KNOWLEDGE OF SEXUAL AND REPRODUCTIVE HEALTH AMONG ADOLESCENTS ATTENDING SCHOOL IN KELANTAN, MALAYSIA

Azriani Ab Rahman[2], Razlina Ab Rahman[1], Mohd Ismail Ibrahim[2], Halim Salleh[2], Shaiful Bahri Ismail[1], Siti Hawa Ali[3], Wan Manan Wan Muda[3], Maizun Ishak[4] and Amaluddin Ahmad[1]

[1]Department of Family Medicine, [2]Department of Community Medicine, [3]School of Health Sciences, [4]Department of Obstetrics and Gynecology, School of Medical Sciences, Health Campus, Universiti Sains Malaysia, Kubang Kerian, Kelantan, Malaysia

Abstract. The objectives of this study were to describe the knowledge of sexual and reproductive health among adolescents attending school and to compare the levels of knowledge between males and females and between older and younger groups of adolescents. A cross-sectional study was conducted among 1,034 secondary school students using a self administered validated questionnaire. The items with the fewest correct responses included: whether one can get pregnant after a single act of sexual intercourse (30.4%), whether sexual intercourse causes sexually transmitted diseases (STDs) (12.4%) and whether washing the vagina after sexual intercourse prevents pregnancy (17.0%). Their main source of sexual information was friends (64.4%). An independent *t*-test revealed the mean knowledge score was significantly higher among females than males on items assessing whether the genitalia may be touched freely by family members, females having attained menarche may become pregnant if having sex, whether pregnancy will occur if there is penetration of the penis into the vagina, whether premarital sexual intercourse causes pregnancy and if there is a relationship between abandoned babies and premarital pregnancies. The mean knowledge score assessing whether pregnancy can be prevented using condoms was higher among males than females. The mean knowledge scores were significantly higher among form four and form five students than forms one, two and three students. Lack of knowledge regarding important aspects of sexual and reproductive health warrant the need to strengthen sexual and reproductive health education.

Keywords: knowledge, sexual and reproductive health, school going adolescents

INTRODUCTION

Adolescence is a stage in life when individuals reach sexual maturity and is a period of transition to maturity (United Nations, 1997). Sexual and reproductive health among adolescents has emerged as an important issue in Asia. Sexually transmitted diseases (STDs), unwanted pregnancies, and unsafe abortions are the main sexual and reproductive health issues facing adolescents today (Low, 2006).

Correspondence: Dr Azriani Ab Rahman, Department of Community Medicine, School of Medical Sciences, Health Campus, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia.
Fax: 609-767 6654
E-mail: azriani@kb.usm.my

Due to the widening age gap between menarche and marriage, there is a growing incidence of premarital sexual activity among adolescents (Ann *et al*, 2001). Although premarital sex is less common in Asia than in some developed regions, it is clearly on the rise (Low, 2009). Adolescents are vulnerable to this phenomenon because they lack information and skills in negotiating sexual relationships (Low, 2009). This is particularly the case when reproductive and sexual health issues are still considered taboo subjects in many countries, thus preventing adolescents from obtaining adequate knowledge, guidance and services regarding reproductive and sexual health, particularly at the school level (Smith *et al*, 2000). It has been reported most young adolescents in South and Southeast Asia have little information about their bodies and issues surrounding sexual and reproductive health (IHWC, 2007).

In Malaysia, the phenomenon of premarital sexual activity has been increasing over the years (IPH, 2008). The mean age of first sexual intercourse among Malaysian adolescents has been reported to be fifteen years old (Kamarudin *et al*, unpublished; Lee *at al*, 2006). At this young age, adolescents are naive about the implications of their behavior both at that time and in the future, and they have a limited knowledge of sexual and reproductive health in general. Several studies have shown knowledge regarding sexual and reproductive health among adolecesnts varies by locality, sex and age (WHO, 2005). This has occurred in spite of the fact sex education was integrated into the secondary school curriculum in 1989 through the Physical and Health Education, Science, Additional Science, Biology, Moral and Islamic Education package called Family Health Education (FHE). Since 1994, elements of FHE have also been introduced to primary school children through Physical and Health Education. Muslim students are exposed to sexual and reproductive health issues through Islamic Education as a compulsory subject (Low, 2009). It is apparent sex education in primary and secondary schools in Malaysia has been rather ineffective.

