



Prevalence of sexual activity in older Malaysian adolescents and associated factors

S Maria Awaluddin^{1*}, Noor Ani Ahmad¹, Noridah Mohd. Saleh², Tahir Aris¹, Noraida Mohd Kasim¹, Noor Azlin Muhammad Sapri³ and Nik Rubiah Nik Abdul Rashid²

*Correspondence: smaria@moh.gov.my



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¹Institute for Public Health, Ministry of Health Malaysia, Malaysia.

²Family Health and Development Division, Ministry of Health Malaysia, Malaysia.

³The National Population and Family Development Board, Ministry of Women, Family and Community Development, Malaysia.

Abstract

Background: Unprotected sexual activity predisposes adolescents to serious consequences later in life. This study aimed to identify the risks and protective factors associated with sexual activity in Malaysian adolescents aged 18 to 19 years.

Methods: Data from a health screening program among adolescents conducted in 2010 were analyzed. A total of 21,438 unmarried adolescents responded to this topic using a self-administered non-anonymous validated questionnaire.

Results: Among the participants, 54.5% were males and 45.5% were females. Ethnicities included 66.2% Malays, 20.7% Chinese, 7.2% Indians and 5.9% other ethnicities. Most of the respondents (97.1%) reported having a secondary level of education. The overall prevalence of sexual activity in older adolescents was 6.4% (8.9% among males and 3.6% among females). In a multivariate logistic regression model, sexual activity was positively associated with pornographic viewing (adjusted odds ratio [aOR]: 2.55; 95% confidence interval [CI]: 2.01-3.22), risky behavior (aOR: 2.62; 95%CI: 2.11-3.25), anti-social behavior (aOR: 2.44; 95%CI: 2.06-2.90), female (aOR: 2.24; 95%CI: 1.76-2.85), history of abuse (aOR: 1.81; 95%CI: 1.46-2.24), low religiosity (aOR: 1.71; 95%CI: 1.30-2.26) and masturbation (aOR: 1.34; 95%CI: 1.07-1.68).

Conclusions: A comprehensive intervention program should be developed to target this at-risk group to prevent the spread of sexually transmitted diseases and criminal abortion.

Keywords: Sexual activity, risky behavior, pornographic viewing, Malaysian, adolescents

Introduction

Adolescents who engaged in unprotected sexual activity are at higher risk of contracting sexual transmitted infections such as HIV infections, having unwanted pregnancies and unsafe abortions and experiencing other psychosocial problems [1-3]. Various studies have suggested a wide range of sexual activity prevalence rates, with the highest reaching nearly 50% [4-6].

Several surveys were conducted in Malaysia to identify the national prevalence of ever-had sex among adolescents. The 1996 National Health Morbidity Survey II revealed that 1.8% of adolescents had engaged in sexual activity [7]. A 2001 school-based study polling adolescents aged 12 to 19 years in Negeri Sembilan reported a prevalence of 5.4% [8]. Another school-based study in a more urbanized state in Pulau Pinang

investigating 15 to 20-year-old adolescents reported a prevalence of 12.6% [9].

Many health risks and complications secondary to unprotected sexual activity among adolescents have been documented by the World Health Organization (WHO) [1,2], for which interventions should be implemented promptly. The initial step is to identify the risk and protective factors, as discussed by previous studies [10,11]. Sexual activity is positively associated with pornographic viewing, as shown in previous studies from Singapore and China [12,13]. Few studies have revealed its association with smoking, alcohol and drug abuse, which are also considered risky behaviors or substance abuse [8,12]. History of being abused and anti-social behaviors indicated a higher risk of engaging in sexual activity [12]. Those who had

a low level of religiosity were more prone to sexual activity [14]. Masturbation was also associated with adolescent sexual activity [13].

Most of the global data were based on studies conducted in the United States and Sub-Saharan countries, where there are many differences in social environments and local culture and in economic and urbanization status compared to Malaysia. This study only focused on older adolescents, as previous surveys observed a wide range of ages, from early adolescents to young adults. This study aimed to determine the prevalence of sexual activity in older adolescents and to examine the most common risk factors associated with this group in Malaysia.

