

Bullying and truancy: Predictors to sexual practices among school-going adolescents in Malaysia – a cross-sectional study

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ABSTRACT

Introduction: Adolescents' involvement in sexual practices are becoming a major public health concern in Malaysia. This study aims to determine the prevalence of sexual practices among Malaysian school-going adolescents and its predictive factors.

Methods: A cross-sectional study was carried out from April 2012 till September 2012 among 16-year-old school adolescents from two different schools. They were selected through simple random sampling and these adolescents answered a self-administered questionnaire consisting of three sections i.e. socio-demography, risk-taking behaviours and family-adolescents relationship. Data were analysed using Pearson Chi-Square test while Simple Logistic Regression and Multiple Logistic Regression were applied to determine the predictive factors.

Results: The prevalence of sexual practices among the adolescents was 30.1% in which they were either involved in pornography (26.8%), pre-sexual activities (8.5%) or pre-marital sex (2.9%). Six predictive factors associated with sexual practices among this age group were identified which were male (adjusted Odds Ratio (aOR) 2.7, 95% Confidence Interval (95%CI) 1.4 to 2.5), truancy (aOR 2.3, 95%CI 1.3 to 4.2), bully (aOR 3.5, 95%CI 1.7 to 7.3), hanging out (aOR 2.8, 95% 1.4 to 5.6), staying out late (aOR 3.2, 95%CI 1.5 to 6.8) and conflict with family (aOR 4.1, 95%CI 1.9 to 8.9).

Discussion: Asian background differs from the western countries and findings of this study may suggest suitable intervention programmes that can prevent high-risk sexual practices among Asian school-going adolescents.

KEY WORDS:

Adolescents, sexual practices, pre-marital sex, negative behaviours, bullying

INTRODUCTION

Rapid globalisation creates an avenue of a borderless world which allows the Generation Y to a limitless source of information, just by one click away. Hormonal changes occurring in these adolescents, as defined by the World Health Organization as those in the ages of 10 to 19 years old,¹ inspires their curiosity especially when it comes to sexuality. With modern technologies, adolescents have the

advantage to deepen their knowledge on this particular topic. Although there are adolescents who are not privileged to internet access, the exposure to mass media and peer influence have resulted in many, seeking information from unreliable sources.²

Unknowingly, a tool could be a weapon when used wrongly, thus making the adolescents vulnerable to involvement in risk-taking behaviours such as violence, bullying and truancy that may lead to sexual practices which include hugging and kissing, pornography and pre-marital sex. High-risk sexual behaviour among adolescents, may subsequently result in teenage and unwanted pregnancy, dumping of babies, sexually transmitted diseases (STD) and Human Immunodeficiency Virus (HIV),^{2,3} all of which contribute to the disease burden around the world. The prevalence of sexual practice among adolescents differs from one country to another. In the year 2000, it ranged from as low as less than 1% in Azerbaijan in Eastern Europe to as high as 77% in Gabon, Africa.⁴ In developed countries such as the United States, Canada and Australia, it was estimated that about 50% of their unmarried boys and girls have been engaged in sexual intercourse.⁴

Risk-taking behaviours among adolescents have shown to be associated with sexual practices that may have serious health implications. A report on early marriages, adolescents and young pregnancies by WHO, stated that in 2008, there were 16 million births recorded by women aged 15-19, which represent 11% of all births worldwide.⁵ Subsequently, the leading cause of death among women aged 15-19 years in the middle and low-income countries, was due to complications of adolescent pregnancy and childbirth.⁵ Internationally, the wider gap that exists between the age of sexual debut and marriages resulted in an increase in early sexual intercourse leading to more health morbidities among adolescents.⁴ Furthermore, increase in health morbidities and cost expenditures, as experienced in the United States in 2008, were due to adolescent pregnancy and childbirth, which had accounted for USD 11 billion per year. This had increased the amount of tax on personal income for the purpose of providing health services for these adolescents.⁶

In Malaysia, despite sexual issues being a taboo, findings of adolescents' involvement in sexual activities are becoming a major public health concern particularly with the increasing incidence of baby dumping. It was summarised in a study,

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that from the year 2005 till April 2010, there was a total of 407 baby dumping cases with an estimation of 65 cases yearly.⁷ One of the causes of baby dumping was known to be pre-marital sex including having babies outside of marriage, contrary to the fact that majority Malaysian adhere strictly to religion and culture that prohibit sex before marriage.

