Knowledge of Safe Sex and STIs among Students at Vientiane High School, Vientiane Capital, 2019

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Abstract

Background: Knowledge of safe sex and STIs is of vital importance for adolescents because adolescents are at a high risk of a number of negative health consequences associated with early and unsafe sexual activities, including STIs, unintended pregnancies and teenage pregnancies. Thus, the aim of this study was to describe the knowledge of safe sex and STIs and to identify related factors about knowledge of safe sex and STIs among students at Vientiane High School, Vientiane Capital, Lao PDR.

Method: This was an analytical cross-sectional study conducted at Vientiane High School from January to February 2019. A standardized self-administered questionnaire was used to collect information from respondents. The questionnaires were completed by 337 respondents who were selected by stratified random sampling. The data collected was entered into and analyzed by the EpiData and Stata 13.0 programs. Descriptive and inferential statistics were applied to determine the factors associated with knowledge of safe sex and STIs.

Results: From the 337 respondents, the results showed that nearly half of the participants (49.5%) had a good knowledge of safe sex and 51.9% of respondents had a good knowledge of STIs. They also found certain factors related significantly to a knowledge of safe sex namely students who lived with other people (AOR=2.5, 95% CI=1.1-5.3), studied about family planning (AOR=1.7, 95% CI=1-2.9) and had religious beliefs which were acceptable to the use of birth control. In addition, the factors positively associated with a knowledge of STIs were students who studied in Grade 12 (AOR=0.3, 95% CI=0.1-0.6), studied about family planning (AOR=1.8, 95% CI=1.0-3.1) and studied about STIs including HIV/AIDS (AOR=5.1, 95% CI=1.9-13.5).

Conclusion: In this study, most of the participants were aware of safe sex and STIs. However, the knowledge of adolescents was inadequate. Barely half of the adolescents had a good knowledge of safe sex and STIs. The key factors associated with a knowledge of safe sex and STIs were studying family planning and STIs topics, and their religious orientation.

Keywords: Adolescent, knowledge, family planning, sexual education and sexually transmitted infections.

Introduction

Knowledge of safe sex and STIs is vital for adolescents who need to be enamored with an awareness of the ways to prevent unsafe sex, STIs and teenage pregnancies [1]. During the adolescent period, teenagers are at a high risk from a number of negative health consequences associated with early and unsafe sexual activities, including STIs and unintended pregnancies [2].

Several studies have demonstrated that many adolescents are involved in sexual activities that elevate their risk of having reproductive morbidity, including unwanted pregnancies, abortions, and STIs because of a lack of basic knowledge about reproductive biology and prevention methods [3]. Regarding the knowledge of STIs, 93% of adolescents in the study did not know any symptoms of STIs, 50% could not identify any cause of STIs and 76% did not know that STIs could be prevented [4]. Adolescents also did not know how to avoid a pregnancy or were unable to get contraceptives, including emergency contraception [5].

Globally, each year an estimated 333 million new cases of curable STIs occur with the highest rates among 20-24 year olds, followed by 15-19 year olds [6]. Besides that, more than one million STIs are acquired every day. Each year, it is estimated there are 357 million new infections involving STIs [7]. Moreover, an estimated 23 million girls aged 15-19 years have unintended pregnancies in developing regions [8].

About 10.9% of Lao adolescents give birth by the age of 15-18 and 4.7% of adolescents have a live birth before the age of 15 [9]. Adolescents often do not adopt safe sexual behaviors which results in unwanted pregnancies and unsafe abortions, as well as a high prevalence of STIs, which increases the risk of HIV infection [10]. A study in Vientiane reported that 33.4% of adolescents aged 15-19 years have had pre-marital sexual intercourse and 62.7% of adolescents had their first sexual experience before the age of 15. In the last six months prior to the survey, 48.5% of adolescents did not use condoms during sexual intercourse [11]. In addition 2.9% of male and 0.5% of female adolescents had multiple sexual partners [9]. Previous research from the period 2010-2012 has shown that the incidence of HIV among 15 to 24 year olds equated to 16.7% (2010), 18.8% (2011) and 15.9% (2012) of all new cases in each respective year [12]. It was reported that 23.2% of 15–24 year olds had an abortion [13].

