Health Science Reports

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Associated Factors in Terms of Having Multiple Sex Partners in Nepal: A Cross-Sectional Study

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Received: 1 August 2024 | **Revised:** 11 January 2025 | **Accepted:** 20 January 2025

Funding: The authors received no specific funding for this work.

Keywords: cross-sectional study | Nepal | sex | sexual partner

ABSTRACT

Background and Aims: A sex partner is considered to someone with whom a person engages in sexual activity. This could be casual partner or interpersonal relationship, depending on the context. An individual who engages in a sexual relationship with more than one partner, either simultaneously or consecutively, is considered to have multiple sex partners. This study aims to determine the factors and behaviors that lead to having multiple sex partners in Nepal.

Methods: This study utilized secondary data from a nationally representative "Nepal Demographic and Health Survey (NDHS) 2022." A multistage, probability proportional sampling, cross-sectional method was used. A total of 4913 men between the ages of 15 and 49 years from 476 different clusters were surveyed. Bivariate and multivariate analyses were carried out using SPSS 25 version, and ($p < 0.05$) was considered statistically significant.

Results: In this study, it was found that 55.2% of the population had multiple sexual partners based on the reported number of sexual partners a men has had since becoming sexually active. Significant factors associated with having multiple sexual partners included the age of the respondents, province, level of education, religion, ethnicity, use of the internet, occupation, wealth index combined, ecological region, current working status, and area of residence. Respondents aged between 20 and 24 years and those between 25 and 29 years are more likely to have multiple sex partners (crude Odds Ratio (cOR) = 1.570; 95% confidence interval (CI): 1.113–2.215) and (cOR = 1.505; 95% CI: 1.076–2.112), even after adjusting for other all compounding variables, than those from other age groups, keeping all other variables constant. After age, province, ethnicity, occupation, and area of residence of the respondents were significant predictors linked to having multiple sex partners.

Conclusion: To be engaged with just one or more partners in sexual activity is a personal choice; however, the risks associated with having multiple sexual partners should be taken into account.

1 | Introduction

Nepal has a strong sociocultural norm that forbids sexual contact between young men and women before marriage and the topic of sexuality remains largely a social taboo. Consequently, sex with multiple partners is also considered taboo. However, traditions and beliefs of the society have been changing slowly over time. The declining influence of sociocultural norms, increasing urbanization, migration, exposure to mass media, and easy access to the internet and other technologies have collectively contributed to major changes in terms of multiple sex partners among both males and females over their life span. Previously, due to social restrictions, disclosure of premarital affairs and the presence of multiple sexual partners were rare; however, a few studies conducted in Nepal indicated a growing trend of premarital activity and multiple sexual partners [1, 2].

Sexual partners are those who engage in sexual activity together. Generally, a sexual partner is one with whom one engages in sexual activity on a regular or ongoing basis based on the relationship, which varies in societies. There are two types of sex partners: first, as a result of an interpersonal relationship, such as agreed-upon commitment to one another involving love, trust, honesty, and openness, and second, other types of relationships, including for transactional purposes. The first type of sex partner includes close friends, long-term relationships, engagement, marriage, and social unions. The second type may be more on a casual basis like sexual activity that takes place outside a romantic relationship and implies an absence of commitment, emotional attachment, or familiarity between sexual partners, for instance, casual dating, one-night stands, prostitution, and/or swing [3].

Having Multiple Sex Partners (MSPs) is a measure and incidence of engaging in sexual activities with two or more people over a specific time period. A study [4] defines multiple sexual partners by early sexual activities, a higher number of lifetime partners, frequent sexual intercourse, and unprotected sex, including low condom use. These behaviors increase the risk of occurrence of sexually transmitted infections (STIs), including HIV/AIDS, unplanned pregnancies, and psychological and substance use disorders. Sexual behaviors and related infections are influenced by the environment as well as by the characteristics of individuals at risk, and although these infections affect people of all ages, young women are disproportionately affected, as they place themselves at risk of negative health outcomes when they engage in unprotected sexual behaviors [5]. Young people are particularly vulnerable to STIs, and currently, 30% of new HIV infections worldwide are present in youths aged 15–25 years [6]. The proportion of those with multiple sexual partners increases during the adolescent period [7].

According to the American Sexual Health Association, sexual activity with MSPs includes sexual activity between people of different and same genders [8] and, also, as long as everything is consensual and no harm is posed to anyone involved in sexual activity, there is no right or wrong way to attain sexual pleasure. In addition, the important factors contributing to a satisfying sex life are an individual's understanding of their own sexual needs and responsibilities and an acknowledgment of the needs and responsibilities of their partner(s). Studies have revealed a high prevalence of risky sexual behaviors, including unprotected sexual intercourse, sex with multiple partners, and transitional sex, particularly among university students [9]. A person may have multiple sexual partners at a time, even if the sexual activity is illegal and socially taboo, either as polyamory or polygamy [1]. Harper highlighted two types of sexual partners based on consent: those who engage in sexual activity with consent and those who do so without consent. Some people who maintain logs of their sexual activity have adopted the practice of listing partners with whom they had both consensual and nonconsensual sex, but with the nonconsenting partners annotated differently in some way to note the act of rape [2]. McGuire further explains that a sexual partner may or may not have equal power and might not have equally participated during a sexual activity, which is influenced by various factors. In Haiti, young women in the union were less likely to use condoms; condom use is rarely in their control, as it is considered to be the male's decision, and this is generally decided by men because male partners are generally the main earning members and may refuse condom use. The main reason for this is gender inequality among couples [10]. In addition, the number of sexual partners can also be influenced by several factors, and studies on this topic are rare in Nepal. In this study, we will discuss this topic in depth.