Methods

Sampling

This cross-sectional study used secondary data from an adolescent health screening study that was conducted from May to December in 2010 in older adolescents who had participated in a youth program. The respondents were randomly selected through a computerized process using their Malaysian identity cards. There were three sessions during the year 2010, in which the first and second sessions consisted of adolescents who had just completed their secondary school. The third session consisted of those who were school dropouts and youths who already had jobs. The respondents were those who attended either one of the three sessions during the year 2010 in 80 centers nationwide. The health screening form was a validated, non-anonymous questionnaire routinely used in adolescent health clinics under the Ministry of Health [15]. The health screening program was conducted as a part of health services provided to the participants in the first two weeks of enrollment in the program. The adolescent health screening form consists of socio-demographic questions and the previous medical history of the respondent and their family. The main part of the form assesses risk factors in nutrition; physical activity; and reproductive, sexual and mental health. Biometric measurements and simple laboratory investigations were performed to complete the health screening. For the purpose of this article, only adolescents aged 18 to 19 years were included. Those who were not in this age range, refused to answer the questionnaires or were married were excluded from this study.

The ethical approval for this survey was granted by the Medical Research Ethics Committee, Ministry of Health, Malaysia. Written consent was obtained from the respondents. All of the information was kept confidential. Confidentiality was also assured on the front page of the health screening form.

Variable definitions

Sexual activity: Had engaged in penetrating sexual intercourse at least once in their lifetime.

Pornographic viewing: Read or viewed pornographic materials.

Masturbation: Stimulated him/herself sexually.

Risky behavior: Smoked cigarettes/tobacco, consumed alcohol and used drugs.

Anti-social behavior: Had ever been involved in bully and fight.

History of abuse: Had ever been abused physically or sexually.

Religiosity: Answered "yes" to the question "religion is important or very important in life".

Data analysis

Data were analyzed using Statistical Package for the Social Sciences (SPSS) software, version 21 (SPSS Inc., Chicago). Descriptive statistics were used to calculate the estimated prevalence of sexual activity in adolescents and socio-demographic profiles of the respondents. The Chi square test was used to determine the statistically significant differences between variables. Finally, all variables of interest were included in the multivariate logistic regression model. The findings were presented as adjusted odd ratios (aORs) with 95% confidence intervals (CIs), and a p-value <0.05 was considered significant.

Results

The total sample (21,438 unmarried older adolescents) consisted of 11,676 (54.5%) males and 9762 (45.5%) females. In terms of ethnicity, there were 66.2% Malays, 20.7% Chinese, 7.2% Indians and 5.9% other ethnicities, which reflected the ethnic breakdown of the Malaysian population based on the 2010 National Census. The response rate to the question "have you ever had sexual intercourse?" was 71.7% (Tables 1 and 2).

Table 1 shows the details of the socio-demographic profiles of the respondents. The prevalence of premarital sexual intercourse was 6.4% (8.9% among males and 3.6% among females). The difference between the male and female proportions of sexual activity was statistically significant ($p < 0.001$). There were statistically significant differences in sexual activity in terms of ethnicity, level of education, pornographic viewing, masturbation, risky behavior, history of abuse, anti-social behavior and level of religiosity. Of the total respondents, nearly half were involved in risky behaviors (smoking, alcohol use and drug abuse), and 15.5% were engaged in anti-social behaviors (bullying and fighting) (Table 3).

The multivariate logistic regression model retained the following variables: pornographic viewing, risky behaviors, anti-social behaviors, female, history of abuse, ethnicity, low religiosity and masturbation. There was no association between sexual activity in older adolescents and level of education. Sexual activity in older adolescents was positively associated with pornographic viewing (aOR: 2.55; 95%CI: 2.01-3.22), risky behavior (aOR: 2.62; 95%CI: 2.11-3.25), anti-social behavior (aOR: 2.44; 95%CI: 2.06-2.90), female gender (aOR: 2.24; 95%CI: 1.76-2.85), history of abuse (aOR: 1.81; 95%CI: 1.46-2.24), low religiosity (aOR: 1.71; 95%CI: 1.30-2.26) and masturbation (aOR: 1.34; 95%CI: 1.07-1.68) (Figure 1).

Discussion

The prevalence of ever-had sex among older adolescents in

Table 1. Socio-demographic profiles of the respondents.

