

Sexual behaviors among men who have sex with men: a quantitative cross sectional study in Kathmandu Valley, Nepal

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Abstract: Unprotected sexual transmission is the cause of approximately 70%–80% of human immunodeficiency virus (HIV) infections worldwide. Prevalence of HIV infection in 2011 was more than ten fold higher (3.8%) among men who have sex with men (MSM) than in the general population (0.33%) in Nepal. This study aimed to explore sexual behaviors, and social and demographic characteristics of MSM in Kathmandu Valley, Nepal. A quantitative cross sectional study was conducted among 113 MSM. MSM is a hidden population in Nepalese society, therefore, it was difficult to construct a sample frame for this research so, respondent driven sampling was used which gives unbiased estimates of population parameters and has the potential to reach MSM, who are not easily accessible. A structured interview was used to obtain the information. The majority of respondents were above 20 years old (mean = 27.9 years, SD = 7.4 years). Most respondents were receptive, 43.4% identified themselves as Meti. Forty six percent of respondents were married. The majority had sex with males which was predominantly anal. MSM had an average number of 74 sex partners (last three months). Nearly 95% had used a condom, and 92% had used lubricant during their last sex act. Thirty eight percent perceived themselves as at risk of HIV. The majority knew of a place for confidential HIV testing in Kathmandu. This study highlights the importance of partner tracing during HIV counseling and testing, the importance of drop-in centers to increase access to condoms, and supports the need to increase comprehensive health services and peer led participatory behavioral change communication activities to this population in the national HIV response.

Keywords: men who have sex with men, sexual behavior, cross sectional, quantitative, Nepal

Introduction

Unprotected sexual transmission is the cause for approximately 70%–80% of human immunodeficiency virus (HIV) infections worldwide.¹ Sex between men contributes substantially to the HIV epidemic,^{2,3} and in South and South East Asia, an estimated 6%–18% of men have same sex relations at some point in their life.⁴ Men having sex with men (MSM) are 19 times more likely to acquire HIV infection than adults in the general population, and this risk seems marked in Asian countries.⁵ Nepal reported its first case of HIV infection in 1988 and in the two decades since, it has witnessed a rapidly evolving epidemic with estimated total infections of approximately 55,626 in 2011.⁶ The epidemic in Nepal has been termed as a “concentrated epidemic”, where in general, the infection is low and is seen to be concentrated among certain groups at risk, including MSM. The prevalence of HIV infection in Nepal was more than ten fold higher (3.8%) among MSM than in the general population (0.33%) in 2011.^{6,7}

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MSM is a term that includes all men who engage in consensual male-to-male sex, including those who identify as gay, bisexual, or heterosexual, and men who are sex workers.⁸ The term MSM is a behavioral term which refers to biological males who have sex with other biological males, regardless of sexual orientation or gender identity.⁹ It is generally the preferred term because, in the context of HIV, the important issue is risk behavior rather than sexual identity.¹⁰ Some Nepali terms for groups within the sexual minority groups are: *meti*, *ta*, *dohoris*, and *tesro lingi*.^{7,11} Homosexuals in Nepal are also called *lingies* or *samalingies*.^{12,13} The term “gay” is also used for male homosexuals and is the term of choice for many homosexuals to describe their own identity. *Meti* and *kothi* are “self-identifying labels for males who feminize their behaviors (to attract “manly” male sexual partners and/or as part of their own gender construction), and usually in specific situations and contexts.”^{11,14,15}

MSMs are generally a hidden population in Nepal and there is little understanding of the social, cultural, and behavioral dynamics of their lives in developing countries including Nepal.^{16,17} To a large extent, male-to-male sexuality is invisible within mainstream Nepali culture.¹⁴

Sex between men frequently involves anal intercourse which, if unprotected, carries a high risk of HIV transmission for the receptive partner, and a significant risk for the insertive partner.¹⁸ Available epidemiological data depict rates of infection that are universally higher in MSM than in the general population.¹⁹ Despite elevated HIV prevalence rates and heightened vulnerability to factors that drive HIV transmission, sexual behaviors of MSM have been under-recognized, under-studied, and under-funded.²⁰ The objective of the present study was to describe the sexual behaviors and characteristics of MSM in Kathmandu, Nepal.

