Knowledge of and Attitude Towards HIV/AIDS and Condom Use among Construction Workers in the Kathmandu Valley, Nepal

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Background: *Nepal is seeing a surge in physical infrastructure in the past few years. Numerous workers enter the Kathmandu Valley to join the construction sector.*
Objective: *This was a descriptive survey that set out to understand the knowledge of and attitudes towards HIV/AIDS along with the use of condoms among construction workers in the Kathmandu Valley.*
Material and Method: *The study was conducted in 8 different construction sites in the Kathmandu Valley. Systematic sampling was done to select a total of 317 samples that were either interviewed or handed the questionnaire for self-administration.*
Results: *84.6% of the construction workers had sufficient knowledge regarding HIV/AIDS and 61.8% had positive attitude towards HIV/AIDS. 50.5% of those who had sex in the past 1 year had used a condom the last time they had sex. Those with insufficient knowledge were found to have negative attitude ($p<0.05$) and were more likely to have not used a condom the last time ($p<0.05$). Multiple logistic regression analysis showed that use of condom the last time was most affected by gender and level of knowledge.*
Conclusion: *Despite adequate knowledge, attitude and use of condom was found to be unsatisfactory. There is an urgent need to resolve this gap.*

Keywords: *HIV/AIDS, Construction workers, Knowledge, Attitude, Use of condom*

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Nepal, a landlocked country with a population of about 26.6 million[1] has an estimated HIV prevalence of about 0.30% among the adult (15-49 years) population[2]. Although the data suggest that HIV prevalence has not risen rapidly over the years, the estimated number of people with HIV infections has grown from 16,252 in 2010[3] to 18,396 in 2011[4] and is at 20,583 in 2012[2]. HIV epidemic is mostly concentrated among injecting drug users (IDUs), men who have sex with men (MSM), female sex workers (FSWs), clients of female sex workers, and seasonal male labour migrants[2]. The concentration on high risk populations leaves other populations vulnerable to the risks and consequences of HIV infection[5].

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Since HIV and AIDS threaten every sector of society and the national economy, their effects are being felt by all economic sectors including construction. Due to its mobility and migrant nature, the construction industry is the third hardest hit by HIV and AIDS after mining and transport[5]. According to the International Labour Organization (ILO), a number of work and lifestyle factors make construction workers at risk of HIV infection. They are of migratory nature and mostly work in a confined environment with limited contacts. Apart from that, most of them belong to sexually active age groups in this male dominated profession and are open to new sexual relations is common. Stress due to working and living conditions coupled with easy access to and ready availability of sex workers make them vulnerable to contracting HIV[6]. In Maharashtra, India, a study revealed a high HIV risk among migrant construction workers. 25% of the workers reported having unprotected sex with sex workers, and low/inconsistent condom use[7]. In Vietnam, a study which

focused on construction workers who were migrants from the countryside found that a typical construction worker was young, single, male, had low education and lived in the city for less than a year[8]. A Srilankan study showed that the construction workers had fairly good knowledge on AIDS prevention but poor knowledge on STI than on HIV. 50.0% respondents shared discriminatory attitudes towards HIV positives[9].

The construction industry in Nepal is one of the most important sources of non-agricultural employment for the workers of different skill categories. Nepal is seeing a surge in physical infrastructure in the past few years. Numerous workers enter the Kathmandu Valley to join the construction sector. In Nepal construction workers (male and female) work in a group together at construction sites, particularly in road, irrigation, hydro, and building construction project area. During the construction period, they live in poorly managed temporary make-shift houses. Due to their living condition they are deprived of means of entertainment and hence establish sexual relationship with multiple partners at night within and outside their communities which make them susceptible to HIV infection[10]. A study in Kathmandu, Nepal showed that unions have so far put in very little effort to make workers aware about the problem[11]. It seems imperative that the assessment of HIV/AIDS related knowledge and practice be put forward and necessary intervention carried out. Hence, the study set out to understand the knowledge of and attitude towards HIV/AIDS and the use of condom among construction workers in the Kathmandu Valley, Nepal.

Material and Method

The study was a descriptive survey and the Kathmandu Valley was the chosen area of study. With a population of about 1.74 million[12], Kathmandu Valley is the most important urban concentration in Nepal and hence was chosen as the study site.

