

Premarital Sexual Behaviours among Secondary School Adolescents: A Cross-sectional Study in Kathmandu

Yadu Ram Upreti¹, Devaraj Acharya²

1. Lecturer, Central Department of Education, TU, Kirtipur
Email: yaduram.upreti@tucded.edu.np ORCID ID: 0000-0002-2705-1209 [Corresponding author]
2. Lecturer, Bhairahawa Multiple Campus, Rupandehi
Email: drabmc@gmail.com, ORCID ID: 0000-0003-0847-4836

Abstract

Young people's sexuality is often stigmatized in South Asian societies, including Nepal, where premarital sex is not accepted socially and culturally. However, the prevalence of early sexual activities among adolescents has increased over time. Given this background, this paper aimed to explore the prevalence of premarital sexual behaviour among the urban high school adolescents. This study utilized a cross-sectional design and collected a total of 609 students of grade 9-12 [ages 10-19] from both community and institutional schools in the Kathmandu metropolis. A validated structured questionnaire was employed and data were analyzed using SPSS with version 24. Univariate, bivariate, and multivariate analyses were performed to interpret the results. The study showed that the mean age of the respondents was 16 years. More than half of adolescents (52.4%) ever watched pornography, amongst whom eight percent did it on a regular basis. Similarly, 14 percent of in-school adolescents ever experienced premarital vaginal sexual intercourse, where the median age for the sexual debut was 16 years. Male respondents tended to be 13 times more likely to have premarital sex compared to the girls. Respondents who were exposed to pornography materials were likely to be exposed by 5.7 times higher than that who were not. Further, 48 percent respondents who ever had sex did not use condoms during their first sexual intercourse, followed by 45 percent who had multiple sex partners. The study concluded that a notable proportion of adolescents was involved in premarital sexual behaviours followed with vaginal sexual intercourse, especially among the boy students. Hence, the results of this study suggest school-based comprehensive sexuality education to minimize the risky sexual behaviour and promote the safer sexual activities among the secondary level school adolescents.

Keywords: Comprehensive sexuality education; Kathmandu metropolis; Pornography; Premarital vaginal sex; Risky sexual behaviour; Secondary school adolescents

Introduction

The age group of 10-19 years, called adolescence, is the period of rapid physical, mental, social and emotional development, which results in creativity, idealism, optimism and a spirit of adventure among the adolescents (WHO, 2005). However, it is also the period of experimentation, risk-taking, experiencing peer pressure, making uninformed decisions and especially relating to their bodies and sexuality (Gullotta, Plant, & Evans, 2014). Sexual behaviour of young people is one of the public health issues (WHO, 2011). Sexual and reproductive health issues remain the leading cause of ill-health among young people (Jha, Chaurasia, & Jha, 2010). Premarital sex has been widely accepted, especially in Western

countries, where two-thirds of young people have had sexual intercourse during their teens (UNICEF, 2001). It is common in high-income countries like Denmark, Norway, Finland, Iceland, Germany, the United Kingdom, and the United States, where more than three-quarters of young people have experienced premarital sex (Finer, 2007). However, premarital sex is not accepted socially and culturally in South Asian societies, including Nepal (Gubhaju, 2002). Young people's sexuality is often stigmatized in Nepal (Acharya, van Teijlingen, & Simkhada, 2009). Moreover, school teachers and health service providers are also reluctant to discuss the issues of sexuality with adolescents (Acharya et al., 2009; Pokharel, Kulczycki, & Shakya, 2006). However, the prevalence of early sexual activities among adolescents has increased over time (Adhikari, Adhikari, & Sulemane, 2018; Adhikari & Tamang, 2009; Puri, 2002; Tamang et al., 2001). Gubhaju (2002) argued that poor wealth status of family, increased urbanization, migration and exposure to mass media have collectively contributed to major changes in social and sexual behaviour among the adolescents in the Asia and Pacific Region. Shrestha (2019) argued that parenting and family and societal environment, cultural and traditional values, economic condition, school environment, peer influence, love affairs, social media are conducive factors for premarital sex. Further, Hayward (2019) added that the religion of the adolescents influences their attitudes, perception and behaviours towards the sexual behaviours.

