

KNOWLEDGE, ATTITUDES, SELF-AWARENESS, AND FACTORS AFFECTING HIV/AIDS PREVENTION AMONG THAI UNIVERSITY STUDENTS

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Abstract. The objectives of this study were to describe knowledge, attitudes, and self-awareness, and to identify predictable factors affecting HIV/AIDS prevention among Thai university students. A cross sectional survey was conducted among 844 first-year university students using a validated, self-administered questionnaire as a research instrument. The questionnaire included items assessing knowledge, attitudes, self-awareness, and HIV/AIDS preventive behaviors. It was found that 22.4% of the subjects received various sexually provocative media. The university student's knowledge, attitudes, self-awareness, and preventive behaviors toward HIV/AIDS were at a high level. The results from the multiple regression analysis identified self-awareness, faculty, sex, sexual-risk score, income-per-month, GPA, and knowledge as significant independent predictors of HIV/AIDS preventive behaviors. These factors contributed to 36.9% of the explanation of HIV preventive behaviors, and the strongest predictor was found to be self-awareness. Scientific information, and useful and productive life skills are needed to educate the university students regarding the health consequences of HIV/AIDS. An integrated approach is strongly suggested for creating knowledge, attitudes, and awareness to control the spread of HIV/AIDS among young people.

Keywords: HIV/AIDS, knowledge, attitudes, self-awareness, university student, Thailand

INTRODUCTION

HIV/AIDS is one of the most significant public health problems in Thailand. The 2010 data from the Bureau of Epidemiology indicated that there were 372,874 HIV patients. The incidence of HIV was

16.57 per 100,000, the death rate was 2.92 per 100,000, and the cumulative cases of HIV were 1,161,694. Although a report issued by the Thai Working Group on HIV/AIDS Projection (2001) projected that the number of people living with HIV would decrease from 294,114 in 1990 to 230,878 in 2015, the new cases of HIV patient are increasing by approximately 32 people per day. The report of the Bureau of Epidemiology (2010) shows that the new cases of HIV in 2010 were 10,853. The highest incident areas of HIV/AIDS are still in central, northern, and southern regions.

The highest risk age-group has shifted

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from adult to young people. A report of the Thai Ministry of Public Health suggested that half of the HIV/AIDS newly infected people are in a young group (Department of Health, 2011). People more than 15 years old are the highest risk group for HIV infection. This report also indicated that 40% of HIV infections occurred in young people aged 15-24 years. There is also an estimate that the number of adolescents and young people infected with HIV in 2011 was about 210,000 - 520,000 (CIA, 2011).

There have been various studies in Thailand during the past 10 years related to the sexual behaviors in young people. Many of them suggest that youths still have risky sexual behaviors, and they are not sufficiently concerned about this issue. One study indicated that youth, both male and female, had low levels of HIV/AIDS preventive behaviors (Fongkaew *et al*, 2007). The Information and Public Relations Office (2006) also showed that the average age for a young person's first sexual intercourse has gradually decreased, and most youths are unaware of the risks of unsafe sexual behaviors. Another study indicated that more than 60% of students had sexually transmitted diseases (Nakorntap and Masatienpong, 2007). A report from the National AIDS Prevention and Alleviation Committee (2010) indicated that around 85% of Thai youth do not see HIV/AIDS as something that they should be concerned about, and that premarital sex has become common issue among young Thais. These reports suggest that there is an increasing trend of HIV/AIDS infections in young people, which could be related to their sexual awareness.

