
PUBLIC HEALTH RESEARCH

Knowledge on Sexual and Reproductive Health among Adolescents in a College at Seremban, Negeri Sembilan

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ABSTRACT

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Introduction Prevalence of adolescents involved in sexual and reproductive problems is on rise and it was associated with its knowledge. Several factors found to be associated with the knowledge and various sources of knowledge are chosen by adolescents for this information. Thus, this study was to determine the knowledge score, its influencing factors and the preference of the sources of knowledge.

Methods A cross-sectional study was done using adopted questionnaire involving 330 respondents aged 18 and 19 years old in Kolej MARA Seremban selected by simple random sampling. They were gathered in the halls and 338 adolescents from 454 students consented to involve in this study. Self-administered questionnaire was used whereby a correct response was given a score of 2, 0 for an incorrect response and 1 for an answer of don't know. Total score for all correct answers was 42. Descriptive analysis, bivariate and multivariate analysis was done in the analysis.

Results The mean knowledge score was 37.32 (± 2.967) with a significant difference for gender. Internets were the most common and preferred sources of the knowledge among them. There was 5.2% of them had heard on SMS intervention and 37.0% of them disagreed on SMS intervention.

Conclusions The result showed that the knowledge score was lower in males than females and internets were the most preferred source of the knowledge. Thus, interventions for knowledge improvement should be more on male adolescents.

Keywords Sexual and reproductive health - adolescents - knowledge - influencing factors.

INTRODUCTION

Adolescent is defined as the age of 10 to 19 years old by World Health Organization¹. It is a critical period whereby changes occur in biological, physical, emotional and psychological aspects². Some of them start to have sexual activity at the early age which the mean age for the first sexual intercourse is 15 years old³. However, male adolescents choose to delay sexual activity and it is infrequent⁴. The number of unmarried pregnancy increases among adolescents and some of them are infected with sexual transmitted diseases⁵. In America, there is 3% increment in birth rates among 15 to 19 years old adolescents and there is increment in HIV infection and AIDS among them⁶. Besides, survey done in America shows that 46.8% of adolescents have had sexual intercourse and the percentage increases as the grade in school becomes higher⁷. In Malaysia, there are increment in the number of delivery among adolescents and unmarried pregnancy⁵. Consequently, some of them involve in illegal abortion and some of the babies are left aside at toilets or dustbin whereby the average of left aside babies is 100 babies per year as reported by media⁵.

Knowledge is very important for human because it differentiates the value of human and it influences human's behaviour and attitude. The increment in sexual and reproductive health problems among adolescents is due to low knowledge on it which can be due to taboo in many countries⁸. Studies show that sexual and reproductive health education does not increase sexual activity. In fact, the first sexual intercourse may be delayed subsequently the frequency of sexual activity, pregnancy, unwanted birth rates and abortion are reduced³. More accurate decision can be made by adolescents on sexual health when they have basic knowledge on it⁹. Researches show that the adolescents who have high knowledge are less likely involved in sexual activities¹⁰. In South and Southeast Asia, young adolescents have poor knowledge about their bodies and sexual and reproductive problems³. Many studies conducted in several countries among adolescents show that there is poor knowledge of sexual and reproductive health among them such as in Nepal, Kinshasa and Nigeria^{9,11,12,13}. In Malaysia, studies show that there is also low knowledge on sexual and reproductive health among the adolescents³.

The knowledge on sexual and reproductive health among adolescents is influenced by several factors which are peers influence, socioeconomic and education level, parents-adolescents relationship, parental influence and the adolescent's view on benefit of sexual intercourse⁷. Age, gender, race, religiosity, personal belief and attitude towards related sex sources are among the factors which have been studied¹⁰. Female adolescents have higher knowledge than

male adolescents because they seek more knowledge compared to the males. Besides, the knowledge is higher as the age of adolescents increases due to cognitive development and life experiences¹⁴. In addition, the knowledge is higher among adolescents who have attached themselves to religion and have understanding of the knowledge in the religion. In religious schools for example, religious aspect is included in sexual and reproductive health curriculum. However, a study shows that Malay and Muslims have lower knowledge compared to other races and religion due to taboo on sexual and reproductive health¹⁵. Studies show that the knowledge is higher among adolescents who discuss on sexual and reproductive aspects with their parents openly and comfortably^{16,17}. The parents think that adolescents should receive the information mainly from the parents but they are not comfortable enough to discuss on sexual health with adolescents¹⁸. It is shown that the knowledge is higher among those who live together with parents compared those who live with single parents or guardians¹⁹. In Malaysia, it is found that the knowledge is higher among adolescents enrolled in schools compared to adolescents who have left the schools¹².