Based on the SDGs, adolescents' sexual reproductive health is a priority on the global agenda with the UN addressing low middle-income countries to meet its targets [14]. Thus, the global health agenda reiterates the need for a knowledge of safe sex and STIs to reduce adolescents 'risky sexual behaviors and their negative consequences' [15].

In recent years, several researchers have concentrated on knowledge of safe sex and STIs, but they were not focused on factors that affected the levels of knowledge of safe sex and STIs among adolescents [16]. Therefore, the aim of this research was to study the knowledge of safe sex and STIs and its related factors among high school students at Vientiane High School. Thus, the findings from this research will be important in planning preventive and treatment strategies.

Methods

Study design and setting:

This study had an analytical cross-sectional design, using the quantitative research method. The study was conducted at the Vientiane High School from January to February 2019. Vientiane High School is located in an urban district called Chanthabouly. The school has the capital's largest student population and is known as one of the outstanding high schools in Laos.

Participants

The number of students who were studying in grades 10 to 12 was about 1,507; of these, 896 students were female. The target population of the study was students studying in grades 10-12 in Vientiane High School. The sample size was estimated and calculated considering an assumption population size, which corresponded to a 95% confidence level at which Z=1.96, 50% was the expected proportion for the population P=0.5. This tolerated a margin of error valued at e= 0.05 and 10% was the non response rate. To ensure the validity of the findings and to avoid dropout subjects, we increased the attrition rate by 10%. Therefore the sample size was 337 people. This study used stratified random sampling to calculate the percentage of students in each grade level and obtained a random number of students suitable to be included in the sample classroom, and student participants in each classroom were selected by simple and systematic random sampling.

Measurements

The self-administrated structured questionnaire contained questions on socio-demographic characteristics, a knowledge of safe sex and STIs, and information about related factors such as school, family, peers and religious factors.

The independent variable included socio-demographic factors such as age, gender, ethnicity, grade and family structure. The question for communication with family and peers measured answers using categories, which were classified as "Never", "Rarely", "Sometimes", and "Often" during their lifetime [17, 18]. The question related to schooling gave information about students attending school, sexual education topics, time allocated to study and providing adequate sexual education in school [18, 19]. The questionnaire for the sources of knowledge for safe sex and STIs was divided into two parts and each part contained seven questions using multiple choice answers to categorize answers with yes (marked as 1), or no (marked as 0). These questions touched topics such as where students got information about family planning and where they got information about STIs from the mass media [19]. The question about the participant's religious factors included religious belief, the importance of religion, attendance at religious services and their religion's level of acceptance for sexual intercourse before marriage and the use of birth control [19].

The dependent variable about a knowledge of safe sex consisted of 13 items, including understanding the ways how to prevent STIs and how to prevent unwanted or unintended pregnancies. The knowledge of safe sex was measured by 11 positive questions and 2 negative questions [18-21] and the tools for the questionnaire about a knowledge of STIs consisted of 33 items regarding an understanding of the types, causes, routes, symptoms of STIs and types of prevention for STIs [18, 19, 22, 23], with three answer choices (Yes, No, Don't know or Unsure) for each question. They were given one point for correct answers and zero points for "Don't Know" or "Unsure" and incorrect answers. Therefore, the total score for knowledge of safe sex and STIs questions had a normal distribution, so this study used the mean as an indicator to categorize levels of knowledge, good knowledge > mean and poor knowledge ≤ mean [1, 24, 25]. The value of Kuder-Richarson 20 (KR-20) for the knowledge of safe sex and STIs was 0.77 and 0.93 respectively.

Statistical analysis

This study used EpiData to enter the data and Stata 13.0 for analysis. Descriptive statistics were applied to analyze the frequency and percentage of the independent and outcome variables. Tests of significance using univariate and multivariate logistic regression were performed to calculate the odds ratio and this was used to assess the presence of association between independent and outcome variables, a 95% confident interval was used for estimating the precision of the odds radio, and the respective variables with significant associations. A value of $p<0.05$ was considered statistically significant.