A study conducted in five border towns of Nepal revealed that among unmarried men, more than half (54 %) of the residents and 40 percent of the non-residents ever had sex (Tamang, 2001). Similarly, a study conducted in Kathmandu reported that 39 percent of male college students experienced premarital sexual intercourse, however nearly half of the adolescent males (43%) did not use condoms during their first sexual intercourse. Interestingly, over half of the male students, who experienced premarital sexual intercourse, had multiple sex partners (Adhikari & Tamang, 2009). Another study conducted among the factory workers in Kathmandu reported that more than one-quarter of the young unmarried factory workers (28%) experienced at least one type of sexual activity with higher proportions of boys (38%) than girls (18%) being involved in sexual activities (Puri, 2002). Similarly, a study conducted by Health Education Association of Nepal (HEAN) among the high school adolescent girls in Kathmandu Valley revealed that more than two-thirds (68%) of respondents watched pornography followed by 28 percent involved in a different form of sexual fantasy and romance like kissing, hugging, body rubbing and touching sexual organs; but only six out of 400 having taken part in premarital sexual intercourse. This was farther common among the private colleges than in community ones (Maharjan, Devkota, & Budathoki, 2018). The Demographic Health Survey of Nepal 2016 demonstrated that among the age group of 15-19 years, four percent of female adolescents and three percent of males had their first sexual intercourse before they reached the age of 15. Within this age group, four percent of female adolescents and less than one percent of males got married before 15 (Ministry of Health Nepal, New ERA, & ICF, 2017).

Many studies have been undertaken to highlight the sexual behaviour of Nepali adolescents; however, we could not find published study regarding the Premarital Sexual Behaviour (PSB) of in-school adolescents including boys and girls considering with both child adolescents (10-17

years) and adult adolescents (18-19 years). Given this gap, this study was conducted among the 9-12 graded secondary school adolescents in 2018. This paper focuses on exploring the prevalence of PSB and premarital vaginal sexual intercourse among the urban high school adolescents in Kathmandu metropolis, Nepal.

Methods

Study Design and Site

A cross-sectional design was used to determine the PSB of urban high school adolescents. This study was conducted in the Kathmandu metropolis. Kathmandu was selected as a study area since the literature shows a higher prevalence of PSB in urban areas compared to rural ones (Ministry of Health Nepal et al., 2017). The schools were selected before the selection of respondents. A pre-test was conducted in February 2018, whilst data were collected from March to April 2018.

Participants' Selection

Secondary level students, who were studied in grade 9-12, were the respondents of this study. Unmarried students who were 10-19 years were the main inclusion criteria to select the respondents from the secondary schools, which run 9-12 grades. To select the respondents, the list of high schools was searched based on the EMIS (Education Management & Information System) record for the academic year of 2017/18 published by the district education office, Kathmandu (Kathmandu District Education, 2017). In total, 15 high schools (8 community and 7 institutional schools) around the metropolis were conveniently selected.

According to the record, 28,791 secondary students were found on the list. This was the total population of this study. Employing the Rao-soft online sampling calculator, 380 respondents were obtained following the 95 percent confidence level with a five percent margin of error. As mentioned in NDHS-2016, the design effects sampling error value for studying adolescents' sexual behaviours in the Bagmati province were 1.134 for boys and 1.634 for girls respectively (Ministry of Health Nepal et al., 2017). This study included both boys and girls, therefore its mid-value (1.384) was calculated to get the adjusted sample size ($n=532$). Since a 13.5 percent non-response rate was found in the pre-test of the questionnaire, the final adjusted sample size was 615.

Sample respondents from each grade were calculated based on a non-proportionate sampling technique. For the purpose, based on the name list mentioned in the attendance register, at least five girls and five boys were randomly selected from each class. This way, at least 40 students from each school were selected. However, the census method was also considered in some schools in the case of if the number of students was less than 10 in a class on the day of the survey. Moreover, it was the end of the session for grades 9 and 10 at the time of survey conduction. Therefore, the number of respondents was adjusted from grade 11-12. Hence, there were fewer 9-10 graders compared to 11-12 graders.

Tools

A self-administrated structured questionnaire was developed based on the NDHS questionnaire for adolescents' sexual and reproductive health (Ministry of Health Nepal et al.,

2017) and a validated tool adopted by Adhikari and Tamang (2009) with necessary modification. The tool was pre-tested among 30 secondary students (about 5% of total sample size) selecting two schools (one community and another institutional) of the Kathmandu metropolis. The tool was modified based on the feedback of the pre-test.

