

Knowledges, attitudes and behaviors related to sexually transmitted diseases of male undergraduate students from three faculties of Chiang Mai University

Luksameevanish N,¹ Krue-in K,¹ Moonsawat G,¹ Sriwongsa P,¹ Nopparatkailas R,¹ Sastraruji T² and Sookkhee S³

¹Medical student, Faculty of Medicine, ²Dentistry Research Center, Faculty of Dentistry, ³Department of Microbiology, Faculty of Medicine, Chiang Mai University

Objectives To study differences in knowledge, risky behavior and attitudes related to sexually transmitted diseases in male undergraduate students from three faculties of Chiang Mai University.

Methods This cross-sectional study surveyed 652 male undergraduate students from three faculties including 85 from Associated Medical Science (AMS), 480 from Engineering (ENG) and 87 from Economics (ECON) as representative of health sciences, science/technology, and social sciences/humanities, respectively. An online questionnaire was used to evaluate the students' knowledge, risky behavior and attitudes related to sexually transmitted diseases (STDs). Descriptive statistics included one-way ANOVA and Spearman's rank correlation coefficient.

Results AMS male students had a higher average score for knowledge related to STDs than the other groups. There were, however, significant differences among AMS students to the questions, "Should parents teach appropriate sex education to their young children?" and "Do you think early STD screening is good?" (both $p = 0.001$). Positive correlations were found between self-reported alcohol drinking and visiting of entertainment places in all the groups ($r_{AMS} = 0.673, p < 0.001$; $r_{ENG} = 0.595, p < 0.001$; $r_{ECON} = 0.595, p < 0.001$). Self-reported risky behavior was positively correlated with frequency of having sex during the past 2 months and alcoholic drinking ($r_{AMS} = 0.510$ and $= 0.409$; $r_{ENG} = 0.562$ and $= 0.345$; $r_{ECON} = 0.655$ and $= 0.259$, respectively. All were $p < 0.001$).

Conclusions Male health sciences students possessed higher knowledge, reported lower risk behaviors, and expressed more positive attitudes toward individuals with STDs than the other groups. Providing knowledge about STDs and encouraging abstinence from alcohol should be used to reduce the incidence of risky behavior and the incidence of STDs among male university undergraduates. *Chiang Mai Medical Journal* 2021;60(1):1-16. doi 10.12982/CMUMEDJ.2021.01

Keywords: sexually transmitted disease, knowledge, risky behavior, attitudes, male student

Introduction

New cases of sexually transmitted diseases are regularly reported among adolescents around the world. The incidence rate of sexually transmitted diseases among adolescent Thai males age 15 to 24 has been reported to have increased from 18.8 to 28.8 cases per 100,000 population during 2013-2018 (1). A study by Drago et al. (2) described

an increasing incidence of sexually transmitted diseases among adolescents who exhibited risky behavior, e.g., drinking alcohol, using intravenous drugs, having multiple sexual partners, and exhibiting inappropriate condom usage. Additionally, Folasayo et al. (3) reported that knowledge regarding sexual transmitted disease was negatively corre-

Correspondence: Siriwoot Sookkhee, PhD., Department of Microbiology, Faculty of Medicine, Chiang Mai University, Chiang Mai 50200, Thailand.
E-mail: ssookkhee@hotmail.com



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lated with the incidence of risky behavior among adolescents. However, many other reports have shown that adolescents still lack knowledge regarding prevention of and protection against sexually transmitted diseases (2-11). Folasayo et al. (3) reported that undergraduate students in health sciences faculties had more knowledge regarding sexually transmitted diseases than students in non-health science faculties. Nevertheless, in 2017, Saurabh et al. (5) reported that health science students had unclear knowledge regarding sexually transmitted diseases. Svensson and Waern (6) stated that some attitudes may significantly affect knowledge and risky behaviors related to sexually transmitted diseases. Acheampong (12) reported that the level of knowledge about STDs was not matched by the sexual behavior of male students and recommended that sex education should be introduced at the university as a means of increasing student awareness.

Objectives

The present study aimed to assess knowledge levels regarding STDs and to determine the correlation between knowledges, attitudes and behaviors of undergraduate male students from 3 different faculties of Chiang Mai University to help identify ways to reduce the incidence of sexually transmitted diseases.

Methods

A cross-sectional analytic study was conducted among male students from 3 faculties, Associated Medical Science (AMS), Engineering (ENG), and Economics (ECON) as representative of male students from the Science and Technology, Social Science and Humanities, and Health Sciences fields at Chiang Mai University. The total number of third and fourth year AMS, ENG, and ECON students were 106, 1009, and 111, respectively. The Krejcie and Morgan formula was used to calculate the population sample size. According to that formula, the sample size of students from each faculty should be 80, 278, and 86. The total number of students recruited for the study was 652, with 85 from Associated Medical Science, 480

from Engineering and 87 from Economics.

The questionnaire in the English language (supplementary data) was delivered via Google Forms and was divided into 4 parts: socio-demographic characteristics, knowledge of STDs, risky behavior and attitudes toward STDs. Each item was either ordinal with ratio scale or nominal scale with interval scale. The validity and reliability of the questionnaire was evaluated by 2 peer readers who are experts on questionnaire development and by 18 extra recruited students who did not participate in the project. The results of the reliability analysis found a Cronbach's alpha value of 0.87 which indicates the questionnaire showed good, acceptable reliability (13,14). Responses to the STD knowledge assessment questions were measured in nominal or ordinal scales. Each STD knowledge assessment statement had three options: 'Yes', 'No', and 'Not sure'. Correct responses scored one point, whereas incorrect and 'not sure' responses scored zero points. STD knowledge was categorized into 3 levels: good (7.00-9.00 points), moderate (5.00-6.99 points), and poor (0.00-4.99 points). The attitude questions regarding STD were in the form of either positive or negative statements. Responses were divided into 5 levels: 'strongly agree', 'agree', 'neutral', 'disagree' and 'strongly disagree'. Responses to positive statements were scored from five points (strongly agree) to one point (strongly disagree). The scoring was reversed for negative statements. Mean attitude scores were classified into 3 levels: good (3.50-5.00 points), moderate (2.50-3.49 points), and poor (1.00-2.49 points). The final part of the questionnaire assessed respondents' self-reported risky behavior related to STDs. Each item contained five levels from 'always' to 'never'. Positive practices were scored from five points (always) to one point (never). Negative practices were scored inversely. The mean scores were classified into 3 levels: good (3.50-5.00 points), moderate (2.50-3.49 points), and poor (1.00-2.49 points).