The main objective of this study is to examine socioeconomic demographic patterns of having sexual partners and the influencing factors for choosing multiple sexual partners among the age group of 15–49 years (men) in Nepal; a cross-sectional study is carried out. It is crucial to examine how sexual partnerships are changing, particularly the emergence of many sexual partnerships. Understanding these changes is critical for public health in Nepal, as they are strongly linked to increased risks of STIs. Social norms change as a result of urbanization, migration, and better internet access and people may engage in riskier behaviors without fully considering the possible effects on health. This emphasizes the necessity of proper sexual education and focused treatments to reduce the risks of STIs, which remain a major public health issue in the nation.

The study also explicitly examines this new trend and its possible effects on public health. STIs are still a major health concern in Nepal, and identification of populations that are at higher risk requires an understanding of the variables that contribute to having multiple sexual partners. This research offers crucial insights that can guide the development of health policy and intervention methods by identifying important characteristics like age, education, urbanization, and access to digital platforms.

2 | Data and Methods

2.1 | Sources of Data

The present study is based on secondary data from the Nepal Demographic and Health Survey (NDHS) 2022. NDHS is a nationally representative survey, conducted every 5 years since 1996, and provides retrospective data on a wide range of demographic and health indicators for men and women aged 15–49 years. The survey utilized an updated sampling framework

based on the 2011 National Population and Housing Census (NPHC) of Nepal.

For the present analysis, required data are extracted from the men's data set, focusing on the questions on sexual partners and their correlates [9]. The dependent variable of having multiple sexual partners was based on the number of sexual partners a man has had since he became sexually active. The study focuses on men aged 15–49 years because this demographic is most likely to engage in sexual activity, both within and outside of stable relationships. Men in this age group represent a substantial proportion of the sexually active population, and their behaviors have direct implications for public health outcomes, particularly in the context of transmission of STIs. By studying sexually active individuals, this study aims to identify potential factors that influence decisions to engage in multiple sexual partnerships. An understanding of these age groups' sexual behaviors allows the study to capture key factors that contribute to risky sexual behaviors and helps address a critical area of concern for public health in Nepal, so that it can inform the development of policies aimed at reducing the transmission of STIs and promoting healthier sexual behaviors in this key demographic.

2.2 | Sample and Sampling Procedures

Table 1 shows the total number of eligible respondents, 4913 (men between the ages of 15 and 49 years), representing all the provinces, ecological belts, religion, ethnicity, occupation, and rural and urban areas of Nepal. The survey utilized an updated sampling framework based on the 2011 NPHC. A multistage, probability proportional to size (PPS) sampling method was used to ensure representativeness. A total of 476 clusters of Primary Sampling Units were formed, encompassing both rural and urban areas, and 30 households were selected from each cluster, resulting in a sample of 14,280 households for data collection. Interviews were conducted with 4913 men aged 15–49 years from 13,786 of the sampled households. For further details on the sampling procedures, the NDHS 2021 report is publicly available [9].

The sampling strategy used in this study is a PPS multistage sampling method, which aims to select samples based on the population size of each province, district, and cluster. As per this method, larger provinces like Bagmati are more likely to represent a higher proportion of the total sample, whereas smaller provinces like Karnali will contribute a smaller proportion of the sample. Besides, the method ensures that each province has a representative share of the sample, proportional to its population size. Bagmati includes Kathmandu, the capital city of Nepal and the most populous region of Nepal; it is expected that this province will be disproportionately represented, accounting for a larger share of the total sample of 24.7%. On the other hand, Karnali, which is a less populous and more rural region, contributes a small proportion (5.4%) of the sample. With reference to the generalizability of the findings, the goal of PPS sampling is to ensure that the sample is representative of the entire population, with the sample proportionately reflecting the population size of each province. The sampling design helps ensure that the findings can be generalized to the overall population of Nepal, despite the differences in sample size across provinces.

TABLE 1 | Selected and interviewed sample distribution.

Sample type	Sample selected	Occupied/ eligible	Interviewed
Households	14,243	13,833	13,786
Men [15–49 years]		5185	4913

2.3 | Questionnaires

Four questionnaires, the Households Questionnaire (HHQ), the Women's Questionnaire, the Man's Questionnaire, and the Biomarker Questionnaire, were used in the 2022 NDHS. However, researchers adapted only the men's questionnaire to all men aged 15–49 years in the subsample of households selected for the men's survey. Basic demographic information was obtained on the characteristics of each person listed, including their age, education, province, area of residence, religion, ethnicity, use of the internet, occupation, ecological region, current working status, and number of sex partners in their life span [6]. We considered number of sexual partners as the dependent variable, whereas the independent variables included the sociodemographic characteristics of the male participants. Certain variables were re-categorized to improve interpretability and enable appropriate statistical analysis.

2.4 | Data Analysis Methods

The analysis was confined to the 4913 respondents, only men between the ages of 15 and 49 years. Data were analyzed utilizing descriptive and inferential statistics. The descriptive statistics were used to describe the socioeconomic and sociodemographic characteristics of men in the study and having a specific number of sexual partners by selected correlates. The inferential statistic bivariate (χ^2 test) was conducted to determine whether having a specific number of sexual partners varies according to the selected correlates and the multivariate analysis was done to predict the number of sexual partners the men has had since he has began his sexual life [11].

After examining the association between variables, using bivariate analysis (χ^2 tests), multicollinearity was tested for the independent variables. In the bivariate analysis, ($p < 0.05$) was considered statistically significant [12]. Those that were not multicollinear were then considered for the multivariate analysis. The significantly associated variables in bivariate analysis were only incorporated into the multivariate analysis to ensure the robustness of the multivariate model. All the statistical analyses were performed using IBM SPSS Statistic (Version 25) [12]. The variables with a statistically significant difference ($p < 0.005$) in the bivariate and multivariate analyses (crude Odds Ratio (cOR) and adjusted Odds Ratio (aOR)) are discussed in this study. The cOR is used to assess the strength of the association between a single factor and having multiple sexual

partners, without adjusting for other potential confounding factors. In contrast, the aOR measures the likelihood of having multiple sexual partners while accounting for the potential influence of other confounding factors.