With approval from schools' principals, the instrument was administered among the respondents. Before administration of the tool, both verbal and written consent was taken from each respondent accompanying the cover letter with a questionnaire. The adolescents were assured of the anonymity of their responses as their names were not solicited. They were also asked to quit the survey if they did not like to participate in the study. Nine out of 615 respondents did not return the questionnaire since they were unwilling to participate (response rate was 99.02%) in the study. Adolescents boys and girls were kept in different rooms to fill out the questionnaire. Proper instructions were provided to each respondent about how to fill-up the form. Female volunteers [after three-day training about data collection] were recruited for helping female respondents. Ethical considerations were maintained following the ethical guideline for research (Nepal Health Research Council [NHRC], 2011).

Statistical Analysis

Collected data were entered and analyzed using SPSS version 24 for Window 10. Five percent of the total questionnaire was rechecked for consistency before entry. Data analysis was carried out in three phases. In univariate analysis, column percentage was calculated for each category; whilst in bivariate analysis, the association of independent variables with the dependent variable was determined by cross-tabulation using a chi-square test. For multivariate analysis, the net effects of predictors were examined through binominal regression analysis at 95 percent confidence level.

Variables Considered

Sex, age, grades, type of school, religion, living arrangement, father and mother's education and occupation were the background characteristics of respondents. They were considered as the independent variables. These were further re-categorized into two or three categories for bivariate and multivariate analysis. The risk behaviours such as alcohol consumption, masturbation practice, watching pornography, having boy/girlfriend, and having dating with boy/girl friend were also considered as the independent variables. These variables were also measured into the categorical scales with two or three attributes. The dependent variable: experience of 'pre-marital vaginal sex' was categorized into the three attributes naming them 'yes', 'no' and 'no response' for chi-square test but 'no' and 'no response' were merged and made a single category into the 'otherwise' to analyze binominal analysis. Thus, the dependent variable for binominal analysis was categorized into two attributes: 'yes' and 'otherwise'.

Results

Socio-demographic and Economic Characteristics

Almost three-fifths (58.9%) of adolescents were from institutional schools. The mean age was 16.67 years (SD 1.33). Grade 11-12 students (57%) were more in numbers. An overwhelming proportion

of adolescents were *Hindu* (72.7%) followed by *Buddhist* and *Christian*. Nine in ten adolescents lived with their parents. Fifty percent of respondents' fathers completed school education, whilst more than fifty (54.9%) percent of mothers had no formal education. Nearly one-third (32.5%) of fathers were involved in business and self-employment followed by job/service and agricultural works, whilst two-third of adolescents' mothers were housewives (Table 1).

Table 1: Background characteristics of respondents

Background characteristics	Percent	Number
<i>Type of school (n=609)</i>		
Community	41.1	250
Institutional	58.9	359
<i>Sex (n=609)</i>		
Boys	50.1	305
Girls	49.9	304
<i>Age (n=609), Mean = 16.76±1.3</i>		
Below 18 (Child adolescents)	67.5	411
18 and above (Adult adolescents)	32.5	198
<i>Grades (n=609)</i>		
9-10	43.0	262
11-12	57.0	347
<i>Religion (n=609)</i>		
Hindu	72.7	443
Buddhist	21.3	130
Christian	3.3	20
Others (<i>Kirat and Islam</i>)	2.7	16
<i>Living arrangement with (n=604)</i>		
Parents	89.9	543
Other than parents	10.1	61
<i>Father's education (n=606)</i>		
No formal education	36.0	218
School education	51.5	312
Higher education	12.5	76
<i>Mother's education (n=599)</i>		
No formal education	54.9	329
School education	39.9	239
Higher education	5.2	31
<i>Father's occupation (n=573)</i>		
Service	26.0	149
Business/self-employment	32.5	186
Foreign employment	17.6	101
Agriculture and other	23.9	137
<i>Mother's occupation (n=594)</i>		
Housewife	66.3	394
Other than housewife	33.7	200

Prevalence of PSBs

Of the total, more than fifty percent (52.4%) adolescents ever watched pornography, of whom nearly fifty percent watched it only 2-3 times in a month, whilst 7.6 percent did so 2-3 times in a week (Table 2). Two-third of adolescents did not experience sexual fantasy and romance, however, one in four (24.6%) had an experience of hugging followed by kissing, touching sensitive bodily parts and foreplay with sexual organs. A lower percentage (4.9%) had also been involved in sexting too. Similarly, 13.5 percent of adolescents ever experienced vaginal sexual intercourse before the survey conduction. The mean age for the sexual debut was 16. More than half (52.4%) did not use condoms at their first sexual intercourse. Among the students who had ever experience sexual intercourse, more than two-thirds (69.5%) of them experienced sexual intercourse since last year before the survey conduction, and more than half (54.9%) had had multiple sex partners (Table 2).