Although the prevalence of sexual activities among adolescents in Malaysia when compared to other developing countries was relatively low^{4,8-11} there are many factors that contribute to the increasing number of sexual practices among them in this country. In a report by the WHO on adolescents' reproductive health in developing countries, among the risk factors influencing adolescents' involvement in adolescent's sexual practices were participation in risk-taking behaviours such as bullying, truancy, hanging out late at night and taking drugs while protective factors include being in school, having a stable family relationship as well as staying with both parents.¹² Better understanding on these modifiable factors may help health authorities to plan effective intervention in preventing sexual practices among school adolescents. Preventing early adolescent pregnancy can help save many lives as well as avoid social ills and economic losses. This study aims to determine the prevalence of sexual practices among school-going adolescents and to identify predicting factors associated with these practices.

MATERIALS AND METHODS

A cross-sectional study was carried out among 16-year-old, form four adolescents from secondary schools in Selangor from April till September 2012. Three hundred and six students from two public secondary high schools from both urban and rural setting were selected. Target population include all secondary school students aged 15 to 17 years old but only those age 16 were allowed to participate by school authorities, as they were not involved in major examinations. List of all students was obtained for sampling purposes.

Sampling Methods and Sample Size

The multistage sampling method was applied in this study. The two districts in Selangor were chosen by simple random sampling. In the urban setting, one school out of ten schools was selected by simple random sampling whereas, in the rural area, one out of five schools was also selected by the same sampling method. The number of students chosen from each school was 153 students. The form four students were selected according to the name lists provided by each school authorities. The inclusion criteria were 16-year-old students who were willing to participate and had obtained consent from parents, and these students were staying with both or either parent. Absentees and those who could not understand the Malay language were excluded from this study.

The sample size for this study was determined based on a previous study,⁸ using the Fleiss Formula¹³ calculated by using the PS2 calculator. Race factor was chosen as a reference in which among the 45% of Malay adolescents studied, 4.5% had pre-marital sex. With the study power of 80%, confidence level at 95% and statistical significance level at 0.05%, the sample size was calculated and 460 samples were

obtained. An additional 10% of students were included making a total of 506 students that was finally involved in this study. However, upon conducting this study, only 306 students who finally fit the inclusion criteria participated in this study giving a response rate of 60%.

Study Tools

Data were obtained using self-administered questionnaires. Selected students were given written consent forms to be given to their parents. Only students whom parents had consented their children to be included in this study and who fulfilled all the inclusion criteria, were invited to answer the self-administered questionnaire. The students filled the questionnaires in the classroom with the supervision of the researcher and all questionnaires were collected during the same day.

The questionnaire used in this study comprises on topics which include the prevalence of sexual practices, risk-taking behaviour among adolescents as well as family-related influences towards adolescents' involvement in sexual practices. The questionnaire consisted of three sections. Section A comprises of the socio-demographic characteristic of the adolescents which include gender, race and religion. Section B consisted of questions on 16 types of common negative behaviour practised by these adolescents. Section C, covered family-adolescents' environment and characteristics with three major domains consisting of 24 items pertaining to Parent-adolescents' Interactions and Family Cohesion and Conflict. Section C was adopted from the Family Environment Scale (FES).¹⁴ The Family Cohesion and Conflict contained 18 positive and negative statements on family matters, in which the students responded with each statement as being 'true' or 'false'. The reliability of the result in Section C was satisfactory, and Cronbach Alpha was found to be 0.86. Pre-testing was done among thirty form four students after translation of questionnaire from English to the Malay language. The pre-testing was conducted to assess the comprehension of the questionnaire and ease of answering it. Students who were involved in the pre-testing were not included in the analysis.

Study Variables

Sexual practices which acted as the dependent variable in this study was defined as adolescents who were involved in at least one of the following sexual practices; i.e., pre-marital sex, pre-sexual activities such as kissing and hugging and watching or reading pornography. Any of these act that was undertaken at least once in the adolescents' life, was considered as 'yes' to committing sexual practices.

The independent variables include socio-demographic factors of these adolescents, their negative behaviours as well as their family relationship. There were 16 risk-taking behaviours listed with each being self-reported by the respondents. For all the risk-taking behaviours, any behaviour that was undertaken at least once in their life time was considered as a 'yes'.