2.5 | Ethical Consideration

The proposal was reviewed and approved by the ICF Institutional Review Board (IRB). The Nepal Health Research Council (NHRC) also reviewed and approved the survey proposal. Written consent was obtained, and consent/assent was obtained as applicable from parents. Moreover, no personal identity was disclosed in the datasets [9].

3 | Results

The results section mainly reports three aspects in relation to Nepal: the demographic characteristics of the respondents, the association between the demographic characteristics of the respondents and the number of sexual partners, and multivariate logistic regression that analyzes the effect of sociodemographic characteristics and the number of sex partners.

3.1 | Demographic Characteristics of Respondents

Table 2 depicts the demographic characteristics of 4913 respondents between the ages of 15 and 49 years. Of the total respondents, one in five was a 15–19-year-old adolescent and fewer (10.1%) were between 45 and 49 years old. Approximately a quarter of the respondents were from Bagmati province (24.7%), followed by 20.3% from Madhesh, and a small number of respondents were from Karnali province (5.4%). Very small proportions of respondents, but almost equal, 7.9% and 7.2%, were from Gandaki and Sudurpaschim provinces, respectively. Correspondingly, the majority of respondents (70.5%) resided in urban areas, and less than half (45.7%) had completed their secondary-level education. The majority (81.9%) of respondents were Hindus, and more than one-third (38.0%) and one-fourth (25.1%) were of Janajati and Hill Brahmin/Chhetri ethnicity, respectively.

Three in four (75.8%) of the respondents had used the internet in the last 12 months, and less than a quarter (22.1%) never used the internet. In the same way, approximately two in five (36.9%) respondents were manual workers, and respondents were equally represented in the fields of employment and agriculture (25.8%) and (23.5%), respectively. Interestingly, respondents were equally represented from richer to the richest wealth status (23%) and poor to middle income (19%). More than half (54.6%) resided in the Terai ecological region of Nepal. Similarly, the majority (77.2%) of the respondents were currently working and less than a quarter (22.8%) were not working. More than two-fifths (44.8%) had only one sex partner, followed by 23.6%, with 2–4 sex partners, and very few had more than 9 sex partners.

TABLE 2 | Demographic characteristics of the respondents.

Variables	Categories	Total	
		N	%
Age in 5-year groups	15–19	985	20.0
	20–24	857	17.5
	25–29	716	14.6
	30–34	616	12.5
	35–39	639	13.0
	40–44	604	12.3
	45–49	496	10.1
Province	Koshi	882	18.0
	Madhesh	997	20.3
	Bagmati	1214	24.7
	Gandaki	387	7.9
	Lumbini	812	16.5
	Karnali	266	5.4
	Sudurpashchim	355	7.2
Area of residence	Urban	3462	70.5
	Rural	1451	29.5
Educational level	No education	393	8.0
	Basic	1898	38.6
	Secondary	2244	45.7
	Higher	377	7.7
Religion	Hindu	4025	81.9
	Buddhist	389	7.9
	Islam	231	4.7
	Kirat	139	2.8
	Christian	123	2.5
	Other	6	0.1
Ethnicity of respondents	Hill Brahmin/ Chhetri	1232	25.1
	Terai/Madheshi	917	18.7
	Dalit	658	13.4
	Janajatis	1869	38.0
	Muslim and others	236	4.8
Sex of household head	Male	4003	81.5
	Female	910	18.5
Use of the internet	Never	1084	22.1
	Yes, last 12 months	3723	75.8
	Yes, before last 12 months	106	2.2
Occupation of respondents	Unemployed	672	13.7
	Employed	1268	25.8
	Manual	1812	36.9
	Agriculture	1156	23.5
	Others	6	0.1

(Continues)

TABLE 2 | (Continued)

Variables	Categories	Total	
		N	%
Wealth index combined	Poorest	751	15.3
	Poorer	933	19.0
	Middle	957	19.5
	Richer	1135	23.1
	Richest	1137	23.1
Ecological region	Mountain	255	5.2
	Hill	1973	40.2
	Terai	2685	54.6
Currently working	No	1119	22.8
	Yes	3794	77.2
Number of sex partners	Only one	2200	44.8
	2–4	1160	23.6
	5–9	193	3.9
	More than 9	122	2.5
	Others	1238	25.2
Total		4913	100.0

3.2 | Association of the Basic Characteristics of the Respondents and Number of Sex Partners

Table 3 shows the association between the basic characteristics of the respondents and the number of sex partners throughout their life span using the χ^2 test. There is an association between the age categories of the respondents and the number of sex partners ($p < 0.001$). The majority (67.3%) of respondents aged between 45 and 49 years and over half (52.6%) aged between 20 and 24 years had only one sex partner throughout their life span. A very small proportion of respondents (4.5%) aged 25–29 years and (2.1%) 15–19 years had more than 9 sex partners. In the same way, the province of the respondents showed a significant association with number of sex partners ($p < 0.001$). The majority of respondents of Madesh province (80.5%) had only one sex partner, and respondents from Bagmati province had the highest number of multiple sex partners: 6.3%. An association was also found between the area of residence of the respondents and number of sex partners ($p < 0.05$). Both Urban and rural respondents reported having just one sexual partner at similar rates. However, urban respondents were about twice as likely (3.9%) to have more than nine sexual partners compared to rural respondents (2.1%).

The porportion of the respondents with no (formal) education had only one sex partner (74%), and respondents with basic and secondary level of education had more than 9 sex partners, 3.8%, in their lifetime ($p < 0.001$). Muslims and those of other religions generally mainly had only one sex partner, and Buddhists had more than 9 sex partners, 9%, among all religious respondents ($p < 0.001$). The respondents from the Terai/Madheshi caste had one sex partner, 76.7%, and Dalits and Janajatis had multiple sex partners, 4%, among all ethnic groups ($p < 0.001$). Over half (60.7%) of the male respondents had one sex partner, which is 5% higher than the female respondents (55.3%), ($p < 0.05$).