The target population consisted of construction workers who were working in selected construction sites in the Kathmandu Valley at the time of study. The exact number of the target population could not be extracted. The target population selected was construction workers working in the 63 ongoing construction projects in the Kathmandu Valley. The study included construction workers who were working at a construction site at the time of study, were 18 years and older, willing to participate in this study and able to speak and understand Nepali language.

The present study was conducted between January and February 2013. A total of 317 construction workers from 8 different construction sites formed part of the study. After a brief survey of the construction sites, it was known that the construction workers resided in the construction site. Systematic sampling was done in order to select the required number of samples.

The study was approved by the Ethics Committee of Khon Kaen University (Reference No. HE551346) and Nepal Health Research Council (Reg. No. 148/2012). For the purpose of data collection, 2 research assistants were hired who were given systematic training where in the objective of the study, data collection tools, data collection procedure and ethical consideration were highlighted.

An oral consent from the construction workers was taken prior to the study. Self administered questionnaire had been chosen as the main mode of data collection. However, for those respondents who were illiterate, face-to-face interview were conducted. In case of those construction workers who could read and write, questionnaires were handed on the same day and collected on the same day. An envelope was also given to the respondents along with the questionnaires so that they could place their questionnaires in the envelope and put in the box provided to them. The length of the face-to-face interview was between 10 to 15 minutes for each respondent.

Results

Socio-demographic information

Of the 317 participants, 61.5% filled out the questionnaire on their own while, the rest had face-to-face interviews. Their age ranged from 18 to 52 years with the mean age being 25.61 years (SD 7.22, 95%CI 24.81, 26.40). Majority of them were males 284 (89.6%). Of the total respondents, 236 (82.2%) were Nepalese and a majority of the respondents were Hindus (244, 79.0%) with more than half of them currently married (195, 61.5%). Of those who had children, 67.2% had two or less children. This study showed that of the 230 who mentioned their level of education, 88.7% attended school up to or below the 10th standard. A large number of respondents (246, 78.1%) worked for 7 days per week and more than half (259, 82.2%) worked for more than 8 hrs per day. 262 (82.6%) were informally employed and 98.2% earned more than Rs. 231 per day, the latter being the minimum daily wage in Nepal[13]. 71.6% were staying away from families at the time of the study (Table 1).

Table 1. Socio-demographic characteristics among respondents

Socio-demographic variables	Number	Percentage
Age		
18-24	178	56.2
>25	139	43.8
Mean age = 25.61, SD = 7.224, 95% CI (24.81, 26.40)		
Median = 23; IQR = 20-29; Min = 18, Max = 52		
Gender		
Female	33	10.4
Male	284	89.6
Total	317	
Nationality		
Nepali	236	82.2
Non-Nepali	51	17.8
Total	287	
Religion		
Hindu	244	79.0
Others	65	21.0
Total	309	
Marital Status		
Currently unmarried	122	38.5
Currently married	195	61.5
Total	317	
No. of living children		
0-2	133	67.2
>2	65	32.8
Total	198	
Mean = 1.90; SD = 1.317; 95% CI (1.73-2.14)		
Median = 2; IQR = 1-3; Min = 0, Max = 6		
Respondent attended school		
Yes	237	75.0
No	79	25.0
Total	316	
Level of education		
<10	204	88.7
>10	26	11.3
Total	230	
Number of working days per week		
0-6	69	21.9
>6	246	78.1
Total	315	
Mean = 6.80; SD = 0.458; 95% CI 6.73, 6.87		
Median = 7; IQR = 7-7; Min = 5, Max = 7		
Working hours per day		
0-8	142	45.1
>8	173	54.9
Total	315	
Mean = 9.28; SD = 1.492; 95% CI 9.05, 9.51		
Median = 9; IQR = 8-10; Min = 5, Max = 13		
Daily wage		
0-200	2	0.8
>200	261	99.2
Mean = 415.18; SD = 139.046; 95% CI 393.81, 436.56		
Median = 350; IQR = 300-500; Min = 200, Max = 900		

Table 1. cont.