Many studies show that peers are the most common source of knowledge on sexual and reproductive health among adolescents despite of mass media¹³. However, the information from the mass media may not be accurate and it misleads the adolescents' understanding on sexual and reproductive health¹⁰. In America, a study involving female adolescents show that 75% of them receive the information from the parents and 92% of them receive the information from formal communication (from schools, churches and institutions)²⁰. In Nigeria, a study shows that peers (76.3%) were the first source of information and is followed by the media (69.0%)¹³. As the result, adolescents have misunderstanding on sexual and reproductive health especially when the information is from their friends²¹. This can cause the adolescents to view the sexual intercourse as a small matter³. However, there are limited accurate sources of sexual and reproductive health in Malaysia for adolescents¹⁰.

Many interventions have been conducted for adolescents to improve their knowledge on sexual and reproductive health. A study done in Bangladesh shows that interventions by using booklets and pamphlets improve knowledge level among school students²¹. In Malaysia, good personal character development is one of the objectives and modules in National Service Program for adolescents which may prevent them from bad behaviour such as unmarried sexual activity²². Nowadays, internets and SMS intervention on sexual and reproductive health for adolescents have been conducted in Australia and

America which produce good outcomes²³. It is shown that SMS intervention has increased the number of men involved in homosexual to do HIV re-testing¹⁶. Hence, social media can be used to promote healthy lifestyle among adolescents due to its influences on them²⁴.

There are limited studies on sexual and reproductive health for specific group of adolescents based on their age and academic performance. The knowledge, its influencing factors and sources of the knowledge on sexual and reproductive health among adolescents with good academic performance are not explored specifically. Studies show that the knowledge increases among good academic performance adolescents and as their age increases. Thus, this study was done among them to determine the knowledge score, its influencing factors, and sources of the knowledge and their preference of sources.

METHODS

A cross-sectional study was conducted on 12th March 2014 in Kolej MARA Seremban which was one of the colleges in Malaysia where adolescents with good academic achievement preceded their studies after secondary school. The sample size was 260 students based on precision level of 0.05, a value of standard normal distribution of 1.96, 20% of non-response rate and a percentage of adolescents answered correctly on HIV transmission of 83% based on a study done in Kelantan³. In this study, the samples were collected by simple random sampling involving 18 and 19 years old unmarried adolescents, Malaysians and willingly to give consent of participation. They were gathered in the halls and briefing on how the study conducted was given to all respondents. There were 338 adolescents from 454 students consented to involve in this study. The respondents signed the consent forms before the questionnaires were distributed to them. They were given with 30 minutes to answer the questionnaires completely. After elimination of uncompleted questionnaires, there were 330 respondents were analysed.

Self-administered questionnaire was used in this study which a study on Knowledge of Sexual and Reproductive Health among Adolescents attending School in Kelantan, Malaysia was conducted³. The permission to use the questionnaire had been granted from authors. The questionnaire consisted of personal

information, socioeconomic and socio-demographic information, family connectedness and knowledge on sexual and reproductive health. There were also questions on the sources of knowledge on sexual and reproductive health and their preference besides the questions on their awareness and agreement on SMS intervention. There were categorical responses for the knowledge questions which were true, false or don't know. A correct response was given a score of 2, an incorrect response was given a score of 0 and an answer of don't know was given a score of 1. Total score for all correct answers was 42. The questionnaire was anonymous and in Malay Language. Item analysis for the questionnaire was good: the Cronbach's alpha score was above 0.7. The independent variables studied in this study were total monthly family income, discussion on sexual and reproductive health with parents, living arrangement with parents at home, and types of previous school. The dependent variable was knowledge on sexual and reproductive health

The socio demographics data and data on knowledge of sexual and reproductive health were tabulated in the tables. Statistical Packages for Social Sciences (SPSS) software version 21.0 was used for data analysis which included descriptive analysis and tested by using independent t-test analysis. The level of significant is 95% with p value <5% for two tailed.

Ethical approval was obtained from Ethics Committee Universiti Kebangsaan Malaysia as an extension of existing grant KOMUNITI-2013. The permission to conduct this study at Seremban MARA College was granted in written by its Principal.

RESULTS

Characteristics of respondents

There were 330 respondents involved which were 127 (38.5%) males and 203 (61.5%) females. The characteristics of the respondents are shown in Table 1. There were 314 (95.2%) Malays, (0.3%) Chinese and 15 (4.5%) were other races. The other races consisted of ethnics from Sarawak and Sabah. This study involved respondents from various religions whereby 318 (96.4%) were Islam, 11 (3.3%) were Christians and 1 (0.3%) was other religions. The respondents who lived with others were those who lived with siblings, relatives or guardians.

