanded from the first to include the dyadic variables. The third model was exhaustive; it included sociodemographic background, individual, dyadic, and social variables. Adjust odds ratios (AOR) and 95% confidence interval (CI) were calculated for all variables in the models. The models were compared based on the Akaike information criterion (AIC). The optimal model is the one with the smallest AIC score. Multicollinearity among the variables was assessed; the least important variables were removed from the logistical model.

## **Results**

### ***Sample Characteristics***

Of the 1200 participants recruited for the study, 1091 participants completed the questionnaire. The average age of the participants was 20.5 years (SD = 1.39). The majority of participants lived at home (61.0%), spent most of their time with friends (75.6%), consulted their friends when they had personal problems (64.3%), and obtained sexual information from friends (61.4%).

### ***Sexual Risk Behaviors***

Sixty-seven percent of participants reported having ever had sex. The average age of first sexual encounter was 17.5 years (SD = 2.3). More than half of participants (55.3%) reported currently having a girlfriend. Most sexually experienced participants (89.7%) had their first sexual intercourse with their girlfriend, and in 72.3% of cases, a condom was used. Seventy percent of participants reported alcohol use prior engaging in sexual intercourse.

A substantially low proportion of sexually experienced participants (35.6%) consistently used condoms in the past 12 months. Condom use varied greatly by type of partner. Consistent condom use was highest during sexual intercourse with female sex workers (87.0%), followed by casual partners (73.8%), and regular partners (33.7%). Approximately 41% of participants reported having at least 2 sexual partners during the past 12 months (Table 1).

### ***Factors Associated With Inconsistent Condom Use***

Factors associated with inconsistent condom use in the bivariate analysis were “ever drank alcohol before having sex,” “did not use a condom during first sexual intercourse,” history of STIs, perception that using a condom reduces sexual pleasure, and high subjective norm (Table 2).

**Table 1.** Sociodemographic Characteristics and Sexual Behaviors of Male University Students (N = 1091).

Demographic Data	n	%
Age, years (mean = 20.5, SD = 1.39)		
<20	564	51.7
≥20	527	48.3
Living status		
Living at home	667	61.0
Renting/Dormitory	424	39.0
Person spent time with		
Friends	825	75.6
Girlfriend	412	37.8
Parents	554	50.8
Other		
Person to consult when having personal problems <sup>a</sup>		
Friends	701	64.3
Parents	682	62.5
Solve the problem myself	433	39.7
Girlfriend	364	33.4
Sexual information resources <sup>a</sup>		
Friends	670	61.4
Internet	587	53.8
Parents	388	35.6
Teachers	440	40.3
Girlfriend	266	24.4
Ever had sex		
Yes	731	67.0
No	360	33.0
Age of first sexual intercourse (years) <sup>b</sup> mean = 17.5, SD = 2.3, range = 13-21		
<15	174	23.9
≥15	557	76.1
Person having first sexual encounter with		
Girlfriend	656	89.7
Friend	23	3.1
Acquaintance	44	6.0
Sex worker	3	0.4
Missing	5	0.8
Condom use during first sexual intercourse		
Yes	529	72.3
No	202	27.7
Currently have a girlfriend		
Yes	603	55.3
No	488	44.7
Having sex with current girlfriend		
Yes	476	78.9
No	127	21.1
Ever drunk before sexual encounter <sup>b</sup>		
Yes	516	70.6
No	215	29.4

(continued)

