Abstract

Sexual activities among adolescents poses to sexually transmitted infection (STI) and also unintended pregnancies. This study aims to determine the prevalence of risky sexual activities among school going adolescent in Malaysia. A cross-sectional study with a total of 27,497 secondary school students was done in March-April 2017. A self-administered structured and validated questionnaire was given to answer. The prevalence of ever had sex among adolescents in Malaysia was 7.3% and mostly among males and Indians. The associated factors to sexual activity among adolescents include ever used drugs with aOR=10.201 and ever smoked aOR=1.628. Among those who ever had sex, 87.3% did not use condom, 16.6% had multiple sexual partners and 31.7% had sex before the age of 14 years. The risky sexual behaviours are relatively high among these adolescents. Sexual health educations and programmes in school is vital to prevent any sexual-health related issues among adolescents.

Keywords: Adolescent; Sexual activity; Risky sexual behavior; Youth; Prevalence
1. Introduction

Sexual Transmitted Infection (STI) and unplanned pregnancies remain in the list of public health problems worldwide and currently are on the rise [1]. WHO reported 10-40% of young unmarried girls aged 13-19 years, having unintended pregnancy [2]. It was also reported that the highest rate of Sexual Transmitted Illness (STI) worldwide was among young people aged 15-24 years [3]. Active sexual activity among youth makes them more vulnerable towards STIs and unplanned pregnancies [4]. World Health Organization (WHO) reported that the prevalence of premarital sexual activity among youth varies across regions. Studies suggest that in Asia, two to 11 percent of women have had sexual intercourse by the age of 18. In Latin America, 12 to 44 percent of women had sexual intercourse by age 16 and 45 to 52 percent of sub-Saharan African women had sexual intercourse by age 19. In developed countries, the prevalence was higher where most young women have had sex prior to age 20. There were 67 percent women in France, 79 percent in Great Britain and 71 percent in the United States that had sex prior to age 20. Among male youth, studies suggest that 24 to 75 percent of Asian men have had sex by age 18; 44 to 66 percent of Latin American men by age 16; and 45 to 73 percent of sub-Saharan African men by age 17. In developed countries, most young men have had sex prior to age 20; 83 percent in France, 85 percent in Great Britain, and 81 percent in the United States [5].

In Malaysia, a few studies have been done to determine the prevalence of sexual activity and the risk factors associated with it. In example, in 2012 there was a study done among school adolescents in the whole Malaysia known as Global School-based Student Health (GSHS) survey and reported the national prevalence of 8.3 percent adolescent ever had sex before the age of 18 [6]. In the previous study done by Lee LK, et al. in the year 2001 in Nigeria Sembilan, Malaysia showed that the prevalence was 5.4 percent and the prevalence was higher among males compared to females [7]. There were few similar factors identified in local studies as the risk factors of premarital sexual intercourse among school-going youth in Malaysia such as smoking, drugs and alcohol consuming [6-8] along with other factors including family management, knowledge on sexual health and peer pressure [8]. In the study done by Noor Ani, Indian ethnicity had a higher risk of having sexual intercourse during their teenage years [6]. Despite a few studies done before, we would like to know if the existing programme is adequate to curb this problem. Therefore, we aim to determine the latest prevalence of ever had sex among school adolescent and the prevalence of other risky sexual behaviours in Malaysia. We also aim to determine the risk factors associated with the behaviours, including socio-demographic characteristics.

2. Methodology And Sampling Design

2.1 Sampling

The Malaysian Adolescents health survey was a nationwide cross sectional study recruited adolescents attended government schools in Malaysia. The survey implemented a two-stage stratified cluster sampling design to ensure national representative of students from Form 1 to Form 5 aged between 12 to 18 years. The first stage of sampling was the selection of secondary schools under the Ministry of Education, Malaysia. Schools were selected randomly with probability proportionate to school enrollment size. The second stage was the selection of classroom from the
selected school. Systematic random sampling was used to select classrooms from each selected school. All students in the selected classes were eligible to participate in the survey. A total of 212 schools and 27,497 respondents were selected to participate in this survey.