Methodology

Study design and setting

A cross sectional study was conducted in Kathmandu Valley from April to December, 2011. Kathmandu Valley, which includes Kathmandu, Bhaktapur, and Lalitpur districts, which are major urban hubs of Nepal, and has a population of around 2.5 million.²¹ This valley is populated with people of different castes and ethnicities, and who have migrated from many parts of the country, predominantly Newar, Brahmin, Chhetri, and Thakuri.²²

Sample size was calculated at 95% confidence interval taking $P = 0.83$, $q = 0.17$, and $r = 10\%$, which equates to 82.²³ Taking a 10% nonresponse rate into consideration, the total sample size was calculated to be 91, but respondent driven

sampling (RDS) led to recruitment of 113 MSMs from July to November, 2011, for this study. The study population was approached through Blue Diamond Society (BDS), an umbrella organization for MSM in Nepal working on human rights, sexual health, and HIV/AIDS.¹¹ Therefore, working through BDS gave maximum opportunity to reach the participants. The study questionnaires were developed in Nepali and back translated into English to ensure accuracy. The researcher carried out preliminary mapping exercises with BDS. Initial meetings were conducted with the peer and outreach educators at BDS which helped to identify the MSM circles, core cruising areas, and local terms used to represent sexual roles of MSM, such as *metis* (biological males who see themselves as feminine and perform the receptive role during sexual intercourse) and *tas* (masculine men who have sex with *metis* and perform the insertive role during sexual intercourse). MSM were eligible for the study if they were at least 16 years old and had anal sex with another male in the last 12 months.

Respondent driven sampling

MSM is a hidden population in Nepalese society, therefore, it was difficult to construct a sample frame for this research so respondent driven sampling (RDS) was used. RDS is an adaptation of chain referral sampling, and appears to be the most promising for application in biobehavioral surveillance in hidden populations. However its applicability in resource poor settings has yet to be established.²⁴ RDS combines a modified form of chain referral, or snowball sampling, with a mathematical system for weighting the sample to compensate for not having been drawn as a simple random sample.²⁵ RDS gives unbiased estimates of population parameters and has the potential to reach MSM, who are not easily accessible²⁶ and has also been used for surveillance among MSM in Nepal before.^{7,27} It is a potentially superior form of convenience sampling method, and caution is required when interpreting findings based on the sampling method.

The population for this study is socially networked which implies that members of networks have a willingness to be recruited by peers. Initial participants (seeds) were recruited with the help of local non-Governmental organization (NGO) staff who knew them from participation in their organization’s activities. Three seeds were recruited – a single seed each at Kathmandu, Bhaktapur, and Lalitpur in Kathmandu Valley. They were then given three coupons (valid for 45 days) to pass on to members of their networks. Most of the time, participants returned to the study site accompanied with their two or three recruits. Study site here refers to Cruise Aids, Parichaya Samaj

and BDS Bhaktapur in Kathmandu Valley. Interviews using a written questionnaire in Nepali language were held in local NGOs. Both the seeds and recruited participants received incentives, both to be interviewed (primary incentives) and to refer additional recruits (secondary incentives). At the end of each interview, each participant received the equivalent of 50 Nepali rupees (1 USD = 80 rupees) as travel compensation and was encouraged to give the coupons to men in their sexual community. For each referred acquaintance who qualified for the study, regardless of whether he enrolled or not, the participant received an additional 25 Rupees. When someone did not qualify, the coupon was retained – it was given back to the referring participant so that it could be given to someone else.