The four independent variables under Family Relationship were eating with family (in which they were asked whether they normally eat with their family members) and whether

Table I: Socio-demographic characteristics, high risk behaviors and family relationship among the school-going adolescents

Variables	Number of Adolescents		
	n (%)	Yes n (%)	No n (%)
Gender			
Female	135 (55.9)		
Male	171 (44.1)		
Race			
Malay	238 (77.8)		
Chinese	54 (17.6)		
Indian		11(3.6)	
Others d	3 (1.0)		
Religion			
Muslim		238(77.8)	
Buddhism	43(14.1)		
Hinduism	11(3.6)		
Christians	14(4.5)		
Negative Behaviors ^			
Watch and read pornography		82 (26.8)	224 (73.2)
Pre-sexual activities		26 (8.5)	280 (91.5)
Had sexual intercourse		9 (2.9)	297 (97.1)
Smoking		44 (14.4)	262 (85.6)
Drinking alcohol		32 (10.5)	274 (89.5)
Take drugs		5 (1.6)	301 (98.4)
Gum Sniffing		7 (2.3)	299 (97.7)
Truancy		118(38.6)	188 (61.4)
Bully		58 (19.0)	248 (81.0)
Fighting		120 (39.2)	186 (60.8)
Driving motorcycle dangerously		30 (9.8)	276 (90.2)
Going to night club		12 (3.9)	294 (96.1)
Hanging out*		186 (60.8)	120 (39.2)
Staying out till late at night		97 (31.7)	209 (68.3)
Vandalism		23 (7.5)	283 (92.5)
Gangsters		16 (5.8)	290 (94.2)
Family Relationship			
Eat with family		263 (85.9)	43 (14.1)
Close with family ^a		285 (93.1)	21 (6.9)
Conflict Relationship ^b		92 (30.1)	214 (69.9)
Cohesion Relationship ^c		272 (88.9)	34 (11.1)

a- Close with family – self reported by adolescents on their relationship with parents.

b-Conflict Relationship – The answer 'yes' being interpreted as presence of conflict between adolescents and parents and 'no' being less conflict present between adolescents and parents.

c-Cohesion Relationship – The answer 'yes' being interpreted as close relationship between adolescents and parents and 'no' being distance relationship between adolescents and parents.

*Hanging out – also refer in local slang as 'lepak'

d-others referring to Sabah and Sarawak Bumiputra

^ For each of the negative behaviors listed, having done at least 1 time throughout the adolescent's life is considered as 'Yes'

they had a close relationship with their parents. Family Conflict refers to the amount of openly expressed anger and conflict between parents and adolescents. It was measured based on scoring in which scores of more than four were considered as having conflict. Family Cohesion was described as the degree of commitment, help and support provided by parents and adolescents towards each another. The score of more than four was considered as closeness between parents and adolescents.

Data Analysis

Data were analysed using SPSS version 21. The data were cleaned and continuous variables were checked for normality using box-plots and graphs. Pearson Chi-Square test, Yates continuity correction and simple logistic regression (SLR) analysis were used for univariate analysis.

Further analysis was done by carrying out multiple logistic regression (MLR) involving 20 independent factors. Using automatic variable selection procedure, both forward and backward likelihood ratio (LR) tests were applied with a significance level of $p < 0.05$. Significant variables were considered to fit the preliminary main effect model. Any possible 2-way interactions between independent variables were tabulated. In this study, no significant interactions were found. The model was subsequently tested for any multi-collinearity, with variance-inflation factor (VIF) of more than 10 for each independent variables indicating a serious problem of multi-collinearity. In this study, there was no multi-collinearity found, with the highest VIF of 1.195 noted for the hanging out factor. Using statistical test, approximately, 79 % of the adolescents who were involved in sexual practices were predicted accurately, with 92.1% specificity and 48.9% sensitivity. Finally, an assumption on

Table II: The association between school adolescents' involvement in sexual practices with socio-demographic factors, high risk behaviors and family relationship.