Ethical approval and consent to participate

Ethical approval for this research was granted by the University of Health Sciences in Vientiane, Lao PDR (Approval Number: 103/18, Date 12/12/2018) and the Hanoi University of Public Health (Approval Number: 018-464/DD.YTCC Date 12/12/2018). The participation in this study was voluntary and informed consent was obtained from the participants and parental consent was also obtained for respondents. Participants had the right to end their participation in the research project at any time and the information collected from the respondents was kept strictly confidential. To protect the confidentiality of participants, the names of respondents were not included in questions, and information collected from respondents was kept secret. The research objectives, method conditions and potential risks were informed to each respondent before the interview.

Results

This study had 337 students from grades 10 to 12 at Vientiane High School take part. The participants were aged 14-20 years and the mean age was 16 (SD=1.09), 66.5% of participants were female. The vast majority of the participants were ethnic Lao (84%). About 76.8% of the participants lived with their parents. Three quarters of the participants came from families with no more than five people (Table 1). The primary source of knowledge about family planning cited was Facebook (84.5%), followed by films/television (78.9%). However, the main source of information for STIs including HIV/AIDs was from films/television (85.1%), followed by Facebook (84.8%).

Knowledge of participants about safe sex and STIs

The knowledge about safe sex is shown in Table 2. The vast majority of participants knew that correct and consistent condom use resulted in safer sex and less than a quarter of them answered correctly about falling pregnant from sex during the regular menstrual cycle.

The overwhelming majority of participants correctly identified HIV/AIDS as STIs. It was alarming that just over a third of them knew that viruses caused STIs. A clear majority knew that sexual intercourse and shared needle use were routes for the exchange of STIs. A bare majority of the students regarded weakness is a sign or symptom of STIs. More worrisome was that just over a third of respondents knew a discharge from the penis/vulva was a sign or symptom of infection. With regard to the prevention of STIs, most participants knew to get tested before marriage or starting a new relationship. Finally a large majority was aware that the consistent use of condoms was a safe way of preventing STIs (Table 3).

Multivariate Analysis

The multivariate logistic regression model is presented in Table 5. The significant factors associated with a knowledge of safe sex were students living with other people (AOR=2.5, 95%CI=1.1 -5.3), who had studied family planning (AOR=1.7, 95%CI=1-2.9) and practiced a religion that accepted the use of birth control (AOR=1.7, 95%CI=1.0-2.9). Also, the model showed that the significant factors associated with a knowledge of STIs were students in Grade 12 (AOR=0.3, 95%CI=0.1-0.6) and Grade 11 (AOR=0.4, 95%CI=0.2-0.8), who had studied about family planning (AOR=1.8, 95%CI=1.0-3.1) and STIs including HIV/AIDS (AOR=5.1, 95%CI=1.9-13.5).

Discussion

This was the premier study on knowledge of safe sex and STIs among high school students in Vientiane Capital. This study reported on the degree of awareness as well as contributing factors among students at Vientiane High School**.**

Overall, the results of this study showed about half of the participants had a poor knowledge of safe sex. Likewise, nearly half of them had a poor awareness of STIs similar to previous studies in Ghana and Ethiopia [25, 26]. There may be several reasons for this low awareness among students. It could arise because of the educational environment and socio-cultural factors.

Although sexual education is given in high school through its integration into different subjects, it may be that teachers are not comfortable to teach it. This is consistent with other research that indicates most teachers feel uncomfortable with teaching specific details about sex and that there is often not enough specialist and trained teachers in sexual education. Teachers also mentioned that they were able to teach some sexuality topics, but other topics were not included in the curriculum and there was not enough time in the academic year to add more. Some teachers indicated a lack of training, resources or management plans/policies for not teaching sexuality education [27].

Moreover, this knowledge gap may be caused by a lack of communication with their family members and peers. In particular, most of the participants never discussed about STIs, and using condoms to protect themselves with their relatives. Furthermore, there is a lack of communication with peers about family planning such as how to take the contraceptive pill before engaging in sexual intercourse. Regarding previous studies, these highlighted that the frequency of parent-child discussions about sex, pregnancy, STIs/AIDS, and birth control can motivate adolescents to avoid the risks of sexual behavior and delay their first sexual interaction [17, 28-31].

