Journal of Environmental Science and Public Health
doi: 10.26502/jesph.96120059

Volume 3, Issue 2 **Research Article**

Risky Sexual Behaviours among School-going Adolescent in Malaysia-Findings from National Health and Morbidity Survey 2017

Noor Aliza Lodz*, Mohd Hatta Abd Mutalip, Mohd Amierul Fikri Mahmud, Maria Awaluddin S, Norzawati Yoep, Faizah Paiwai, Mohd Hazrin Hashim, Maisarah Omar, Noraida Mohamad Kasim, Noor Ani Ahmad

Institute for Public Health, National Institutes of Health, Ministry of Health, Kuala Lumpur, Malaysia

***Corresponding Author:** Noor Aliza Lodz, Institute for Public Health, National Institutes of Health, Ministry of Health Malaysia, Jalan Setia Murni U13/52, Seksyen U13, Setia Alam, 40170, Shah Alam, Selangor, Malaysia, Tel: 60333628746; E-mail: aliza_lodz@yahoo.com

Received: 21 March 2019; **Accepted:** 02 April 2019; **Published:** 12 April 2019

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 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).

Variable	**Ever had Sex**			**Did not use Condom**			**Multiple Sex Partner**			**Had Sex age < 14 years old**		
	n	**N**	**Prevalence (95% CI)**	**n**	**N**	**Prevalence (95% CI)**	**n**	**N**	**Prevalence (95% CI)**	**n**	**N**	**Prevalence (95% CI)**
Malaysia (Nationwide)	1,914	156,618	7.3 (6.7, 8.0)	1,677	136,435	87.3 (84.8, 89.4)	291	26,009	16.6 (14.0, 19.6)	582	49,597	31.7 (28.4, 35.1)
Locality												
Urban	1,025	82,519	6.8 (5.9, 7.9)	931	74,417	90.3 (86.9, 92.9)	128	12,498	15.1 (11.7, 19.4)	245	21,030	25.5 (21.3, 30.1)
Rural	889	74,099	8.0 (7.1, 8.9)	746	62,019	83.9 (80.0, 87.2)	163	13,511	18.3 (14.6, 22.7)	337	28,567	38.6 (33.8, 43.6)
Sex												
Male	1,123	93,571	8.8 (7.8, 9.9)	946	78,725	84.4 (81.2, 87.2)	225	19,346	20.7 (17.2, 24.7)	391	32,537	34.8 (30.3, 39.5)
Female	791	63,047	5.8 (5.3, 6.4)	731	57,710	91.5 (88.5, 93.8)	66	6,664	10.6 (7.6, 14.4)	191	17,060	27.1 (23.0, 31.6)
Age												
<=15 years	1,221	96,576	7.4 (6.7, 8.3)	1,068	84,127	87.3 (84.4, 89.7)	188	16,470	17.1 (13.9, 20.8)	419	34,922	36.2 (32.4, 40.1)
>=16 years old	693	60,043	7.1 (6.1, 8.3)	609	52,308	87.3 (82.5, 90.9)	103	9,539	15.9 (11.7, 21.2)	163	14,675	24.4 (19.3, 30.5)
Ethnicity												
Malay	1,240	94,253	7.0 (6.3, 7.7)	1,107	84,262	89.7 (87.0, 91.9)	148	11,276	12.0 (9.7, 14.7)	339	25,615	27.2 (23.8, 30.9)