Table 2: Nature of premarital sexual Responses activities experienced Premarital sexual activities

activities		Percent	Number
Watching pornography	Yes	52.4	303
	No	47.6	275
Frequency of watching pornography	Occasionally (2-3 times in a week)	7.6	23
	Sometimes (2-3 times in a month)	48.5	147
	Rarely (2-3 times in a year)	43.9	133
Sexual fantasy and romance ^a	Kissing	20.9	120
	Hugging	24.6	141
	Touching sensitive organs	8.6	49
	Foreplay with sex organs	5.8	33
	Sexting	4.9	28
	Not experienced	65.6	376
Ever had sexual intercourse	Yes	13.5	82
	No	81.8	498
	No response	4.8	29
Age for sexual debut (year)	Mean age=16±1.6, Min=10 and Max 19		
Using condoms	Yes	52.4	43
	No	47.6	39
Sexual intercourse since last year	Yes	69.5	57
	No	30.5	25
Having two and multiple sexual partners	Yes	54.9	45
	No	45.1	37

Note: ^amultiple responses

Association with Premarital Sexual Intercourse

The bivariate analysis shows that the respondents' school's type, grade, sex, age, living arrangements, mother's occupation, alcohol consumption by respondents, masturbation practice, watching pornography, dating with boy/girlfriend had a significant association with premarital vaginal

sex (Table 3). Further, it was found that a significantly higher percentage of adolescents from institutional schools (14.2 %), grade 11-12 (19.9 %), boy (25.9 %), adult adolescents (24.7 %), living with other than parents (26.2%), alcohol consumers (32.6 %) engaged in premarital sexual relationships compared with their counterparts. Similarly, a significantly increased number of adolescents who had a masturbation practice (33.5 %), ever watched pornography (26.1%), having boy/girlfriend (25.8 %), having a dating with boy/girlfriend (30.3%) were also engaged in vaginal sex compared to their counterparts (Table 3).

Table 3: Association between characteristics of respondents and premarital sex

Background characteristics	Category	Premarital sex			N Total
		Yes (%)	No (%)	No response (%)	
Type of school *	Community	12.4	85.6	2.0	250
	Institutional	14.2	79.1	6.7	359
Grades***	9-10	5.0	90.1	5.0	262
	11-12	19.9	75.5	4.6	347
Sex***	Boys	25.9	70.5	3.6	305
	Girls	1.0	93.1	5.9	304
Age***	Below 18	8.0	87.8	4.2	411
	18 and above	24.7	69.2	6.1	198
Religion	Hindu	13.8	81.7	4.5	443
	Non-Hindu	12.7	81.9	5.4	166
Living arrangement with**	Parents	12.0	83.1	5.0	543
	Other than parents	26.2	70.5	3.3	61
Father's education	No formal edu.	13.8	81.2	5.0	218
	School education	13.8	81.4	4.8	312
	Higher education	11.8	84.2	3.9	76
Mother's education	No formal edu.	14.9	81.5	3.6	329
	School education	12.1	81.6	6.3	239
	Higher education	9.7	87.1	3.2	31
Mother's occupation*	Housewife	10.9	84.8	4.3	394
	Other than housewife	18.5	76.0	5.5	200
Father's occupation	Service	12.8	84.6	2.7	149
	Business/self-employment	14.0	81.7	4.3	186
	Foreign employment	14.9	76.2	8.9	101
	Agriculture/ other	12.4	83.9	3.6	137
Alcohol consumption behaviour of respondents ***	Yes	32.6	62.9	4.5	89
	No	10.2	85.2	4.7	512
Masturbation practice***	Yes	33.5	64.8	1.7	179
	No	5.8	88.3	5.8	223
	Do not know	4.3	89.4	6.3	207
Watching pornography***	Yes	26.1	71.9	2.0	303
	No	1.1	96.4	2.5	275
Having boy/girlfriend***	Yes	25.8	71.1	3.1	225
	No	6.5	89.3	4.2	354
Dating with boy/girlfriend ***	Yes	30.3	67.2	2.6	195