Socio-demographic variables	Number	Percentage
Employment type		
Formal	24	8.4
Informal	262	82.6
Total	286	
Currently living with		
With family	75	28.4
Not with family	189	71.6
Total	264	

Knowledge about HIV/AIDS

The respondents were given a set of 14 closed ended questions to answer from regarding knowledge about risk factors, mode of transmission and prevention methods associated with HIV/AIDS. The scores ranged from 0-14 with 0 being the score for the incorrect options and 1 the score allotted for the correct option. The mean knowledge score for the respondents was 8.56 out of 14 point (SD 2.22, 95% CI 8.271, 8.852).

The range of knowledge score was categorized into "Insufficient" (0-7) and "Sufficient" (8-14). Most of the items in the knowledge section were answered correctly by more than 50%. Only items asking if there is any difference between HIV and AIDS, if HIV is transmitted by mosquito bite and if use of alcohol or drugs is a contributing risk was answered correctly by fewer than 50%. The respondents' responses to all the 14 items mentioned in the knowledge part of the questionnaire are summarized in Table 2.

Distribution of knowledge on HIV/AIDS of the respondents showed that 35 (15.4%) had insufficient knowledge while 193 (84.6%) had sufficient knowledge.

Attitude towards HIV/AIDS

Respondents were asked to answer a total of 6 closed-ended questions in the "Attitude" section of the questionnaire. Each positive response was given a score of 1 and the negative response was scored 0. Attitude was categorized as "Negative" for scores ranging from 0 to 3 and "Positive" for scores ranging from 4 to 6. The mean attitude score was 3.79 (SD = 1.80, 95% CI 3.562, 4.034). Although mostly the attitude score was above 50%, positive response for the item that asked about if the children aged 12-14 should be taught about using a condom to avoid getting infected by HIV was less than 50% (Table 3).

61.8% of the total respondents who answered the attitude section had a positive attitude towards HIV/AIDS while 38.2% had a negative attitude.

Association between knowledge and attitude

On performing Chi-square test, it was deduced that knowledge and attitude were significantly associated (p-value <0.01). Those with insufficient knowledge were more likely to have negative attitude (OR = 4.692, 95% CI 2.486, 8.854). On running correlation analysis between the two it was found that although the correlation stood significant, it was a weak one (r = 0.264, p = 0.000) (Table 4).

Use of condom

Condom use was defined as use of condom the last time the respondents had sex. A total of 220 respondents agreed to have had sex in the past 12 months of which 111 said they had used a condom the last time they had sex.

Association between socio-demographic variables and use of condom

Socio-demographic variables namely, age, gender, nationality, marital status and level of education had significant association with the dependent variable, "use of condom in the last sexual intercourse", p<0.05 (Table 5). Those above 24 years old were 2.182 times more likely to not have worn condom the last time they had sex (OR = 2.182, 95% CI 1.311, 3.631). Females were more likely to have had their partners not wear condoms the last time. Those who studied below SLC had more chances of not wearing condom the last time they had sex (OR = 3.825, 95% CI 1.356, 10.787). Other than that, currently married respondents did not choose to wear condoms the last time they had sex as compared to their unmarried counterparts (OR = 2.207, 95% CI 1.306, 3.728). Furthermore, Non-Nepalese

Table 2. Correct response to items in the knowledge section

Items	Total n	Correct ans.	
		Number	%
Have you heard about HIV AIDS?	311	228	73.3
Is there a difference between HIV and AIDS?	222	95	42.8
Can people become infected by having unprotected sex with a person who is infected by HIV?	226	202	89.4
Can people become infected from a transfusion of blood or blood products?	223	207	92.8
Can people become infected by sharing needles with a person infected from HIV?	224	208	92.9
Can people become infected with HIV from a mosquito bite?	220	82	37.3
Can a HIV+ mother infect her unborn child?	220	177	80.5
Can people keep themselves from being infected by having faithful sexual partners who are not infected with HIV?	212	146	68.9
Can people reduce the chances of becoming infected with HIV by using condoms during sex?	225	203	90.2
Can people keep themselves from being infected with HIV by having no sex?	220	115	52.3
Can you always tell if a person has HIV/AIDS by looking at them?	221	169	76.5
Can people become infected with HIV by having sex with a person who looks healthy?	213	105	49.3
Can HIV/AIDS be cured from witchcraft?	220	195	88.6
Is use of excessive alcohol or drugs a contributing risk factor to becoming infected with HIV?	220	101	45.9