Table 1 Baseline characteristics of respondents

Characteristics	Baseline Characteristics	N (%)
		n =330
Age (years)	18	127 (38.5)
	19	203 (61.5)

Knowledge on Sexual and Reproductive Health

Gender	Male	134 (40.6)
	Female	196 (59.4)
Race	Malay	314 (95.2)
	Chinese	1 (0.3)
	Others	15 (4.5)
Religion	Islam	318 (96.4)
	Christians	11 (3.3)
	Others	1 (0.3)
Total monthly family income	Below RM 5000	110 (33.3)
	RM 5000 and above	220 (66.7)
Types of school	Government Boarding Schools	208 (63.0)
	Private Schools	6 (1.8)
	Government non-boarding Schools	92 (27.9)
	Religious School	24 (7.3)
Living arrangement	Parents	293 (88.8)
	Mother and Step-father	2 (0.6)
	Grandparents	3 (0.9)
	Mother only	18 (5.5)
	Father and Step-mother	1 (0.3)
	Father only	1 (0.3)
	Others	12 (3.6)

Knowledge score and factors influencing the knowledge on sexual and reproductive health

The knowledge score was normally distributed with the mean score for this study was 37.32 (± 2.967) out of 42. The results showed that the mean knowledge score was significantly higher among females than males. However, there was no significant difference in mean knowledge score for total monthly family income, discussion with parents on sexual and reproductive health, living arrangement with parents at home and types of school. Multivariate analysis showed that gender was the only significant factor associated with

knowledge on sexual and reproductive health among the adolescents. Females had significantly higher mean score than males. These were shown as in Table 2. Gender analysis for the independent variables and the sources of knowledge on sexual and reproductive health was shown as in Table 3. Adolescents who were 19 years old had higher knowledge mean score than 18 years old adolescents. Females had significantly higher knowledge mean score than males in all independent variables. Females also had significantly higher knowledge mean score than males in all sources of the knowledge except SMS.

Table 2 Relationship of knowledge score with gender, types of school, discussion on sexual health with parents, living arrangement with parents and total monthly family income

Variables	Mean (SD)	(95% CI)	^a p-value	Adj. b	t-stat.	^b p-value
Gender				1.53	4.70	0.000
Male	36.43 (3.02)	(-2.148,-0.879)	0.000			
Female	37.94 (2.77)					
Types of school				0.82	1.34	0.181
Religious	38.21 (2.89)	(-0.276, 2.485)	0.116			
Non-Religious	37.10 (3.34)					
Discussion on SRH with parents				-0.05	-0.17	0.868
No	37.27 (3.00)	(-0.763, 0.524)	0.716			
Yes	37.38 (2.94)					
Living arrangement				-0.24	-0.48	0.631
Parents stay together	37.31(3.04)	(-1.142, 0.898)	0.814			
Others	37.42 (2.35)					

Total family income class				0.37	1.08	0.279
Below RM 5000	37.14 (2.97)	(-0.964,0.400)	0.417			
RM 5000 and above	37.42 (2.97)					

^aIndependent t-test,

^bMultiple Linear Regression

Table 3 Gender analysis of mean knowledge score by socio demographic and sources of knowledge

Characteristics	Mean(SD) Male	Mean (SD) Female	(95% CI)	*p-value
Age (years)				
18	35.77 (2.94)	37.59 (2.82)	(-2.843, -0.792)	0.001
19	36.84 (3.02)	38.16 (2.73)	(-2.119, -0.512)	0.001
Total monthly family income				0.079
Below RM 5000	36.03 (3.10)	37.77 (2.71)	(-2.869,-0.624)	0.000
RM 5000 and above	36.60 (2.99)	38.03 (2.81)	(-2.212,-0.660)	0.058
Types of school				
Religious school	36.38 (3.16)	39.13 (2.34)	(-5.108, -0.392)	0.024
Non-religious school	36.43 (3.03)	37.83 (2.79)	(-2.065, -0.744)	0.000
Discussion on SRH with parents				
No	36.47 (2.98)	37.90 (2.89)	(-2.332, -0.527)	0.002
Yes	36.37 (3.10)	37.97 (2.68)	(-2.514, -0.695)	0.001
Living arrangement at home				
Parents stay together	36.42 (3.14)	37.89 (2.83)	(-2.166, -0.755)	0.000
Others	36.44 (2.15)	38.37 (2.19)	(-3.373, -0.475)	0.011
Sources of knowledge				
Internet	36.54 (3.08)	38.10 (2.57)	(-2.246, -0.880)	0.000
Books	36.33 (2.90)	37.99 (2.71)	(-2.370, -0.964)	0.000
Friends	36.22 (3.01)	37.86 (2.77)	(-2.386, -0.882)	0.000
Teachers	36.70 (2.70)	38.15 (2.70)	(-2.243, -0.653)	0.000
Clinics/Hospitals	36.69 (3.17)	37.83 (2.68)	(-2.011, -0.255)	0.012
Parents	36.43 (2.91)	37.94 (3.08)	(-2.321, -0.704)	0.000
SMS	36.73 (3.32)	38.92 (1.93)	(-4.518, -0.139)	0.064