There are only a limited number of studies in Malaysia assessing knowledge about sexual and reproductive health among adolescents attending school. The few available support the need for a more organized, systematic delivery of sexual and reproductive health education to school age children to improve their knowledge and help them make better, healthier decisions regarding sexual behaviors (Kamarudin *et al*, unpublished; WHO, 2005).

The objectives of this study were to describe the knowledge of sexual and reproductive health among adolescents attending school in Kelantan and to compare the level of knowledge between male and female adolescents and older and younger age groups of adolescents. It was hypothesised there is a significant difference in the level of knowledge between male and female adolescents and between older and younger adolescents.

MATERIALS AND METHODS

This study was conducted in Kelantan, Malaysia, a state along the northeastern coast of Peninsular Malaysia facing the South China Sea. The state covers a land area of 14,922 km^2 and is populated mainly by the Malay ethnic group.

This cross-sectional study was carried out in April 2009 at seven secondary

schools in Kelantan, among adolescents in secondary one to secondary five. The sample size was calculated using a single proportion formula. A total of 862 students was required for the study based on the following considerations: precision level of 0.05, a value of standard normal distribution of 1.96, a percentage of adolescents with a correct response to using condoms as a contraceptive method of 63.3% (WHO, 2005), a 20% non-response rate and multiplication by 2 for the design effect. Students were selected from classrooms at random at each level of education from secondary one to secondary five. All students from each selected classrooms were included in the study.

The students were assessed through a self administered, anonymous questionnaire but were guided in answering the questions. Written consent was obtained from the students and their parents prior to data collection. The questionnaire consisted of sociodemographic information, including personal and family background, knowledge (23 items) of human reproductive organs, pregnancy, contraception, HIV and sexually transmitted diseases (STDs), abortions and their sources of sexual and reproductive health information. Categorical responses (True/False/Don't know) were assigned for the knowledge components. A correct response was given a scores of 2, an incorrect response was given a score of 0, and an answer of don't know was given a score of 1. The questionnaire was validated by fifty-six secondary school students in a district other than the current study. Item analysis for the questionnaire was good: the Cronbach's alpha score was above 0.7 (Razlina *et al*, 2009).

Sociodemographic information and and data regarding knowledge of the respondents were tabulated for descriptive statistics. An independent *t*-test was used to compare mean knowledge scores between boys and girls, and between older and younger age groups of adolescents. Data entry and statistical analysis were carried out using SPSS version 12.

Ethical approval was obtained from the Research and Ethics Committee, Universiti Sains Malaysia on 23 December 2008.

RESULTS

A total of 1,034 students were included in the study. The majority of students were females (56.4%) and Malays (100.0%) who came from households with a mean total monthly income of less than RM 500 (44.9%). Households with a monthly income <RM 720 are considered below the current national poverty level. The mean age was 15 years old (SD of 1.42). A large proportion of their fathers (57.9%) and mothers (62.7%) had a formal education level up to secondary school level (Table 1).

The knowledge items with the lowest percentages of correct responses from the students were those that assessed the following issues: one may get pregnant after a single act of sexual intercourse (30.4%), sexual intercourse is a cause of STDs (12.4%), washing the vagina after sexual intercourse can prevent against pregnancy (17.0%), and having a hot shower after sexual intercourse prevents pregnancy (16.7%). The majority of students (79.8%) knew sexual abstinence is the best method to prevent pregnancy (Table 2). Their main source of sexual information was friends (64.4%) (Table 3).