Variables	n	Percentage(%)
Gender		
Male	119676	54.5
Female	9762	45.5
Ethnicity		
Malay	14142	66.2
Chinese	4421	20.7
Indian	1546	7.2
Others	1264	5.9
Level education		
Primary	486	2.4
Secondary	20087	97.1
Tertiary	109	0.5
Pornographic viewing		
Yes	7820	39.5
No	11966	60.5
Masturbation		
Yes	5586	28.5
No	14302	71.5
Sexual activity		
Yes	978	6.4
No	14383	93.6
Risky behaviour		
Yes	5727	47.3
No	6373	52.7
Antisocial behaviour		
Yes	3113	15.5
No	16915	84.5
History of abused		
Yes	1458	7.5
No	17841	92.5
Low religiosity		
Yes	1105	5.8
No	17827	94.2

Note: Subtotal are not consistent because of missing data.

Table 2. Bivariate analyses of factors associated with sexual activity in older Malaysian adolescents.

Variables	Sexual activity		P- value
	Yes n (%)	No n (%)	
Gender			
Male	715 (8.90)	7322 (91.10)	--
Female	263 (3.60)	7061 (96.41)	<0.001
Ethnicity			
Malay	618 (6.23)	9307 (93.77)	--
Chinese	264 (7.95)	3057 (92.05)	--
Indian	35 (3.19)	1063 (96.81)	--
Others	60 (6.17)	912 (93.83)	<0.001
Level education			
Primary	42 (14.33)	251 (85.67)	--
Secondary	889 (6.14)	13794 (93.86)	--
Tertiary	7 (8.86)	74 (91.14)	<0.001
Pornographic viewing			
Yes	702 (12.02)	5137 (88.98)	--
No	249 (2.73)	8876 (97.27)	< 0.001
Masturbation			
Yes	534 (12.86)	3620 (87.15)	--
No	410 (3.82)	10311 (96.18)	<0.001
Risky behavior			
Yes	707 (18.04)	3211 (81.96)	--
No	223 (4.86)	4365 (95.14)	<0.001
History of abused			
Yes	180 (17.01)	878 (82.99)	--
No	713 (5.25)	12860 (94.75)	<0.001
Antisocial behavior			
Yes	434 (19.52)	1789 (80.48)	--
No	519 (4.05)	12279 (95.94)	<0.001
Low religiosity			
Yes	108 (12.56)	752 (87.44)	<0.001
No	767 (5.7)	12611 (94.27)	--

Note: Subtotal are not consistent because of missing data.

this survey was 6.4%. The prevalence varied among the local studies conducted in different states of Malaysia (5.4% in Negeri Sembilan, 12.6% in Pulau Pinang and 4.6% in Selangor). The variation in the prevalence was due to the differences in the target age group in each study; the age groups were 12 to 19 years and 15 to 20 years and older and consisted of respondents mostly aged 18 years [8,9,16]. Additional possible causes for the variation could be due to characteristics of the respondents, method of conducting the survey, local culture, urbanization status and year of conducting the survey [4,7,17]. This study revealed several risk factors that were positively

associated with sexual activity in adolescents. Pornographic viewing was strongly associated with sexual activity in adolescents. A similar association was noted in a study conducted in Selangor state in teenagers aged 18 years [16]. A case-control survey conducted in Singapore among sexually active adolescents aged 14-19 years revealed a strong association with pornographic viewing (aOR 5.82 in males and 2.05 in females) [12]. Another study conducted in the southeastern United States revealed that adolescents who view pornographic materials had engaged in sexual activity (aOR 1.74 in males and 1.50 in females) [18]. The survey in Tehran used different

Table 3. Multivariate analyses of factors associated with sexual activity in older Malaysian adolescents.