The survey data was analyzed using SPSS version 22.0 statistical software. Statistical analysis was done using one-way analysis of variance (Kruskal-Wallis ANOVA). The variables, socio-

demographics, knowledge, risky behavior, and attitudes toward sexually transmitted diseases. Results were considered statistically significant if $p \leq 0.01$. The Pearson correlation (r value) was used to determine positive and negative correlations. The survey data collection was accomplished after receiving full ethical approval from the Department of Community Medicine, Faculty of Medicine, Chiang Mai University (COM-2562-06695). Prior to completing the online questionnaire, participants were informed about the study and gave their informed consent to participate.

Results

Socio-demographic characteristics

Of the 652 male students from 3 faculties who participated in the study, more than 90% were Buddhist. Half had incomes of 5,000-10,000 baht per month. The majority of the AMS, ENG, and ECON students lived in private apartments (41.2, 46.3, and 40.2%). Most of the students' parents were married. Most of the students had studied at a co-educational high school. GPAX of most AMS, ENG, and ECON students were 3.50-4.00 (34.1%), 2.00-2.49 (28.5%), and 2.50-2.99 (29.9%), respectively. The percentages of the AMS, ENG, ECON students who described themselves as homosexual were 21.2%, 4.0%, and 17.2%, respectively. Details of sociodemographic aspects of the respondents are shown in Table 1. More than 50% of the students reported that they were virgin and that they had no history of any sexually transmitted disease (data not shown). Of the students who reported a history of sexual intercourse, more than 90% had had their first experience of sexual intercourse during their undergraduate studies and most reported having had sexual intercourse fewer than 3 times in the past 2 months. No students reported having had sexual intercourse with a sex worker.

Behavior

Forty percent of the students said they drank alcohol occasionally and most said they did not take sexual stimulants, did not use drugs, did not pay for sexual services, and did not have any

tattoos. The majority of the AMS, ENG, ECON students said they had never gone to entertainment places (61.2, 42.3, and 46.0%, respectively), exercised occasionally (36.8, 34.1, and 42.0%) and masturbated occasionally (24.7, 39.6 and 32.2%). More than 70% of the students reported no experience with finding a partner or chatting about sex via social media or similar applications. Pornographic media was accessed most frequently by AMS and ENG students (31.8 and 32.9%), but less often by ECON students (28.7%). Sixty-eight percent, 78% and 93% of AMS, ENG, and ECON students had never undergone a blood test screening for any sexually transmitted disease. Half of the AMS students always learned about intersexual sociability, but the number was found to be lower ENG, and ECON students (32.4 and 42.4%, respectively).

Knowledge

One-way ANOVA analysis of the four knowledge questions related to STDs found significant differences among the three faculties. AMS students possessed significantly higher average scores than ENG and ECON students for the statements, "Having anal sex without using a condom has a low risk of getting a sexually transmitted disease" and "Anal or oral sex doesn't cause HPV infection" (Fig.1a and 1b). Interestingly, ECON students had significantly lower average scores than AMS and ENG students for the statements, "Hepatitis B virus does not count as a sexually transmitted disease," while they had significantly higher average scores than AMS and ENG students for the statement, "A torn condom during sexual intercourse can be caused by using an inappropriate condom size" (Figs.1c and 1d).

Risky behavior

Analysis of risky behavior related to sexually transmitted diseases found AMS students had higher average scores than ENG students to the questions, "Have you had sex with a stranger?" and "Do you drink alcohol at an entertainment place?" (Fig. 2a and 2b).

Table 1. Sociodemographic characteristics of male undergraduate students in three different faculties at Chiang Mai University

Aspect	AMS (%)	ENG (%)	ECON (%)
Religion			
Buddhism	80 (94.1)	432 (90)	83 (95.4)
Christianity	4 (4.7)	15 (3.1)	1 (1.1)
Islam	0 (0)	5 (1)	0 (0)
Other	1 (1.2)	28 (5.8)	3 (3.4)
Monthly income			
< 5,000 baht	7 (18.4)	53 (11.0)	9 (10.3)
5,000-10,000 baht	49 (57.6)	278 (57.9)	46 (52.9)
10,000-15,000 baht	29 (34.1)	139 (29.0)	26 (29.9)
15,000-20,000 baht	0 (0)	6 (1.3)	6 (6.9)
> 20,000 baht	0 (0)	4 (0.8)	0 (0)
Accommodations			
Stay alone in private apartment	35 (41.2)	222 (46.3)	35 (40.2)
University dormitory	25 (29.4)	72 (15.0)	13 (14.9)
Condominium	11 (12.9)	137 (28.5)	31 (35.6)
Home	12 (14.1)	49 (10.2)	9 (9.2)
Status of parents			
Married	63 (74.1)	359 (74.8)	66 (75.9)
Divorced	13 (15.3)	53 (11)	8 (9.2)
Separated	3 (3.5)	24 (5)	6 (6.9)
New marriage	2 (2.4)	23 (4.8)	3 (3.4)
Father or mother deceased	4 (4.1)	18 (3.8)	3 (3.4)
Father and mother deceased	0 (0)	3 (0.6)	1 (1.1)
High school			
Co-ed school	84 (98.8)	465 (96.9)	84 (96.6)
Boys only school	1 (1.2)	15 (3.1)	3 (3.4)
GPAX			
< 2.00	2 (2.4)	21 (4.4)	5 (5.7)
2.00-2.49	8 (9.4)	137 (28.5)	18 (20.7)
2.50-2.99	20 (23.5)	115 (24)	26 (29.9)
3.00-3.49	26 (30.6)	113 (23.5)	27 (31)
3.50-4.00	29 (34.1)	94 (19.6)	11 (12.6)
Sexual orientation			
Homosexual	18 (21.2)	19 (4.0)	15 (17.2)
Heterosexual	61 (71.8)	445 (92.7)	60 (69.0)
Bisexual	4 (4.7)	13 (2.7)	11 (12.6)
Not sure	2 (2.4)	3 (0.6)	1 (1.1)