Although several sectors continually have made extensive efforts to deal with these issues from children through young

adults, most of them could not indoctrinate young people to have the necessary life skills to protect themselves from sexually risky behavior in the long term. It is noticeable that many measures or programs focused on only one or some aspects, such as in small adolescent groups (Chaipanit and Antiwarothai, 2008), families (Aalsma *et al*, 2006; Powwattana, 2008), peers (Tisak and Thato, 2005; Pilgrim *et al*, 2006; Omeonu and Kollie, 2010), or stakeholders (Pardun *et al*, 2005; Tipwareerom, 2010; Yangyuen *et al*, 2010). One, for example, attempts to increase knowledge and self awareness to HIV/AIDS by focusing on life-skill techniques and health education (WHO, 2005; Bureau of Reproductive Health, 2007). The Ministry of Public Health attempts to strengthen such preventive programs at all levels of educational institutions and community through media and innovative strategies (Wibulpolprasert *et al*, 2005). Although it seems that many study's results were successful and the knowledge of HIV prevention was increasing in young adults, sexual risk behaviors and rates of HIV infection among youths are still increasing (Bureau of AIDS, TB and STDs, 2009; Murugan *et al*, 2010; Yangyuen *et al*, 2010).

It is understood that young adults are in a period of great turmoil involving physiological and psychological changes. During this time, they develop their own identities, opinions, and values. These changes give them the freedom to experiment, which entail taking some risks. Also, the biopsychosocial changes urge them to cope with achieving autonomy or self-awareness.

Researchers suggest that self-awareness is one of the healthy passages through the special challenges of the adolescent years. In addition, parental roles, especially monitoring of youth be-

haviors, has been associated with youth risk-taking (Millstein and Igra, 1995; Carret *et al*, 2004; Frankowski and Committee on Adolescence, 2004; Pettifor *et al*, 2004). Thus, the risky behaviors of youth are determined by complex factors of socialization leading to the internalization of a set of knowledge, attitudes, and values of preventive behavior.

There is limited research available to support studies of these complex factors related to HIV/AIDS. One of them indicated that being unaware of self-change, like attraction towards the opposite sex, engage youth in sexual behaviors that place them at risk of HIV/AIDS (Ma *et al*, 2006). Another study in Bangladesh showed that individual characteristics appear to be important predictors of the awareness of HIV/AIDS (Rahman *et al*, 2009). It is necessary to explore organized factors related to sexual awareness and HIV/AIDS prevention that cover individual, family, and community levels. In addition, it is the key to design a future course for an HIV/AIDS preventive program that can effectively improve life skills among youths and help them make healthier decisions regarding sexual awareness (Fageeh, 2008).

This study was conducted to explore details of sexual awareness and HIV/AIDS preventive behaviors among freshmen university students. The study was conducted in Samut Prakan, Thailand because it has one of the top ten highest HIV/AIDS infection rates in Thailand (Bureau of Epidemiology, 2010).

MATERIALS AND METHODS

Purposive sampling technique was used for this cross sectional study, and data collection was conducted at a private university in Samut Prakan, Thailand, because this university has faculties which

cover a wide range of disciplines, such as economics, law, business administration, social work, science, nursing and Chinese medicine. The respondents of this study came from different regions of Thailand. One thousand and eighty-two questionnaires were distributed and 844 (78.0%) people responded.

This study was conducted from August 2009 to January 2010. The questionnaire consisted of five main parts. The first part was about individual characteristics. The second part included 14 items about HIV/AIDS knowledge. The third part was 16 items about attitude to HIV/AIDS. The fourth part included 20 items assessing self-awareness. The last part consisted of 22 items about HIV/AIDS preventive behavior. Thirty students from another private university completed the questionnaire for the purpose of analyzing the instrument's reliability. The Cronbach's alpha coefficient ranged from 0.73 to 0.93. The research protocol was approved by the ethics committee of nursing faculty of this university (Ref No. 001/2008, 2008 Dec 15). The students were clearly identified by the researcher, who informed the students that they could provide information without penalty. Written consent was also obtained from the students after they gave their permission.

Using both descriptive and inferential statistics, sociodemographic information and data regarding sexual relationships, sexual information, and sexual intercourse of the respondents were tabulated. Pearson's product moment correlation coefficient was used to examine multicollinearity before exploring predicting factors in HIV/AIDS preventive behavior. The stepwise model building approach, using multiple regression, was applied to examine the predicting power between sociodemographics, sexual behavior,

Table 1
Sociodemographic characteristics of study subjects.