A large proportion of respondents (67.5%) who had never used the internet had a single sex partner; on the other hand, those who had used the internet in the last 12 months had multiple sex partners (3.9%), which is two times higher than those who had never used the internet 2.0% ($p < 0.001$). Simultaneously, two-thirds (66.6%) of the respondents belonging to agriculture and 41.8% unemployed respondents have single sex partners, with the differences being statistically significant ($p < 0.001$). Respondents with poorest, poorer, and middle wealth index almost equally had only one sex partner throughout their life span ($p < 0.001$). There was a significant association between respondents' area of residence and number of sex partners ($p < 0.001$); 46.1%, 53.8%, and 66.6% of the respondents from Mountain, hill, and Terai had a single sex partner, respectively. Among respondents who are currently employed, the majority (60.9%) reported having only one sexual partner. In the same way, among those who are not currently working just over half (52.3%) reported having only one sexual partner, ($p < 0.001$). Respondents who were currently not working had more multiple sex partners (6.8%) than those who were working (2.9%).

3.3 | Logistic Regression Analysis

Table 4 explores the number of sex partners reported by respondents by their sociodemographic variables using multivariate logistic regression. In Model I (i.e., unadjusted model), age groups of respondents had a positive and statistically significant effect on having multiple sex partners. Respondents aged between 20 and 24 years and between 25 and 29 years were more likely to have multiple sex partners cOR = 1.570; 95% confidence interval (CI): 1.113–2.215; $P < 0.05$, and cOR = 1.507; 95% CI: 1.076–2.112; $p < 0.05$, respectively, than those in the 15–19 age groups.

In Model II (i.e., adjusted model), age group, province, ethnicity, occupation, and ecological region have significant effects after adjusting for all compounding variables. This effect on age group was slightly higher (aOR = 1.655; 95% CI: 1.41–2.400; $p < 0.01$) (aOR = 1.665; 95% CI: 1.149–2.413; $p < 0.01$) than in Model I. Respondents from Madhesh, Bagmati, and Gandaki province were more likely to have multiple sex partners (aOR = 0.565; 95% CI: 0.423–0.755; $p < 0.001$), (aOR = 1.711; 95% CI: 1.333–2.196; $p < 0.001$), and (aOR = 2.342; 95% CI: 1.730–3.169; $p < 0.001$), respectively. In the same way, respondents from Lumbini, Karnali, and Sudurpaschim were more likely to have multiple sex partners (aOR = 1.388; 95% CI: 1.097–1.756; $p < 0.01$), (aOR = 1.567; 95% CI: 1.105–2.224; $p < 0.05$), and (aOR = 1.624; 95% CI: 1.202–2.193; $p < 0.05$), respectively.

In the same way, in the adjusted model, Dalit and Janajati ethnicity, employment, and individuals living in hilly areas were more likely to have multiple sexual partners. Dalit and Janajati respondents were more likely to have multiple sex partners (aOR = 1.296; 95% CI: 1.004–1.672; $p < 0.05$) and (aOR = 1.265; 95% CI: 1.052–1.522; $p < 0.05$), respectively, than those of other ethnicities. Respondents who were employed

TABLE 3 | Association of the basic characteristics of the respondents and number of sex partners.

		Number of sex partners									
		Only 1		2–4		5–9		More than 9		Total	
Variables	**Categories**	***N***	**%**	***N***	**%**	***N***	**%**	***N***	**%**	***N***	**%**
Age in 5-year groups $\chi^2 = 61.890$ $p = 0.000$	15–19	117	63.5	55	29.9	8	4.5	4	2.1	185	100.0
	20–24	282	52.6	183	34.1	50	9.3	21	4.0	536	100.0
	25–29	344	53.6	226	35.2	43	6.7	29	4.5	643	100.0
	30–34	349	59.2	194	32.9	29	4.9	18	3.0	590	100.0
	35–39	392	62.1	192	30.3	24	3.8	24	3.8	632	100.0
	40–44	384	64.2	180	30.1	20	3.4	14	2.3	598	100.0
	45–49	331	67.3	129	26.4	18	3.7	13	2.6	491	100.0
Province $\chi^2 = 249.335$ $p = 0.000$	Koshi	436	66.9	176	27.0	30	4.6	10	1.5	652	100.0
	Madhesh	563	80.5	114	16.3	14	1.9	9	1.3	699	100.0
	Bagmati	429	49.1	330	37.8	59	6.8	55	6.3	873	100.0
	Gandaki	135	42.7	149	47.0	21	6.5	12	3.9	317	100.0
	Lumbini	375	57.9	207	32.0	44	6.7	21	3.3	647	100.0
	Karnali	120	54.2	80	36.1	13	6.0	8	3.7	221	100.0
	Sudurpashchim	143	53.5	104	38.9	13	5.0	7	2.6	266	100.0
Area of residence $\chi^2 = 7.962$ $p = 0.047$	Urban	1519	59.8	793	31.2	129	5.1	98	3.9	2540	100.0
	Rural	680	59.9	367	32.3	64	5.7	24	2.1	1135	100.0
Educational level $\chi^2 = 45.248$ $p = 0.000$	No education	274	74.0	84	22.6	11	2.9	2	0.6	370	100.0
	Basic	908	59.4	475	31.1	86	5.7	59	3.8	1528	100.0
	Secondary	847	57.6	486	33.1	81	5.5	56	3.8	1469	100.0
	Higher	171	55.8	115	37.4	15	5.0	6	1.8	307	100.0
Religion $\chi^2 = 68.236$ $p = 0.000$	Hindu	1829	60.7	945	31.4	150	5.0	89	3.0	3013	100.0
	Buddhist	140	46.7	108	35.9	25	8.4	27	9.0	301	100.0
	Islam	117	72.5	36	22.0	8	4.9	1	0.6	162	100.0
	Kirat	60	56.5	37	34.8	6	5.4	4	3.3	105	100.0
	Christian	51	56.8	35	38.5	3	3.5	1	1.2	91	100.0
	Other	3	73.8			1	26.2			3	100.0
Ethnicity of respondents $\chi^2 = 121.986$ $p = 0.000$	Brahmin/Chhetri	530	57.1	325	35.0	44	4.8	28	3.0	928	100.0
	Terai/Madheshi	477	76.7	113	18.2	20	3.2	12	1.9	621	100.0
	Dalit	298	58.1	168	32.8	26	5.0	20	4.0	512	100.0
	Janajatis	773	53.4	519	35.8	95	6.6	61	4.2	1448	100.0
	Muslim and others	122	73.8	34	20.8	8	4.8	1	0.6	166	100.0
Sex of household head $\chi^2 = 9.143$ $p = 0.027$	Male	1893	60.7	974	31.2	153	4.9	101	3.2	3121	100.0
	Female	306	55.3	186	33.6	41	7.3	21	3.8	554	100.0
Use of the internet $\chi^2 = 40.812$ $p = 0.000$	Never	659	67.5	262	26.9	35	3.6	19	2.0	975	100.0
	Yes, last 12 months	1475	56.8	866	33.3	153	5.9	102	3.9	2596	100.0
	Yes, more than 12 months ago	66	63.3	32	30.8	5	5.2	1	0.7	104	100.0
Occupation of respondents $\chi^2 = 54.860$ $p = 0.000$	Unemployed	67	41.8	68	42.1	13	8.2	13	7.9	161	100.0
	Employed	618	56.3	382	34.8	64	5.9	33	3.1	1097	100.0
	Manual	920	60.3	471	30.9	76	5.0	57	3.7	1524	100.0
	Agriculture	594	66.6	239	26.8	40	4.4	19	2.1	891	100.0