The mean knowledge scores for several items were significantly higher among females than males (Table 4). These included items that assessed whether the

Table 1
Sociodemographic characteristics of study subjects.

	n (%)
Sex	
Male	451 (43.6)
Female	583 (56.4)
Race	
Malay	1,034 (100.0)
Non Malay	0 (0.0)
Age (years)	15 (1.42)[a]
13	202 (19.5)
14	212 (20.5)
15	194 (18.7)
16	216 (20.9)
17	210 (20.3)
Mathernal education level	
Never have formal education	48 (4.7)
Primary school	155 (15.0)
Secondary school	646 (62.7)
College/university	182 (17.7)
Paternal education level	
Never have formal education	36 (3.5)
Primary school	163 (15.8)
Secondary school	596 (57.9)
College/university	235 (22.8)
Total household monthly income (RM)	
Less than 500	464 (44.9)
500 to 1,000	269 (26.0)
1,001 to 2,000	111 (10.7)
More than 2,000	189 (18.3)

[a] mean (SD)

uterus is the organ where a fetus stays, whether the genitalia may be touched freely by family members, whether a female who has reached menarche may become pregnant after sexual intercourse, whether pregnancy can occur if there is penetration of the penis into the vagina, whether premarital sexual intercourse may cause pregnancy, and whether there is a relationship between abandoned babies and premarital pregnancy. The mean knowledge score on the item that assessed whether pregnancy may be prevented using condoms during sexual intercourse was higher among males than females.

The mean knowledge scores were significantly ($p<0.001$) higher among secondary four and five students than secondary one, two and three students (Table 5).

DISCUSSION

Our study findings are in line with other reports showing knowledge levels among school age adolescents regarding sexual and reproductive health vary by location, age and sex (WHO, 2005); the inadequate knowledge found here about a number of important aspects of this issue warrants immediate attention. Many students responded wrongly that girls could not become pregnant if they had sexual intercourse only once or if they washed their vagina or showered after sexual intercourse. This misunderstanding can create complacence and the feeling sexual intercourse is a small matter because they can simply perform these preventive measures at the time of sex without consequences. Fortunately, the majority of students knew sexual abstinence is the best method to prevent pregnancy. Various contraceptive methods are easily available; adolescents should be educated abstinence from sexual intercourse is the most effective method to prevent pregnancy, HIV and STDs. This is especially important since the majority of students did not know that sexual intercourse is a cause of STDs although many of them knew about HIV. One reason for this outcome is the extensive and constant media coverage of HIV (WHO, 2005), similar to the findings noted by another study on the subject (NPFDB, 1998).

Interestingly, girls had a better knowledge than boys about sexual health in

Table 2
Correct responses to questions about reproductive and sexual health among study subjects in Kelantan, Malaysia.

Items	*n*	%
The vagina is the organ for sexual intercourse.	496	37.7
The vagina is the organ for delivery of babies.	510	49.5
The uterus is the organ where a fetus stays.	572	55.3
The genitalia may be touched freely by family members.	820	79.2
Ejaculation and passing urine are functions of the penis.	597	57.7
The testis produce sperm.	473	45.7
Penile discharge during ejaculation contains sperm.	599	57.9
Females who reach menarche can become pregnant if they have sex.	734	70.9
Pregnancy may occur if there is penetration of the vagina by the penis.	597	57.7
Pregnancy occurs when there is fertilization by the ovum with sperm.	720	69.6
One may become pregnant after one act of sexual intercourse.	314	30.4
Pregnancy may not occur if having sexual intercourse with only one partner.	526	50.9
Premarital sexual intercourse may cause pregnancy.	755	73.1
Sexual intercourse is a cause of STDs.	127	12.4
HIV is transmitted via sexual intercourse.	858	83.0
There is a relationship between abandoned babies and premarital pregnancies.	869	84.1
Illegal abortions cause severe bleeding.	552	53.3
Illegal abortions cause infections.	160	15.5
Illegal abortions cause maternal death.	410	39.7
Pregnancy is prevented using condoms.	618	59.8
Vaginal washing after sexual intercourse prevents pregnancy.	176	17.0
Sexual abstinence is the best method to prevent pregnancy.	825	79.8
Having a hot shower after sexual intercourse prevents pregnancy.	172	16.7