Table 3. Positive response to items in the attitude section

Item	Total n	Positive Response	
		Number	%
Would you be willing to work alongside a co-worker who is HIV-positive?	220	137	62.3
Would you be willing to hold hands with someone who is HIV-positive?	220	159	72.3
Would you buy fresh vegetables from a shopkeeper or vendor if you knew that this person had the AIDS virus?	219	169	76.3
If a member of your family got infected with HIV/AIDS, would you want it to remain a secret or not?	218	172	78.9
Should children aged 12-14 be taught about using a condom to avoid getting infected by HIV?	219	101	46.1
Would you be willing to share a room with someone who is HIV+?	212	130	61.3

Table 4. Association between level of knowledge and level of attitude

Level of knowledge	n	Level of attitude				p-value	OR	95% CI	
		Positive		Negative				Lower	Upper
		No.	%	No.	%				
Insufficient	58	38	65.5	20	34.5	<0.001	4.962	2.486	8.854
Sufficient	170	49	28.8	121	71.2				

respondents preferred not to wear condoms the last time they had sex as compared to the Nepalese workers (OR = 3.738, 95% CI 1.700, 8.721).

Association between knowledge and use of condom

Chi-square test was used to test the association between level of knowledge and "Use of condom in the last sexual intercourse". The two had association that was statistically significant (p-value <0.01). Those with insufficient knowledge were more likely to have not used condom the last time (OR = 2.884, 95% CI 1.506, 5.523) (Table 5). The strength of correlation stood significant but weak (p = 0.000). 47.6% of respondents with sufficient knowledge had used condom the last time they had sex but 72.4% with insufficient knowledge had not.

Association between level of attitude and use of condom

The level of attitude and "use of condom in the last sexual intercourse" had no statistically significant association (p = 0.266). The percentage of those who did not wear condoms the last time they had sex was higher (58.6%) among those with negative attitude towards HIV/AIDS (Table 5). Also, among those with positive attitude towards HIV/AIDS, percentage of those who did not use condom during their last sex was slightly higher (51.1%) than those who did (Table 5).

Multiple logistic regression analysis

"Use of condom in the last sexual intercourse" was treated as outcome variable while socio-demographic variables (age, gender, nationality, marital status and level of education), level of knowledge and level of attitude were treated as explanatory variables and multiple logistic regression analysis was performed. The model was statistically significant X^2 (4, n = 12) = 25.286, p<0.05, indicating that it was able to distinguish between subjects who used condom last time they had sex and who did not.

As shown in Table 6, only variables "gender" and "level of knowledge" made a statistically significant contribution to the model. Females were 8.252 times more likely to have partners who used condoms the last time they had sex than males. Likewise those with sufficient knowledge were 3.114 times more likely to

Table 5. Association between socio-demographic characters, level of knowledge and level of attitude with "use of condom in the last sexual intercourse"

Socio-demographic variables	n	Yes		No		p-value	OR	95% CI	
		No.	%	No.	%			Lower	Upper
Age									
>24	117	39	33.3	78	66.7	0.02	2.182	1.311	3.631
18-24	100	72	52.2	66	47.8				
Gender									
Female	22	2	9.1	20	90.9	0.001	8.790	2.009	38.467
Male	223	124	53.2	109	46.8				
Nationality									
Non-Nepali	43	49	20.9	34	79.1	0.001	8.790	1.700	8.221
Nepali	189	94	49.7	95	50.3				
Level of education									
Below SLC	165	80	48.5	85	51.5	0.007	3.825	1.356	10.787
Beyond SLC	23	18	78.3	5	21.7				
Marital status									
Currently married	166	61	36.7	105	63.3	0.003	2.207	1.306	3.728
Currently unmarried	89	50	56.2	39	43.8				
Level of knowledge									
Insufficient	58	16	27.6	42	72.4	0.001	2.884	1.506	5.523
Sufficient	170	89	52.4	81	47.6				
Level of attitude									
Negative	87	36	41.4	51	58.6	0.266	1.358	0.792	2.329
Positive	141	69	48.9	72	51.1				

Table 6. Multiple logistic regression analysis to predict the variables associated with "Did you use of condom the last time you had sex?"