Risk Factors	Sexual Practices#					
	Yes (%) n = 92 (30.1)	No (%) n = 214 (69.9)	X ² statistics ^a	p value	Crudeg OR (95% CI)	p value
Sociodemography						
Gender			8.448	<0.001		
Male	71 (41.5)	100 (58.5)	24.189	<0.001*	3.9 (2.2-6.7)	<0.001*
(Female)	21 (15.6)	114 (84.4)			1.0	
Race			2.004	0.157	1.6 (0.8-2.9)	0.159
Malay	76 (32.1)	161 (67.9)			1.0	
(Others) ^	16 (23.2)	53 (76.8)				
Religion			1.561	0.212	1.5 (0.8-2.8)	0.213
Muslim	76 (31.8)	163 (68.2)			1.0	
(Others) ^^	16 (23.9)	51 (76.1)				
High Risk Behaviors						
Smoking			35.509	<0.001*	6.9 (3.4-13.9)	<0.001*
Yes	30 (68.2)	14 (31.8)			1.0	
No	62 (23.7)	200 (76.3)				
Drinking alcohols			3.183	0.074	2.0 (0.9-4.1)	0.078
Yes	14 (43.8)	18 (56.2)			1.0	
No	78 (28.5)	196 (71.5)				
Take drugs			0.961 ^b	0.327	3.6 (0.6-21.8)	0.167
Yes	3 (60.0)	2 (40.0)			1.0	
No	89 (29.6)	212 (70.4)				
Gum Sniffing			8.016 ^b	0.005*	14.9 (1.8-125.3)	0.013*
Yes	6 (85.7)	1 (14.3)				
No	86 (28.8)	213 (71.2)				
Truancy			27.631	<0.001*	3.8 (2.3-6.4)	<0.001*
Yes	56 (47.5)	62 (52.5)			1.0	
No	36 (19.1)	152 (80.9)				
Bully			38.718	<0.001	6.2 (3.3-11.4)	<0.001*
Yes	37 (63.8)	21 (36.2)			1.0	
No	55 (22.2)	193 (77.8)				
Fighting			18.670	<0.001*	3.0 (1.8-4.9)	<0.001*
Yes	53 (44.2)	67 (55.8)			1.0	
No	39 (21.0)	147 (79.0)				
Driving dangerously			21.192	<0.001*	5.7 (2.5-12.7)	<0.001*
Yes	20 (66.7)	10 (33.3)			1.0	
No	72 (26.1)	204 (73.9)				
Going to night club			9.873 ^b	0.002*	7.6 (2.0-28.9)	0.003
Yes	9 (75.0)	3 (25.0)			1.0	
No	83 (28.2)	211 (71.8)				
Hanging out^c			26.286	<0.001*	4.5 (2.5-8.2)	<0.001*
Yes	76 (40.9)	110 (59.1)			1.0	
No	16 (13.3)	104 (86.7)				
Gangsters			14.036 ^b	<0.001*	7.9 (2.5-25.1)	<0.001*
Yes	12 (75.0)	4 (25.0)			1.0	
No	80 (27.6)	210 (72.4)				
Staying out late			25.471	<0.001*	3.7 (2.2-6.2)	<0.001*
Yes	48 (49.5)	49 (50.5)			1.0	
No	44 (21.1)	165 (78.9)				
Vandalism			14.615	<0.001*	5.0 (2.0-12.3)	<0.001*
Yes	15 (65.2)	8 (34.8)			1.0	
No	77 (27.2)	206 (72.8)				
Family Relationship						
Eat with family			0.111	0.739	0.9 (0.4-1.8)	0.739
No	12 (27.9)	31 (72.1)			1.0	
Yes		80 (30.4)	183 (69.6)			
Close with family^d			0.691	0.406	0.9 (0.4-1.8)	0.739
No	8 (38.1)	13 (61.9)			1.0	
Yes	84 (29.5)	201 (70.5)				
Conflict relationship^e			9.506	9.506	2.2(1.3-3.7)	0.002*
Yes	39 (42.4)	53 (57.6)			1.0	
No	53 (24.8)	16 (75.2)				

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Risk Factors	Sexual Practices#					
	Yes (%) n = 92 (30.1)	No (%) n = 214 (69.9)	X ² statistics ^a	p value	Crudeg OR (95% CI)	p value
Cohesion type relationship^f						
No	13 (38.2)	21 (61.8)	1.214	0.270	1.5 (0.7-3.3)	0.273
Yes	79 (29.0)	193 (71.8)				

#- Sexual Practices is referring to combination of pre-marital sex, looking and watching pornography and pre-sexual activities such as hugging and kissing. Cases are defined by student having done at least one out of the three sexual practices.

* Significant level is taken as p< 0.05

^ Other races includes Chinese, Indian, Sabah and Sarawak Bumiputera.