As well as reporting more risky behavior, AMS students also had significantly higher average scores than ENG students for almost all questions related to attitudes toward sexually transmitted diseases, e.g., “Should parents teach appropriate sex education to young children?”, and “Do you

think that early sexually transmitted diseases screening is good?” As shown in Figs. 3a and 3b, AMS students also had significantly higher average scores than ENG students for the statement, “A patient with syphilis is disgusting to other people” (Fig. 3c).

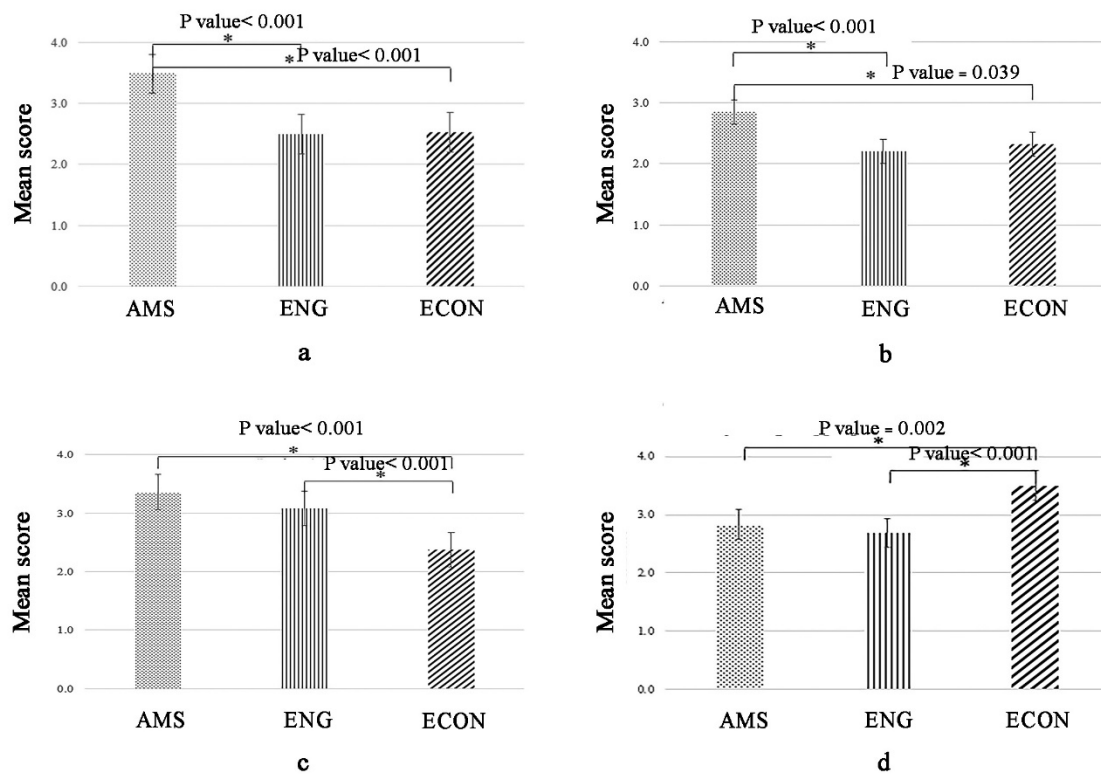


Figure 1. Comparison of knowledge among three faculties regarding (a) "Having anal sex without using condom has a low risk of getting sexually transmitted diseases", (b) "Anal and oral sex can't cause an HPV infection", (c) "Hepatitis B virus doesn't count as a sexually transmitted disease", and (d) "A torn condom during sexual intercourse can be the result of using inappropriate condom size".

*Significant difference ($p \leq 0.01$)

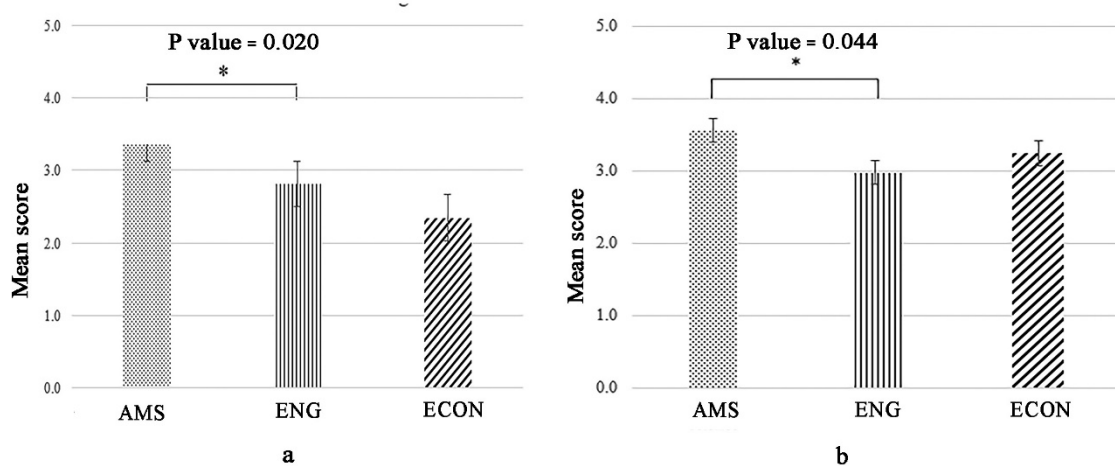


Figure 2. Comparison of risk behavior regarding (a) "I have had sex with a stranger" and (b) "I drink alcohol at entertainment places".