2.2 Ethical approval and consent

This study had obtained approvals from the Ministry of Health, Medical Research and Ethics Committee and Ministry of Education Ethics Committee with the file no [(05) KKM/NIHSEC/P16-714]. Approvals were also obtained from relevant Ministry of Education office at the State and district levels including the selected school itself. Parent consent form was explained to the teacher and were distributed to the parents a week prior to the survey. During the actual day of the survey, student’s consent was distributed to the eligible respondents before the survey was conducted. Students who were non-consented by their parents or they themselves refused to participate were considered as non-response in this survey.

2.3 Survey instruments

Validated self-administered bilingual Malaysian GSHS 2012 questionnaires with computer-scan-able answer sheet was used. Student privacy was given priority, as answer sheets were anonymous. For the variables “Ever-had sex” was assessed with the question: “Have you ever had sexual intercourse?” Responses with the answer “yes” were coded as positive. Other sexual behaviour questions were as follows: “How old were you when you had sexual intercourse for the first time?” “The last time you had sexual intercourse; did you or your partner use a condom?” “Ever-consumed alcohol” was assessed by the question “How old were you when you had your first drink of alcohol?” All responses other than “I have never had a drink of alcohol” were coded as positive. “Ever-smoked” was assessed by the question “How old were you when you first tried a cigarette?” All responses other than “I have never smoked cigarettes” were coded as positive. “Ever-used drug” was assessed by the question “How old were you when you first used drugs?” All responses other than “I have never used drugs” were coded as positive. Generally, risky sexual behaviour is defined as any activity that will lead to sexual activities that can cause an individual to get infected with STI and unplanned pregnancies.

2.4 Data management and analysis

Data were cleaned for valid answer and further analyzed using SPSS version 22 and STATA version 12. The complex sampling design was used for univariate, bivariate and multivariate analysis. Chi-square test and multivariate logistic regression were used and presented as an adjusted odds ratio with 95% confidence intervals (CI). All statistical analyses were considered significant at \( p<0.05 \) or CI which did not include null.

3. Results

The prevalence of ever had sex among the school going adolescent in Malaysia was 7.3 percent nationwide (95% CI: 6.7, 8.0) which can be inferred to 156,618 adolescents with 8.8 percent (95% CI: 7.8, 9.9) of them were male students compared to 5.8 percent female students (95% CI: 5.3, 6.4). Majority of the students were Indian with the
prevalence of 11% (95% CI: 8.5, 14.3). From those who ever had sex, it was reported that 87.3 percent (95% CI: 84.8, 89.4) of them did not use condom, 16.6 percent (95% CI: 14.0, 19.6) had multiple sexual partners, mostly among male students with 20.7 percent (95% CI: 17.2, 24.7) and in a rural area which was 18.3 percent (95% CI: 14.6, 22.7) compared to urban area 15.1 percent (95% CI: 11.7, 19.4). It was also reported that 31.7 percent (95% CI: 28.4, 35.1) of those who ever had sex had their first sexual intercourse before the age of 14 and rural area showed significantly higher prevalence with 38.6 percent (95% CI: 33.8, 43.6) compared to 25.5 percent (95% CI: 21.3, 30.1) in urban area (Table 1).

<table>
<thead>
<tr>
<th>Variable</th>
<th>Ever had Sex</th>
<th>Did not use Condom</th>
<th>Multiple Sex Partner</th>
<th>Had Sex age &lt; 14 years old</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>N</td>
<td>Prevalence (95% CI)</td>
<td>n</td>
</tr>
<tr>
<td>Malaysia (Nationwide)</td>
<td>1,914</td>
<td>156,618</td>
<td>7.3 (6.7, 8.0)</td>
<td>1,677</td>
</tr>
<tr>
<td>Locality</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urban</td>
<td>1,025</td>
<td>82,519</td>
<td>6.8 (5.9, 7.9)</td>
<td>931</td>
</tr>
<tr>
<td>Rural</td>
<td>889</td>
<td>74,099</td>
<td>8.0 (7.1, 8.9)</td>
<td>746</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>1,123</td>
<td>93,571</td>
<td>8.8 (7.8, 9.9)</td>
<td>946</td>
</tr>
<tr>
<td>Female</td>
<td>791</td>
<td>63,047</td>
<td>5.8 (5.3, 6.4)</td>
<td>731</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;=15 years</td>
<td>1,221</td>
<td>96,576</td>
<td>7.4 (6.7, 8.3)</td>
<td>1,068</td>
</tr>
<tr>
<td>&gt;=16 years old</td>
<td>693</td>
<td>60,043</td>
<td>7.1 (6.1, 8.3)</td>
<td>609</td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Malay</td>
<td>1,240</td>
<td>94,253</td>
<td>7.0 (6.3, 7.7)</td>
<td>1,107</td>
</tr>
<tr>
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</table>

