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
from adult to young people. A report of
the Thai Ministry of Public Health sug-
ggested 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 oc-
curred 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 is-
 sue. 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 indoctri-
nate 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 as-
pects, such as in small adolescent groups
(Chaipanit and Antiwarothai, 2008),
families (Aalsma et al, 2006; Powwattana,
2008), peers (Tisak and Thato, 2005; Pil-
grim et al, 2006; Omeonu and Kollie, 2010),
or stakeholders (Pardun et al, 2005; Tipwa-
reerom, 2010; Yangyuen et al, 2010). One,
for example, attempts to increase know-
ledge 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 pre-
vention was increasing in young adults,
sexual risk behaviors and rates of HIV
infection among youths are still increas-
ing (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 ex-
periment, which entail taking some risks.
Also, the biopsychosocial changes urge
them to cope with achieving autonomy
or self-awareness.

Researchers suggest that self-aware-
ness 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,
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 cumulative 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 1
Sociodemographic characteristics of study subjects.

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

<table>
<thead>
<tr>
<th></th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitude about HIV/AIDS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>51</td>
<td>6.0</td>
</tr>
<tr>
<td>Moderate</td>
<td>367</td>
<td>43.5</td>
</tr>
<tr>
<td>High</td>
<td>426</td>
<td>50.5</td>
</tr>
<tr>
<td>Self-awareness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>4</td>
<td>0.5</td>
</tr>
<tr>
<td>Moderate</td>
<td>340</td>
<td>40.3</td>
</tr>
<tr>
<td>High</td>
<td>500</td>
<td>59.2</td>
</tr>
<tr>
<td>HIV/AIDS preventive behaviors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>137</td>
<td>16.2</td>
</tr>
<tr>
<td>Moderate</td>
<td>448</td>
<td>53.1</td>
</tr>
<tr>
<td>High</td>
<td>259</td>
<td>30.7</td>
</tr>
</tbody>
</table>

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...
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 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

| 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 | 0.162** | 0.338** | 0.275** | 0.166** | 0.161** | 0.379** | 0.014 | 0.041 | 0.001 |
| 2 | Age | 0.231** | 0.080 | 0.146** | 0.418** | 0.112** | 0.134 | 0.011 | 0.001 | 0.001 |
| 3 | GPA | 0.406** | 0.310* | 0.113** | 0.218** | 0.112** | 0.011 | 0.001 | 0.001 | 0.001 |
| 4 | Faculty | 0.090** | 0.206** | 0.206** | 0.090** | 0.090** | 0.112** | 0.001 | 0.001 | 0.001 |
| 5 | Income per month | 0.056 | 0.096** | 0.012 | 0.165** | 0.012 | 0.056 | 0.001 | 0.001 | 0.001 |
| 6 | Risky sexual behavior score | 0.012 | 0.165** | 0.103** | 0.012 | 0.165** | 0.012 | 0.001 | 0.001 | 0.001 |
| 7 | Knowledge | 0.043 | 0.254** | 0.103** | 0.043 | 0.254** | 0.103** | 0.001 | 0.001 | 0.001 |
| 8 | Self-awareness for HIV | 0.220** | 0.180** | 0.220** | 0.220** | 0.180** | 0.220** | 0.001 | 0.001 | 0.001 |
| 9 | Attitude about HIV | 0.180** | 0.180** | 0.180** | 0.180** | 0.180** | 0.180** | 0.001 | 0.001 | 0.001 |
| 10 | Health preventive behaviors for HIV | 0.410** | 0.362** | 0.362** | 0.362** | 0.362** | 0.362** | 0.148** | 0.148** | 0.148** |

*= 0.01, **= 0.001
Table 6
Multiple regression analysis predicting HIV preventive behaviors (N = 744).

<table>
<thead>
<tr>
<th>Predictor variables</th>
<th>Unstandardized coefficients</th>
<th>Standardized coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>SE</td>
</tr>
<tr>
<td>Self-awareness</td>
<td>0.430</td>
<td>0.045</td>
</tr>
<tr>
<td>Faculty</td>
<td>4.979</td>
<td>0.773</td>
</tr>
<tr>
<td>Gender</td>
<td>3.219</td>
<td>0.884</td>
</tr>
<tr>
<td>Risky sexual behavior score</td>
<td>-0.650</td>
<td>0.151</td>
</tr>
</tbody>
</table>

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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