Original Article

A Survey of Health Literacy in Sexually Transmitted Diseases and Its Association with Sexual behaviors among Students of Vocational Schools in 7th Health Region, Thailand

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Objective: To analyze the level of health literacy regarding prevention of sexually transmitted diseases (STDs) and studied the relationship between the health literacy and sexual experience of Vocational students in health region 7, Thailand.

Materials and Methods: A cross-sectional survey was conducted using questionnaires. The questionnaires consisted of questions on health literacy and sexual experiences. Data were analyzed with descriptive statistics and inferential statistics, including chi-square tests to analyze the relationship between health literacy and sexual experiences.

Results: The present study participants comprised of 364 vocational students, 220 (60.4%) male students, and 144 (39.6%) female students. Almost half of the male students (47.3%) had sexual relationship by the age of 15.8 years (SD 1.7), 98.1% of them had their first sexual relationship with their girlfriends, and 81.7% used condoms. Meanwhile, 31.3% of the female students had sexual relationship by the age of 15.7 years (SD 1.3), all of them had first sexual relationship with their boyfriends, and 88.9% used condoms. Most students had low health literacy level, which included 79.5% of the male students and 62.5% of female students. There was significant relationship between sexual experience and health literacy in STD prevention in both male and female students ($p<0.05$).

Conclusion: The present study found that the health literacy in the prevention of STDs was low among the participants. Therefore, education and health care sector should be aware of the situation and jointly develop health education programs in the prevention of STDs for the vocational students and teenagers.

Keywords: Sexually transmitted diseases, Health literacy, Social behavior, Vocational students

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The Bureau of Epidemiology Thailand studied the rate of sexually transmitted diseases (STDs) between 2012 and 2017 and found that the rates were 20.1, 19.0, 18.8, 23.2, 25.3, and 28.9 per 100,000 people, respectively. The STDs included syphilis, gonorrhea, chlamydia, chancroid, venereal disease of glands, and lymphatic vessels. The rates of STDs are showing increasing trend in Thailand, especially in the 15 to 24 years age-group. Therefore, improving the knowledge and awareness of people of this age group regarding STD risk factors and prevention methods is crucial[1]. However, the United Nations AIDS Program (GARPR) has found that the level of knowledge regarding AIDS, according to their five indicators, is low among young Thai people, and 7.5% of male students and 8.7% of female students had low level of knowledge[2].

To date, there have been many studies about the students' knowledge, attitudes, and behaviors regarding prevention of STDs and AIDS, but most of these only measures the basic knowledge, and do not address preventive factors or activities. In the Seventh World Health Promotion Conference, the World Health Organization (WHO) emphasized the importance of developing health literacy in the population and defined this as the intellectual and social skills needed to develop healthy lifestyles and behaviors. Motivation and competency to access

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services, and understanding information provided by health services could promote and maintain one's health[3]. People with low levels in health literacy were more likely to have risky behaviors, poor self-care, and health problems that lead to increasing health-care costs[4-6].

Therefore, the authors were interested to explore health literacy regarding prevention of STDs among vocational students in the Health Region 7 by using questionnaire. The present study concept of health literacy followed that developed by Nutbeam's research[7,8]. Results of the study can inform innovation in behavioral change approaches, a facet of health risk communication. The results will also inform learning management approaches for reducing health risks to achieve the national STD prevention and control strategy, 2017 to 2021. The results lead to the completion of strategy 1, which is to accelerate prevention and treatment of STDs and strategy 3, which is to expand coverage and increased continuity in using communication innovations to promote prevention and treatment, including condom uses in youth and various target groups.

The present study aimed at studying the level of health literacy, and the relationship between health literacy in prevention of STDs of vocational students in the health region 7 and the rate of sexual experiences.

Materials and Methods

The present study utilized a cross-sectional survey conducted among vocational students in the health region 7. The ethical approval was obtained from the Department of Disease Control of Thailand Board (FWA 00013622).

Participant

The population studied were vocational students, in the health region 7. The required sample size was calculated according to the formula of Cochran WG[9] as follows:

$$n = \frac{P(1-P)Z^2}{d^2} \times DEF$$

n=number of sample

P=lower secondary school students have a knowledge of STDs prevention and pregnancy prevention at a low level 61.80%[10]

Z=the statistical significance level of 0.05 is 1.96 (95% confidence)

d=the proportion of allowable error to be 0.05

Design effect (DEF)=1[11]

$$n = \frac{(0.618)(1-0.618)(1.96)^2}{(0.05)^2} \times 1 = 362.76$$

The authors then performed a two stages cluster sampling technique. The first step was to randomly select one school in each of the four provinces in health region 7, which are Khon Kaen, Roi Et, Kalasin, and Mahasarakham. The next step was to randomly sample 364 registered vocational students from the four schools.