**Table 1. (continued)**

Demographic Data	n	%
Condom use during last sexual encounter <sup>b</sup>		
Yes	484	66.1
No	247	33.9
Did you use a condom every time during sexual intercourse in the 12 past months <sup>b</sup>		
Every time	258	35.6
Most of the time	219	29.8
Sometimes	190	26.4
Never	60	8.2
Consistent condom use with regular partner (N = 475)		
Every time	106	33.7
Most of the time	101	21.3
Sometimes	166	34.9
Never	48	10.1
Consistent condom use with casual partner (N = 203)		
Every time	149	73.8
Most of the time	21	10.4
Sometimes	23	11.4
Never	9	4.5
Missing	1	0.1
Consistent condom use with sex worker (N = 23)		
Every time	20	87.0
Most of the time	3	13.0
Number of sexual partners during the past year <sup>b</sup> (median = 1)		
1	430	59.0
2-4	213	29.0
5-6	46	6.7
>6	37	5.1
Ever made someone pregnant <sup>b</sup>		
Yes	48	6.6
No	683	93.4
Ever had a history of sexually transmitted infections <sup>b</sup>		
Yes	63	8.6
No	668	91.4
Ever had an HIV test <sup>b</sup>		
Yes	115	15.7
No	616	84.3

<sup>a</sup>Select all that apply.

<sup>b</sup>Ever had sexual intercourse, N = 731.

Table 3 presents the AORs with CIs of the associations between the independent variables and inconsistent condom use in 3 models. Model 3 was selected as the final model as it provided results with the best precision. “Did not use a condom at first sexual intercourse” was the strongest predictor of inconsistent condom use among our participants (AOR = 6.1; 95% CI, 3.7-10.1). In addition, history of STIs (AOR = 2.1; 95%CI, 1.0-4.2), low self-efficacy of condom use (AOR = 2.4; 95% CI, 1.3-4.7), perception that condom use reduces pleasure (AOR = 1.6; 95% CI, 1.2-2.3), and high subjective norm perception that significant others condone unprotected sex (AOR = 1.9; 95% CI, 1.3-2.8) were associated with increased odds of inconsistent condom use.

**Table 2.** Bivariate Associations of Sociodemographic and Behavioral Characteristics and Inconsistent Condom Use Among Sexually Experienced Male University Students (N = 731).

Variables	Inconsistent Condom Use		Crude Odds Ratio (95% CI)	P
	n	%		
<b>Sociodemographic</b>				
Age (years)				
<20	224/362	62.2	1	
≥20	245/369	66.6	1.2 (0.8-1.6)	.2
<b>Individual variables</b>				
Ever drunk alcohol before having sex				
No	124/215	57.9	1	
Yes	345/516	67.1	1.4 (1.0-2.0)	.01
Condom use during first sexual encounter				
Yes	288/528	54.8	1	
No	181/203	89.6	7.0 (4.3-11.3)	<.001
History of sexually transmitted infections (STIs)				
No	419/666	63.0	1	
Yes	50/65	79.4	2.2 (1.0-1.4)	.01
Ever tested for HIV				
Yes	70/116	60.9	1	
No	399/615	65.1	1.1 (0.7-1.8)	.2
Self-efficacy				
High	393/625	63.1	1	
Low	76/106	72.4	1.5 (0.9-2.4)	.06
Perception that condom use reduces pleasure				
Low	170/299	57.2	1	
High	299/432	69.4	1.6 (1.2-2.3)	<.001
Perceived susceptibility STI/HIV				
High	32/44	74.4	1	
Low	437/687	63.8	0.6 (0.3-1.2)	.16
Perceived severity STI/HIV				
High	363/566	64.4	1	
Low	106/165	64.6	1.0 (0.7-1.4)	.9
Perceived benefit of condom				
High	454/708	64.3	1	
Low	15/23	68.2	1.1 (0.4-2.9)	.7
Number of sexual partners past year				
1	347/551	63.2	1	
≥2	122/180	68.5	1.2 (0.8-1.8)	.1
<b>Dyadic variables</b>				
Communication with partner about condom use				
High	400/619	64.7	1	
Low	69/112	62.7	0.9 (0.6-1.3)	.6
Condom embarrassment				
Low	249/406	61.6	1	
High	220/325	67.9	1.3 (0.9-1.8)	.07
<b>Social variable</b>				
Subjective norm				
Low	150/278	54.2	1	
High	319/453	70.7	2.0 (1.5-2.7)	<.001

**Table 3.** Adjusted Odds Ratios and 95% Confidence Intervals for the Associations Between Measured Independent Variables Modeled at the Sociodemographic, Individual, Dyadic, and Social Variables and Inconsistent Condom Use Among Sexually Active Male University Students (N = 731).