These findings showed that the majority of respondents knew about safe sex, particularly the correct and consistent use of condoms which can dramatically reduce the risk of most STIs and unintended pregnancies during sexual intercourse. Similar findings were made by Hendrana who found in Indonesia half of the participants knew that condom use prevented STIs [1]. Another study in Sweden found that 76% of the students knew that condoms could prevent HIV infection [32]. A separate study in Laos found that adolescents considered condoms to be generally the safest, while the best contraceptive method was sterilization which seems quite startling due to its absolute nature [33].

It was common knowledge that the adolescents knew about HIV/AIDS. This study revealed that adolescents knew a lot about HIV/AIDS, but very little about other STIs such as gonorrhea, chlamydia and syphilis. This may due to the specificity of names or the use of technical words. There are many types of STIs, so it is difficult to remember them. Besides that, HIV/AIDS has been frequently mentioned in school lessons. A similar study in Indonesia found more than half of the respondents did not know that gonorrhea and syphilis were types of STIs. The researchers

claimed a knowledge of STIs was not maintained due to the repetitive nature of information given in rote learning situations, in which respondents just forget information which has only been given once [1]. This finding was similar to many other studies, for example in Vietnam, in Germany and in Sweden the vast majority of participants were aware that HIV/AIDS was STIs [24, 32, 34]. When asked to recognize some of the common causes of STIs, nearly half of the participants knew that viruses were a cause of STIs, and most participants knew that sexual intercourse was a route of STIs, similar to previous studies in Vietnam [24], and in Nigeria [35, 36]. For the symptoms of STIs, just over half of the participants answered that fatigue was a symptom of STIs. However, when compared with a previous study in Ho Chi Minh City the majority of them knew itching in the genital area was a sign and symptom of STIs [24]. Regarding the ways of preventing STIs, almost all the participants knew to get a test before starting a new sexual relationship, followed by consistent condom use as ways of guarding against infection. When compared to previous studies in Indonesia and Nigeria, the majority of adolescents knew consistent condom use as a way of preventing STIs [25, 36].

Living arrangements with others can be a factor affecting a person's knowledge of safe sex. Respondents had a significant association if they lived with others because some parents or some children were not comfortable and confident about how to start communicating with one another about sexual matters. In addition, children or parents do not make time to communicate about sex, while students living away from their parents can chat about sex without a feeling of trepidation. Other research presented additional reasons such as parents thinking adolescents were still too young to discuss these matters, or parents assuming others had discussed issues of puberty with them already. But the reality was these parents did not want to touch on the issues of sex and its consequences. Sometimes parents just do not know how to begin such a conversation. If they think their teenage child will fall pregnant, or get STIs the parents will discuss sex with the adolescent. However, these family meetings are often riot acts issued by the parents rather than opportunities for open and informed communication [37]. Comparative research studies found useful differences. In Tanzania, participants who lived with their parents were more likely to have knowledge of safe sex than those who did not. More than three quarters of the respondents who lived with both parents were aware of the effects of early pregnancies and could identify the causes of STIs from unsafe sex [38].

The school factor has an important effect on the knowledge of safe sex since schools are generally the source of knowledge. Participants who had learnt about family planning were more likely to have a better knowledge of safe sex than those who had did not because these participants understood about different contraceptive methods and means to protect themselves from unintended or unplanned pregnancies. The general public also favors providing substantive instruction which will reduce risky sexual behavior among adolescents. The vast majority of adolescents and teachers approved of lessons about AIDS and more than four fifths supported teaching contraceptive methods and safe sex practices [39]. A clear majority stated that they knew about pregnancy prevention methods. A knowledge of pregnancy prevention was observed to have a significant relationship with school types [40].