Background characteristics	Category	Premarital sex			N Total
		Yes (%)	No (%)	No response (%)	
Type of school *	Community	12.4	85.6	2.0	250
	Institutional	14.2	79.1	6.7	359
Grades***	9-10	5.0	90.1	5.0	262
	11-12	19.9	75.5	4.6	347
Sex***	Boys	25.9	70.5	3.6	305
	Girls	1.0	93.1	5.9	304
Age***	Below 18	8.0	87.8	4.2	411
	18 and above	24.7	69.2	6.1	198
Religion	Hindu	13.8	81.7	4.5	443
	Non-Hindu	12.7	81.9	5.4	166
Living arrangement with**	Parents	12.0	83.1	5.0	543
	Other than parents	26.2	70.5	3.3	61
Father's education	No formal edu.	13.8	81.2	5.0	218
	School education	13.8	81.4	4.8	312
	Higher education	11.8	84.2	3.9	76
Mother's education	No formal edu.	14.9	81.5	3.6	329
	School education	12.1	81.6	6.3	239
	Higher education	9.7	87.1	3.2	31
Mother's occupation*	Housewife	10.9	84.8	4.3	394
	Other than housewife	18.5	76.0	5.5	200
Father's occupation	Service	12.8	84.6	2.7	149
	Business/self-employment	14.0	81.7	4.3	186
	Foreign employment	14.9	76.2	8.9	101
	Agriculture/ other	12.4	83.9	3.6	137
Alcohol consumption behaviour of respondents ***	Yes	32.6	62.9	4.5	89
	No	10.2	85.2	4.7	512
Masturbation practice***	Yes	33.5	64.8	1.7	179
	No	5.8	88.3	5.8	223
	Do not know	4.3	89.4	6.3	207
Watching pornography***	Yes	26.1	71.9	2.0	303
	No	1.1	96.4	2.5	275
Having boy/girlfriend***	Yes	25.8	71.1	3.1	225
	No	6.5	89.3	4.2	354
Dating with boy/girlfriend ***	Yes	30.3	67.2	2.6	195
	No	6.2	89.5	4.3	371

Note: chi-square test significant at * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Likelihood of Premarital Sexual Intercourse

Multivariate regression analysis shows that sex, grade, mother's occupation, alcohol consumption behaviour, and watching pornography remained the significant predictors for premarital sex among the high school adolescents. However, the sex of respondents remained the strongest predictor amongst others. After controlling other confounders, male respondents were about 13 times more

likely to have premarital vaginal sex than those of female adolescents. Similarly, students who studied in grades 11-12 were five times more likely to have premarital sex than 9-10 graders. Students, whose mothers were involved in service, business, daily wage works, foreign employment and agriculture, were 2.5 times more likely to experience premarital sex than those whose mothers were housewives only. Similarly, students who were alcohol consumers and exposed to ever watched pornography were 2.4 times and 5.7 times more likely to have premarital sex than those of their counterparts respectively.

Table 4: *Multivariate analysis of respondents' characters and experience of premarital sex*

Predictors	Adjusted OR	95% CI	
		Lower	Upper
<i>Sex</i>			
Girls (Ref)	1		
Boys	12.8***	3.553	46.224
<i>Type of school</i>			
Community (Ref)	1		
Institutional	0.87	0.453	1.679
<i>Grade</i>			
9-10 (Ref)	1		
11-12	5.1**	1.702	15.294
<i>Age</i>			
Child adolescents [Below 18] (Ref)	1		
Adult adolescents [18 and above]	0.79	0.260	2.427
<i>Living arrangement with</i>			
Parents (Ref)	1		
Other than parents	1.6	0.638	3.918
<i>Mother's occupation</i>			
Housewife (Ref)	1		
Other than housewife	2.5**	1.266	4.962
<i>Alcohol consumption by respondents</i>			
No (Ref)	1		
Yes	2.4*	1.152	5.001
<i>Masturbation practice</i>			
No (Ref)	1		
Yes	2.07	0.889	4.829
Do not know	1.36	0.442	4.164
<i>Watching pornography(ever)</i>			
No (Ref)	1		
Yes	5.7*	1.530	21.537
<i>Having boy/girlfriend</i>			
No (Ref)	1		
Yes	2.077	0.805	5.358
<i>Dating with boy/girlfriend</i>			
No (Ref)	1		
Yes	2.544	0.981	6.596

