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Prevalence of risky sexual behaviour and its associated factors among youths of Pokhara metropolitan city, Nepal: a cross-sectional study

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ABSTRACT

Introduction Risky sexual behaviour, which puts young people at greater risk of acquiring HIV AIDS and sexually transmitted infection, is a significant public health concern all around the world. In 2020, 15% of ever reported HIV positive cases were youths in Nepal. This study aimed to estimate the prevalence of risky sexual behaviour and its associated factors among youths of Pokhara metropolitan city.

Methodology A cross-sectional study was done. The study population was youths aged 15–24 who were currently studying in grades 11/12 or at the bachelor level. The sample size was 850, interviewed in two strata (male and female). A multistage cluster sampling technique was used. A self-administered, structured questionnaire was used to obtain information. Bivariate (χ^2 test) and multivariate (logistic regression) analyses were performed to assess the statistically significant relationship between the dependent and independent variables.

Results Overall, nearly a third (31%) respondents ever had sexual intercourse. Similarly, the overall prevalence of risky sexual behaviour was 18.6% (95% CI=16% to 21.2%), while the prevalence among sexually active respondents was 60% (95% CI=53.7% to 65.5%). The prevalence varied greatly among two sexes where 72% male and 31% female were involved in risky sexual behaviour. The logistic regression analysis showed that females were 72% (AOR=0.28, 95% CI=0.12 to 0.69) less likely than males and youths aged 20–24 were 72% (AOR=0.28, 95% CI=0.13 to 0.57) less likely than adolescents aged 15–19 to engage in risky sexual behaviour. Similarly, in regard to caste, Janajatis were almost six times (AOR=5.56, 95% CI=2.47 to 12.5) and Dalits/Madhesi/others were almost two times more likely to involve in risky sexual behaviour than Brahmin/Chhetri.

Conclusion This study shows a significantly higher prevalence of risky sexual behaviour among adolescents, males and Janajatis than their counterparts. Hence, youths should be educated and empowered to practice safe sexual behaviour through appropriate educational and behaviour change interventions with a special focus on adolescents, males and Janajatis.

WHAT IS ALREADY KNOWN ON THIS TOPIC

⇒ Risky sexual behaviour puts young people at greater risk of acquiring HIV AIDS and sexually transmitted infection and is a significant public health concern all around the world including Nepal. In 2019, two out of every seven new HIV infections globally were among youths. But there are no adequate comprehensive studies of risky sexual behaviour among youths in Nepal.

WHAT THIS STUDY ADDS

⇒ Our study findings revealed that overall, nearly a fifth youths of Pokhara Metropolitan city, Nepal were engaged in risky sexual behaviour. Similarly, among sexually active respondents, three-fifths were involved in risky sexual behaviour. Males, youths aged less than 20 years and youths belonging to Janajati caste were significantly more likely to involve in risky sexual behaviour than their counterparts.

HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

⇒ This study highlights the necessity to design and implement appropriate behavioural interventions for youths to practice safe sexual behaviour with especial focus on adolescents, males and those belonging to Janajati caste. Similarly, the findings of this study can support educators, planners and policy makers to formulate appropriate educational or policy level interventions for youths.

BACKGROUND

Risky sexual behaviour refers to behaviour that increases the vulnerability of an individual to problems linked with sexuality and reproductive health.[1] Risky sexual behaviour is a significant public health problem all around the world.[2] It includes having sex with multiple sexual partners, not using or inconsistent condom use, initiation of first sex at an early age, sex with commercial sex workers (CSWs) and sexual intercourse under the influence of substance use.[3–5] Two out of every seven new HIV infections globally in 2019 were among

young people (15–24 years).[6] The study among undergraduate students in Sri Lanka[7] showed that the prevalence of risky sexual behaviour among undergraduates was 12.4%. Likewise, 19.6% of secondary students (2018) had practiced risky sexual behaviours in Ethiopia and discussions on sexual and reproductive health (SRH) with parents, and those raised by both parents had a preventive significant association. On the other hand, peer pressure and seeing pornographies had a significant association with an increased risk of sexual behaviour.[8] Similarly, factors like the use of alcohol, cigarettes, monitoring of parents and having sexually active close friends were also significantly associated with risky sexual behaviour.[3] A systematic review and meta-analysis in Ethiopia showed that the pooled prevalence of risky sexual behaviours of college students was 41.6%. Similarly, male (OR: 2.35) alcohol users (OR: 2.68) and those who watch pornography (OR: 4.74) were more likely to practice risky sexual behaviours.[9] A UNAIDS report showed that proportion of condom use among female aged 15–24 years during high-risk sex in the last 12 months was less than 50% in 31 countries, while the proportion among young men was less than 50% in 18 countries.[10]

Nepal still has significant burden of HIV/sexually transmitted infections (STIs), and youths are also one of the vulnerable populations. Fifteen per cent of ever reported HIV positive cases belonged to the age group 15–24 years (as of July 2020).[11] However, there are no adequate researches that have been conducted in Nepal about the unsafe sexual behaviours. Most of these studies have incorporated only one/two risky behaviours in a single study, which shows the existence of fragmented knowledge and highlights the need for a comprehensive study.