Table 3
Sources of sexual and reproductive health information among adolescents attending school in Kelantan, Malaysia.

	n	(%)
Parents	67	6.5
Siblings	57	5.5
Friends	666	64.3
Teachers	178	17.2
Lovers	111	10.7
Mass media	623	60.2
Television, internet, compact discs.	555	53.6

the majority of locations studied, which is in contrast to the findings of a previous study of secondary school students in Kelantan nine years ago (Kamarudin *et al*, unpublished). However, more boys than girls knew a condom was a method of contraception, consistent with another previous study (NPFDB, 1998). There is a need to improve knowledge among boys because premarital sexual activity is more prevalent among males than females (Ann *et al*, 2001; Lee *et al*, 2006).

Knowledge among older students was better than younger students. Earlier exposure to sexual and reproductive

Table 4
Mean knowledge scores (scores of each item) between male and female school-going adolescents in Kelantan.

Items	Mean (SD) Male	Mean (SD) Female	Mean difference (95% CI)	*p*-value[a]
The vagina is the organ for sexual intercourse.	1.44 (0.59)	1.40 (0.71)	0.034 (-0.200,-0.037)	0.375
The vagina is the organ for delivery of babies.	1.26 (0.62)	1.32 (0.60)	0.058 (-0.041,-0.108)	0.129
The uterus is the organ where a fetus stays.	1.38 (0.64)	1.59 (0.57)	0.029 (-0.283,-0.136)	<0.001
The genitalia may be touched freely by family members.	1.67 (0.54)	1.84 (0.41)	0.175 (-0.233,-0.136)	<0.001
Ejaculation and passing urine are functions of the penis.	1.67 (0.52)	1.46 (0.69)	0.213 (-0.136,-0.289)	<0.001
Testis produce sperm.	1.44 (0.57)	1.39 (0.59)	0.051 (-0.020,-0.123)	0.158
Penile discharge during ejaculation contains sperm.	1.66 (0.52)	1.44 (0.59)	0.220 (-0.290,-0.289)	<0.001
Females who reach menarche can become pregnant if having sex.	1.50 (0.62)	1.80 (0.49)	0.295 (-0.362,-0.228)	<0.001
Pregnancy may occur if there is penetration of the vagina by the penis.	1.43 (0.69)	1.58 (0.55)	0.156 (-0.232.-0.081)	<0.001
Pregnancy occurs when there is fertilization of the ovum by sperm.	1.65 (0.50)	1.71 (0.50)	0.058 (-0.120,-0.003)	0.064
One may become pregnant after one act of sexual intercourse.	1.27 (0.56)	1.26 (0.50)	0.009 (-0.056,-0.074)	0.780
Pregnancy may not occur if having sexual intercourse with only one partner.	1.45 (0.58)	1.50 (0.53)	0.051 (-0.119,-0.017)	0.141
Premarital sexual intercourse causes pregnancy.	1.63 (0.58)	1.75 (0.48)	0.115 (-0.180,-0.050)	0.001
Sexual intercourse is a cause of STDs.	1.00 (0.49)	1.06 (0.44)	0.053 (-0.110,-0.004)	0.071
HIV is transmitted via sexual intercourse.	1.80 (0.45)	1.83 (0.40)	0.036 (-0.087,-0.016)	0.184
There is a relationship between abandoned babies and premarital pregnancies.	1.78 (0.45)	1.87 (0.36)	0.091 (-0.140,-0.042)	<0.001
Illegal abortions cause severe bleeding.	1.48 (0.55)	1.54 (0.53)	0.060 (-0.126,-0.007)	0.078
Illegal abortions cause infections.	1.12 (0.47)	1.09 (0.42)	0.029 (-0.026,-0.083)	0.306
Illegal abortions causes maternal death.	1.32 (0.55)	1.38 (0.56)	0.056 (-0.125,-0.013)	0.109
Pregnancy is prevented using condoms.	1.66 (0.52)	1.50 (0.56)	0.157 (-0.091,-0.224)	<0.001
Washing the vagina after sexual intercourse is a prevention against pregnancy.	1.13 (0.49)	1.13 (0.41)	0.005 (-0.049,-0.060)	0.850
Sexual abstinence is the best method to prevent pregnancy.	1.76 (0.50)	1.78 (0.48)	0.022 (-0.082,-0.038)	0.468
Having a hot shower after sexual intercourse prevents pregnancy.	1.17 (0.44)	1.15 (0.37)	0.019 (-0.030,-0.069)	0.453