*Significant difference ($p \leq 0.01$)

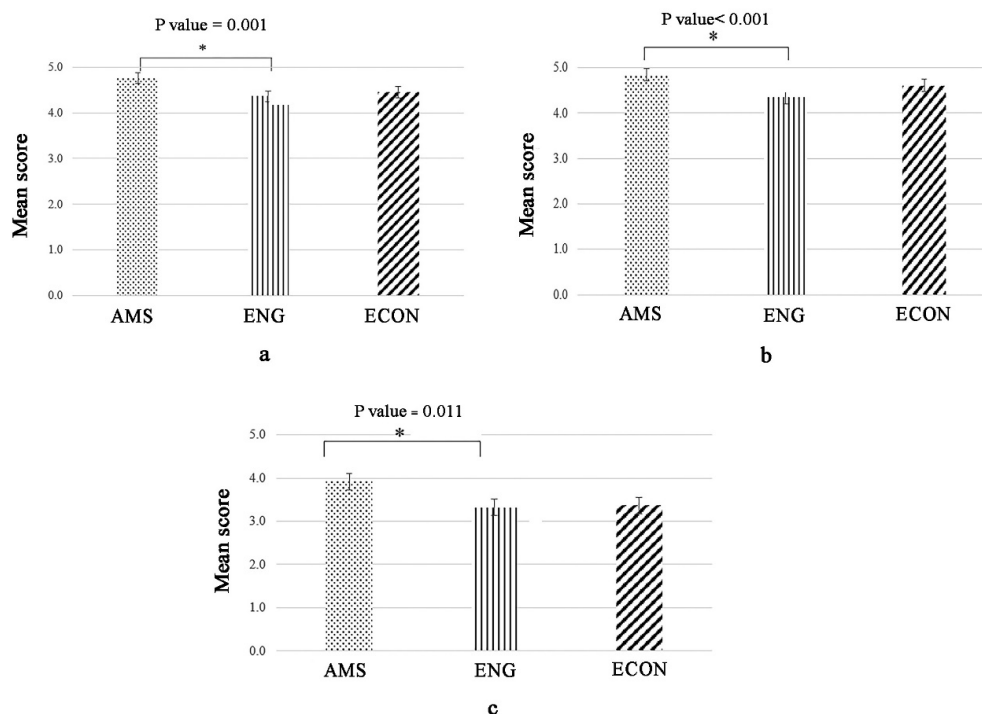


Figure 3. Comparison of attitudes regarding (a) “Should parents provide appropriate sex education to young children?”, (b) “I think that early screening for sexually transmitted disease is good”, and (c) “A syphilis patient is disgusting to other people”.

*Significant difference ($p \leq 0.01$)

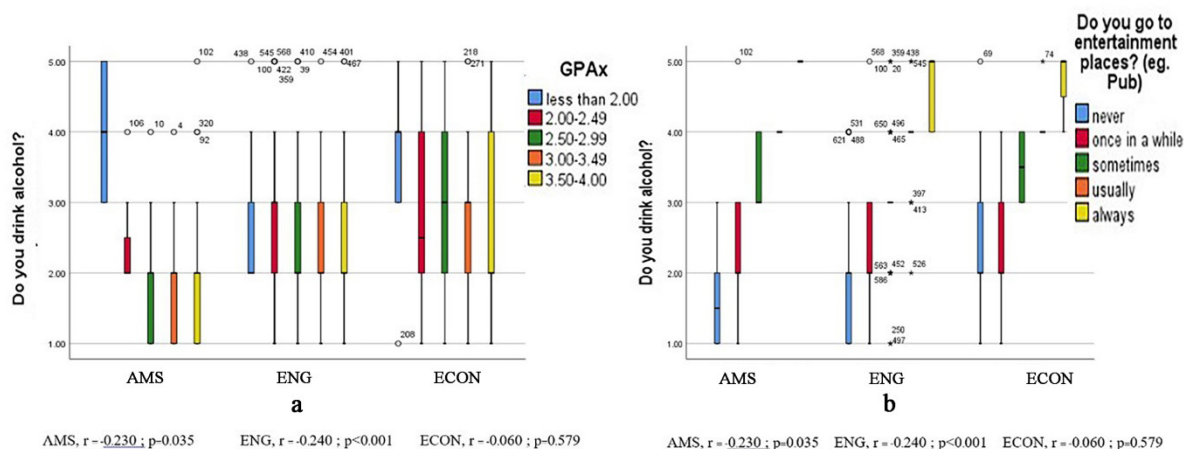


Figure 4. Correlation between (a) “GPAX” and “Alcoholic drinking” and between (b) “Alcohol drinking” and “visiting entertainment places”.

*Significant difference ($p \leq 0.01$)

Correlation analysis

Drinking of alcohol by AMS and ENG students was negatively correlated with GPAX ($r_{AMS} = -0.230$, $p = 0.035$; $r_{ENG} = -0.240$, $p < 0.001$) (Fig.