Sociodemographic characteristics	<i>n</i>	%
Sex		
Male	209	24.8
Female	635	75.2
Age (years)		
17-19	782	92.0
20-22	59	7.0
>22	9	1.0
<i>X</i> = 18.52, <i>SD</i> = 0.79		
Accumulative grade		
<2.00	25	2.7
2.00-2.50	147	18.2
2.51-3.00	239	29.4
>3.00	433	49.7
<i>X</i> = 3.04, <i>SD</i> = 0.50		
Monthly income		
<5,000 Baht	619	72.8
5,000-10,000 Baht	211	24.9
>10,000 Baht	14	2.3
<i>X</i> = 4,933.17 <i>SD</i> = 2,552.53		
Characteristics of friends of the opposite sex		
Use alcohol or smoke	394	46.7
Boyfriend or girlfriend	291	34.5
Frequently go to places of entertainment	294	34.8
Frequently access sexually provocative media	189	22.4
Risky sexual behavior score		
0	236	28.0
1-4	445	52.7
5-8	142	26.7
>9	21	2.5
Sources of sexual and reproductive health information		
Teacher	340	40.0
Parents	166	19.4
Friends	9	16.2
Television, radio, newspaper, Internet	157	18.4
Mass media	42	4.7

attitudes, awareness, and preventive behaviors about HIV/AIDS.

RESULTS

The majority of students were female (75.2%). The mean age was 18.52 while

the *SD* was 0.79. The mean of the accumulative grade was 3.04. The mean total of monthly income was THB 4,933.17. Friends of the opposite sex who had experience drinking alcohol or smoking were 46.7%. Approximately one-third (29.5%) of the respondents had a high-risk sexual

Table 2

Correct responses to questions about HIV preventive knowledge among students.

Items	<i>n</i>	%
Unhealthy people tend to get easily infected with HIV.	662	78.4
If an HIV test is negative in risky people, they certainly are not infect with HIV.	495	58.6
The first organ which is destructed by HIV is a white blood cell.	358	42.4
Most HIV infected patients are heterosexual.	752	89.1
Blood contamination with HIV patients causes HIV infections.	399	47.3
Having chronic fever for months may indicate infection from HIV after sexual contact in the last 2-3 months.	777	92.1
The best way to prevent HIV infection is to use a condom in every incident of sexual intercourse.	340	40.3
One should not use a damaged condom.	577	68.4
Anti-HIV drug is the best choice for treatment.	249	29.5
The cause of death in HIV patients is lung infections.	426	50.5
Chronic fever, loss of body weight and chronic diarrhea are signs of HIV in the early stage.	731	86.6
HIV virus in a pregnant woman can transfer to the fetus.	112	13.3

behavior score (a score greater than 5). The respondents' access to sexually provocative media such as the Internet, and places of amusement and nightclubs was 22.4% (Table 1).

The items with the lowest rate of correct answers were HIV virus in pregnant woman can transfer to the fetus (13.3%), anti-HIV drug is the best choice of treatment (29.5%) and the best way to prevent HIV/AIDS infection is condom use (40.3%), respectively (Table 2).

The respondents perceived these factors at a high level: knowledge, attitude, self-awareness, and preventive behaviors for HIV/AIDS. The mean score of knowledge, attitudes, and self-awareness were 6.96, (SD=1.84) (Table 3), 4.03 (SD=0.49), and 3.80 (SD=0.37), respectively. Conversely, they perceived having high prevention for HIV/AIDS ($X=3.83$, SD=0.45) (Table 4).

Multiple regression analysis was used

Table 3

Knowledge of the respondents about HIV/AIDS.

Knowledge about HIV/AIDS	<i>n</i>	%	
0	2	0.2	$X = 6.96$
1-6	296	35.1	$SD = 1.84$
7-12	546	64.7	

to assess the effects of individual characteristics, knowledge, attitude, and self-awareness about preventive behaviors for HIV/AIDS. Prior to analysis, bivariate correlation among them was examined for multicollinearity. The correlations were less than 0.6 and none of them had non-multicollinearity (Table 5).

From the results in Table 5, it was predicted that health preventive behaviors for HIV, self-awareness, faculty, sex, sexual risk score, income per month, GPA

Table 4
Respondent's attitude, self-awareness and HIV/AIDS preventive behavior.