	Model 1: Individual Variables, OR (95% CI)	Model 2: Individual and Dyadic Variables, OR (95% CI)	Model 3: Background, Individual, Dyadic, and Social Variables, OR (95% CI)
<b>Sociodemographic</b>			
Age (years)			
≥20			
<20	0.8 (0.6-1.2)	0.9 (0.6-1.2)	0.9 (0.6-1.2)
<b>Individual variables</b>			
Ever drunk alcohol before having sex			
No			
Yes	1.3 (0.9-1.9)	1.3 (0.9-1.9)	1.3 (0.9-1.9)
Condom use during first sexual encounter			
Yes			
No	6.6 (4.0-10.8) <sup>†</sup>	6.5 (4.0-10.7) <sup>†</sup>	6.1 (3.7-10.1) <sup>†</sup>
History of sexually transmitted infections (STIs)			
No			
Yes	1.9 (0.9-3.8)	1.9 (0.9-3.9)	2.1 (1.0-4.2)*
Ever had a HIV test			
Yes			
No	1.4 (0.9-2.3)	1.4 (0.9-2.3)	1.4 (0.9-2.3)
Self-efficacy			
High			
Low	1.9 (1.1-3.2)*	2.4 (1.2-4.6)**	2.4 (1.3-4.7)*
Perceived using condoms reduced pleasure			
Low			
High	1.5 (1.1-2.1)*	1.5 (1.0-2.1)*	1.4 (1.0-2.1)*
Perceived susceptibility to STIs/HIV			
High			
Low	0.7 (0.3-1.5)	0.3 (0.3-1.5)	0.7 (0.3-1.5)
Perceived severity of STI/HIV			
High			
Low	1.0 (0.6-1.5)	1.0 (0.6-1.5)	1.0 (0.7-1.6)
Perceived benefit of condoms			
High			
Low	0.8 (0.3-2.5)	0.9 (0.3-2.6)	1.0 (0.3-2.8)
Number of lifetime partners			
<2			
≥2	1.1 (0.7-1.6)	1.1 (0.7-1.6)	1.1 (0.7-1.7)
<b>Dyadic variables</b>			
Communication with partner about condom			
High			
Low		0.68 (0.37-1.24)	0.701 (0.38-1.29)
Condom embarrassment			
Low			
High		1.0 (0.7-1.4)	1.0 (0.7-1.4)
<b>Social variable</b>			
Subjective norm			
Low			
High			1.9 (1.3-2.8)*

\**P* < .05, \*\**P* < .01, <sup>†</sup>*P* < .001.



## Discussion

Our findings highlight the vulnerability of male university students to HIV infection and STIs in Uttaradit Province, Thailand. We found that a substantially high proportion of the participants did not consistently use condoms in the past 12 months, and reported at least 2 sexual partners in the same period of time. Use of alcohol prior to engaging in sexual intercourse, a well-documented risk factor for unsafe sexual behavior, was very common among our participants. Our study sounds the alarm that strategies to promote safer sexual practices among male university students should rapidly be implemented in Northern Thailand, particularly in Uttaradit Province, which has one of the highest prevalences of HIV in the region.

There was high variability in consistent use of condoms by partner type, whereby a higher proportion of participants reported systematic use of condoms with commercial sex workers and casual partners than with regular partners. Consistent condom use was more likely when intimacy levels decreased; a trend documented in previous studies.<sup>17-19</sup> One possible explanation is that the risk perception for HIV or STIs might be higher in sexual encounters with a less intimate partner such as a commercial sexual worker or casual partner. Longer term relationships, such as with regular partners, might create an atmosphere of trust, leading to reduced perceived susceptibility to HIV infection and STIs.<sup>17-19</sup> This assertion, however, cannot be verified in our study, given that our measurement of perceived susceptibility to HIV/STIs cannot be assessed by type of partner. It is also important to note that in Thailand, sex workers are highly sensitized on issues regarding sexual and reproductive health; hence, the high proportion of consistent condom use with commercial sexual workers is also likely to reflect successful programmatic efforts of HIV prevention in this population.