4a), while the drinking of alcoholic beverages by AMS, ENG and ECON students was positively correlated with visiting places of entertainment ($r_{AMS} = 0.673$, $p < 0.001$; $r_{ENG} = 0.595$,

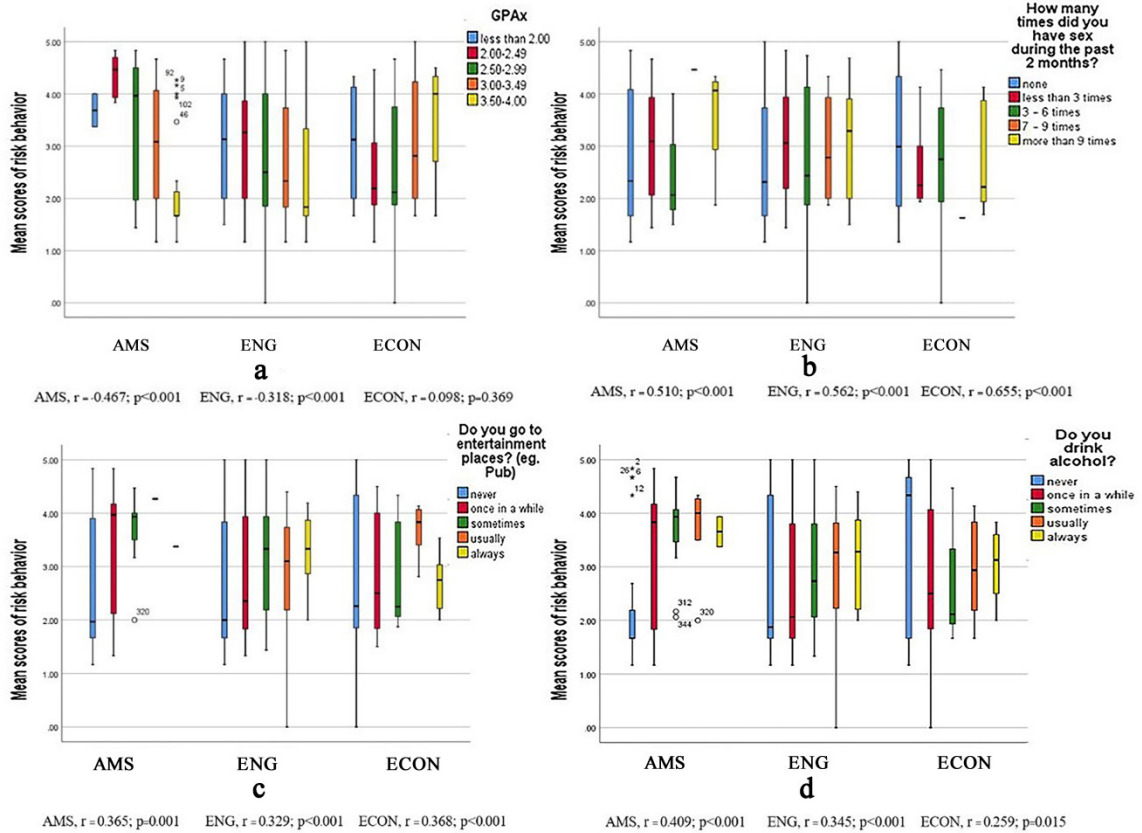


Figure 5. Correlation between “Average risk behavior score” and (a) “GPAX”, (b) “frequency of having sex during the past 2 months”, (c) “visiting of entertainment places” and (d) “drinking alcohol”

*Significant difference ($p \leq 0.01$)

$p < 0.001$; $r_{\text{ECON}} = 0.595$, $p < 0.001$) (Fig. 4b). Similarly, the average score for risky behavior by AMS and ENG students were also negatively correlated with GPAX ($r_{\text{AMS}} = -0.467$, $p < 0.001$; $r_{\text{ENG}} = -0.318$, $p < 0.001$) (Fig. 5a). The average scores for risky behavior by AMS, ENG and ECON students were positively correlated with the frequency of having had sex during the past 2 months ($r_{\text{AMS}} = 0.510$, $p < 0.001$; $r_{\text{ENG}} = 0.562$, $p < 0.001$; $r_{\text{ECON}} = 0.655$, $p < 0.001$) (Fig. 5b), the visiting of entertainment places ($r_{\text{AMS}} = 0.365$, $p < 0.001$; $r_{\text{ENG}} = 0.329$, $p < 0.001$; $r_{\text{ECON}} = 0.368$, $p < 0.001$) (Fig. 5c) and alcohol drinking ($r_{\text{AMS}} = 0.409$, $p < 0.001$; $r_{\text{ENG}} = 0.345$, $p < 0.001$; $r_{\text{ECON}} = 0.259$, $p = 0.015$) (Fig. 5d).

There was a positive correlation between average scores for attitudes regarding the question, “Should parents teach appropriate sexual relationships to young children?” ($r_{\text{AMS}} = 0.461$, $p =$

0.004; $r_{\text{ENG}} = 0.221$, $p = 0.002$; $r_{\text{ECON}} = 0.364$, $p = 0.038$) (Fig. 6a). However, there was a significant negative correlation between the average attitude scores regarding the statement, “It is not necessary to use a condom when having anal sex” ($r_{\text{ENG}} = -0.329$, $p < 0.001$; $r_{\text{ECON}} = -0.358$, $p = 0.041$) (Fig. 6b). There was a positive correlation between “HIV infection suppresses the immune system and facilitates opportunistic infection” and, “It is good to have a screening test for sexually transmitted diseases early” ($r_{\text{ENG}} = 0.376$, $p < 0.001$). (Fig. 6c)

Discussion

As stated in our hypothesis, AMS students were found to possess the highest scores followed by ENG and ECON students (3.11 ± 0.31 , 2.90 ± 0.37 , and 2.14 ± 0.31 , respectively). Health sciences students could be expected to have greater