Log Likelihood ratio = -124.015LR
Chi-square = 30.071
Prob Chi-square = 0.000

				95% CI	
	SE	Sig	Odds ratio	Lower	Upper
Age (>24 yrs) (Base = 18-24 yrs)	0.373	0.289	1.484	0.715	3.081
Gender (female) (Base = male)	0.515	0.937	1.041	0.380	2.855
Nationality (non-Hindu) (Base = Hindu)	0.376	0.291	1.488	0.712	3.108
Marital status (Currently married) (Base = Currently unmarried)	0.345	0.801	1.091	0.555	2.145
Level of education (above SLC) (Base = Up to and below SLC)	0.783	0.007	8.168	1.759	37.919
Level of knowledge (sufficient) (Base = Insufficient)	0.396	0.004	3.114	1.434	6.763
Level of attitude (positive) (Base = Negative)	1.030	0.001	0.035		

have used condoms the last time they had sex (Table 6).

Discussion

The results of the study showed that just above half of the respondents were of the age group between 18 and 24 years which is consistent with the study done by South Asia Regional Development Initiative[11]. A vast majority of the participants were males and this happens to be consistent with various studies conducted in Nepal and other countries in and outside Asia[9,11,14,15]. A small percentage of the workers (17.8%) were non-Nepalese hailing from places like India and Bangladesh. This is common owing to the open border between Nepal and India. A study[16] reported that 50 to 55% of Indian construction workers worked in the construction sector in Nepal which was not consistent with the finding of present study. The same report also mentioned how Indian migrant workers only worked for about 7-8 months in a year and tended not to work during the winter. Since the study was carried out in winter, the number of non-Nepalese workers could have been less. The findings concerning marital status and literacy of the workers are consistent with another study carried out in Nepal[11].

This study revealed that 84.6% of the respondents had sufficient knowledge regarding HIV/AIDS. This is in contrast to studies conducted in Maharashtra, India[7]. Most of the items that asked about mode of transmission were answered correctly by over 80% of the respondents. This clearly indicates adequate knowledge regarding mode of transmission. Of the items listed in the "Knowledge" section, all but two were answered correctly by more than half of the respondents. More than 50% of the respondents answered "yes" to the item "Can people become infected with HIV from a mosquito bite". Such a response is consistent with other studies[17,18]. This low figure could be of importance as such false concept on HIV transmission can weaken motivation to adopt safer sexual behavior[19]. Another item "Is there a difference between HIV and AIDS?" had only 42.8% of the respondents answer correctly. Since the use of HIV and AIDS are used synonymously during awareness programs or prevention promotion programs, it is quite likely the mass mistakes it to be the same. When asked if abstinence is a way of preventing oneself from infection, only half were able to give the correct answer. This coincides with the findings of the Srilankan study[9]. 30% of females had insufficient knowledge than men. Nepal Demographic Health Survey 2011 reports that of the women in Nepal, 86% have heard about HIV/AIDS[20]. Although 77.4% of the female construction workers in the study had heard about HIV/AIDS, 45.8% of the females were found to have insufficient knowledge while only 23.0% of the males lacked knowledge regarding HIV/AIDS. This could be due to the fact that most women are engaged in household chores while they are not at work, hence, that leaves them with less time to interact with sources that provide information on HIV/AIDS.

Despite large proportion having sufficient

knowledge, quite a number of respondents (38.2%) had negative attitude towards HIV/AIDS. This is inconsistent with the findings from neighboring nations[11,21,22]. HIV/AIDS has been associated with prostitution, drug use, promiscuity; people owing to their religious or moral beliefs tend to not sympathize with the ones suffering[23]. A little more than half shared they had no problem working along with someone who was HIV positive. Similar observations were found in the other Asian studies as well[9,17]. Positive response was given by more than 50% of the respondents in all but one of the items, namely, "Should young children aged 12-14 be taught about the use of condoms to prevent HIV/AIDS?". Only 46.1% gave a positive response to this item.

Although a higher percentage of respondents had sufficient knowledge, only about half of them who had sex in the past 12 months had used condom the last time they had sex. As compared to males, females were found to have not used condoms the last time they had sex. Apart from this, 64.8% of those who had used condom the last time they had sex were between 18 and 24.

Attitude was significantly correlated with knowledge: higher the knowledge scores, more positive the attitude was. The results of the study coincide with the view that knowledge leads to significant change in attitude[24]. Similarly, use of condom the last time was significantly correlated with knowledge, higher the knowledge scores, more the use of condom. However, the association between level of attitude and "use of condom the last time you had sex" was statistically insignificant. Knowledge was found to influence attitude as well as preventive practice. The Information-Motivation-Behavior model identifies knowledge as one of the key factors in bringing about behavioral change[11,25].