[a] Independent *t*-test

Table 5
Mean sex knowledge scores (total score) by age group among subjects.

Age group (years)	Mean (SD)	Mean difference (95% CI)	*p*-value[a]
13 to 15	31.80 (5.32)	-4.75 (-5.35, -4.14)	<0.001
16 to 17	36.54 (4.35)		

[a] Independent *t*-test

health information may provide students with better information to make choices since the age of first sexual intercourse for both male and female Malaysian adolescents has been reported to be as young as nine years old (FFPAM, 2002). This supports the need to begin sexual and reproductive health education earlier in primary schools (WHO, 2005).

The fact that peers were the most common source of sexual and reproductive health information in this study is consistent with other studies (Kaiser *et al*, 2003; Kamarudin *et al*, unpublished). The majority of students reported they had heard about sexual and reproductive health through the mass media, such as in magazines, on television and on the internet. Few students obtained information about sexual health from their teachers or parents. There is a need to balance the information obtained from the media with that obtained from teachers and parents because there is always a danger unfiltered information given by the media may promote sexual intercourse rather than educating regarding sexual and reproductive health.

Parents also play an important role in educating their children about sexual and reproductive health. However, some parents may be inhibited about educating their children in this area. Parents may assume their children are unlikely to engage in sexual relations or are not mature enough to be educated regarding this subject; parents may also believe this information is better given at school (Ann *et al*, 2001). However, some studies have suggested that the preferred source of information about sexuality especially among young females, is the parents, particularly mothers. Unfortunately, parents are often not prepared to respond to this need satisfactorily (Ann *et al*, 2001).

Lack of knowledge about sexual and reproductive health among school age adolescents warrants the need to strengthen sexual and reproductive health education programs in schools. Studies have shown that education regarding sexual and reproductive health does not increase sexual activity. Instead, it may help to delay the first sexual intercourse, thus reducing the frequency of sexual activity, pregnancy, abortion and unwanted birth rates. It may also increase condom use among sexually active youths, protecting them from STI, including HIV and pregnancy (UNAIDS, 1997). Schools are important for providing sexual and reproductive health education because they reach a large number of children and adolescents (Ann *et al*, 2001). Monitoring school efforts has shown teachers either shy away from the subject or do not have the skills to teach the subject (Low, 2009). Medical and health personnel appear to be better able to deliver the message. Alternatively, teachers may be trained

by health care personnel using sexual education modules. Sexual education is still a taboo subject and thus embarrassing for some to discuss openly. It may be helpful if the health education sessions in schools are conducted separately for boys and girls so that both sexes are more free to discuss the subject. It would also be better for health educators to reach out to students of the same sex. Outreach programs by nongovernment organizations and government health agencies are also essential for targeting out-of-school adolescents (Zulkifli and Low, 2000).

A major limitation of our study was it included only adolescents attending school who are ethnic Malays.

In conclusion, there is an immediate need to increase the level of sexual and reproductive health knowledge among school age adolescents in Kelantan, Malaysia. Parents, schools and health care providers are challenged with the task of providing adolescents with accessible sexual and reproductive health information to promote healthy sexual and reproductive lives.

ACKNOWLEDGEMENTS

We would like to express our appreciation to the Universiti Sains Malaysia for the university research grant and to the adolescents who participated in this study.

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