Religion was found to be an important factor affecting the uptake of knowledge about safe sex. The results of this study were similar to a study in Nicaragua where almost half of the respondents reported that their religion approved of birth control use [19]. Other researchers found that in America, the majority of Roman Catholics interviewed said birth control was morally acceptable. More than half of Roman Catholics in a Gallup survey said they sympathized with the views of religious leaders on the contraception-healthcare coverage debate [41]. On the other hand, in Philippines many conservative, Roman Catholic, local government chiefs have already opted not to continue providing modern contraceptive any methods [42].

Respondents who were in Grade 12 were more likely to have less knowledge about STIs than those in grades 10 and 11. The difference between the three grades could be that the lessons about STIs including HIV/AIDS were new and interesting in the lower grades, but by the senior year of school students were focused only on their main subjects in preparation for the final exams. Another reason may be that the Grade 12 students do not remember some lessons about STIs from the repetitive learning that took place in grades 10 and 11. In comparison, a previous study in Germany found that participants in Grade 12 had more knowledge about STIs than students in grades below them [34]. This could be explained that the STIs topics taught in Grade 12 were different from those in the Lao context.

This study has shown that participants who learnt about family planning and studied about STIs including HIV/AIDS were more likely to have knowledge of STIs than those who did not. Many adolescents received basic sexual knowledge from school-based sex education programs during

or before entering the middle school. The main goals of these programs were to delay the initiation of sexual intercourse, reduce the number of sexual partners, and increase condom or other forms of birth control use among adolescents. Some research has found curriculum-based sex education to be moderately associated with a decrease in adolescents' risky sexual behaviors (e.g., unprotected sex) [17, 43].

This study has limitations. There was bias in the selection of Vientiane High School for the study because it was not representative of all the schools in Laos which have a great deal of diversity, ranging from small private schools to large public ones. Hence data from this study cannot be generalized for high schools throughout the country. Due to the nature of the cross-sectional study design, the causes and effects could not be explored extensively.

This study involved self-reporting and as a result this could not ensure that the students were truthful with all their answers. Essentially, with a topic as sensitive as sexuality, most people are wary of being completely honest for fear of criticism or ignorance and there might have been some issues regarding the tone of language in the questionnaire which may have caused confusion for some respondents, since they had no immediate support to clarify certain questions.

Conclusion

Adolescents in Vientiane High School had a low knowledge of safe sex and STIs since less than half of them scored at a good level for their knowledge of safe sex and only half recorded a good level for their knowledge of STIs. These results showed that the association between the knowledge of safe sex and STIs with various socio-demographic factors such as school-based studies for family planning and STIs, religious values and lifestyle choices has a significant impact on the retention and depth of knowledge. There is a need to have comprehensive sexual education particularly more content knowledge about family planning and STIs/AIDs for each grade in schools. Besides this, religions should approve the use of birth control. Future research should include studies in other schools, particularly those in rural areas and use other research methods such as intervention research studies and qualitative techniques e.g. focus groups and in depth interviews.

Abbreviations

AIDS: Acquired Immune Deficiency Syndrome

CSE: Comprehensive Sexual Education

HIV: Human Immune-deficiency Virus

HPV: Human Papilloma Virus

LSB: Lao Statistics Bureau

RMNCAH: Reproductive, Maternal, Newborn, Child and Adolescent Health

STIs: Sexually Transmitted Infections

STD: Sexually Transmitted Disease

SDGs: Sustainable Development Goals

SE: Sexual Education

SRH: Sexual Reproductive Health

WHO: World Health Organization

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Authors' Contributions

KI developed the research proposal, designed the instrument, collected data in the field sites analyzed the data and wrote the draft manuscript. LH, LA and VS contributed to the statistical analysis and interpretation of results. Finally, LA and VS made contributions to manuscript revision. All authors read and approved the final manuscript.

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Availability of data materials

The datasets analyzed during the current study are not publicly available due to the privacy policy imposed by the UHS, but may be available from the corresponding author on reasonable request.

Ethical approval and consent to participate

This study was approved by the National Ethics Committee for Health Research, Ministry of Health, Lao PDR and reviewed by the International Review Board of the Hanoi University of Public Health. All students included in the sample agreed to participate in the survey and signed the informed consent form.

Consent for publication

Not applicable.

Completing interests

The authors declare that they have no competing interests

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