Chinese	268	24,359	6.8 (5.6, 8.3)	226	20,619	84.6 (79.2, 88.8)	56	5,778	23.7 (16.8, 32.3)	93	8,885	36.5 (30.5, 42.9)
Indian	146	16,297	11.0 (8.5, 14.3)	121	12,956	79.5 (64.8, 89.1)	32	3,934	24.2 (16.1, 34.7)	65	7,460	45.8 (36.0, 55.9)
Bumiputera Sabah& Sarawak	218	18,992	7.7 (6.4, 9.4)	187	16,391	86.3 (79.4, 91.1)	46	4,458	23.5 (16.8, 31.8)	72	6,838	36.0 (26.8, 46.3)
Others	42	2,717	7.2 (5.1, 10.0)	36	2,207	81.2 (59.6, 92.7)	9	566	20.8 (8.5, 42.8)	13	797	29.3 (15.7, 48.0)
Ever Smoked												
Yes	677	55,921	15.1 (13.2, 17.4)	526	42,799	77.0 (71.9, 81.4)	208	18,607	33.4 (27.9, 39.3)	326	28,065	50.2 (43.6, 56.8)
No	1,236	100,597	5.7 (5.2, 6.2)	1,151	93,636	93.1 (91.2, 94.6)	82	7,302	7.3 (5.5, 9.5)	256	21,532	21.4 (18.5, 24.6)
Ever drink alcohol												
Yes	610	52,872	12.9 (10.9, 15.3)	448	38,586	73.4 (68.6, 77.8)	228	20,887	39.6 (33.7, 45.9)	345	30,429	57.6 (51.1, 63.7)
No	1,304	103,746	6.0 (5.5, 6.5)	1,229	97,850	94.3 (92.6, 95.6)	63	5,122	4.9 (3.6, 6.8)	237	19,167	18.5 (15.9, 21.4)
Ever drug used												
Yes	462	40,860	45.9 (40.6, 51.3)	311	26896	66.4 (60.6, 71.6)	211	19,846	48.7 (41.7, 55.8)	315	28,358	69.4 (62.8, 75.3)
No	1,452	115,757	5.6 (5.2, 6.1)	1,366	109539	94.6 (93.0, 95.9)	80	6163	5.3 (4.1, 6.9)	267	21,239	18.3 (16.0, 21.0)

Table 1: Prevalence of Sexual behaviours among adolescent in Malaysia.

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, 1789) 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

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 sharepronography 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 revealsubtantial associations between adolescents who smoke and drink alcohol with engagment in sexual activity. Our findings are cogent with previousnationwide 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 SRHeducation 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.

Acknowledgements

The author(s) would like to express our gratitude to the Director General of Health Malaysia and the National Health and Morbidity Survey (NHMS) Steering Committee Team for supporting this research. We also would like to thank the Director General of Education, Ministry of Education Malaysia for the permission to conduct the survey in school settings and to those who involved in this research team and the student who joined the survey.

Funding

This survey was totally funded by Ministry of Health Malaysia research grant, including the publication fees.

References

1. Ivankovich MB, Fenton KA, Douglas JM Jr. Considerations for national public health leadership in advancing sexual health. Public Health Rep 128 (2013): 102-110.
2. UNICEF. Fact Sheet No. 345: Young People and Family Planning: Teenage Pregnancy. Malaysia UNICEF (2008).
3. Satterwhite CL, Torrone E, Meites E, et al. Sexually transmitted infections among US women and men: prevalence and incidence estimates, 2008. Sex Transm Dis 40 (2013): 187-193.
4. Aspy CB, Vesely SK, Oman RF, et al. Parental communication and youth sexual behaviour. J Adolesc 30 (2007): 449-466.
5. Wellings K, Collumbien M, Slaymaker E, et al. Sexual behaviour in context: a global perspective. Lancet 368 (2006): 1706-1728.
6. Ahmad N, Awaluddin SM, Ismail H, et al. Sexual activity among Malaysian school-going adolescents:

what are the risk and protective factors? Asia Pac J Public Health 26 (2014): 44-52.