^^ Other religion includes Hindu, Buddha and Christian.

a- Pearson Chi Square

b- Yates continuity Correction

c- Refers locally as 'Lepak'

d- Close with family – self reported by adolescent on their relationship with parents.

e- Conflict Relationship – The answer 'yes' being interpreted as presence of conflict between adolescent and parents and 'no' being less conflict present between adolescent and parents.

f- Cohesion Relationship – The answer 'yes' being interpreted as close relationship between adolescents and parents and 'no' being distance relationship between adolescents and parents.

g- OR- odds ratio for Simple Logistic Regression

Table III: Final model for predictive factors of sexual practices among school-going adolescents

Variables	Beta	S.E	X ² stat ^a (df)	p value*	Adjusted OR*	95% CI
Gender						
Male	0.995	0.339	9.02 (1)	0.003	2.70	(1.39 – 5.25)
Female					1.00	
Truancy						
Yes	0.838	0.307	7.45 (1)	0.006	2.31	(1.39 – 5.25)
No					1.00	
Bully						
Yes	1.268	0.370	11.91 (1)	0.001	3.55	(1.72 – 7.34)
No					1.00	
Hanging out b						
Yes	2.812	1.402	9.04 (1)	0.004	2.81	(1.40 – 5.64)
No					1.00	
Stay out late at night						
Yes	1.155	0.355	9.05 (1)	0.003	3.17	(1.49 – 6.76)
No					1.00	
Conflict relationship with parents						
Yes	1.404	0.402	12.40 (1)	<0.001	4.07	(1.85 – 8.94)
No					1.00	
Constant	-3.579	0.444		<0.001	0.03	

S.E= Standard Error, OR= Odds Ratio, CI=Confidence Interval, a= Likelihood Ratio (LR) test, b=Hanging out is referred locally as 'lepak', * binary logistic regression - Forward Likelihood Ratio (LR) method.

outlier was tested using the Hosmer-Lemeshow goodness of fit test, and a non-significant result (i.e. p= 0.807) was obtained with Chi-Square value of 3.761. This indicates that the model fits well. Cook's influential statistic was checked with all outcomes and they were noted to fall below the cut-off point of less than 1, signifying that no outlier was involved.

Research Ethics.

Parents of the students who were under 18 years of age, gave their informed consent prior to the study. This study was funded and approved by the Universiti Kebangsaan Malaysia Medical Centre (UKMMC) (Project code – FF-183-2011) and received approval from the Ministry of Education (Reference no- KP (BPPDP) 603/5/JLD.3 (002), Selangor Department of

Education and the schools' principals. This research was also registered under the National Medical Research Register (NMRR).

RESULTS

Respondents in this study were mainly males (55.9%), Muslims (77.8%) and Malays (77.8%). Among the 16 listed risk-taking behaviours, hanging out (60.8%) was the most common risk-taking behaviour followed by fighting (39.2%) and truancy (38.6%). Prevalence of various kind of sexual practices among the adolescents was 30.1% with those really practising pre-marital sex accounted for only 2.9%. Other sexual practices among these adolescents include

pornography (26.8%) and pre-sexual activities such as hugging and kissing (8.5%). In term of Family Relationship, majority ate with family members and reported to be close to family members and only 30.1% of the adolescents had conflict relationship with parents (Table I). The majority involved were boys (77%) and Malays (83%). Among the 92 students involved in sexual practices, 54.4% were from the rural area as compared to 45.6% from the urban area.

The univariate analysis yielded similar results with 12 out of the 20 independent variables showed a positive association with sexual practices. Boys showed higher risk than girls. Among all 16 risk-taking behaviours, only taking alcohol and drugs were not significant. As for Family Relationship, adolescents involved in a conflict with parents were at higher odds (crude Odds Ratio (cOR), 2.3, 95%CI 1.3 to 3.7) to engage in sexual practices. It was noted that many involved in sexual practices were also involved in other risk-taking behaviours including truancy (47.5%), bullies (40.9%), hanging out (40.9%) and staying out till late (49.5%) (Table II)

Finally, multiple logistic regression analysis predicted only six factors out of all the 20 independent variables (Table III). Boys were at higher risk of committing sexual practices than girls (aOR, 2.7, CI, 1.39-5.35). Only adolescents' involvement in truancy, bullies, hanging out and staying out late remained as predictors to committing sexual practices. Among factors involving the family relationship, adolescents involved in a conflict with their parents were at higher risk of involvement in sexual practices. Nagelkerke R Square showed a coefficient value of 0.377. Multiple logistic regression analysis concluded that all six predictive factors constituted 37.7% of the variance in the dependent variable ($p < 0.05$).