The present study was conducted in housing projects in the Kathmandu Valley alone, hence, it would not be fair to say it represents the entire construction worker community of Nepal. Many of the workers who participated in the study either did not know how to read and write, or were not very confident with reading and writing, hence, face-to-face interview was one of the mode of questionnaire administration. This could have resulted in response bias as certain questions were related to the respondents' sexual activity.

Conclusion

This study set out to understand the knowledge, attitude about HIV/AIDS and also the use of condoms among construction workers in selected construction sites in the Kathmandu Valley. More than 3/4th of the construction workers had sufficient knowledge and a little more than half had positive attitude towards HIV/AIDS. Knowledge of HIV/AIDS, attitude towards it and use of condom seemed to differ with gender, nationality and level of education.

Females had lesser knowledge and more negative attitude towards HIV/AIDS. Programs targeting women construction workers are necessary to change the scenario. In addition to this, awareness should be created in languages other than Nepali so as to increase the knowledge about HIV/AIDS among non-Nepalese workers. Despite adequate knowledge, attitude and use of condom was found to be unsatisfactory. A need to resolve this gap between knowledge and practice seems necessary.

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Potential conflicts of interest

None.

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ความรู้และทัศนคติต่อ HIV/AIDS และการใช้ถุงยางอนามัยระหว่างคนงานก่อสร้างในพื้นที่หุบเขา เมืองกาฐมาณฑุ ประเทศเนปาล

Astha Pant, มานพ คณะโต, Panna Thapa, อมรรัตน์ รัตนสิริ

ภูมิหลัง: *ในช่วงไม่กี่ปีที่ผ่านมาประเทศเนปาลมีการเพิ่มขึ้นอย่างรวดเร็วในด้านโครงสร้างพื้นฐานทางกายภาพ ทำให้มีแรงงานจำนวนมากเข้ามาทำงานก่อสร้างในพื้นที่หุบเขา เมืองกาฐมาณฑุ*

วัตถุประสงค์: *การศึกษาครั้งนี้เป็นการศึกษาเชิงพรรณนา เพื่อทราบความรู้และทัศนคติเกี่ยวกับ HIV/AIDS และการใช้ถุงยางอนามัยในกลุ่มคนงานก่อสร้างในพื้นที่หุบเขา เมืองกาฐมาณฑุ*

วัสดุและวิธีการ: *ศึกษาคนงานก่อสร้างในพื้นที่ก่อสร้าง จำนวน 8 แห่ง ที่แตกต่างกันในพื้นที่หุบเขา เมืองกาฐมาณฑุโดยสุ่มตัวอย่างแบบเป็นระบบ ได้กลุ่มตัวอย่าง จำนวน 317 ราย ใช้การสัมภาษณ์ หรือตอบแบบสอบถามด้วยตนเอง*

ผลการศึกษา: *พบว่าอายุเฉลี่ยของผู้ตอบแบบสอบถามคือ 25.61 ปี ส่วนใหญ่เป็นเพศชาย (89.6%) มีเพียง 1.3% ที่ได้รับการศึกษาระดับ 10, 84.6% มีความรู้เกี่ยวกับ HIV/AIDS ที่เพียงพอและ 61.8% มีทัศนคติที่ดีต่อ HIV/AIDS, 50.5% ใช้ถุงยางอนามัยในการมีเพศสัมพันธ์ พบความสัมพันธ์ระหว่างผู้มีความรู้น้อย และทัศนคติที่ไม่ดีต่อพฤติกรรมป้องกัน HIV/AIDS ($p<0.05$) โดยส่วนใหญ่ไม่ใช้ถุงยางอนามัยในการมีเพศสัมพันธ์ ($p<0.05$) ผลการวิเคราะห์สมการถดถอยสหสัมพันธ์พบว่าการใช้ถุงยางอนามัยมีความสัมพันธ์กับเพศและระดับความรู้*

สรุป: *ความรู้ที่ไม่เพียงพอมีผลต่อทัศนคติและการใช้ถุงยางอนามัย จึงมีความจำเป็นที่จะต้องแก้ไขปัญหานี้*