7. Lee LK, Chen P, Lee K, et al. Premarital sexual intercourse among adolescents in Malaysia: a cross-sectional Malaysian school survey. Singapore medical journal 47 (2006): 476-481.
8. Ahmadian M, Hamsan HH, Abdullah H, et al. Risky sexual behavior among rural female adolescents in Malaysia: a limited role of protective factors. Glob J Health Sci 6 (2014): 165-174.
9. Razak LA. Global School-based Student Health Survey 2014. Bandar Seri Begawan, Brunei: Ministry of Health Brunei (2014).
10. Peltzer K and Pengpid S. Prevalence and social correlates of sexual intercourse among school-going adolescents in Thailand. ScientificWorldJournal 11 (2011): 1812-1820.
11. Chiao C and Yi C-C. Adolescent premarital sex and health outcomes among Taiwanese youth: perception of best friends' sexual behavior and the contextual effect. AIDS Care 23 (2011): 1083-1092.
12. Doyle AM, Mavedzenge SN, Plummer ML, et al. The sexual behaviour of adolescents in sub-Saharan Africa: patterns and trends from national surveys. Trop Med Int Health 17 (2012): 796-807.
13. CDC. Sexual Risk Behaviors: HIV, STD, and Teen Pregnancy Prevention (2018).
14. Gambadauro P, Carli V, Hadlaczky G, et al. Correlates of sexual initiation among European adolescents. PLOS ONE 13 (2018): e0191451.
15. RI KK. Perilaku Berisiko Kesehatan Pada Pelajar SMP dan SMA di Indonesa 2015. Jakarta, Indonesia Puslitbang Upaya Kesehatan Masyarakat, Badan Litbangkes Kementerian Kesehatan RI (2015).
16. Susanto T, Rahmawati I, Wuryaningsih EW, et al. Prevalence of factors related to active reproductive health behavior: a cross-sectional study Indonesian adolescent. Epidemiol Health 38 (2016): e2016041.
17. Jaafar JAS, Wibowo I, Afiatin T. The Relationship Between Religiosity, Youth Culture, and Premarital Sex among Malaysian and Indonesian Adolescents. Asia Pacific Journal of Social Work and Development 16 (2006): 5-18.
18. Mustapa MC, Ismail KH, Mohamad MS, et al. Knowledge on Sexuality and Reproductive Health of Malaysian Adolescents-A Short Review. Procedia - Social and Behavioral Sciences 211 (2015): 221-225.
19. Langhaug LF, Cowan FM, Nyamurera T, et al. Improving young people's access to reproductive health care in rural Zimbabwe. AIDS Care 15 (2003): 147-157.
20. Sousa BC, Santos RSD, Santana KC, et al. Sexual behavior and associated factors in rural adolescents. Rev Saude Publica 52 (2018): 39.
21. Wy L. Malaysian Youth Sexuality: Issues and Challenges. Journal of Health and Translational Medicine 12 (2009): 3-14.
22. Smith LW, Liu B, Degenhardt L, et al. Is sexual content in new media linked to sexual risk behaviour in young people? A systematic review and meta-analysis. Sexual Health 13 (2016): 501-515.
23. Jackson C, Sweeting H and Haw S. Clustering of substance use and sexual risk behaviour in adolescence: analysis of two cohort studies. BMJ Open 2 (2012): e000661.
24. Brook DW, Brook JS, Pahl T, et al. The longitudinal relationship between drug use and risky sexual behaviors among colombian adolescents. Arch Pediatr Adolesc Med 156 (2002): 1101-1107.

25. Abbey A, Zawacki T and McAuslan P. Alcohol's effects on sexual perception. J Stud Alcohol 61 (2000): 688-697.
26. Ghafari M, Shamsuddin K and Amiri M. Barriers to Utilization of Health Services: Perception of Postsecondary School Malaysian Urban Youth. International Journal of Preventive Medicine 5 (2014): 805-806.
27. Newton-Levinson A, Leichliter JS and Chandra-Mouli V. Sexually Transmitted Infection Services for Adolescents and Youth in Low- and Middle-Income Countries: Perceived and Experienced Barriers to Accessing Care. J Adolesc Health 59 (2016): 7-16.
28. Pringle J, Mills KL, McAteer J, et al. The physiology of adolescent sexual behaviour: A systematic review. Cogent Social Sciences 3 (2017): 1368858.
29. Ng CJ and Kamal S. Bridging the gap between adolescent sexuality and HIV risk: the urban Malaysian perspective. Malaysian Family Physician 1 (2006): 1.
30. Fonner VA, Armstrong KS, Kennedy CE, et al. School based sex education and HIV prevention in low- and middle-income countries: a systematic review and meta-analysis. PLoS One 9 (2014): e89692.

Citation: Noor Aliza Lodz, Mohd Hatta Abd Mutalip, Mohd Amierul Fikri Mahmud, Maria Awaluddin S, Norzawati Yoep, Faizah Paiwai, Mohd Hazrin Hashim, Maisarah Omar, Noraida Mohamad Kasim, Noor Ani Ahmad. Risky Sexual Behaviours among School-going Adolescent in Malaysia-Findings from National Health and Morbidity Survey 2017. Journal of Environmental Science and Public Health 3 (2019): 226-235.