Process

Once the student arrived, a classroom was used to explain the study in detail. An information sheet and an informed consent was signed by the student. Then, the student received the questionnaire. The self-administered questionnaire took around 30 minutes to complete. The data were collected anonymously. No names or other identifying information were collected.

Research instruments and their validity

The questionnaire was developed by Suwattana[12], and consisted of two parts. The first part collected information on sexual experiences such as age at first sexual experience, sex with commercial partners, and condom use. The second part consisted of health literacy. The health literacy section comprised of six components, which were 1) knowledge and understanding, 2) access to information, 3) communication skills, 4) self-management, 5) media literacy, and 6) decision-making skills. Tools were developed separately for male and female participants because the questionnaire content was worded to be semantically appropriate by gender. The authors tested the reliability of the tools by analyzing the classification power between 0.24 to 0.82, the difficulty between 0.41 to 0.85, the KR-20 between 0.44 to 0.60 and the reliability (Cronbach's alpha) was between 0.55 to 0.86(12). Participants who answered 80% or more of questions correctly were categorized as having 'good' health literacy[13].

Data analysis

Descriptive statistical analyses assessed health literacy levels and sexual experience using percentage, mean ± standard deviation (SD), median with range. Chi-square tests were used to assess the significance of associations with sexual intercourse ($p<0.05$). Data were analyzed with the use of the Stata Statistical Software, version 15/IC (StataCorp LLC, College Station, TX, USA).

Results

The results of the present study collected data

Table 1. Socio-demographic and sexual experience characteristics of participants

Characteristics	Male students (n=220); n (%)	Female students (n=144); n (%)	Total (n=364); n (%)
Residence			
With parents	158 (71.8)	99 (68.8)	257 (70.6)
With relatives	53 (24.1)	39 (27.1)	92 (25.3)
With friends or alone	9 (4.1)	6 (4.1)	15 (4.1)
Marital status of parents			
Cohabiting	145 (65.9)	93 (64.6)	238 (65.4)
Separated/divorced	61 (27.7)	36 (25.0)	97 (26.7)
Father or mother dead	14 (6.4)	15 (10.4)	29 (7.9)
Sexual intercourse			
No	116 (52.7)	99 (68.8)	215 (59.1)
Yes	104 (47.3)	45 (31.3)	149 (40.9)
Age of first intercourse (years)	(n=104)	(n=45)	(n=149)
Mean±SD	15.8±1.7	15.7±1.3	15.75±1.5
Mode (minute:max)	15 (10:19)	16.0 (12:18)	15.0 (10:19)
Had first intercourse	(n=104)	(n=45)	(n=149)
With friend	102 (98.1)	45 (100)	147 (98.7)
With commercial partner	2 (1.9	-	2 (1.3)
Used condom first intercourse	(n=104)	(n=45)	(n=149)
Yes	85 (81.7)	40 (88.9)	125 (83.9)
No	19 (18.3)	5 (11.1)	24 (16.1)

SD=standard deviation

Table 2. Health literacy levels among vocational students

Health literacy	Levels of health literacy; n (%)					
	Male students (n=220)		Female students (n=144)		Total (n=364)	
	High	Low	High	Low	High	Low
1) Knowledge and understanding	76 (34.5)	144 (65.5)	72 (50.0)	72 (50.0)	148 (40.7)	216 (59.3)
2) Access to information	96 (43.6)	124 (56.4)	63 (43.8)	81 (56.3)	159 (43.7)	205 (56.3)
3) Communication skills	75 (34.1)	145 (65.9)	45 (31.3)	99 (68.8)	120 (33.0)	244 (67.0)
4) Self-management	103 (46.8)	117 (53.2)	87 (60.4)	57 (39.6)	190 (52.2)	174 (47.8)
5) Media literacy	154 (70.0)	66 (30.0)	111 (77.1)	33 (22.9)	265 (72.8)	99 (27.2)
6) Decision-making skills	33 (15.0)	187 (85.0)	66 (45.8)	78 (54.2)	99 (27.2)	265 (72.8)
Health literacy	45 (20.5)	175 (79.5)	54 (37.5)	90 (62.5)	99 (27.2)	265 (72.8)

from four schools in four provinces, which were Kalasin, Khon Kaen, Roi Et, and Mahasarakham. Three hundred sixty-four students including 220 (60.4%) males, and 144 (39.6%) females participated in the study. Socio-demographic and sexual experience characteristics of participants are shown in Table 1.