In a study of the risky behaviours of students in Pokhara Metropolitan city, among a tenth sexually active participants, more than three-fourths (76%) of the participants had a first sexual experience before 16 years, and 34% had more than two partners.[12] However, these studies scarcely discuss about the factors influencing the involvement of youths in risky sexual behaviour.

This study aimed to estimate the prevalence and factors associated with risky sexual behaviour among youths of Pokhara Metropolitan City in Nepal. So, the study will help SRH stakeholders to emphasise health promotion of adolescents and youths by creating a platform where youths could be informed to understand the threats associated with high-risk sexual behaviour. Such understanding is necessary to minimise public health challenges, especially among the youth of Nepal. Moreover, this study can provide new contextual information about the existing situation of risky sexual behaviour, which can be evidence to design appropriate SRH programmes. Hence, the findings of this study can support improving the knowledge and practices of sexual health through design and implementation of appropriate behavioural interventions.

METHODS

Study design, study area and study period

A cross-sectional and descriptive study was done. The study was carried out in Pokhara Metropolitan city between November 2022 and February 2023. Pokhara is one the biggest city in the country, where youths from different regions migrate for the purpose of study and employment. So, this area was considered as a representative place for investigating the sexual behaviour of youths.

Eligibility criteria

Young people aged 15–24 who were currently studying in grades 11/12 or bachelor level were included in the study.

Sample size and sampling

The sample size was calculated using Cochran's formula, $n = \left(z^2\ p * q\right) / d^2 * Deff$, using the prevalence of 17%,[13] which gives the sample size as 425 after multiplying with design effect 1.5. As the prevalence of risky sexual behaviour varies greatly between male and female,[14] the sample size of 425 was taken for two strata of male and female each and the total sample size was 850.

A multistage cluster sampling technique was used for the selection of male and female college students. In the first stage, 10 wards of Pokhara Metropolitan city were selected randomly from all the wards having +2/bachelor level colleges through a random number generator. The number of research participants from each ward was taken proportionately.

At the ward level, one college (having more than the required ward level population) was selected randomly through the lottery method. From each college, classes (sections) were selected randomly (through the lottery method), irrespective of the faculty. The number of classes to be selected was determined according to the required sample from each college. Similarly, an equal number of male and female students were taken to attain the required sample size from each class. A self-administered structured questionnaire was used to obtain information from the students. Sampled male and female students were kept in separate classrooms. Students were kept with adequate spacing on a bench/chair, as in an exam setting, before distributing the questionnaire.

Data collection tools and variables

The questionnaire for the survey was partly adopted from the 'Illustrative questionnaire for interview-surveys with young people' developed by WHO/UNFPA[15] and Youth Risk Behavioural Survey standard questionnaire.[16] As the study covered both government and private schools/campuses, the questionnaire was translated in Nepali, with keywords stated in both English and Nepali languages. The questionnaire was finalised with necessary modifications to suit the local context after pretesting and consultation with the content experts (reproductive and sexual health).

Table 1 Sociodemographic characteristics

Variables	Sex of the respondent				Total	
	Male		Female			
	N	%	N	%	N	%
Age group						
15–19	194	45.6	253	59.5	447	52.6
20–24	231	54.4	172	40.5	403	47.4
Mean age	19.8±2.2		19.01±2.17		19.4±2.2	
Ethnicity						
Brahmin/Chhetri	286	67.3	247	58.1	533	62.7
Janajati/Newar	93	21.9	125	29.4	218	25.6
Dalits	28	6.6	42	9.9	70	8.2
Madhesi/Muslim/others	18	4.2	11	2.6	29	3.4
Religion						
Hindu	397	93.4	385	90.6	782	92.0
Buddhist	16	3.8	35	8.2	51	6.0
Muslim/Christian/others	12	2.8	5	1.2	17	2.0
Person currently living with						
Parents	270	63.5	264	62.1	534	62.8
Other relatives	52	12.2	100	23.5	152	17.9
Friends	19	4.5	25	5.9	44	5.2
Alone	84	19.8	36	8.5	120	14.1
Discussed sexual matters with father						
Yes	38	8.9	20	4.7	58	6.8
Discussed sexual matters with mother						
Yes	23	5.4	111	26.1	134	15.8
Total	**425**	**100**	**425**	**100**	**850**	**100**

The operational definitions of major variables in the study are explained as follows:

Risky sexual behaviour: 'Risky sexual behaviour' indicates one or more of the following[3 8] for the purpose of this study:

- Early sexual initiation: sexual initiation before 18 years.
- Multiple sexual partners: more than one sexual partner within 1 year.
- Inconsistent/failure to use condom with casual sex partner.
- Sex with CSWs.