DISCUSSION

The findings of this study showed that school-going adolescents' involvement in sexual practices constituted one-third of the respondents who participated in this study. The prevalence was 30.1% which was slightly higher compared to previous studies, most likely due to sexual practices in this study were not only specified to one sexual practice but was defined as undertaking at least one out of three methods of sexual practices, namely watching and reading pornography, pre-sexual activities and pre-marital sex. Nevertheless, when taking into consideration on only pre-marital sexual intercourse among respondents, only 2.9% of these adolescents were involved in such practice. This was relatively low when compared to other local studies done in other states in Malaysia such as Selangor, Negeri Sembilan and Penang.^{8,9,15} In comparison to other global studies^{4,10,16,17} the involvement of adolescents in pre-marital sex in Malaysia were also much lower.

Hanging out or 'lepak', the term used in the Malay Language, describes the action of doing nothing but just passing time with friends either at home, shopping mall or other public places. Other studies that had been previously conducted which had listed hanging out and truancy similar to this study, also showed significant association with adolescents' involvement in sexual practices.^{8,12,18} In

accordance with this study, one study found that those who frequently skipped school were at higher risk of carrying out all different ways of pre-marital sex.¹⁹ In the same study, it was noted that an act of truancy leads to more unsupervised time with older age adolescents¹⁹ and increased possibilities for them to be involved with opposite sex and consequently, this may initiate the temptation of sexual experiments. On a positive note, a review of other studies recognised female who stayed in school, as a protective factor against involvement in sexual practices.¹² Truancy could be an important indicator that encourages adolescents at risk of unwanted pregnancies and subsequent health morbidities.

Similarly, we found that other risk-taking behaviours such as bully, smoking and gum sniffing were significantly associated with involvement in sexual practices especially sexual intercourse which corresponded to previous studies.^{8,12,18,20} A review was done by WHO on studies of sexual debut among adolescents, highlighted that taking alcohol and drugs were significant risk factors.^{12,18} However, in this study only taking alcohol and drugs showed no association with participation in sexual practices among these adolescents. Previous studies had also shown conflicting results.²⁰ This is possibly due to the influence of local culture and religious practice as well as the enforcement of the Malaysian law in which alcohol is prohibited among the Muslims and not sold to under-age adolescents, making the association not remarkable in this study.

In terms of gender, boys were significantly at higher risk of being involved in sexual practices when compared to girls. With regard to pre-marital sex, these findings were supported by the majority of the studies in other countries^{4,10,12,21,22} whereby boys were known to be more adventurous when it comes to sexual experiments. This is consistent with studies done locally from the year 2000 till 2010.^{9,15,23} However a study conducted in 2014, revealed that girls had become more confident and upfront when initiating sexual engagement.⁸ Having more girls respondents in this study could have led to similar findings. With these findings, we can suggest that intervention programmes that may prevent the involvement of girls in sexual engagement is important, due to the fact that health morbidities such as adolescent pregnancy and abortion among girls may lead to higher chances of maternal and infant mortalities. Within the Malaysian community, the uprising trend of sexual practices among adolescents in our local setting which result in them getting pregnant at a younger age²⁴ has led to a situation in which being a pregnant teen remains a taboo.

A local study done had revealed that daily prayers among adolescents were protective factors that prevent adolescents from having a permissive attitude towards sexual practices.²³ However, in this study, we did not include culture and religious practices, which could have given us a new perspective on its association with sexual practices.

The percentage of adolescents who were involved in sexual practices in the rural area was 8.8% which was slightly higher than adolescents in the urban area. These findings contradict with studies abroad which indicate that the urban adolescents were more prone to sexual practices.^{10,12} Future

qualitative studies can be conducted to identify reasons on why adolescents from these rural areas had a higher prevalence of involvement in sexual practices.

Family monitoring has been found to be a protective factor in delaying sexual debut.^{25,26} One of the reasons could be due to the fact that majority of the families residing in the rural area were from the lower or middle-income group in which in this community, parents work in shifts or overtime. Due to this, parents were unable to monitor their children. A different study focusing only on the rural female found that staying out after midnight were among the predicting factors that have led to the involvement of sexual practices among school-going adolescents.⁷ However this was also not proven in this study.