* Independent t-test

Sources of knowledge

The sources of knowledge were parents, books, SMS, teachers, internets, friends and clinics or hospitals as described in Table 5. Majority of the respondents obtained the knowledge from internets which was 273 (81.3%) of them. There were only 116 (34.5%) of them obtained the knowledge from their parents. There were 248 (73.8%) of respondents preferred to obtain the knowledge from internets but there were only 152 (45.2%) of them preferred to obtain it from the parents.

Awareness and agreement on SMS intervention

Table 5 showed the awareness and agreement of the respondents on SMS intervention as the source of sexual and reproductive health among adolescents. The reasons for disagreement with SMS intervention were information given may not be accurate and the source is not reliable, there is no privacy and confidentiality regarding the messages and there is possibility of misused or misinterpretation of the messages. The reasons for agreement with SMS intervention were the SMS intervention is easy to assess information on sexual and reproductive health and the adolescences are most of the time with hand phones.

Table 4 Sources and preference of source of knowledge on sexual and reproductive health information and awareness and agreement on SMS intervention among adolescents in Seremban MARA College

Items	n	%
Sources		
Internet	268	81.2
Books	258	78.2

Knowledge on Sexual and Reproductive Health

Friends	232	70.3
Teachers	184	55.8
Clinics or Hospitals	178	53.9
Parents	113	34.2
SMS	23	7.0
Preferred sources		
Internet	243	73.6
Doctor/Health Staffs	225	68.2
Books	217	65.8
Teachers	174	52.7
Friends	170	51.5
Parents	150	45.5
Siblings	79	23.9
Lovers	23	7.0
SMS	17	5.2
Others	5	1.5
Awareness on SMS intervention		
No	313	94.8
Yes	17	5.2
Agreement on SMS Intervention		
1. Strongly Agree	13	3.9
2. Agree	48	14.5
3. Not sure	87	26.4
4. Disagree	122	37.0
5. Strongly Disagree	60	18.2

DISCUSSION

This study showed that there was high knowledge score among college students in Seremban which was 37.32 out of 42. This finding was same with other studies which showed that the knowledge was high among adolescents with good academic performance¹². This is because the adolescents have positive attitude in seeking the information on sexual and reproductive health and they seek the knowledge from reliable sources for this matter. When comparing the knowledge among adolescents, it is shown that the knowledge is higher as the age increases¹⁰. There was a study showed that the knowledge among college students at final year was higher compared to early year of study²⁵. The result also showed that the mean knowledge score was higher compared to study done among the adolescents at different ages. A study done among adolescents in Kelantan showed that the mean knowledge score was 31.80 for age 13 to 15 years old and 36.54 for age 16 to 17 years old³. This is because the cognitive function becomes more matured and they learn by their experiences so that the understanding of the knowledge is improved²⁵.

This study showed that females had significantly higher knowledge than males and this was similar with the other studies. This is because they tend to seek more information and knowledge

compared to males. In gender analysis, the knowledge score was significantly higher among females than males for all independent variables which were the discussion on sexual and reproductive health with parents, total monthly family income, living arrangement with parents at home and types of school (religiosity). This finding was similar with the study done in Kelantan whereby the knowledge score was higher among females than males adolescents in several aspects⁵. This is also in line with a study done in East Ethiopia whereby females are more likely to discuss with their parents than males²⁶.