Most students had low health literacy level. Overall, 79.5% of male and 62.5% of female had a low literacy level in all subjects and the decision-making skills in males and the communication skills in females had very-low health literacy. In addition, in terms of knowledge and understanding, self-management, and decision-making skills were lower in male than in female (Table 2).

Next, the authors measured associations between experience of sexual intercourse and health literacy in preventing STDs among male and female students. A statistically significant relationship ($p<0.05$) was found in both male and female students (Table 3).

Table 3. The relationship between sexual intercourse and health literacy in preventing STDs

Sex	Sexual intercourse	Health literacy in preventing STDs; n (%)		Chi-square	p-value
		High	Low		
Male students	Yes	28 (26.9)	76 (73.1)	5.093	0.024
	No	17 (14.7)	99 (85.3)		
Female students	Yes	11 (24.4)	34 (75.6)	4.946	0.026
	No	43 (43.4)	56 (56.6)		

STDs=sexually transmitted diseases

Discussion

Among vocational students in Health Region 7, most male and female students lived with their marital parents. Among male participants, 47.3% had sexual experience, and 31.3% among female students. This result is consistent with other research such as Tumchuea[14], and Sittipiyasakul et al[15] and the report of the Bureau of Reproductive Health, Department of Health, Public Heath Permanent Secretary Office, which showed that teenagers living with parents had high sexual activity during school ages[16]. The average age of first-time sex, both in male and female students, was approximately 15 to 16 years old, which was consistent with previous research[15-19].

In addition, the present study found that most male and female students had sex with their boyfriends or girlfriends and used condoms when they had first sex, which agrees with the previous studies including Sittipiyasakul et al[15], Bureau of Reproductive Health[16], and Fukfon[19]. These studies found that among second year vocational students in Thailand between 2013 and 2019, 59% to 71% of male students used condoms when having sex for the first time. This figure was 59% to 75% among female students and tended to increase. When asked about the reason for not using condoms while having sex with their girlfriends, the findings were consistent with the studies of Chaivit and Meekhun[20], which were trusted in each other, to show one warmth and love, which were missing from their families, and to indulge their partners without being aware of sexually transmitted infections. Commercial sex, or unwanted sex appeared rare in the present study[14]. Sittipiyasakul et al found that students in schools under the vocational education commission were seven times more likely to have sexual experience when compared with students in schools under the secondary education service area office[15].

The level of health literacy regarding prevention of STDs among vocational students in the Seventh health region among male and female students was low according to the assessment used in UNAIDS 2012[21] as less than 50% of those aged from 15 to 24 years old having the right knowledge of how to prevent HIV infection and transmission. Therefore, increasing knowledge was an urgent agenda since 45% of new HIV-infected people were 15 to 24 years old. Some studies such as Krainara[10] and Cheanlutai et al[22], found that the knowledge about STDs and pregnancy prevention of vocational student were in low level.

Over the six years of the study, the rates of STDs tended to increase. Therefore, the associated departments such as The Ministry of Public Health and the Ministry of Education should help solving the problems. The method for solving such problems was to develop teaching and learning methods about sexual education in students, creating a curriculum to promote health literacy in the prevention of STDs, appropriate learning, sexual education, creating relationships, being aware of unappropriated social media access, involvement of family and community, communication skills, and decision-making skills. From the study of Sirimanassakul[23] that stated that teachers, consultants, and school administrators at the secondary level, vocational schools, and higher education institutions should help strengthening and integrating knowledge about STDs through lessons, curriculum, or various learning activities. Another important part was a network of youth leaders in schools and communities, a MSM network, a network of sex workers, which are a close and influential group to convince the students to be aware and lead to behavioral changes. In addition, health care staffs can play an important part in helping, provide counseling, screening, and treating in a friendly and accessible ways.

From the analyses of the relationship between sexual experiences and health literacy in prevention of STDs, there was a statistically significant relationship ($p<0.05$), consistent with the study of Khamrin[24] and Tipwareerom et al[25]. There were some other

important factors, such as knowledge about sexual educations, believes of parents, teachers, and sexual partner that should be studied further.

Conclusion

Health literacy in the prevention of STDs was low at 79.5% male students and 62.5% female students, and there was a statistically significant relationship between sexual intercourse experience and health literacy in preventing STDs of male and female students ($p<0.05$).

What is already known on this topic?

People with low levels of health literacy were more likely to have risky behaviors, poor self-care, and health problems.

What this study adds?

Benefit of this study is knowing the level of health literacy in prevention of STDs and sexual experience in Vocational students. The information can be used to develop health literacy and enhance the program on STI and HIV prevention.

Conflicts of interest

The authors declare no conflict of interest.

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