Variables	Crude OR (95%CI)	Adjusted wald test	df	Adjusted OR [†] (95%CI)	P-value
Gender					
Male	1	--	1	1	--
Female	0.38 (0.33-0.44)*	38.95	1	2.24 (1.76-2.85)*	<0.01
Ethnicity					
Malay	1	10.36	3	1	0.02
Chinese	1.30 (1.12-1.51)*	4.21	1	1.30 (1.05-1.60)*	0.04
Indian	0.50 (0.35-0.70)*	4.18	1	0.61 (0.40-0.93)*	0.04
Others	--	0.32	1	--	0.57
Level education					
Primary	1	3.00	2	--	0.22
Secondary	0.39 (0.28-0.55)*	2.89	1	--	0.09
Tertiary	--	0.15	1	--	0.70
Pornographic viewing					
Yes	4.87 (4.20-5.65)*	61.07	1	2.55 (2.01-3.22)*	<0.01
No	1	--	1	1	--
Masturbation					
Yes	3.71 (3.24-4.24)*	6.29	1	1.34 (1.07-1.68)*	0.01
No	1	--	1	1	--
Risky behavior					
Yes	4.31 (3.68-5.04)*	70.22	1	2.62 (2.11-3.25)*	<0.01
No	1	--	1	1	--
History of abused					
Yes	3.70 (3.10-4.42)*	26.49	1	1.81 (1.46-2.24)*	<0.01
No	1	--	1	1	--
Antisocial behavior					
Yes	5.74 (5.00-6.58)*	94.04	1	2.44 (2.06-2.90)*	<0.01
No	1	--	1	1	--
Low religiosity					
Yes	2.36 (1.91-2.93)*	13.20	1	1.71 (1.30-2.26)*	<0.01
No	1	--	1	1	--

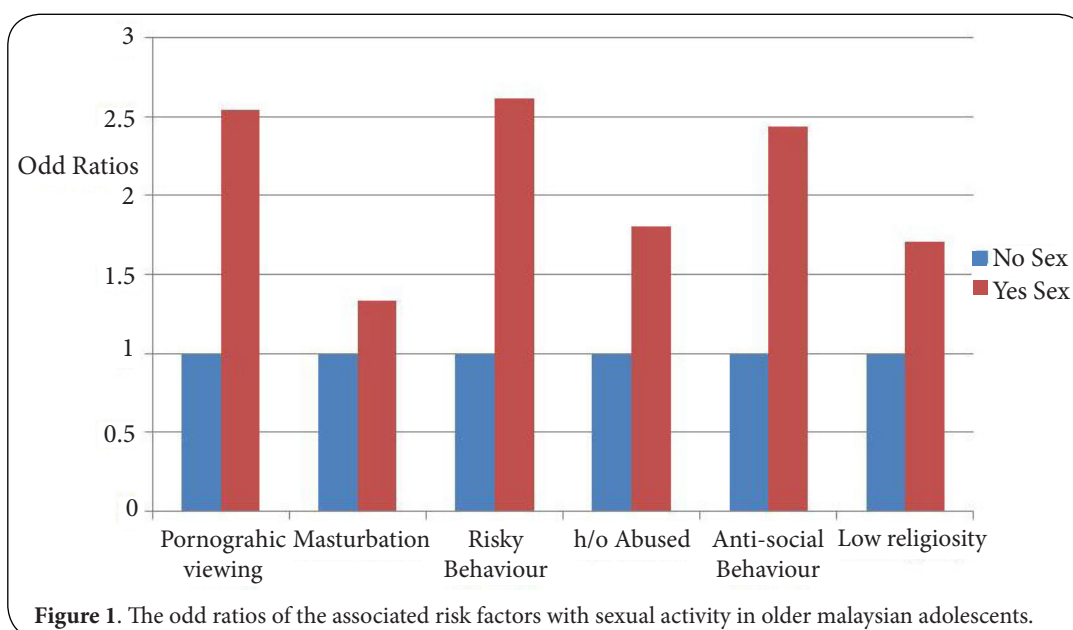
*p-value<0.05; †Adjusted for all other variables; †reference group

variables by asking the adolescents about access to television and found that adolescents with access to television were more likely to engage in sexual activity, with an aOR of 2.22 [19]. Currently, pornographic materials are easily available through magazines, blue films and electronic media. Exposing the adolescents to pornographic materials without proper guidance was associated with an increased tendency to engage in sexual activity [20,21].

Risky behaviors were positively associated with adolescent sexual activity in this survey. These adolescents included those who smoked cigarettes, used alcohol and abused drugs. The association between risky behaviors and sexual activity has been well established in many studies worldwide, including

in Tehran, Hanoi, Shanghai, Taipei, and Myanmar and was also established locally [5,8,12,19,23]. The Global School Health Survey (GSHS), which targeted school-going adolescents aged 12 to 17 years, also reported positive associations between risky behaviors and sexual activity in Namibia and Kenya [24,25].