Note: significant at * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Discussion

This study attempts to explore the prevalence of PSBs among the urban high school adolescents in Kathmandu city of Nepal. The findings of this study reveal that more than fifty percent (52.4%) of high school adolescents watched pornography, and 7.6 percent did so regularly. Results indicate that watching pornography has enormously increased among the urban youths of Nepal. This result is comparable with the findings revealed by a study conducted in Kathmandu valley among adolescent girls at school (Maharjan et al., 2018). Evidence indicates that increased access to social media is significantly associated with watching pornography and other premarital sexual behaviours of youths (Landry, Turner, Vyas, & Wood, 2017). Similarly, sexual fantasy and romance were not uncommon among the study adolescents, where one in four was involved in hugging, followed by kissing (20.9 %), body rubbing (8.6 %), placing the hands on sexual organs (5.8 %) and sexting (4.9 %). This prevalence was significantly higher among adolescent boys. These findings are comparable with a study conducted among the college male students in Kathmandu, where 57 percent of respondents had experienced kissing, while 60 percent placed their hands on girls' breasts, followed by 35 percent put their hands on girls' sexual organs (Adhikari & Tamang, 2009). The prevalence rate of sexual fantasy and romance seems higher than our study. It may be due to conducting the study among only male college students. Moreover, evidence shows that the higher the age, the higher the chance of experiencing sexual activities among unmarried people (Adhikari & Tamang, 2009; Ministry of Health Nepal et al., 2017). These pre-sexual activities among the adolescents may increase the likelihood of unprotected sexual intercourse, which further may result undesirable sexual outcomes like urinary tract infection (UTI), teenage pregnancy, induced abortion and its associated complications (Lee, Chen, Lee, & Kaur, 2006; Shrestha, 2019).

This study found that 13.5 percent of pupils (boy 25.9 % vs. girl 1%) experienced premarital sexual intercourse, where the median age for the sexual debut was 16 years. Further, the study also revealed that 47.6 percent of respondents who had ever sex did not use a condom at the time of first sexual intercourse, followed by having multiple sex partners (45 %) and more than two-thirds (69.5 %) had also experienced sexual intercourse since last year. Multivariate logistic regression shows that prevalence of premarital sex was significantly higher among the male students (aOR=12.8, $p<0.001$, CI= 3.553-46.224), 11-12 graders (aOR=5.1, $p<0.01$, CI= 1.702-15.294), students whose mothers were non-house wife (aOR=2.5, $p<0.01$, CI= 1.266-4.962), alcohol consumers (aOR=2.4, $p<0.05$, CI= 1.152-5.001), and pornography exposer (aOR=5.7, $p<0.05$, CI= 1.530-21.537).

The findings of our study are corroborated with many other studies conducted within and beyond the study setting. The Global School-Based Student Health Survey (GSHS) conducted in Nepal with the support of several agencies reveal that 20.8 percent adolescent students (male 22.6%, female 18.3%) ever had sexual intercourse in their life (Aryal, 2017). Similarly, Khanal (2012) carried out a cross-sectional study among the higher secondary students in Kathmandu city, which demonstrated that 18 percent of students (boys= 30.1% & girls 4.7%) with 16 years of median age experienced pre-marital sexual intercourse, followed by 46.8 percent

unsafe sexual behaviour like not using a condom at the time of sexual contact and having multiple sex partners. A similar study conducted in Pokhara also revealed that nearly one in four (24.5%) study respondents have had premarital sex along with unsafe sexual practices like having multiple sex partners (Adhikari et al., 2018). Beyond Nepal, a study conducted among Malaysian school adolescents aged 12-19 years found that 5.4 percent of respondents experienced premarital sexual intercourse. The proportion among male students who had had sex was higher (8.3 percent) compared with females (2.9 percent). The mean age at first sexual intercourse was 15 years (Lee et al., 2006).

A study from Indonesia shows that knowledge about reproductive health was significantly associated with premarital sexual relationships (Nasution, 2012). Another study from Tanzania shows that the adolescents, who were out of school, were largely experienced with sexual relationships (Nnko, Chiduo, Mwaluko, & Urassa, 2001). PSB is associated with extramarital sexual behaviour that may lead to family disturbance including divorced/separated life, chances of having various sexually transmitted infections (White, Cleland, & Carae, 2000). Simultaneously, another study asserts that the religious faith of the adolescents was also associated with their sexual behaviours (Hayward, 2019).