Substance use: consumption of alcohol or cigarette/tobacco or any drugs (cocaine, heroin, marijuana etc). In this study, both ever use of substance and its use in the past month is sought.

Casual sex partner: sex partner other than husband/wife (if married) and boyfriend/girlfriend (if unmarried).

CSWs: people who exchange sex for money or goods or other materials/things.

Youths: young people aged 15–24 years.

Data management and analysis

Data were entered in Epi-Info (V.4.2.7) and exported to SPSS for further analysis. Coding was carried out to simplify the data entry. Bivariate and multivariate analysis were performed to assess the statistically significant relationship between the dependent and independent variables. A χ^2 test was done to find the associated variables. Similarly, binary logistic regression analysis was done for multivariate analysis. The OR and 95% CI were reported while showing the association between dependent and independent variables. Correlation coefficient was used to identify multicollinearity, and between two variables with correlation coefficient more than 0.7, only one of the variables was included. For instance, close unmarried sexually active friend, and close friend with multiple sex partner, had correlation coefficient 0.783, so only one of them was included.

RESULTS

Sociodemographic characteristics

A total of 850 respondents participated in this study. Overall, more than half (53%) of respondents belonged to the age group of 15–19 years. The mean age of the respondents was 19.4±2.2 years. In regard to caste/ethnicity, more than three-fifths (63%) were Brahmin/Chhetri, followed by Janajati/Newar (26%). More than nine out of 10 (92%) respondents were Hindus. More

Table 2 Sexual behaviour, pornographic movies and masturbation

Variables	Sex of the respondent				Total	
	Male		Female			
	N	%	N	%	N	%
Ever had sexual intercourse						
Yes	186	43.8	81	19.1	267	31.4
No	239	56.2	344	80.9	583	68.6
Total	425	100.0	425	100.0	850	100.0
Age at first sex						
Less than 15 years	9	4.9	0	0	9	3.4
15–17 years	57	31.0	14	17.3	71	26.8
≥18 years	118	64.1	67	82.7	185	69.8
Mean age	**17.7±2.0**		**19.3±1.9**		**18.4±2.1**	
Total	184	100.0	81	100.0	265	100.0
Condom use at first sexual intercourse						
Yes	128	68.8	53	65.4	181	67.8
No	58	31.2	28	34.6	86	32.2
Total	186	100.0	81	100.0	267	100.0
No. of sexual partners until						
One	50	27.2	65	80.2	114	43.7
2–5	108	58.7	16	19.8	121	46.4
More than 5	26	14.1	0	0	26	10.0
Total	184	100.0	81	100.0	261	100.0
Sexual partners until						
Girlfriend/boyfriend/husband/wife	144	78.3	76	93.8	220	83.0
Friend	83	45.1	17	21.0	100	37.7
Stranger	75	40.8	1	1.2	76	28.7
Commercial sex workers	48	26.1	0	0	48	18.1
Ever had sex with commercial sex workers						
Yes	48	25.8	0	0	48	18.0
No	138	74.2	81	100.0	219	82.0
Total	186	100.0	81	100.0	267	100.0
Condom use with CSWs						
At each sexual intercourse	40	83.3	0	0	40	83.3
Sometimes	6	12.5	0	0	6	12.5
Never	2	4.2	0	0	2	4.2
Ever had one night stand						
Yes	75	41.2	1	1.3	76	29.1
No	107	58.8	78	98.7	185	70.9
Total	182	100.0	79	100.0	261	100.0
Frequency of watching pornographic movie						
Everyday/almost everyday	78	18.4	6	1.4	84	9.9
Sometimes (1–2 days a week)	153	36.0	26	6.1	179	21.1
Rarely	138	32.5	101	23.8	239	28.1
Never	56	13.2	292	68.7	348	40.9
Total	425	100.0	425	100.0	850	100.0
Masturbation practice						
Yes	355	83.9	30	7.2	385	45.8

Continued

Table 2 Continued

Variables	Sex of the respondent				Total	
	Male		Female			
	N	%	N	%	N	%
No	68	16.1	388	92.8	456	54.2
Total	423	100.0	418	100.0	841	100.0
Frequency of masturbation practice						
Everyday/almost everyday	55	15.5	1	3.3	56	14.5
Usually (2–3 days a week)	89	25.1	2	6.7	91	23.6
Sometimes	158	44.5	7	23.3	165	42.9
Rarely	53	14.9	20	66.7	73	19.0
Total	355	100.0	30	100.0	385	100.0

Bold format values denote average age.
CSWs, commercial sex workers.

than three-fifths (63%) of respondents were currently living with their parents, followed by other relatives (18%) and alone (14%). In regard to the relationship with the father, an overwhelming majority (91%) of respondents had good/very good relationship with father, 97% of the respondents had a good/very good relationship with their mothers (table 1).