Anti-social behaviors, such as bullying and fighting, were also positively associated with adolescent pre-marital sex in this study. A local study that investigated older adolescents in Selangor reported a similar association between sexual activity and anti-social behaviors [16]. A study in Singapore used variables indicating involvement in gang activities to assess anti-social behaviors and found a positive association between these behaviors and pre-marital sex [12].



The association between gender and sexual activity indicated that females were more likely to engage in pre-marital sex. This finding contrasted those of studies conducted in New Jersey, Ethiopia, Thailand, Namibia and Kenya, where males were more likely to engage in sexual activity [24-28]. This result might suggest that females are more sincere and frank in reporting their sexual behavior. However, this unexpected finding might also be due to inadequate evaluation of additional relevant factors, such as parental characteristics, family and school connectedness, and peer and community factors.

Physical or sexual abuse increased the likelihood for sexual activity in this study (aOR 1.81). A survey in Singapore reported a similar finding, though only among female respondents [12]. Another study from Cape Town revealed that those who had a history of childhood physical abuse have earlier onset of sexual activity [29]. Those who experienced childhood sexual abuse were also at higher risk of adolescent pregnancy, and they tended to engage in high-risk sexual behavior during adulthood, including multiple sexual partners and prostitution [30,31].

Religiosity was an important issue in adolescent pre-marital sexual activity. Adolescents with a low level of religiosity were more likely to engage in premarital sex in this study. Similar findings have been reported in Kenya and Tehran [14,19]. Specifically, adolescents who have a high level of religious affiliation were protected from pre-marital sex, as found in Nigeria [32]. This finding should be interpreted with caution because there was no proper scale for classifying individuals who have good religious inclinations and are well-practiced in their own religious beliefs. Furthermore, the questionnaire did not extensively explore adolescents' adherence to their own religious practices.

Adolescents who masturbate were more likely to engage in sexual activity compared to those who do not masturbate. A similar association was found in a local study conducted in Selangor state and in an international study in the United States [16,33]. Masturbation is another sensitive issue to be discussed openly. This factor needs to be evaluated further, as there are insufficient data to explain the possible causes for this association.

Conclusion

Sexual activity in older Malaysian adolescents was positively associated with several risks factors, such as pornographic viewing, risky behaviors, anti-social behaviors, history of abuse, low religiosity and masturbation. Females also had a positive association with adolescent sexual activity. The risk factors should be targeted with a comprehensive and effective intervention program to ensure optimum reproductive and sexual health among adolescents.

Limitation

Several limitations should be noted in this study. First, the results were based on self-reports of adolescent sexual behaviors, and the respondents may have not reported the truth, as this topic is a sensitive issue in Malaysia. Furthermore, some of the adolescents were not selected to participate in the national program and were not included in this study; therefore, their sexual behaviors cannot be assessed. The questionnaire was non-anonymous, which may have affected the respondents' answers. The possibility of recall bias was also present. Additionally, the cross-sectional design of this study prevented the determination of causal relationships.

Recommendations

Interventions should focus on reducing the risk factors for sexual activity. A healthy lifestyle without tobacco and alcohol and drug use should be practiced at home and should be promoted in the community. Internet services should be used wisely to improve knowledge, especially in practicing healthy lifestyles. An intervention study should be conducted to investigate those at high risk of pre-marital sex and to strengthen sex education at the school and community levels.

Competing interests

The authors declare that they have no competing interests.

Authors' contributions

Authors' contributions	SA	NA	NM	TA	NMK	NMS	NN
Research concept and design	✓	✓	✓	✓	✓	✓	✓
Collection and/or assembly of data	✓	✓	✓	✓	✓	✓	✓
Data analysis and interpretation	✓	✓	--	✓	✓	--	--
Writing the article	✓	✓	--	--	✓	--	--
Critical revision of the article	✓	✓	✓	✓	✓	✓	✓
Final approval of article	✓	✓	✓	✓	✓	✓	✓
Statistical analysis	✓	✓	--	✓	✓	--	--

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