Using the bivariate analysis, it was noticed that male and Indian ethnicity showed a significant correlation with the prevalence of ever had sex with the odds ratio of 1.559 (95% CI: 1.359, 1.789) and p-value <0.001 and odds ratio of 1.692 (95% CI: 1.229, 2.328) and p-value 0.001 respectively. The prevalence of ever had sex increased in those who ever smoke with the odds ratios of 2.957 (95% CI: 2.543, 3.439) and p-value <0.001. Those who ever drink alcohol

\[
\text{Table 1: Prevalence of Sexual behaviours among adolescent in Malaysia.}
\]

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Total</th>
<th>Ever Smoked</th>
<th>Ever drink alcohol</th>
<th>Ever drug used</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Chinese</td>
<td>268</td>
<td>677</td>
<td>1,236</td>
<td>610</td>
</tr>
<tr>
<td>Indian</td>
<td>146</td>
<td>526</td>
<td>1,151</td>
<td>448</td>
</tr>
<tr>
<td>Bumiputera Sabah &amp; Sarawak</td>
<td>218</td>
<td>526</td>
<td>1,151</td>
<td>448</td>
</tr>
<tr>
<td>Others</td>
<td>42</td>
<td>2,717</td>
<td>36</td>
<td>2,207</td>
</tr>
</tbody>
</table>

and ever used drugs increased the chances of having sex by 2.323 (95% CI: 1.920, 2.810) and 14.168 (95% CI: 11.382, 17.635) with p-value <0.001 respectively. It was then continued with multivariate analysis, which revealed that ever had sex was most significantly associated with ever used drugs with aOR of 10.201 (95% CI: 7.891, 13.187) followed by those who ever smoked with aOR of 1.628 (95% CI: 1.365, 1.941) (Table 2-Supplementary file).

4. Discussion

In this study, we used a similar instrument as in the previous nationwide survey in 2012 [6]. This study had surveyed selected government school-going adolescents aged 12 to 18 years. The findings of this study yield the most current national estimates on sexual behavior and practices among adolescents in Malaysia. The prevalence of sexual activity among adolescents was 7.3% noting a decremental pattern as compared to the previous 2012 cohort [6]. The prevalence of sexual activity also remains low as compared to other Asian countries, including 11.2% in Brunei [9], 11.0% in Thailand [10] and 50.4% in Taiwan [11]. As anticipated, the prevalence of sexual activity in this study also lower than the global prevalence which ranging between 25% in the African region [12], 41% in the US [13] and 19.2% among European adolescents [14]. We anticipated possible information bias as Malaysian adolescents might feel uncomfortable about disclosing information about their sexual activity despite we employed a self-administered method with an anonymous identification to minimize this bias. This discrete behavior was similarly observed as in a similar study conducted in Indonesia, a predominated Muslim country where response rates for sensitive questions were very low [15, 16]. Indonesian adolescents tend not to disclose as much information about sensitive information as they feel uncomfortable about sharing their personal sexual experiences due to religion and cultural constraint [16, 17].

There is a shift in the sexual activity pattern among adolescents where the prevalence of sexual behavior was found higher in rural areas than urban areas. Knowledge and awareness about the impending impact of sexual reproductive health is still lacking [18] where rural adolescents had no access to information on sexual and reproductive health (SRH) [19]. The findings of this study are vital for policy making to provide and expand sexual and reproductive health services in rural areas to ensure equitable access to information on SRH that substantially could prevent unintended consequences of risky sexual activity [19]. Risky sexual was also observed among sexually active rural girls where they tend to engage in multiple sex partners and did not practice safe sex in the last sexual intercourse [8]. Additionally, study in Brazil reported after controlling for other factors; alcohol use experimentation and having had close friends of 3 or more were positively associated with sexual intercourse among rural adolescents [20].