	<i>n</i>	%	
Attitude about HIV/AIDS			
Low	51	6.0	<i>X</i> = 4.03
Moderate	367	43.5	<i>SD</i> = 0.49
High	426	50.5	
Self-awareness			
Low	4	0.5	<i>X</i> = 4.55
Moderate	340	40.3	<i>SD</i> = 3.60
High	500	59.2	
HIV/AIDS preventive behaviors			
Low	137	16.2	<i>X</i> = 3.83
Moderate	448	53.1	<i>SD</i> = 0.51
High	259	30.7	

and knowledge together explained 36.9% of the variance. The strongest predictor for HIV preventive behaviors was found to be self-awareness (Table 6).

DISCUSSION

This study showed that 22.4% of the respondents had friends who frequently accessed sexually provocative media, and 38.4% of them had friends who often go to places of entertainment. It is possible that university students are easily influenced by the sexually risky behaviors of their friends. The results from another study suggest the influence of perceived peer norms on youth sexual activity and risk-taking (Tisak and Thato, 2005). The social context, especially friendship, is considered a crucial component of healthy sexual adaptation in youth.

Over 80% of the respondents received various sexual risk information. Major sources are from teachers, parents, and the media. This correlates with previous studies that indicated that teachers and parents are important sources for

educating their children about sexual and reproductive health (Marugan *et al*, 2010; Yangyuen *et al*, 2010). This suggests that there is a need to improve sexual and reproductive health education and prevention programs in both schools and universities, as well as in families. These are the best spheres of influence for a large number of the youth. These programs may help delay initial sexual intercourse, increase health protection life skills among sexually active youths, and prevent HIV/AIDS infection.

One-third of the respondents reported that they had heard about HIV/AIDS through a variety of media. This result is consistent with a previous study in South India, showing a high proportion of youths who receive information about HIV/AIDS (Murugan *et al*, 2010). The other research suggested that television, music, movies, favorite Internet sites, and magazines used by youths in the US had about 11% sexual content (Pardun *et al*, 2005). These media channels are sources that cause youths to be curious about reproduction and urge them to engage in

Table 5
Correlations among individual characteristics, knowledge, attitudes, self-awareness, and health preventive behaviors for HIV.

	1	2	3	4	5	6	7	8	9	10
1. Sex	1									
2. Age	0.162**	1								
3. GPA	0.338**	0.231**	1							
4. Faculty	0.275**	0.080*	0.406**	1						
5. Income per month	0.166**	0.146**	0.090**	0.008	1					
6. Risky sexual behavior score	0.418**	0.113**	0.206**	0.275**	0.162**	1				
7. Knowledge	0.075*	0.012	0.043	0.103**	0.012	0.056	1			
8. Self-awareness for HIV	0.161**	0.001	0.220**	0.254**	0.089*	0.114**	0.165**	1		
9. Attitude about HIV	0.014	0.112**	0.001	0.180**	0.063	0.056	0.159**	0.096**	1	
10. Health preventive behaviors for HIV	0.379**	0.134**	0.345**	0.345*	0.168**	0.362**	0.148**	0.410**	0.088*	1

* = 0.01, ** = 0.001

sexually risky behaviors.

Interestingly, one-third of the respondents had the correct knowledge related to HIV/AIDS: between 1-6 from a maximum score 12. Nearly half of them had attitudes and self-awareness about HIV/AIDS prevention in low to moderate levels, which is in contrast to the findings of a previous study of youths in South India (Murugan *et al*, 2010). Moreover, 16.2% of the respondents had HIV preventive behaviors at low levels, and only half of them had at moderate levels, consistent with another previous study in Bangladesh (Rahman *et al*, 2009). This indicates that there is a gap between perception and belief; that is, a large proportion of youths still have misconceptions about HIV/AIDS. These sorts of beliefs may develop unrealistic attitudes about HIV/AIDS. There is a need to address these beliefs among youths because sexual activity is increasingly prevalent at this time.