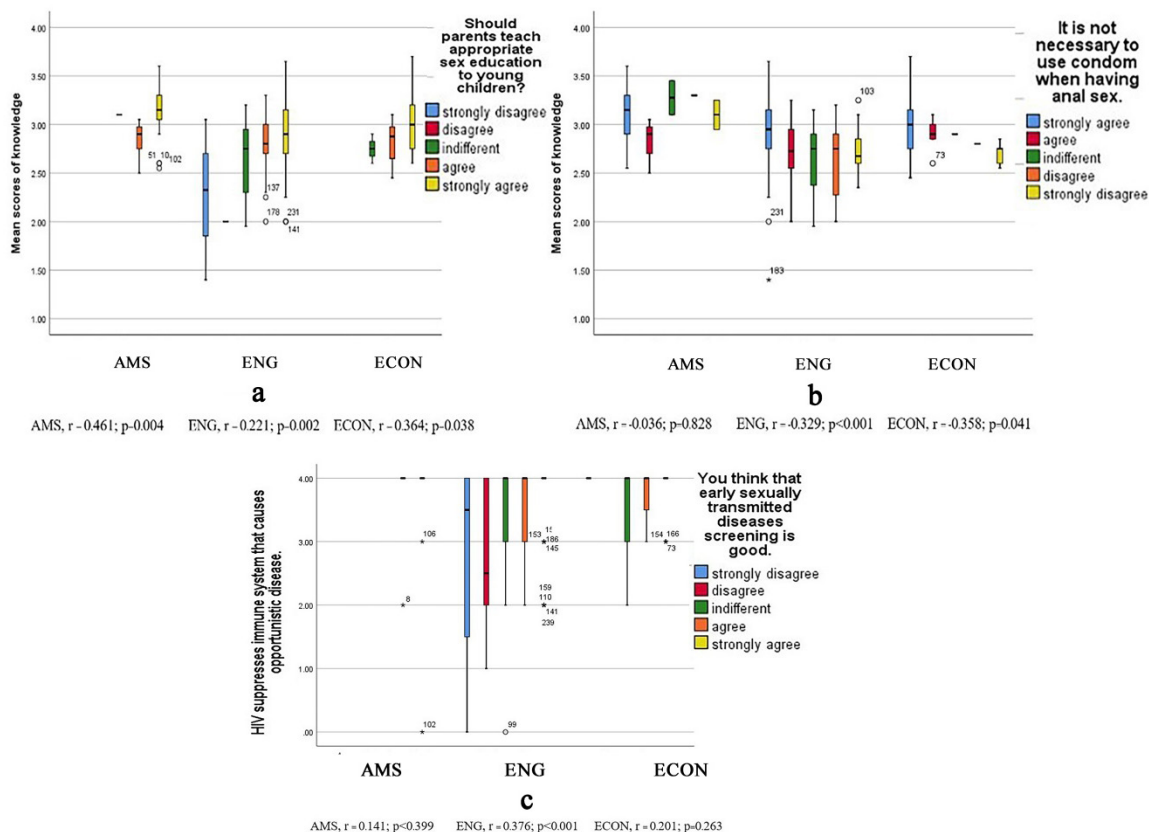


Figure 6. Correlation between average STD knowledge score and (a) attitude regarding “Should parents teach sex education to young children?”, (b) “It is not necessary to use condom when having anal sex” plus (c) correlation between “HIV suppresses the immune system that helps prevent opportunistic disease” and attitude regarding “I think that early screening for sexually transmitted diseases is good”.

*Significant difference ($p \leq 0.01$)

knowledge about sexually transmitted diseases than other students due to the focus of their high school curriculum, whereas most of the ECON students had completed Mathematics-Art programs in high school which included less instruction related to sexually transmitted diseases.

AMS students had the highest average scores for risk behavior followed by ECON and ENG male students (2.92 ± 1.25 , 2.87 ± 1.13 , and 2.81 ± 1.11 , respectively). AMS students had the highest average knowledge scores indicating they were more aware of the dangers of STD and thus were likely more motivated to avoid risky behavior that could lead to STD.

On the topic of knowledge of prevention of sexually transmitted diseases, AMS students had higher average scores than ENG and ECON

students. This finding might be due to the fact that AMS students had probably learned more about the transmission of STD in their university curriculums than the other groups, e.g., they had a higher awareness that condoms are the most effective mechanism to prevent STDs and that contraceptive drugs cannot prevent STDs. ENG and ECON students, on the other hand, had less knowledge about the transmission and causes of STDs. Most (52.9%) ECON students were aware that a torn condom could be caused by the use of an inappropriate condom size, probably because more of them had had sexual experiences than students in the other faculties. AMS students had a better safety record regarding sexual behavior than ENG and ECON students in part because more than half of the AMS students were virgins

and had a greater overall understanding of STDs as indicated by their knowledge scores (3.11 ± 0.31) than the others. Among the ENG students there was a strong correlation between visiting entertainment places and alcohol drinking. The greater awareness of STDs among AMS students may have also resulted in better attitudes related to appropriate sexual relationships and screening for STD. Most of the AMS students did not feel that patients with STDs were disgusting which could be because they possessed better knowledge about STDs and knew that those diseases could be treated with antibiotics.

In the area of risky behavior, the results of this study of male students in three university faculties was similar to the results of Drago et al. (2) e.g., students who drank alcohol and visited entertainment places were more likely to have had sex in the previous 2 months, and may also be related to the positive correlation with risky behavior associated with STDs. Among the AMS and ENG students, there was a negative correlation between GPAX and alcohol drinking, as well between GPAX and risky behavior associated with STDs. Overall, students who had a better academic record also had a lower incidence of alcohol drinking and exhibited less risky behavior associated with STDs.

This study found a positive correlation between knowledge of STDs and attitudes about appropriate sexual relationships. This suggests that students who were taught about appropriate sexual relationships by their families might be more willing to acquire good knowledge about sexually transmitted diseases. Among the ECON and ENG students there was a negative correlation between knowledge of STD scores and attitudes toward neglecting condom use when having anal sex. This suggests that students with more knowledge of sexually transmitted diseases would have greater awareness of the need for protection against STDs during anal intercourse.

Knowledge of the impact of HIV among ENG students had a positive correlation with their attitude about the benefit of early screening for

STDs. This result indicates that students who have knowledge about HIV are more aware of STDs and realize that early screening can reduce the harmful effects of STDs.

This study also found a positive correlation between knowledge of STDs and lower levels of risky behavior. Consequently, providing knowledge about STDs to students could be expected to decrease risky behavior and the incidence of STDs. As there have been no published reports of studies of students from the Health Sciences, Sciences and Technology, and Social Sciences and Humanities, there is currently inadequate information to create a tool to effectively educate university students. Further studies need to be conducted to help develop appropriate learning methods which could help decrease risky behavior and the incidence of STDs in Thai students.