Besides parental monitoring, family factors including parents-adolescents relationship, family type, home environment, parenting style, parent's involvement in sexual health education were other factors that were highlighted as important protective and risk factors.^{7,10,12,23} Similar to other local studies,^{8,9} we were able to conclude that other family relationship factors which highlighted that conflicted relationship between adolescents and parents were among the associated factors that contribute to the adolescents' involvement in sexual practices. Even though Family Coherence and close Family Relationship were not found to be significant protective factors in this study, many other studies had proven otherwise.^{12,26} Other studies showed that disagreement between parents and their children may result in defiant adolescents and this factor had been proven to contribute to adolescents' misconduct especially with regard to sexual behaviour.^{6,25}

Apart from the factors discussed in this study, there were other factors such as sexual health education,¹² peer pressure influences²⁷ and family's socio demographics,^{10,27} that were not studied and this might contribute to the limitation in this study. Construction of a new questionnaire which is tailored to include other essential factors mentioned above could have yielded more comprehensive findings. There were some other limitations noted in this study such as respondents in these study only involved 16-year-old adolescents which may affect generalizability. Other limitations include small sample size due to the fact that school authorities restrict other students to be involved in this study. Further limitation includes the fact that we have not been able to assess the frequency of the risk-taking behaviour neither do we direct the question on why are these behaviours were taken at all, which might not direct these adolescents into sexual practice. Future studies should also emphasise on the frequency and reasons on why these risk-taking behaviour was undertaken. Other studies should also look into pre-marital sex as the only outcome variable or method of sexual practice.

We have determined that factors such as boys, risk-taking behaviours such as bully, truancy, hanging out, staying up till late night and parents-adolescents conflict, predict adolescents' involvement in sexual practices. In this study, we suggest that Problem Behaviour Theory might offer an explanation on these sexual practices.²⁸ Identifying these risk taking behaviour is crucial when developing a focus

intervention programme consisting of sexual health-oriented agenda for adolescents. Detrimental health effects which occur due to risky sexual practices such as adolescent pregnancy and baby dumping warrants early identification of risk behaviours that may lead to these acts. Proper investment in sexual health education programme will save us the cost to overcome the complications of such act. In view of the benefits, in the long run, local government and policy makers need to begin investing more in health prevention programmes rather than on clinical management.

CONCLUSION

Despite limitation in this study, we have found that there is a need to develop a comprehensive sexual health education consisting of methods of educating youngsters on factors that relate to sexual practices. This should be tailored to the Malaysian culture and background rather than adopting programmes from the west which might not be suitable for the younger generation in this country. Schools should pay extra attention to the student who was frequently involved in truancy and bullies. In particular, community and religious bodies should work hand in hand to organize more activities that prevent adolescents from hanging out and staying out late at night. Conflict in family relationship cautious us that prevention begins at home. Prevention programme involving both parents and adolescents would inculcate closer ties between them. Holistically, it takes the cooperation of family, religious bodies, community, and school to work collaboratively with the health sector to prevent the involvement of risky sexual practices among the identified group of adolescents.

The outcome of this study hopes to shed light on adolescents with modifiable risk and protective factors that may expose them to sexual practices. Asian background differs from the western countries and this study is suitable for tailoring prevention and intervention programme to prevent early sexual practice among Asian adolescents.

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REFERENCES

1. World Health Organization. HIV and AIDS. Definition of key terms. Geneva: World Health Organization 2013.
2. Low WY. Malaysian youth sexuality: Issues and challengers. *Journal of University. Malaya Medical Centre* 2009; 12(1): 3-14.
3. Zulkifli SN, Low WY. Sexual health education for youths- a Malaysian experience. *Asia Pac. J. Public Health* 2000; 12 Suppl: S58-66.
4. Bearinger LH, Sieving RE, Ferguson J, Sharma V. Global Perspectives on the sexual and reproductive health of adolescents: Patterns, prevention, and potential. *Lancet* 2007; 369(9568): 1220-31.
5. World Health Organization. Early Marriages, Adolescent and Young Pregnancies. Geneva: World Health Organization 2012.
6. Elkington KS, Bauermeister JA, Zimmerman MA. Do parents and peers matter? A prospective socio-ecological examination of substance use and sexual risk among African American youth. *J Adolescence* 2011; 34(5): 1035-47.