(Continues)

TABLE 3 | (Continued)

Variables	Categories	Number of sex partners								Total	
		Only 1		2–4		5–9		More than 9			
		N	%	*N*	%	*N*	%	*N*	%	*N*	%
	Others	1	61.8	1	38.2					2	100.0
Wealth index combined $\chi^2 = 36.906$ $p = 0.000$	Poorest	365	61.6	180	30.3	34	5.8	13	2.3	593	100.0
	Poorer	454	62.8	213	29.6	33	4.6	22	3.0	722	100.0
	Middle income	452	62.4	206	28.4	49	6.7	18	2.5	724	100.0
	Richer	491	59.3	258	31.1	48	5.8	31	3.8	829	100.0
	Richest	438	54.2	303	37.5	29	3.6	38	4.7	808	100.0
Ecological region $\chi^2 = 86.691$ $p = 0.000$	Mountain	98	46.1	92	43.3	11	5.3	11	5.4	212	100.0
	Hill	774	52.8	539	36.8	92	6.2	62	4.2	1467	100.0
	Terai	1327	66.5	529	26.5	91	4.5	49	2.5	1996	100.0
Currently working $\chi^2 = 25.897$ $p = 0.000$	No	228	52.3	154	35.4	24	5.5	30	6.8	436	100.0
	Yes	1972	60.9	1006	31.0	170	5.2	92	2.9	3239	100.0

were more likely to have multiple sex partners (aOR = 0.572; 95% CI: 0.368–0.890; $p < 0.05$), (aOR = 0.508; 95% CI: 0.330–0.783; $p < 0.01$), and (aOR = 0.406; 95% CI: 0.260–0.633; $p < 0.001$), respectively, than those in other occupations. People living in Hilly areas were more likely to have multiple sex partners (aOR = 1.791; 95% CI: 1.262–2.541; $p < 0.01$) than Mountain and Terai people. Unemployed individuals and people residing in hilly areas may have less disposable income or fewer opportunities for social interactions, reducing the likelihood of engaging in casual sexual encounters. On the other hand, those who were employed and Terai people may have more resources and opportunities for social engagement, leading to a higher likelihood of having multiple sexual partners. Unemployment can increase economic stress, which might reduce individuals' involvement in certain social activities, including casual or multiple sexual relationships.

On the contrary, there was insufficient evidence to claim that the educational level of the respondents, the sex of the household head, use of the internet, the wealth index quintile, and current employment were determinants of having multiple sex partners. This study found that education is not a significant predictor of having multiple sexual partners, with an aOR of 1.199 for basic education, whereas there is a slight association and the influence is not strong enough to reach statistical significance. An aOR close to 1.0 indicates minimal change in the likelihood of having multiple sexual partners among individuals with basic education compared to those with no education. A reason for this might be that Nepal is a multilingual and multicultural country; education cannot directly challenge traditional beliefs or societal expectations regarding sexual behavior and individuals, even those with higher education, may not adopt behaviors that align with those observed in studies from other regions.

4 | Discussion

This study revealed a positive and statistically significant association between the age of the respondents, the province where the respondents live, area of residence, level of education, religion, ethnicity, the sex of the household head, internet access, occupation, wealth index combined, ecological region, and currently working with having multiple sex partners in their lifetime.