Conclusions

This study considered knowledge, risky behavior, and attitudes regarding STDs among male students from 3 different faculties of Chiang Mai University. The Health Sciences students tended to have a higher knowledge level about STDs than students in Science and Technology and in Social Sciences and Humanities. Students who had greater knowledge of STDs also had a lower incidence of risky behavior and had appropriate attitudes about STDs. Providing knowledge to teenagers about STDs should be considered as a means to reduce risky behavior and the incidence of STDs.

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Conflict of interests

None

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ความรู้ ทักษะ และพฤติกรรมเสี่ยงที่เกี่ยวข้องโรคติดต่อทางเพศสัมพันธ์ในนักศึกษาชายจากสามคณะในมหาวิทยาลัยเชียงใหม่

นพฤทธิ์ ลักษณะวิวัฒน์,¹ ขวัญหทัยกานต์ เครืออินทร์,¹ เกื้อหนุน มูลสวัสดิ์,¹ พันธิตรา ศรีวงษา,¹ รวี นพรัตน์ไกรลาส,¹ ธนพัฒน์ ศาสตรระจุ² และศิริวุฒิ สุขชี³

¹นักศึกษาแพทยศาสตร์ คณะแพทยศาสตร์, ²ศูนย์วิจัยทางทันตแพทยศาสตร์ คณะทันตแพทยศาสตร์,

³ภาควิชาจุลชีววิทยา คณะแพทยศาสตร์ มหาวิทยาลัยเชียงใหม่

วัตถุประสงค์ เพื่อศึกษาความแตกต่าง และความสัมพันธ์ระหว่างความรู้ พฤติกรรมเสี่ยง และทัศนคติเกี่ยวกับโรคติดต่อทางเพศสัมพันธ์ในนักศึกษาชายสามคณะของมหาวิทยาลัยเชียงใหม่

วิธีการ เป็นการศึกษาภาคตัดขวางในนักศึกษาชาย มหาวิทยาลัยเชียงใหม่ จำนวน 652 คน จาก 3 คณะ ได้แก่ คณะเทคนิคการแพทย์ วิศวกรรมศาสตร์ และเศรษฐศาสตร์ ตัวแทนนักศึกษาคณะวิทยาศาสตร์สุขภาพ วิทยาศาสตร์และเทคโนโลยี และสังคมศาสตร์และมนุษยศาสตร์ตามลำดับ โดยการใช้แบบสอบถามออนไลน์เพื่อประเมินความรู้ พฤติกรรมเสี่ยง และทัศนคติเกี่ยวกับโรคติดต่อทางเพศสัมพันธ์

ผลการศึกษา นักศึกษาชายคณะเทคนิคการแพทย์มีคะแนนความรู้เฉลี่ยสูงกว่าอีก 2 คณะ พบความแตกต่างอย่างมีนัยสำคัญในด้านทัศนคติของนักศึกษาชายคณะเทคนิคการแพทย์ในประเด็น “ผู้ปกครองหรือบุคคลในครอบครัวควรสอนเพศศึกษาให้บุตรหลาน” และ “การตรวจวินิจฉัยโรคติดต่อทางเพศสัมพันธ์เบื้องต้น” ($p = 0.001$ และ $p < 0.001$ ตามลำดับ) พบความสัมพันธ์เชิงบวกระหว่างประเด็น “การดื่มแอลกอฮอล์” กับ “การเที่ยวสถานบันเทิง” ในนักศึกษาทั้ง 3 คณะ ($r_{AMS} = 0.673, p < 0.001$; $r_{ENG} = 0.595, p < 0.001$; $r_{ECON} = 0.595, p < 0.001$) พบความสัมพันธ์เชิงบวกระหว่างคะแนนเฉลี่ยระดับพฤติกรรมเสี่ยงในนักศึกษาชายทั้ง 3 คณะกับประเด็น “ความบ่อยของการมีเพศสัมพันธ์ในช่วง 2 เดือนที่ผ่านมา” และกับประเด็น “การดื่มแอลกอฮอล์” ($r_{AMS} = 0.510, p < 0.001$, และ $= 0.409, p < 0.001$; $r_{ENG} = 0.562, p < 0.001$, และ $= 0.345, p < 0.001$; $r_{ECON} = 0.655, p < 0.001$, และ $= 0.259, p < 0.001$, ตามลำดับ)

สรุป นักศึกษาวิทยาศาสตร์สุขภาพมีความรู้เกี่ยวกับโรคติดต่อทางเพศสัมพันธ์มากกว่า พฤติกรรมเสี่ยงน้อยกว่า และทัศนคติดีกว่านักศึกษากลุ่มอื่น การสร้างเสริมความรู้ และการรณรงค์ให้งดดื่มแอลกอฮอล์จะช่วยลดพฤติกรรมเสี่ยงในการเกิดโรคติดต่อทางเพศสัมพันธ์ลงได้ด้วย **เชียงใหม่เวชสาร 2564;60(1):1-16. doi 10.12982/CMUMEDJ.2021.01**

คำสำคัญ: โรคติดต่อทางเพศสัมพันธ์ ความรู้ พฤติกรรมเสี่ยง ทัศนคติ นักศึกษาชาย

Appendix

Questionnaire form regarding knowledge, attitude, and behavior regarding sexually transmitted diseases of male students from 3 faculties of Chiang Mai University