There was no significant difference in knowledge mean score based on the total family income in this study even though there are studies show that the knowledge is higher among those who have higher total family income¹⁰. This is because they seek the knowledge by themselves regardless their family income. In this study, there was no significant different in knowledge score among those who discussed with parents on sexual and reproductive health or not. This was different with other studies which showed that the knowledge was higher among those who discussed with parents on sexual and reproductive health¹⁰. This is because the adolescents are well educated students who obtain the knowledge by reading reliable materials or discuss it with professionals in this field. This study also showed that there was no

significant difference in knowledge score among those who studied at religious schools and non-religious schools. Besides, another factor studied in this study was the living arrangement at home. Studies have shown that the knowledge among those adolescents who live together with parents have higher knowledge than those who did not. However, there was no significant different in knowledge score among those who live together with both parents at home or did not in this study. In this group of adolescents, they have good academic performance so that they obtain the knowledge from reliable sources regardless their living arrangement at home. They have good attitude in seeking knowledge whereby they are not too dependent on their parent's situation.

In this study, the most common source of knowledge was internets. A study done showed that 95% of youth in America found that they obtained useful information on health from internets²⁰. However, there was 70.3% of the respondents chose friends as the source of the knowledge in this study whereby many studies show that friends are the most common source of knowledge on sexual and reproductive health. This is because they are good academic performance adolescents who like reading to get accurate and reliable information. In the other group of adolescents, they are with their friends at most of the time and less reading materials and books.

This study also showed that they preferred to obtain the information on sexual and reproductive health from internets (73.6%), doctors or health staffs (68.2%) and the books (65.8%) Friends and parents were the 5th and 6th choices source of information for sexual and reproductive health. In other study, healthcare workers and media were the most preferred sources of information among adolescents in South Africa²⁷. This was different with a study done among female adolescents in America which showed that majority of them had the information from parents²⁰. This clearly shows that the preferred sources of information among well-educated adolescents are internets, books and doctors or health staffs. Thus, the intervention which aims to improve the knowledge among this group shall be done by provision of reading materials and accessibility to medical staffs.

This study showed that the awareness on SMS intervention as source of knowledge on sexual and reproductive was low. There were only 5.2% of the respondents had heard on this type of intervention. SMS intervention is an established intervention to improve the knowledge on sexual and reproductive health in several countries such as United States of America and Australia²⁸. The adolescents at those countries are aware on this intervention and in fact, they accept and satisfy with this SMS intervention²⁹. However, this study

showed that 37.0% and 18.2% of the respondents disagreed and strongly disagreed with this intervention respectively. There were 14.5% and 3.9% of them agreed and strongly agreed with this intervention respectively. The disagreement and agreement might be due to poor understanding on SMS intervention. Most of them stated that they disagreed with this intervention because of the issue on adolescents privacy, reliability of the information provided, misused of the service and the misunderstanding of the information given. They feel shy to use the services provided³⁰. The respondents who agreed with this intervention stated that it is a good way to improve the knowledge of sexual and reproductive health because they can obtain the information by themselves directly and easily. This opinion was in line with the responses of the adolescents who had used this type of intervention in other countries¹⁷. Thus, programs should be done to increase their understanding on SMS intervention before its implementation in this country.

This study was different with the other studies because it was done among well-educated late adolescents. The strength of this study is the knowledge score was determined specifically among good academic performance adolescents. The other strength is that this study showed the sources and preferred sources of knowledge on sexual and reproductive health among this group of adolescents. This study also showed the awareness and agreement on SMS intervention among them which can be a basis for future intervention.

The questionnaire of this study was unable to detect misunderstanding of the questions. The respondents tended to misinterpret the meaning of the questions and the answers were based on their understanding which might not be in line with the question was actually asked. Hence, the questionnaire was made as simple as possible and there were research assistants presented during the study to reduce this weakness. There was the presence of college counsellors to give further explanation and encouragement for them to answer the questions sincerely and clearly. Besides, this study cannot be generalized to represent general adolescent population in this country. This is because the respondents were only from good academic performance adolescents. One of the limitations of this study was the few numbers of non- Malay and non-Islam respondents. This is because the students in the college were mainly Malays and Muslims students. Another limitation was there might be cross-over information or answer among them during the study was conducted. Hence, the students were asked to sit in distance each other and there were researcher, assistant researchers and counsellors who monitored them during the study.

CONCLUSIONS

In conclusion, gender is the only influencing factor on knowledge score among this group of adolescents and the preferred sources of knowledge on sexual and reproductive health among them were internets and books. Thus, the interventions for knowledge improvement should be based on the preferred sources hence the outcome will be better. Programs for understanding on SMS intervention should be initiated among the public especially the parents and adolescents so that it could be conducted effectively and smoothly. Further study should be conducted among low socioeconomic and poor academic performance adolescents to determine the knowledge and its influencing factors in the future. Study on sources and preferred sources of the knowledge also should be conducted for effective interventions in the future.

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