Our study contrasts to previous studies carried out in the United States of America (USA) among 1987 people aged 18–70 years. People of USA, both men and women, reported a greater number of sexual partners throughout their lifetime [13]. People of Nepal, both sexes, that is, men and women, had fewer multiple sex partners than those in the USA. The socioeconomic vulnerability of women affects their negotiation power in terms of sex. In Haiti, sexual behavior in terms of condom use is often under the control of men and males may be the main earning members and may refuse condom use [10]. Besides, young women in Haiti are predisposed to risky sexual behaviors, and multiple sexual factors have been found to influence their engagement in these behaviors. At the individual level, these include a lack of condom use in conjunction with multiple partners [5]. The variation might be due to the sociocultural perception that having multiple sex partners is not considered good in Nepal. Females had slightly higher number of multiple sex partners than the men in Nepal. This study replicated previous findings showing that sexual behaviors were most prevalent in middle adulthood [14]. The study further revealed that the number of sexual partners over a lifetime increased among individuals aged 20–29 years, and then declined after the age of 60 for men and after the age of 40 for women. In line with these findings, [7] stated that the proportion of multiple sexual partners of young people is particularly high, and this population is vulnerable to STIs; it has been found that individuals aged 15–25 years harbor 30% of new HIV infections worldwide [6]. A high prevalence of sexual behavior, including unprotected sexual intercourse, sex with multiple partners, and transitional sex, was particularly found among university students [4]. Despite being aware of the adverse effects of risky sexual behaviors, young men and women continue to have sexual intercourse without protection, exposing themselves to serious reproductive health consequences [6]. The associations

TABLE 4 | Adjusted odds ratios (aOR) from multivariate logistic regression assessing number of sex partners by respondents' sociodemographic covariates.

		Model I				Model II			
Variables	**Categories**	**Sig.**	**cOR**	**95% CI**		**Sig.**	**aOR**	**95% CI**	
Age in 5-year groups	15–19		Ref.				Ref.		
	20–24	0.010	**1.570**	**1.113**	**2.215**	0.008	**1.655**	**1.141**	**2.400**
	25–29	0.017	**1.507**	**1.076**	**2.112**	0.007	**1.665**	**1.149**	**2.413**
	30–34	0.299	1.198	0.852	1.686	0.218	1.270	0.869	1.855
	35–39	0.722	1.064	0.757	1.494	0.310	1.219	0.832	1.786
	40–44	0.868	0.971	0.689	1.369	0.392	1.185	0.804	1.747
	45–49	0.348	0.844	0.592	1.202	0.936	1.017	0.680	1.519
Province	Koshi		Ref.				Ref.		
	Madhesh	0.000	0.489	0.382	0.627	0.000	**0.565**	**0.423**	**0.755**
	Bagmati	0.000	2.093	1.696	2.583	0.000	**1.711**	**1.333**	**2.196**
	Gandaki	0.000	2.714	2.060	3.578	0.000	**2.342**	**1.730**	**3.169**
	Lumbini	0.001	1.465	1.169	1.8360	0.006	**1.388**	**1.097**	**1.756**
	Karnali	0.001	1.708	1.252	2.331	0.012	**1.567**	**1.105**	**2.224**
	Sudurpashchim	0.000	1.754	1.311	2.346	0.002	**1.624**	**1.202**	**2.193**
Educational level	No education		Ref.				Ref.		
	Basic	0.000	1.945	1.509	2.507	0.204	1.199	0.906	1.587
	Secondary	0.000	2.092	1.622	2.697	0.632	1.079	0.790	1.475
	Higher	0.000	2.257	1.633	3.119	0.987	1.003	0.671	1.500
Ethnicity of respondents	Brahmin/Chhetri		Ref.				Ref.		
	Terai/Madheshi	0.000	0.404	0.322	0.507	0.178	0.822	0.618	1.094
	Dalit	0.707	0.959	0.771	1.193	0.047	**1.296**	**1.004**	**1.672**
	Janajatis	0.072	1.165	0.986	1.375	0.012	**1.265**	**1.052**	**1.522**
	Muslim and others	0.000	0.473	0.326	0.684	0.329	0.814	0.538	1.231
Sex of household head	Male		Ref.				Ref.		
	Female	0.018	1.247	1.039	1.496	0.636	1.048	0.862	1.275
Use of the internet	Never		Ref.				Ref.		
	Yes, last 12 months	0.000	1.580	1.354	1.845	0.129	1.170	0.955	1.432
	Yes, before last 12 months	0.381	1.207	0.792	1.840	0.919	1.023	0.656	1.596
Occupation of respondents	Unemployed		Ref.				Ref.		
	Employed	0.001	0.557	0.398	0.779	0.013	**0.572**	**0.368**	**0.890**
	Manual	0.000	0.471	0.339	0.656	0.002	**0.508**	**0.330**	**0.783**
	Agriculture	0.000	0.359	0.255	0.506	0.000	**0.406**	**0.260**	**0.633**
	Others	0.558	0.444	0.029	6.710	0.877	0.804	0.050	12.838
Wealth index combined	Poorest		Ref.				Ref.		
	Poorer	0.642	0.948	0.758	1.186	0.134	1.209	0.943	1.550
	Middle	0.770	0.967	0.773	1.210	0.160	1.211	0.928	1.581
	Richer	0.374	1.103	0.889	1.369	0.194	1.198	0.912	1.574
	Richest	0.006	1.354	1.091	1.679	0.170	1.229	0.915	1.651
Ecological region	Mountain		Ref.				Ref.		
	Hill	0.000	2.326	1.749	3.094	0.001	**1.791**	**1.262**	**2.541**
	Terai	0.000	1.775	1.546	2.039	0.559	1.066	0.860	1.303

(Continues)

TABLE 4 | (Continued)

Variables	Categories	Model I				Model II			
		Sig.	cOR	95% CI		Sig.	aOR	95% CI	
Currently working	No		Ref.				Ref.		
	Yes	0.001	0.705	0.576	0.861	0.983	0.997	0.763	1.303

Note: Boldface indicates that the values are statistically significant.

between having multiple sex partners and age can be at least partially attributed to having a higher sex drive at that age.

In our study, the wide CI for the aOR of respondents aged 20–24 years having multiple sexual partners, aOR = 1.655, 95% CI: 1.141–2.400, suggests that there is some uncertainty in the estimate. One common reason for the wide CI is a small sample size in the specific subgroup being analyzed. In such a case, there are relatively few respondents in the 20–24 age group who report having multiple sexual partners; the variability in the data will be higher, which can result in a wider CI. However, if the sample size in the 20–24 age groups increases, the width of the CI might be reduced.