This study's findings are in line with other reports showing knowledge levels among youths regarding HIV/AIDS prevention that vary by location, age and gender (WHO, 2005); 35% of respondents have a total score of knowledge of less than 50%, and the inadequate knowledge found here about a number of important aspects of this issue warrants immediate attention. Many students responded wrongly that HIV/AIDS can be transmitted to the fetus in pregnancy (13.3%), an anti-HIV drug is the best curative choice (29.5%), and the best way for preventing HIV infection is condom use in every incidence of sexual intercourse (40.3%). These misunderstandings can cause people to overlook HIV/AIDS preventive behaviors when they are involved in risky sexual behaviors and are not concerned about the consequences in their futures. There is a need to improve knowledge and life skills

Table 6
Multiple regression analysis predicting HIV preventive behaviors ($N = 744$).

Predictor variables	Unstandardized coefficients		Standardized coefficients		
	B	SE	β	t	p
Self-awareness	0.430	0.045	0.295	9.506	0.000
Faculty	4.979	0.773	0.218	6.441	0.000
Gender	3.219	0.884	0.122	3.641	0.000
Risky sexual behavior score	-0.650	0.151	-0.145	-4.317	0.000

about sexual and reproductive health earlier in primary and secondary schools, and to regularly discuss these issues with graduate students (WHO, 2005).

The results suggest that the majority of students had moderate levels of preventive behaviors. Multiple regression analyses of predictors of HIV/AIDS preventive behaviors indicated that there were common predictors of these outcomes, as well as some that were unique to specific models. Improved HIV/AIDS preventive behaviors were predicted by increased self-awareness, studying in a health or science faculty, being female, increased GPA, increased knowledge level about HIV, decreased income per month, and decreased risky sexual behaviors.

The strongest predictor to improve HIV/AIDS preventive behaviors was increased self-awareness. These findings are congruent with those of prior studies that have examined the relationship between awareness and HIV/AIDS (Ma *et al*, 2006; Murugan *et al*, 2010). It indicates the urgent need for educational interventions. Correct scientific information should be disseminated to youth in every year of study so that they do not pick up sexual myths and misconceptions from their peers. Studying in a health or science faculty, being female, and increased

GPA also improved HIV/AIDS preventive behaviors. These results are inconsistent with previous study findings (Pilgrim *et al*, 2006; Omeonu and Kollie, 2010). However, educational characteristics are one of the pathways of communication for health messages. Female students, with a high GPA, who study in a health or science faculty, and who also appear to be rapidly changing in self-awareness, have the greatest opportunity to receive more HIV/AIDS information, and use more of health care services and support from peer groups (Ma *et al*, 2006).

Another important finding is that better knowledge and decreased sexually risky behaviors were found to have positive impacts on HIV/AIDS prevention. These findings are supported by a number of previous studies that indicate low concern about initial sexual intercourse is associated with negative outcomes, such as STDs. Research done in African countries has demonstrated that engaging in sexually risky behavior is significantly associated with an increased incidence of HIV infection (Carret *et al*, 2004; Pettifor *et al*, 2004).

This study had several limitations. First, the drop-out rate was quite high, although the researcher tried to collect data from all students. Some subjects

incompletely completed their questionnaires and so they were removed. Second, its cross sectional design that had various independent variables was limited to predict cause-and-effect associations. Third, the results obtained in this study should not be generalized to all Thai university students, as the sample was limited to university students within one private academic institution. Finally, the possible bias introduced by over-reporting should be noted, because knowledge, attitude, and awareness to HIV/AIDS prevention of the respondents were at high levels.

In conclusion, although knowledge, attitudes, and self-awareness about HIV/AIDS prevention was still moderate to high among the respondents, sexual risk behaviors were reported to be of lesser concern to them. This is potentially driven by heavy exposure to various media and sources from an early age. This prevention was associated with self-awareness, university environment, GPA, and sexual risk behaviors that prevent the spread of HIV among university students. Further surveys and surveillance on sexual behaviors and its consequences are therefore needed among youth to develop targeted and effective prevention to protect them from future infection of HIV/AIDS.

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