Discussion of sexual matters with parents

Seven per cent of the respondents had ever discussed sexual matters with their father, and the proportion was higher among males (9%) than females (5%). The majority of them (93%) among those who had ever discussed, had discussed sometimes about the sexual matters. Similarly, nearly a sixth (16%) of respondents had ever discussed sexual matters with their mothers (table 1).

Sexual behaviour, pornographic movies and masturbation

Overall, 31% of respondents ever had sexual intercourse, and the proportions were predominantly higher among males (44%) than females (19%). In regard to the age at first sexual intercourse, the mean age at sexual intercourse was 18.4±2.1 years, ranging from (12–23) years for male and (15–24) years for female. Similarly, 3% of respondents had their first sex before 15 years, and 70% initiated sexual intercourse at 18 years or older. Likewise, more than two-thirds (68%) of respondents used condoms at their first sexual intercourse, and the proportion was slightly higher among males (69%) than females (65%). Overall, 44% of respondents had one partner and 46% had 2–5 sexual partners until the time of data collection. It is notable that 14% males, while none of the females, had more than five sexual partners until that time. Similarly, it is noteworthy that, 18% of respondents had sex with CSWs, in which all the respondents were male. Among those who had sex with CSWs, 83% used condom at each sexual intercourse, while it is notable that 4% never used condoms. Similarly, in regard to watching pornographic movies, more than two-fifths (41%) of the respondents had never watched pornographic movies, while 10% watched them every day/almost every day, and the proportion of watching pornographic movies everyday was notably higher among male respondents (18%) than female respondents (1%). In regard to the masturbation practice, 46% of all respondents masturbate but the proportion is predominantly higher among males (84%) than females (7%) (table 2).

Table 3 Prevalence of risky sexual behaviour

Variables	Sex of the respondent				Total		95% CI
	Male		Female				
	N	%	N	%	N	%	
Risky sexual behaviour (any of the four risky behaviours)							
Yes	133	72.3	25	30.9	158	59.6	53.7 to 65.5
No	51	27.7	56	69.1	107	40.4	
All four risky behaviours							
Yes	10	5.4	0	0	10	3.8	1.5 to 6.1
No	174	94.6	81	100.0	255	96.2	
Total	184	100.0	81	100.0	265	100.0	

Table 4 Bivariate analysis

Variables	Risky sexual behaviour		95% CI (lower–upper)	Total	P value (χ^2)
	Yes				
	N	%		N	
Age group					
15–19	61	73.5	64.0 to 83.0	83	
20–24	97	53.3	46.0 to 60.5	182	**0.002** (9.659)
Sex					
Male	133	72.3	65.8 to 78.8	184	
Female	25	30.9	20.8 to 40.9	81	**<0.001** (**40.077**)
Ethnicity					
Brahmin/Chhetri	85	52.1	44.5 to 59.8	163	
Janajati/Newar	55	79.7	70.2 to 89.2	69	
Dalits	5	31.3	8.5 to 54.0	16	
Madhesi/Muslim/others	13	76.5	56.3 to 96.6	17	**<0.001** (**22.7**)
Frequency of watching pornographic movie					
Everyday/almost everyday	46	82.1	72.1 to 92.2	56	
Sometimes (1–2 days a week)	42	68.9	57.2 to 80.5	61	**<0.001** (**24.683**)
Rarely	46	51.1	40.8 to 61.4	90	
Never	24	41.4	28.7 to 54.1	58	
Consumed alcohol last month					
Yes	69	71.9	62.9 to 80.9	96	**0.001** (**10.640**)
No	19	43.2	28.5 to 57.8	44	
Total	88	62.9		140	
Ever smoked cigarette/tobacco					
Yes	63	70.8	61.3 to 80.2	89	**0.008** (**6.938**)
No	95	54.0	46.6 to 61.3	176	
Total	158	59.6		265	
Ever taken any drugs					
Yes	39	72.2	60.0 to 84.2	54	
No	119	56.4	49.7 to 63.1	211	**0.034** (**4.472**)
Total	158	59.6		265	
Had close friend who had sex with CSWs					
Yes	76	76.0	67.6 to 84.4	100	**<0.001** (**23.183**)
No	46	59.0	48.1 to 69.9	78	
Do not know	36	41.4	31.0 to 51.7	87	
Total	158	59.6		265	
Any friend pressurised to have sexual intercourse					
Yes	29	78.4	65.1 to 91.6	37	**0.013** (6.11)
No	128	56.9	50.0 to 63.4	225	
Total	157	59.9		262	

Bold typeface denotes statisfically significant values.
CSWs, commercial sex workers.