7. Noordin N, Zakaria Z, Zool M Hussin ZH, Ngah K, Nordin J. The voice of youngsters on baby dumping issues in Malaysia. *International Journal of Trade, Economics and Finance* 2012; 3(1): 66-72.
8. Manaf MR, Tahir MM, Sidi H, Midin M, Nik Jaafar NR et al. Pre-marital sex and its predicting factors among Malaysian youths. *Compr Psychiatry* 2014; 55(Suppl 1): S82-8.
9. Anwar M, Sulaiman SA, Ahmadi K, Khan TM. Awareness of school students on sexually transmitted infections (STIs) and their sexual behavior: A cross-sectional study conducted in Pulau Pinang, Malaysia. *BMC Public Health* 2010; 10: 47.
10. Oljira L, Berhane Y, Worku A. Pre-marital sexual debut and its associated factors among in-school adolescents in Eastern Ethiopia. *BMC Public Health* 2012; 12: 375.
11. Lee LK, Chen PCY, Lee KK, Kaur J. Premarital sexual intercourse among adolescents in Malaysia: a cross-sectional Malaysian school survey. *Singapore Med J* 2006; 47(6): 476-81.
12. Blum R. Risk and protective factors affecting adolescent reproductive health in developing countries: an analysis of adolescent sexual and reproductive health literature from around the world. *World Health Organization* 2004.
13. Fleiss J. *Statistical methods for rates and proportions*. New York: John Wiley & Son 1981: 44-5.
14. Moos RH, Moos BS. *Family environment scale manual*. 3rd ed. Palo Alto, CA: Consulting Psychologists Press 1994.
15. Zulkifli SN, Low WY. Sexual practices in Malaysia: Determinants of sexual intercourse among unmarried youths. *J Adolesc Health* 2000; 27(4): 276-80.
16. Mathews C, Aarø LE, Flisher AJ, Mukoma W, Wubs AG, Schaalma H. Predictors of early first sexual intercourse among adolescents in Cape Town, South Africa. *Health Educ Res* 2009; 24(1): 1-10.
17. Shtarkshall RA, Carmel S, Jaffe-Hirschfield D, Woloski-Wruble A. Sexual milestones and factors associated with coitus initiation among Israeli high school students. *Arch Sex Behav* 2009; 38(4): 591-604.
18. Wong ML, Chan RK, Koh D, Tan FF, Lim HS, Emmanuel S et al. Premarital sexual intercourse among adolescents in an Asian Country : Multilevel ecological factors. *Pediatrics* 2009; 124(1): e44-52.
19. Houck CD, Hadley W, Tolou-Shams M, Brown L. Truancy is associated with sexual risk among early adolescents. *J Dev Behav Pediatr* 2013; 33(9): 728-31.
20. Bryan AD, Schmiege SJ, Magnan RE. Marijuana Use and risky sexual behavior among high-risk adolescents : Trajectories , risk factors , and event-level relationships. *Dev Psychol* 2012; 48(5): 1429-42.
21. Mudingayi A, Lutala P, Mupenda B. HIV knowledge and sexual risk behavior among street adolescents in rehabilitation centres in Kinshasa; DRC: gender differences. *Pan Afr Med J* 2011; 10: 23.
22. Zuo X, Lou C, Gao E, Cheng Y, Niu H, Zabin LS. Gender differences in adolescent premarital sexual permissiveness in three Asian cities: Effects of gender-role attitudes. *J Adolesc Health* 2012; 50 (3 Suppl): S18-25.
23. Rahman AA, Rahman RA, Ismail SB, Ibrahim MI, Ali SH, Salleh H et al. Factors associated with attitude toward premarital sexual activities among school-going adolescents in Kelantan, Malaysia. *Asia Pac J Public Health* 2012; 27(2): NP1549-56.
24. Omar K, Hasim S, Muhammad NA, Jaffar A, Hashim SM, Siraj HH. Adolescent pregnancy outcomes and risk factors in Malaysia. *Int J Gynecol Obstet* 2010; 111(3): 220-3.
25. Parkes A, Henderson M, Wight D, Nixon C. Is parenting associated with teenagers' early sexual risk-taking, autonomy and relationship with sexual partners ? *Perspect Sex Reprod Health* 2011; 43(1): 30-40.
26. Manlove J, Wildsmith E, Ikramullah E, Terry-Humen E, Schelar E. Family environments and the relationship context of first adolescents: correlates of first sex in casual steady relationship. *Soc Sci Res* 2012; 41(4): 861-75.
27. Wong LP. An Exploration of knowledge, attitudes and behaviours of young multiethnic Muslim-majority society in Malaysia in relation to reproductive and premarital sexual practices. *BMC Public Health* 2012; 12: 865.
28. Jessor R, Jessor SL. *Problem behaviour and psychosocial development. A longitudinal study of youth*. New York, New York Academic Press, 1977.