We found that not using condoms at first sexual intercourse was the strongest predictor of inconsistent condom use in the past 12 months. This is consistent with findings from previous studies in Thailand and elsewhere,<sup>11,20</sup> and highlights the importance of providing skills and knowledge for young people to engage in safer sexual practice from the onset. As noted elsewhere,<sup>11,20</sup> it is easier to sustain safe behaviors established from the onset than to change risky behaviors once they have become habitual.

Condom use is effective for prevention of STIs. When used correctly and consistently, condoms can prevent up to 75% of STIs.<sup>8</sup> In this study, history of having an STI was significantly associated with inconsistent condom use. This is consistent with the findings of a previous study that found that males who were diagnosed with STIs did not use condoms as consistently as males who did not report STI.<sup>21</sup>

Self-efficacy of condom use, the perceived ability that one can use a condom,<sup>22,23</sup> was inversely associated with condom use. Participants with low self-efficacy were more likely not to use condoms consistently. Extensive research documents self-efficacy as a strong predictor across a range of behaviors, including inconsistent condom use and HIV testing,<sup>10,24,25</sup> and many HIV programs include prevention strategies designed to enhance self-efficacy.

Consistent with previous studies,<sup>25,26</sup> subjective norms, herein referred to as participants' perception of whether significant others (partner, parents, friends) condone unprotected sexual intercourse, was associated with increased odds of inconsistent condom use. This finding suggests that interventions to promote safer sexual practices like condom use should also target a second audience such as people who have influence on male university students (partner, parents, friends, teachers, religious leaders) whose behavior and perceptions may significantly shape that of the male students. Health campaigns should establish condom use a social norm and an act of social responsibility.

The perception that condom use reduces sexual pleasure is one of the most reported barriers to condom use across different settings.<sup>23,26,27</sup> In our study, this perception was a significant predictor of inconsistent condom use. The experience of sexual pleasure is highly complex, subjective, and influenced by an interplay in a range of cognitive, emotional, and physical factors.<sup>28,29</sup> We support the view that condom promotion campaigns, in addition to emphasizing the health

benefits of condom use, will do well by pointing out the pleasure-enhancing benefits of condom use, such as the ability of condom to prolong sexual intercourse, thus increasing sexual tension, which ultimately leads to sexual pleasure.<sup>29,30</sup> On the other hand, programmatic efforts should look into making condoms with thinner and/or better heat transducing material more available to young people, both in terms of cost and geographic access.

Several limitations to this study should be noted. First, the current study employed a cross-sectional design; hence, the documented associations cannot infer causal relationships. Second, although the data were collected by CASI, there is still the possibility of social desirability bias given the sensitive nature of the topic. Participants might have over-reported condom use and underreported risky encounters. Third, there is risk of recall bias as some participants may find it hard to remember the exact time of first sexual experience and condom use behavior at first sex. Finally, our study results might not be generalizable to all countries, but could only be applied to male university students in similar settings. Despite these limitations, this study has the merits of being the first, using a large sample recruited through probability random sampling, to describe and document condom use and its correlates among university male students in Uttaradit Province. Future research should include female students for comparison with male student's behavior, and should explore other social and structural factors likely to influence condom use behavior, such as price of condoms, condom distribution, perception of peer's behaviors, and partner's attitudes toward condom use.

## Conclusion and Recommendation

A high proportion of male university students reported inconsistent condom, which increases risk of HIV infection and STIs. The strongest predictor of recent inconsistent condom use was "did not use a condom at first sexual intercourse." The intervention should include the strategies that promote condom right from the beginning of sexual activity as a way to establish a habit of safe sex practice. Other strategies to improve self-efficacy of condom use, emphasize the pleasurable of condom use, and improve social norms toward condom use among youths are also encouraging.


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