Gandaki and Bagmati have major urban areas, with Kathmandu, the capital city, located in Bagmati and Pokhara in Gandaki. Urbanization is often linked to greater social mobility, more opportunities for interpersonal interactions, and broader exposure to modern sexual norms. In the same way, both Gandaki and Bagmati are relatively economically developed provinces, with Bagmati being the hub of Nepal's capital city and economic activities. Wealthier provinces tend to have higher income levels, better access to healthcare, and greater availability of sexual health resources, which may facilitate individuals' ability to engage in multiple sexual partnerships. In addition, cultural norms and sociodemographic factors might be more permissive regarding sexual behavior, especially in urban centers. These provinces are likely to have higher levels of education, exposure to media, and access to global cultural influences, which can challenge traditional views on monogamy and sexual exclusivity. As a result of these factors, individuals in these provinces may be more open to nontraditional relationships or may report a higher number of sexual partners due to changing attitudes toward sex and relationships.

The small sample sizes in certain categories, such as respondents aged 45–49 years or from regions like Sudurpaschim, and the small number of respondents aged 45–49 years, may have led to wider CI, higher variability, and less precise estimates. The multistage PPS method is designed to account for the unequal sizes of subgroups within a population, and it ensures that the sample more closely mirrors the population of interest. With reference to the generalizability of the findings, the goal of PPS sampling is to ensure that the sample is representative of the entire population, with the sample proportionately reflecting the population size of each province. The sampling design helps ensure that the findings can be generalized to the overall population of Nepal, despite the differences in sample size across provinces.

This study found that education is not a significant predictor of having multiple sexual partners, with an aOR of 1.199 for basic education, but there is a slight association and the influence is not strong enough to reach statistical significance. An aOR close to 1.0 indicates minimal change in the likelihood of having multiple sexual partners for individuals with basic education compared to those with no education. Having secondary education shows a trend that is close to being statistically significant, suggesting that with a larger and more diverse sample from different geo-demographic contexts. The possible reason for the limited influence of education is that education might not have the same influence on sexual behavior in the specific context. Education alone is not equally effective in influencing sexual and reproductive health behavior across all the different areas such as contraceptive use, sexual intercourse with single or more partners, STI prevention, and family planning, which may require different approaches beyond just education. Another reason might be that Nepal is a multilingual and multicultural country, and education cannot directly challenge traditional beliefs or societal expectations regarding sexual behavior and individuals, even with higher education, may not adopt behaviors that align with those observed in studies from other regions. This finding is supported by a previous study in Sierra [14]. Education is correlated with better awareness and access to health-related knowledge and resources and sexual relationships are in compliance with their interest in utilizing resources. Thus, as [13] stated, schooling may ultimately lead to improved sexual health behaviors among educated young people. Education empowers women through career opportunities that often translate into higher socioeconomic status, which, in turn, may increase women's autonomy and ability to negotiate safer sex practices with multiple sex partners, including condom use.

Our study found that there was a trend toward an increase in the proportion of individuals who reported two or more sexual partners, which was driven by both men and women aged 20–34 years. In line with these findings, [12] reported that women had more than three sexual partners between the ages of 25 and 34 years. We also found that numerous aspects of sexual partners varied by subgroups of ethnicity and religion respondents considered. As having sex is an individual behavior, it follows that ongoing romantic and sexual relationships facilitate access to potential sex partners, access that is more or at least not as readily available to people who are not in such relationships. Christians, Kirats, and Buddhists have a higher number of sexual partners in their life span than Hindus and Muslims. This finding is in line with prior research confirming that Black people in the USA reported a higher frequency of sexual behaviors, more sex partners, and earlier age of initiation for sex than White and Asian respondents [15]. In Nepal, Buddhist, Kirat, and Christian communities report a higher number of sexual partners due to more liberal attitudes toward sexuality compared to stricter Hindu and Islam norms. These groups often emphasize individual freedom and have fewer

taboos around sexual behaviors. Cultural practices, religious teachings, and social acceptance contribute to these patterns, reflecting Nepal's diverse sociocultural landscape.

Considering the ethnicity of the respondents, Brahmin/Chhetri people living in the mountain and hill areas, Dalits, and Janajatis had more sexual partners than other groups in Nepal. The minority ethnic groups have more liberal attitudes about sexual behaviors compared to other ethnic people, that is, greater acceptance of sex with multiple partners, potentially contributing to earlier age of sexual initiation and a higher number of sexual partners, which is consistent with prior findings from USA [16]. The aOR for Dalit ethnicity is 1.296, 95% CI: 1.004–1.672, which shows that Dalit individuals are 1.296 times more likely to have multiple sexual partners compared to the reference group Brahmin/Chhetri, after adjusting for other variables in the model. This is statistically significant because the 95% CI does not include 1.0, indicating a real association between Dalit ethnicity and multiple sexual partners. In the same way, Janajatis have a significant aOR of 1.265, 95% CI: 1.052–1.522, meaning that they are more likely to have multiple sexual partners compared to Brahmin/Chhetri individuals. In Nepal, sociocultural factors influence sexual behavior, with Dalits and Janajati communities thus often reporting higher numbers of sexual partners. To some extent, cultural practices and less rigid societal restrictions may allow for more sexual freedom. In addition, marginalized groups often face barriers to sexual health education and services, impacting their behavior. In some cases, traditional norms and economic disparities contribute to multiple sexual partners and they further intersect to shape sexual norms and practices, often differing across rural and urban settings. In contrast, the Terai/Madheshi group has a nonsignificant aOR of 0.822, 95% CI: 0.618–1.094, which indicates no strong association with multiple sexual partners. Similar to the Terai/Madhesh group, Muslim and those of other religions have a nonsignificant aOR of 0.814, 95% CI: 0.538–1.231, suggesting no clear association.