Part I General sociodemographic data

Please fill ✓ into the box or blank according to the fact

1. Faculty
 - ☐ Engineering
 - ☐ Associated Medical Science
 - ☐ Economics
 2. Religion
 - ☐ Bhuddism
 - ☐ Christianity
 - ☐ Islam
 - ☐ Other
 3. Monthly income
 - ☐ < 5000 baht
 - ☐ 5000-10000 baht
 - ☐ 10000-15000 baht
 - ☐ 15000-20000 baht
 - ☐ > 20000 baht
 4. Accommodation
 - ☐ Private apartment with boyfriend or girlfriend
 - ☐ Private apartment
 - ☐ University dormitory
 - ☐ Condominium
 - ☐ Home
 5. Parental status
 - ☐ Spouse
 - ☐ Divorced
 - ☐ Separated
 - ☐ Newly marriage
 - ☐ Father or mother passed away
 - ☐ Father and mother passed away
 6. Higher secondary school
 - ☐ Co-gender school
 - ☐ Boy school
 7. GPAX
 - ☐ < 2.00
 - ☐ 2.00-2.49
 - ☐ 2.50-2.99
 - ☐ 3.00-3.49
 - ☐ 3.50-4.00
 8. Sexual orientation
 - ☐ Homosexual
 - ☐ Heterosexual
 - ☐ Bisexual
 - ☐ Not sure
 9. History of sexual partner
 - ☐ Never
 - ☐ Had only one
 - ☐ Having ony one
 - ☐ Had multiple parners
 - ☐ Having multiple parners
 10. Have you ever had a STD?
 - ☐ Never
 - ☐ Are suffering from STD
 - ☐ Had a STD
-

Please fill ✓ into the box or blank according to the fact

11. First sexual intercourse
- ☐ Never
 - ☐ During primary school
 - ☐ During lower secondary school
 - ☐ During higher secondary school
 - ☐ During university
12. History of sexual intercourse with sex worker
- ☐ Never
 - ☐ Ever
13. Frequency of sexual intercourse in 2 months ago
- ☐ Never
 - ☐ <3 times
 - ☐ 3-6 times
 - ☐ 7-9 times
 - ☐ > 9 times

General behavior regarding to risks of sexual intercourse

Please fill ✓ into the box or blank according to the fact

Item	Behavior	Never	Infrequently	Sometimes	Often	Regularly
14	Alcohol drinking					
15	Sexual stimulating agent using (eg. viagra)					
16	Entrance in entertainment venue (eg. pub, bar)					
17	Entrance in sexual service venues (eg. massage parlor, barhost)					
18	Sport playing or exercise					
19	Masturbation					
20	Tattoo painting					
21	Accessing online or social media for chatting with strangers about sex					
22	Accessing to obscene contents (eg. pornologic media)					
23	Blood checking to screen STD					
24	Learning about sex education					

Part II. Knowledges regarding STD.

Please fill ✓ into the box or blank according to the fact

Item	Questions	Correct	Quite right	Not sure	Quite wrong	Incorrect
1	Engaging anal sex without using condoms causes to a low risk of getting STD					
2	Frequent change of sexual partner causes to the high risk of STD transmission					
3	Coitus interruptus (external ejaculation) method can prevent STD					
4	Abstaining from sexual intercourse with an unknown person can prevent STD					
5	Sharing syringes with other people can increase the risk of HIV					
6	Exposure to blood or secretion from HIV- infected person can increase the risk of infection					
7	HIV infection causes the decrease of immunity and increase the opportunistic infection					
8	Wearing a condom can reduce the risk of HIV transmission while sexual intercourse					
9	Taking PrEP can prevent HIV infection					
10	Anal or oral sex don't cause HPV infection					
11	Using contraceptive pills can prevent the transmission of STD pathogens					
12	Using condom cannot prevent the completely transmission of HPV					
13	Herpes simplex virus can be found in oral cavity and on sexual organs					
14	Primary infection of syphilis can be eliminated by immune system					
15	Pubic lice can be transmitted although there is no sexual intercourse					
16	Hepatitis B infection is not caused to STD					
17	If teenager is infected with nongonococcal urethritis, it can be observed under a microscope					
18	Buying the condom in the sealed package					
19	Condom size have 3 size according to the circumference					
20	Torn condom during sexual intercourse is caused by using inappropriate condom size					

Part III. Behavior regarding STD.

Please fill ✓ into the box or blank according to the fact

Item	Questions	Perceptions				
		Always	Usually	Sometimes	Rarely	Never
1	You drank alcohol until unconscious					
2	You drink alcohol in entertainment place					
3	You interact closely with other people inside the entertainment venue (eg. Kissing, Hugging)					
4	You drank alcohol from a stranger's glass until unconscious					
5	Have you ever been to a sex entertainment place					
6	If you have sexual arousal, you can deviated by exercising or sport playing					
7	You and partner use condoms for sexual intercourse					
8	You refuse to have sexual intercourse when your partner asks you not to use condom					
9	You used a condom during the next episode of sexual intercourse at that night with the same partner					
10	You and your partner drank alcohol before having sexual intercourse					
11	Have you ever had sexual intercourse with STD infected people					
12	Have you ever had sexual intercourse with a stranger					
13	You used to have sex with stranger					
14	Have you ever had sexual intercourse without consent					
15	Have you ever had sexual intercourse with the same gender					

Part IV. Attitudes regarding STD.

Please fill ✓ into the box or blank according to the fact

Item	Sentences	Frequency of practice				
		Most agree	Agree	Moderate	Disagree	Most disagree
1	Should parents teach the appropriate sex education to young teenager about condom?					
2	You feel embarrassed if you have to buy condom in a convenience store or drugstore.					
3	STD are not scary because they are curable.					
4	Syphilis patient is disgusting for other people.					
5	STD patients should be early treated.					
6	People who suspected themselves to suffer from STD should consult a clinician.					
7	Teaching about STD to teenagers can reduce the rate of STD transmission.					
8	HIV suppress immune system that causes opportunistic disease.					
9	You think that early STD screening is better.					
10	You feel guilty if you engage in sexual intercourse while you suffer from STD.					
11	You do not engage in sexual intercourse if you know that your partner suffers from STD.					
12	If you know that your partner suffers from STD, you will take your partner to consult the clinician.					
13	There is no need to use condom when engaging in anal sex					
14	You think that it is inessential to use condom if both sexual partner suffered from STD.					
15	Prohibition of prostitution can reduce the transmission of STD.					