Comparing these results with our study, Nepalese high school adolescents have a higher prevalence of premarital sexual contact. There could be some reasons like the timeline between the studies and the area coverage. But, a study conducted among the Nigerian urban school adolescents aged 10-19 years, found a significant proportion of adolescents (47 %) have had sex. Of those who have ever had sex, nearly two-thirds of them (63.2 %) involved in sex more than four times in the last six months, whilst near to fifty percent of them had multiple sex partners at a time (Nwankwo & Nwake, 2009). These results do not necessarily corroborate with our study since the socio-political condition of Nigeria and Nepal is unlike.

Limitations

Due to resource constraints, the study has some potential limitations that may influence the results and representativeness. First, the study was conducted in the Kathmandu Metropolitan city which may not represent the country as a whole. Second, we used convenient sampling in school selection which may have the less predictive capacity. Third, we used a self-administrated questionnaire to collect the data in the first attempt. It may be uneasy for those who were shy or hesitated to respond in the case of so-called confidential issues of sex and sexual behaviour, so, much information might be missed which are subjected to recall bias, peer influence, and some other social desirability bias. Fourth, we collected quantitative information which may limit the information that the respondents want to express. That may limit the field-based evidence power. Finally, we collected data from a particular time from selected respondents so the validity and reliability of the responses depended upon them who participated in the study. So the result of the study may or may not fit for all time. However, we did our best in every angle to make the results meaningful. Mixed-method research can be conducted in future for the more powerful information containing large samples with multiple sources of information.

Conclusion

This study provides evidence-based finding on the prevalence of PSBs among the high school adolescents of Kathmandu metropolis. The study concludes that an overwhelming number of in-school adolescents involved in sexual fantasy activities like watching pornography, kissing, hugging, body rubbing, touching sexual organs, and sexting. The study also concludes that a notable number of adolescents involved in premarital vaginal sex, used no condom during intercourse, consumed alcohol before sexual intercourse, and had multiple sex partners. This prevalence was more common among the boy students than those of girls. This study suggests school-based comprehensive sexuality education to minimize the risky sexual behaviour and promote the safer sexual activities among the secondary level school adolescents.

Acknowledgements

The authors would like to extend their gratitude to all the respondents who participated in the study. The authors acknowledge Rector's Office, Center for Research, Tribhuvan University, Nepal for providing grants to conduct this study. And authors also acknowledge anonymous reviewers for their worthy comments.

Author's contribution

YRU collected, entered, and analyzed the data along with manuscript development and DA edited the manuscript with generous inputs. Both authors have read and approved the final manuscript and agreed to submit for publication.

References

- Acharya, D. R., Van Teijlingen, E., & Simkhada, P. (2009). Opportunities and challenges in school-based sex and sexual health education in Nepal. *Kathmandu University Medical Journal*, 7(4), 445-453. doi: 10.3126/kumj.v7i4.2773
- Adhikari, N., Adhikari, S., & Sulemane, N. I. (2018). Premarital sexual behaviour among higher secondary students in Pokhara sub-metropolitan city Nepal. *Sexual Health*, 15(5), 403-407. doi: [10.1071/SH17210](https://doi.org/10.1071/SH17210)
- Adhikari, R., & Tamang, J. (2009). Premarital sexual behavior among male college students of Kathmandu, Nepal. *BMC Public Health*, 9(1), 241. doi: [10.1186/1471-2458-9-241](https://doi.org/10.1186/1471-2458-9-241)
- Aryal, K. K. (2017). *Global school based student health survey Nepal-2015*. Kathmandu, Nepal Health Research Council.
- Finer, L. B. (2007). Trends in premarital sex in the United States, 1954-2003. *Public Health Reports*, 122(1), 73-78. doi 10.1177/003335490712200110
- Gubhaju, B. B. (2002). Adolescent reproductive health in Asia. *Asian Pacific Population Journal*, 17(5), 94-119. doi: 10.111082.1649
- Gullotta, T. P., Plant, R. W., & Evans, M. A. (Eds.). (2014). *Handbook of adolescent behavioral problems: Evidence-based approaches to prevention and treatment*. Springer.