Our study found a positive association between internet use and the likelihood of having multiple sexual partners in the adjusted model, which suggests that individuals who used the internet in the last 12 months were more likely to report having multiple sexual partners. In contrast, while adjusting for potential confounding factors in the adjusted model, this association loses significance. This indicates that the effect of internet use on sexual behavior is confounded by other variables, such as age, religion, area of residence, province, and education. Consistent with this finding, a study reported that people use the internet for multiple purposes such as seeking general information and/or health information, establishing connections with community, and meeting partners for dating or to have sex [17]. The study also highlighted that people are significantly more likely to seek sexual partners through the internet, but the relationship between meeting multiple sexual partners using the internet and health risks is unclear. Considering wealth as a possible confounder, internet access is often associated with higher socioeconomic status; individuals with greater wealth are more likely to have internet access, and they may also have more opportunities for socialization, travel, or exposure to diverse social and sexual norms. Such factors could contribute to a higher likelihood of having multiple sexual partners. If wealth is controlled for in the adjusted model, the apparent effect of internet use may diminish because wealth itself may be driving the association with multiple sexual partners. In terms of area of residence, individuals living in urban areas are more likely to have internet access compared to those in rural areas, and urban residents may have different social dynamics, opportunities, and cultural influences regarding sexual behavior. If area of residence is accounted for in the adjusted model, there may be lack of significance in internet use variables, as those living in urban areas have greater access to social interactions and potential partners.

Our study also found that occupation and number of sex partners had a significant association; unemployed people had a higher number of sex partners than those who were employed, manual workers, and those engaged in agriculture activities. The majority of people who were working had a single sex partner than unemployed people in Nepal. In contrast with this finding, a study in the USA claimed that men with lower income and with part-time or no employment were more likely to be sexually inactive and had fewer sex partners, as were students [13]. The finding that unemployment is associated with a lower likelihood of having multiple sexual partners, aOR = 0.572, 95% CI: 0.368–0.890, seems counterintuitive because, in many contexts, individuals with fewer economic responsibilities or those in more financially constrained situations might be expected to engage in different sexual behaviors compared to those with more stable employment. The relationship between unemployment and sexual behavior may not always follow the expected pattern. It is possible that unemployed individuals may have less disposable income or fewer opportunities for social interactions, reducing the likelihood of engaging in casual sexual encounters. On the other hand, those with employment may have more resources and opportunities for social engagement, leading to a higher likelihood of having multiple sexual partners. Unemployment can increase economic stress, which might reduce individuals' involvement in certain social activities, including casual or multiple sexual relationships.

4.1 | Strengths and Limitations of the Study

The secondary data NDHS 2022 that we used in this study provide valuable insights because it is a national representative survey carried out by GoN and ICF in 2022. Therefore, it can be assumed that the results presented here could be representative of the country, which will be beneficial for policy intervention. The survey has covered a variety of variables, so it will also be useful for priority-setting.

However, the study has some limitations too; the survey was primarily quantitative by nature. Therefore, qualitative information was missed, because of which in-depth understanding could not be obtained. We used secondary data analysis, so some variables were missed during the survey. The inability to control those missing variables that were not included in the data collection process might be a major limitation, as this study used secondary data. The absence of relevant variables can introduce bias or confounding factors, as these unmeasured variables may influence the outcomes of interest. Data relevancy might be another limitation, because secondary data could not fully align with the current research objective. As a

result, it may lack the specific details needed, leading to limitations in how well the data can answer the new research questions.

5 | Conclusion

The study showed that the age of the respondents, sex, province, level of education, religion, ethnicity, use of the internet, occupation, wealth status, ecological region, area of residence, and current working status were significantly associated with having multiple sex partners in their life span. The study further concluded that the age of the respondents, province, ethnicity, occupation, and area of residence were significant predictors of having more than one sex partner in Nepal. In contrast, the study had insufficient evidence to claim that education level, sex of the household head, use of the internet, wealth status, and current working status of the respondents were significant predictors of multiple sexual partners over their life span.

Author Contributions

Devaraj Acharya: conceptualization, methodology, formal analysis, and writing – original draft, software. **Mohan Kumar Sharma:** conceptualization, methodology, data curation, formal analysis, writing – original draft, and writing – review and editing. **Ramesh Adhikari:** conceptualization, methodology, software, supervision, writing – review and editing, and validation. **Bishnu Bahadur Khatri:** conceptualization, formal analysis, writing – original draft, validation, and methodology. **Naveen Panta:** conceptualization, formal analysis, writing – original draft, validation, and methodology. **Krishna Prasad Tripathi:** conceptualization, writing – original draft, validation, formal analysis, software, and methodology. **Laxmi Kanta Sharma:** conceptualization, methodology, formal analysis, writing – original draft, review and editing. **Pramshu Nepal:** conceptualization, methodology, software, visualization, writing – original draft, and writing – review and editing. **Sumant Ghimire:** conceptualization, methodology, visualization, formal analysis, and writing – original draft.

Ethics Statement

The study used secondary data of NDHS 2022; the survey protocol was reviewed and approved by the Nepal Health Research Council (NHRC) and the Institutional Review Board (IRB) of the ICF.

Consent

We were granted access to datasets by the DHS program.

Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

The data that support the findings of this study are available in Nepal DHS, 2022 – Final Report (English) at https://dhsprogram.com/publications/publication-FR379-DHS-Final-Reports.cfm, reference number www.DHSprogram.com. These data were derived from the following resources available in the public domain:- https://dhsprogram.com/publications/publication-FR379-DHS-Fi, https://dhsprogram.com/publications/publication-FR379-DHS-Final-Reports.cfm. The DHS data sets are publicly available. It can be downloaded from the DHS Program https://www.dhsprogram.com/pubs/pdf/FR379/FR379.pdf.

Transparency Statement

The lead author Mohan Kumar Sharma affirms that this manuscript is an honest, accurate, and transparent account of the study being reported; that no important aspects of the study have been omitted; and that any discrepancies from the study as planned (and, if relevant, registered) have been explained.

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