Risky sexual behaviour

Risky sexual behaviour is a composite variable calculated by the responses of four variables: age at sexual initiation, number of sexual partners in the past 1 year, condom use with a casual sex partner and sex with CSWs. The prevalence of risky sexual behaviour among sexually active respondents (n=267) is 60% (53.7% to 65.5%). The prevalence varies greatly among male and female respondents with 72% males, while 31% female involved in risky sexual behaviour.

Likewise, the overall prevalence of risky sexual behaviour is 18.6% (16.0% to 21.2%) (table 3).

It is notable that 10 respondents (4%) were involved in all of the risky behaviours, and all of those respondents were male (table 3).

Bivariate analysis

A higher proportion of respondents aged 15–19 (74%) (CI=64% to 83%) were involved in risky sexual behaviour than respondents aged 20–24 (53%) CI=46% to 60.5%) and the association was statistically significant as well (p value=0.002). Similarly, significantly higher proportions of male respondents (72%) (CI=65.8% to 78.8%) than female respondents (31%) (20.8% to 40.9%) were involved in risky sexual behaviour (p value<0.001). Likewise, ethnicity also had a significant association with risky sexual behaviour in which Janajatis (80%) (CI=70.2% to 89.2%) and Madhesi/Muslims (77%) (CI=56.3% to 96.6%) were more likely to involve in risky sexual behaviour than Brahmin/Chhetri (52%) (CI=44.5% to 59.8%) and Dalits (31%) (p value<0.001). Likewise, the respondents who watched pornographic movies everyday/almost every day (82%) (CI=72.1% to 92.2%) were more likely to get involved in risky sexual behaviour than those who watched it sometimes (69%), rarely (51%) or never (41%) (p value<0.001) (table 4).

In regard to substance use, consumption of alcohol in the past month had a statistically significant association with risky sexual behaviour in which higher proportions of respondents who consumed alcohol last month (72%) (CI=62.9% to 80.9%) were involved in risky sexual behaviour than those who did not (43%) (p value=0.001). Likewise, significantly higher proportions of respondents who had smoked cigarette/tobacco (71%) (CI=61.3% to 80.2%) were involved in risky sexual behaviour than those who did not (54%) (p value=0.008). In a similar manner, the intake of drugs also had a significant association with risky sexual behaviour. Significantly higher proportions of respondents who had ever consumed any drugs (72%) (60% to 84.2%) than those who did not (56%) were involved in risky sexual behaviour (p value=0.034) (table 4).

It is notable that, all of the risky sexual behaviour of close friends such as having multiple partners or having sex with commercial sex partners was significantly associated with the risky sexual behaviour of respondents (table 4).

Multivariate analysis

Logistic regression was done to find out the determinants of risky sexual behaviour. All the variables that were significant on the χ^2 test were included in the logistic regression.

The correlation coefficient was used to identify multicollinearity, and between two variables with a correlation coefficient greater than 0.7, only one of the variables was included. For instance, a close unmarried sexually active friend, and close friend with multiple sex partner, had correlation coefficient of 0.783, so only one of them was included. The Hosmer and Lemeshow tests were done to test the goodness of fit, which found the model to be fit (p=0.595) as the value was greater than the cut-off points of value (p=0.05). The coefficient of determinant (Nagelkerke R^2) for the equation was 0.37 which explains that about 37% of the change in the dependent variable is explained by the independent variables.

The results of the multivariate analysis showed that sex, age and ethnicity had a significant relationship with risky sexual behaviour. Females were 72% (AOR=0.28, 95% CI=0.12 to 0.69) less likely than males to involve in risky sexual behaviour. Similarly, youths aged 20–24 years were also 72% (AOR=0.28, 95% CI=0.13 to 0.57) less likely to practice risky sexual behaviour than adolescents aged 15–19 years. In regard to ethnicity, Janajatis were almost six times (AOR=5.56, 95% CI=2.47 to 12.5) and Dalits/Madhesi/others were almost two times more likely to involve in risky sexual behaviour than Brahmin/Chhetri. Likewise, youths who did not smoke cigarettes were 36% (AOR=0.644, 95% CI=0.312 to 1.33) less likely to involve in risky sexual behaviour than those who smoked. In a similar manner, youths who did not have close friends having sex with CSWs were 46% (AOR=0.54 95%, CI=0.22 to 1.28) less likely and who did not have any peer pressure to have sexual intercourse were 43% less likely to become involved in risky sexual behaviour (table 5).