Our study found that sexual activity was predominated by males than females in which the findings corroborated with other previous surveys conducted in Malaysia [21] and other surveys from neighboring Asian countries [9, 10]. In contrast with previous survey done by Noor Ani Ahmad and Mudassir Anwar, gender was not a significant factor for sexual [6]. The relationship between gender and sexual activity remains equivocal, but most studies reported male engagement in sexual activity, mostly attributable to early sexual debut predominated by males [7]. There are
also evidence of which behavioral choices might be determined by their perception and influence of their peers [11, 17]. Boys also like to share pronography materials among themselves that ignite sexual curiosity and experimentation in sexual activity [17].

There are various clustering behavioral risk factors such as smoking and drug used which significantly correlates with sexual activity [11, 14, 22]. This study also reveals substantial associations between adolescents who smoke and drink alcohol with engagement in sexual activity. Our findings are cogent with previous nationwide study [6] and other studies conducted in other countries such as Colombia and Africa [3, 23, 24]. This is because those who are under the influence of alcohol were perceived to behave more sexually than when alcohol was not consumed [25]. Evidently, adolescents who engaged in sexual activity who experienced smoking and drinking also reported poorer health outcomes [11].

Condom utilization among adolescents who have had sex was very low in this study and the prevalence is decreasing compared to similar previous study in 2012 [6]. Contraceptive utilization is still poor where, most adolescents prefer to use a condom than other methods [21]. Previous study also highlighted utilization of other birth control methods where 43.7% of them used other contraceptive methods on the last time they had sex [6]. As an empowerment to minimize the risk of HIV transmission and unintended pregnancy, most countries have successfully instilled awareness and ensure access to condom or contraceptive methods among adolescents. One qualitative study highlights avoiding pregnancy was the main reason to practice safe sex, while some adolescents who had sex with casual partners perceived safe sex was for cleanliness rather than HIV and STIs prevention [26]. Numerous studies have also documented inadequate knowledge about HIV and STI transmission diminishes condom use among adolescents and barrier to adolescent’s SRH clinic impedes adolescent’s right to obtain information about safe sex and contraceptives [27]. As our study did not assess knowledge and awareness on HIV and STI transmission, it’s difficult to identify reasons of not using condom when they have had sex.

5. Limitations
This study used a standardized questionnaire adapted from the Global Health School Survey (GSHS) and we did not include questions that explore specifically on adolescent’s sexual health. However, we managed to capture few important indicators on sexual behavior and practices of adolescents. This study yields a prevalence odds ratio, which employed cross-sectional study design from another cohort of students than the study in GSHS 2012. Hence, the study did not able to establish causal-relationship between the outcome and predictor variables. However, we believe this study could provide insights on the current up to date pattern of adolescent’s sexual behavior for policy making and medical personnels who manage sexual health among adolescents.

6. Implications and Recommendations
Stigmatization and barrier to SRH services with limited access to comprehensive information about SRH could detriment sexual health among adolescents. Access to SRH in primary care settings might be limited and costly,
which requires expanded coverage [28], there is a dire for a suitable comprehensive SRH education in schools. The school-based SRH is imperative to instill a better understanding on safe sex and the consequences of unintended health outcomes from premarital sex [17, 21, 29]. Inculcating knowledge and awareness on SRH have been proven to reduce unintended pregnancies and also mitigate sexually transmitted infection among adolescents [29, 30]. Findings from this study indicates promulgating early school-based education intervention could effectively modify the HIV risk behavior [29] and reduce health disparities for SRH services for adolescents [28].

7. Conclusions
From this study, we can still see the lacking of the awareness regarding sexual health problems among the school-going adolescents. More comprehensive and holistic approach towards the students should be done to avoid this sexual related health problems in Malaysia to rise in the future.

Competing Interests
All authors disclose that there is no competing interest. All authors had no potential conflict of interest regarding the publication of this article.

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References