- Hayward, G. M. (2019). Religiosity and premarital sexual behaviors among adolescents: An analysis of functional form. *Journal for the Scientific Study of Religion*, 58(2): 439-458. Doi:10.1111/jssr.12588
- Jha, S. M., Chaurasia, R., & Jha, B. (2010). Knowledge about condoms among adolescents in Kathmandu Valley. *Journal of Nepal Paediatric Society*, 30(1), 18-22. doi: 10.3126/jnps.v30i1.2455
- Kathmandu District Education. (2017). *Education mangament and information system (EMIS) record-2073 BS of Kathmandu district*. Retrieved from: <http://deokathmandu.gov.np/allcontent/Detail/113>
- Khanal, P. (2012). Sexual behaviour among higher secondary school students of Kathmandu metropolitan city. *Health Prospect*, 11, 15-18. doi: 10.3126/hprospect.v11i0.7424
- Landry, M., Turner, M., Vyas, A., & Wood, S. (2017). Social media and sexual behavior among adolescents: Is there a link?. *JMIR Public Health and Surveillance*, 3(2): e28. doi: 10.2196/publichealth.7149
- Lee, L. K., Chen, P.C.Y., Lee, K.K., & Kaur, J. (2006). Premarital sexual intercourse among adolescents in Malaysia: A cross-sectional Malaysian school survey. *Singapore Medical Journal*, 47(6): 476-481.
- Maharjan, S. K., Devkota, B., & Budathoki, C. B. (2018). Early sexual behaviours and academic performance of in-school adolescent girls in Kathmandu valley. *Journal of Health Promotion*, 6, 70-79. doi: 10.3126/jhp.v6i0.21806
- Ministry of Health Nepal, New ERA, & ICF. (2017). *Nepal demographic and health survey 2016*. Kathamandu, Ministry of Health, Nepal.
- Nasution, S. L. (2012). The effect of knowledge about adolescent reproductive health on premarital sexual behaviour in Indonesia. *Widyariset*, 15(1), 75-84.
- Nepal Health Research Council (NHRC). (2011). *National ethical guidelines for health research in Nepal and standard operating procedures*. Kathmandu, Nepal Health Research Council.
- Nnko, S., Chiduo, B., Mwaluko, G., & Urassa, M. (2001). Pre-marital sexual behaviour among out-of-school adolescents: Motives, patterns and meaning attributed to sexual partnership in Rural Tanzania. *African Journal of Reproductive Health*, 5(3): 162-174. doi: 10.2307/3583333
- Nwankwo, B. O., & Nwake, E. (2009). Risky sexual behaviours among adolescents in Owerri municipal: Predictors of unmet family health needs. *African Journal of Reproductive Health*, 13(1): 135-145.
- Pokharel, S., Kulczycki, A., & Shakya, S. (2006). School-based sex education in Western Nepal: Uncomfortable for both teachers and students. *Reproductive Health Matters*, 14(28): 156-161. doi: 10.1016/s0968-8080(06)28255-7
- Puri, M. (2002). *Sexual risk behaviour and risk perception of unwanted pregnancy and sexually transmitted infection among young factory workers in Nepal*. Kathmandu, Nepal. Retrieved from: shorturl.at/lSyFY

- Shrestha, R. B. (2019). Premarital sexual behaviour and its impact on health among adolescents. *Journal of Health Promotion*, 7: 43-52. doi:10.3126/jhp.v7i0.25496
- Tamang, A., Nepal, B., Puri, M. & Shrestha, D.P. (2001). Sexual behaviour and risk perceptions among young men in border towns of Nepal. *Asia-Pacific Population Journal*, 16(2), 195-210. doi: 10.18356/82fbb881-en
- UNICEF. (2001). *A league table of Teenage births in nations*. Retrieved from: shorturl.at/hjuNP
- White, R., Cleland, J., & Carae, M. (2000). Links between premarital sexual behaviour and extramarital intercourse: A multi-site analysis. *AIDS*, 14(15): 2323–2331.
- WHO. (2005). *Nutrition in adolescence: issues and challenges for the health sector: issues in adolescent health and development*. World Health Organization. Retrieved from: shorturl.at/cnHKZ
- WHO. (2011). *The sexual and reproductive health of younger adolescents: research issues in developing countries: background paper for consultation*. World Health Organization. Retrieved from: <https://apps.who.int/iris/handle/10665/44590>