The analysis was fit in the logistic regression model $\ln\left(\frac{y}{1-y}\right) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \ldots \beta_k X_k$; where y is the predicted value of the dependent variable (y), k is the number of independent (x) variables and b is the regression coefficient of independent variables.

With the predicted outcome variable, risky sexual behaviour, three variables were significant. Based on the findings, the final regression model is as follows: logit (*Risky sexual behavior*) = 2.58 − 1.26 (sex) − 1.28

(age group) + 1.7 (ethnicity)

DISCUSSION

Prevalence of risky sexual behaviour

This study found a high prevalence of risky sexual behaviour, with 19% of all respondents and 60% of sexually active respondents engaging in such behaviour. The prevalence of our study is higher than the prevalence of study in Nigeria (66%).[17] The difference, to some extent, may be attributed to socioeconomic and cultural differences between Nepal and Africa.[3] Similarly, the overall prevalence of risky sexual behaviour in a study carried out in Sri Lanka among undergraduates was 12.4%,[7] which is a bit lower than the prevalence of our study. This could be due to variation in the operationalisation of risky sexual behaviour in this study. In the context of Nepal, a study of sexual risk behaviours among Nepalese students[13] shows that the overall prevalence is 17%, which is consistent with the findings of our study, but the prevalence of risky

Table 5 Multivariate analysis

Variables	Unadjusted (crude) OR (95% CI)	Adjusted OR (95% CI)	P value
Sex of the respondent			
Male (ref)	1.00	1.00	
Female	0.17 (0.097 to 0.30)	0.28 (0.12 to 0.69)	**0.006**
Age group			
15–19 (ref)	1.00	1.00	
20–24	0.41 (0.23 to 0.73)	0.28 (0.13 to 0.57)	**0.001**
Ethnicity			
Brahmin/Chhetri (ref)	1.00	1.00	
Janajati/Newar	3.60 (1.86 to 6.99)	5.53 (2.45 to 12.46)	**<0.001**
Dalit/Madhesi/others	1.1 (0.5 to 2.33)	1.87 (0.75 to 4.71)	0.22
Frequency of watching pornographic movies			
Everyday/almost every day (ref)	1.00	1.00	
Sometimes (1–2 days a week)	0.48 (0.20 to 1.15)	1.04 (0.36 to 3.0)	0.958
Rarely	0.23 (0.10 to 0.50)	0.53 (0.2 to 1.4)	0.181
Never	0.15 (0.065 to 0.36)	1.11 (0.31 to 3.86)	0.817
Received sexual and reproductive health education in school/college			
Yes (ref)	1.00	1.00	
No	2.46 (1.1 to 5.2)	1.81 (0.71 to 4.6)	0.21
Ever smoked cigarette			
Yes (ref)	1.00	1.00	
No	0.48 (0.28 to 0.83)	0.7 (0.34 to 1.46)	0.35
Ever taken any drugs			
Yes (ref)	1.00	1.00	0.92
No	0.497 (0.26 to 0.96)	0.95 (0.38 to 2.36)	
Had close unmarried sexually active friend			
Yes (ref)	1.00	1.00	0.122
No/do not know	0.26 (0.15 to 0.46)	0.51 (0.22 to 1.2)	
Had close friend who had sex with CSWs			
Yes (ref)	1.00	1.00	
No/do not know	0.31 (0.18 to 0.54)	0.54 (0.22 to 1.28)	0.16
Any friend pressurised to have sexual intercourse			
Yes (ref)	1.00	1.00	
No	0.36 (0.16 to 0.83)	0.64 (0.22 to 1.9)	0.41

Bold typeface denotes statisfically significant values.
CSWs, commercial sex workers.

sexual behaviour among sexually active respondents (41%) in this study is less than the prevalence of our study. This could be due to a variation in the measurement of risky sexual behaviour,[18] that is, early sexual initiation is not considered a risky sexual behaviour in this study. According to NDHS 2016, 38% of female youths and 27% of male youths had sexual intercourse before the age of 18. But the proportion is quite different in our study, as 17% female and 36% male youths had sexual initiation before 18 years. This discrepancy may be the result of the inclusion of only in-school/college youths in our study.

Factors associated with risky sexual behaviour

Some studies showed consistent while others showed contradictory results with the findings of our study. A significantly higher proportion of males were involved in risky sexual behaviour in a systematic review (OR: 1.69; 95% CI=1.21 to 2.37),[19] a study in Nigeria,[17] and a study in Ethiopia[20] which is similar to the findings of our study. However, a study in North-West Ethiopia contradicts with the finding of our study as female participants were 1.6 times more likely to engage in risky sexual behaviour compared with male.[18] The difference may be the result of inclusion of only in-school youths in our study, whereas

the former study is a community-based study including both in and out of school youths.

In a similar manner, a meta-analysis in developing countries showed a statistically significant association of risky sexual behaviour with age younger than 20 years,[21] which is congruent with findings of our study in which youths aged 20–24 years were 72% less likely than youths younger than 20 years. In contrast, a Ethiopian study showed that participants belonging to age group 20–24 were 2.4 times more likely to involve in risky sexual behaviour.[18]

In regards to the number of sexual partners, a study conducted in a far western district of Nepal showed that adolescents, compared with those above 19 years old and males compared with females were more likely to have multiple sexual partners, which is in alignment with the findings of our study as well[22] but the difference is not statistically significant in our study. A secondary analysis of the Nepal Demographic and Health Survey (NDHS 2016) also showed similar findings to the findings of our study in which males (AOR=5.5, 95% CI=2.58 to 7.05) were more likely to have multiple sex partners than females.[23]

Substance use and pornography has been significantly associated with risky sexual behaviour in numerous studies. For instance, a study in South-Africa[3] shows that risky sexual behaviour had a significant association with consumption of alcohol, tobacco and having sexually active close friends. Similarly, another study in Ethiopia[24] and Rwanda[25] showed that substance use and peer pressure were the significant predictors of risky sexual behaviours which is in-line with the findings of our study. A systematic review and meta-analysis of risky sexual behaviour among secondary and above students in Ethiopia showed that substance use (OR: 2.41 (95% CI=1.49 to 3.89)), and watching pornography (OR: 2.59 (95% CI=1.01 to 6.69)) were the associated factors of risky sexual behaviour.[9] Higher exposure to pornography is significantly associated with risky sexual behaviour in other studies as well.[13 17] Similarly, a cross-cultural study of eight countries also showed that individuals who used substances were more likely to practice sexual risk behaviour as compared with non-substance users.[26] Smoking (AOR=2.2, 95% CI=1.6 to 3.05) had a significant positive relation with risky sexual behaviour in a study in Nepal as well.[23] In our study, although these factors were associated with risky sexual behaviour in the bivariate analysis (χ^2 test), the relationship did not retain in multivariate analysis.

Our study also shows that risky sexual behaviour of respondents had significant association with risky sexual behaviour of their close friends in bivariate analysis but the association was not significant in multivariate analysis. Sexuality is a sensitive issue, so it may be difficult to discuss related issues with the family, which is also supported by the findings of our study, as only few respondents discussed sexual matters with their parents in this study. Hence, peer groups play an important role in influencing the attitudes, and sexual behaviour of youths.[27]

Overall, our study highlights the need for targeted interventions to address risky sexual behaviour among young sexually active people.

Limitation

One of the major limitations of the study is that as sexual behaviour is a sensitive topic, hence, there may be respondent bias and under-reporting/over-reporting of the information. However, this was addressed to some extent by assuring the respondents about their privacy, confidentiality and anonymity, and using self-administered questionnaires to avoid any kinds of awkwardness while answering the questions. Moreover, our study only included in-school youths, while out of school adolescents who are more prone to get involved in risky sexual behaviour could not be included in our study due to time and resources limitation. Likewise, literatures[3] also mentioned that substance use and sexuality may be correlated with irregular attendance in school, hence, there may be lower chances of representation of these groups of students. Despite these limitations, our study demonstrates significant methodological robustness which makes it systematic and scientific.

Conclusion

The study revealed that overall, nearly one out of five youths (19%) were engaged in risky sexual behaviour. Likewise, three out of five sexually active youths were involved in risky sexual behaviour. Multivariate analysis showed that females and youths aged 20–24 were significantly less likely to engage in risky sexual behaviour. Likewise, youths belonging to Janajati caste were almost six times more likely to engage in risky sexual behaviour than their counterparts. Similarly, many other variables like use of alcohol, tobacco, watching pornography and sexual behaviour of close friends also showed significant association with risky sexual behaviour in bivariate analysis but these variables did not retain the significance in multivariate analysis.

Hence, the findings of this study suggest that there is a need for targeted interventions aimed at reducing risky sexual behaviour among youths, particularly those from certain demographic groups. By addressing factors such as gender, age, ethnicity, substance use and peer influences, public health initiatives can work towards promoting safer sexual practices and ultimately reducing the prevalence of STIs and unintended pregnancies among young people. However, further research is needed to better understand the underlying reasons for these disparities and to develop effective strategies for promoting sexual health among youths.

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REFERENCES

1 Aynalem BY, Alemu AA, Zeleke LB, *et al*. Risky sexual behavior and associated factors among secondary and above-education-level students in Ethiopia: A systematic review and meta-analysis. *J Family Med Prim Care* 2022;11:5024–30.
2 Brener ND, Kann L, Shanklin S, *et al*. Methodology of the Youth Risk Behavior Surveillance System--2013. *MMWR Recomm Rep* 2013;62:1–20.
3 Azeze GA, Gebeyehu NA, Wassie AY, *et al*. Factors associated with risky sexual behaviour among secondary and preparatory students in Wolaita Sodo town, Southern Ethiopia; Institution based cross-sectional study. *Afr Health Sci* 2021;21:1830–41.
4 keto T, Tilahun A, Mamo A. Knowledge, attitude and practice towards risky sexual behaviors among secondary and preparatory students of Metu town, south western Ethiopia. *BMC Public Health* 2020;20:1394.
5 Abels MD, Blignaut RJ. Sexual-risk behaviour among sexually active first-year students at the University of the Western Cape, South Africa. *Afr J AIDS Res* 2011;10:255–61.
6 UNAIDS. Young people and HIV. 2021.
7 Perera UAP, Abeysena C. Prevalence and associated factors of risky sexual behaviors among undergraduate students in state universities of Western Province in Sri Lanka: a descriptive cross sectional study. *Reprod Health* 2018;15:105.
8 Girmay A, Mariye T. Risky sexual behavior practice and associated factors among secondary and preparatory school students of Aksum town, northern Ethiopia, 2018. *BMC Res Notes* 2019;12:698.
9 Amare T, Yeneabat T, Amare Y. A Systematic Review and Meta-Analysis of Epidemiology of Risky Sexual Behaviors in College and University Students in Ethiopia, 2018. *J Environ Public Health* 2019;2019:4852130.
10 HIV prevention among adolescent girls and young women. n.d. Available: https://www.unaids.org/sites/default/files/media_asset/UNAIDS_HIV_prevention_among_adolescent_girls_and_young_women.pdf
11 NCASC. *HIV epidemic update of Nepal, factsheet 2020*. 2020.
12 Ranabhat K, Thapa K, Shahi S, *et al*. Risky Behaviours among Adolescent Students of Pokhara Valley: A School-Based Cross-sectional Survey. *J Nepal Health Res Counc* 2020;18:453–8.
13 Adhikari R. Prevalence and Correlates of Sexual Risk Behaviors among Nepalese Students. *Soc Sci Asia* 2015;4.
14 Adhikari R. Prevalence and correlates of sexual risk behaviors among Nepalese students. *Soc Sci Asia* 2015;1:39–50.
15 Cleland J, Ingham R, Stone N. n.d. Asking young people about sexual and reproductive behaviours.
16 CDC. YRBSS Questionnaires | DASH, 2023. Available: https://www.cdc.gov/healthyyouth/data/yrbs/questionnaires.htm
17 Omisore A, Oyerinde I, Abiodun O, *et al*. Factors associated with risky sexual behaviour among sexually experienced undergraduates in Osun state, Nigeria. *Afr Health Sci* 2022;22:41–50.
18 Geremew AB, Gelagay AA, Yeshita HY, *et al*. Youth Risky Sexual Behavior: Prevalence and Socio-Demographic Factors in North-West Ethiopia: A Community-Based Cross-Sectional Study. *Community Health Equity Res Policy* 2022;42:145–54.
19 Muche AA, Kassa GM, Berhe AK, *et al*. Prevalence and determinants of risky sexual practice in Ethiopia: Systematic review and Meta-analysis. *Reprod Health* 2017;14:113.
20 Fekadu Wakasa B, Oljira L, Demena M, *et al*. Risky sexual behavior and associated factors among sexually experienced secondary school students in Guduru, Ethiopia. *Prev Med Rep* 2021;23:101398.
21 Berhan Y, Berhan A. A Meta-Analysis of Risky Sexual Behaviour among Male Youth in Developing Countries. *AIDS Res Treat* 2015;2015:580961.
22 Paudel M, Mehata S, Subedi N, *et al*. Sexual Behaviour among School Youths in a Rural Far-western District of Nepal. *H Prospect* 2013;12:37–41.
23 Kakchapati S, Oli S, Bhandari D. Sexual Risk Behavior among Youths of Nepal: Further analysis of Nepal Demographic Health Survey. *H Prospect* 2021;20:8–14.
24 Wana GW, Arulogun O, Roberts A, *et al*. Predictors of risky sexual behaviour among pre-college students in Adama Town, Ethiopia. *Pan Afr Med J* 2019;33:135.
25 Ndagijimana E, Biracyaza E, Nzayirambaho M. Risky sexual behaviors and their associated factors within high school students from Collège Saint André in Kigali, Rwanda: An institution-based cross-sectional study. *Front Reprod Health* 2023;5:1029465.
26 WHO. Alcohol Use and Sexual Risk Behaviour: A Cross-cultural Study in Eight Countries. 2005;148.
27 Adhikari R, Tamang J. Premarital sexual behavior among male college students of Kathmandu, Nepal. *BMC Public Health* 2009;9:241.