This recruitment process continued to produce long recruitment chains composed of several waves of recruits starting from each seed at each recruiting location in Kathmandu Valley. The researcher observed that as the recruitment chain lengthened, the composition of sample at each location tended to reach a point of equilibrium where the composition of sample by age, educational level, and ethnicity were eventually stabilized, indicating that the final sample was not biased by the purposeful seed selection.²⁵

Assessment of social network size

Two enumerators, each having a Diploma in General Medicine, were recruited for the study. SRM trained the enumerators and provided the necessary feedback. The enumerators were also involved in pretesting. Enumerators posed the following questions:

1. Approximately, how many men who have sex with other men/gay/meti do you know personally?
2. Of those men, how many do you know by name, who are they, and how do you contact them?
3. Of those men, how many also know you?
4. Of these men, with how many have you been in contact with in the past six months? Contact may be face-to-face, or by phone.
5. Of those men, how many live in Kathmandu Valley?
6. Of those men, how many are 16-years-old or older
7. Of these men, how many would be willing to participate in this study?
8. Who gave you the coupon to participate in this study?

The researcher used these eight key questions to measure social network size in the present study. These questions for measurement of social network size of MSM has been adapted from a similar study conducted among MSM in Buenos Aires, Argentina.²⁸

Survey instruments were developed by using those from previous studies on sexual behaviors of MSM in Nepal.^{7,27} The final draft of the questionnaire was pretested in Cruise Aids, Baluwatar, Kathmandu. Based on the results of pretesting, research questions such as the number of times of voluntary counseling and testing in last year, were removed as being irrelevant and a properly coded final version of the research questionnaire was prepared before being used for data collection. A face-to-face interview was conducted to collect the information. The questionnaire included questions about demographic characteristics and sexual behaviors.

The study protocol was approved by the Human Research Ethics Committee of Institute of Medicine, Tribhuvan University. Voluntary informed consent was obtained from each participant and the confidentiality of information was maintained. Personal identifiers were removed before analysis. Data are protected according to the policy of Institute of Medicine.

Data analysis

The sociodemographic variables included in this study were; age, residence, educational level, marital status, ethnicity, self-identification by sexual orientation, and profession. The variables related to sexual behaviors included having a current sex partner, sex frequency, type of partner at first sex, sex for money, condom and lubricant use behaviors, substance use during sex, and source of condom. Ethnicity was categorized as advantaged and disadvantaged ethnic groups based on the Health Management Information System classification for ethnic groups in Nepal.²⁹ The advantaged ethnic group includes the upper caste group and relatively advantaged Janjati, while the disadvantaged ethnic group includes Dalit, disadvantaged Janajati, disadvantaged non-Dalit, Terai caste groups, and religious minorities.

In addition to the recruitment process, RDS in this study involved an analytical component. It is done through the adjustments for effects that include the participant's social network size, the recruiter's characteristics, and the sample's different recruitment patterns in this study. Statistical analyses were based on weighted data. All statistical analyses were conducted using SPSS for Windows (v17, IBM Corporation, Armonk, NY, USA). The descriptive analysis was done to find out the basic information about sexual behavior and risk perception of HIV infection. Assessment of the association of key variables would have been preferable but the low sample size was considered prohibitive in this study.

Results

Demographic characteristics

Less than one in five (16%) respondents belonged to the ≤ 20 year age group with the majority (84.1%) being >20 years (mean = 27.9 years, SD = 7.4 years). The majority of respondents had the central developmental region as their place of birth; similarly 69.9% of respondents were residing in Kathmandu. Hinduism was the predominant religion (81.4%). The majority of respondents belonged to the advantaged ethnic group (69%) with 31% from the disadvantaged group. Only 9% of respondents were illiterate. The majority of respondents were employees either in government or private organizations. Similarly, the majority of respondents (44.2%) had a monthly income less than 8000 Nepalese rupees per month (Table 1).

Behavioral characteristics of the respondents

The majority (46%) of respondents were receptive, 35.4% were penetrative, and 18.6% of respondents were dohoris (taking both roles on different occasions). The higher percentage of respondents in the receptive role correlates with the higher percentage of metis in this study population, who usually have the receptive role in sexual intercourse. According to self-identification by sexual orientation, nearly 43% identified themselves as meti, 29.2% were gay, 10.6% were ta, a significant percentage (13.3%) of respondents were homosexual, and 2.7% were bisexual. The majority (46%) of respondents were married. Less than half (45%) the respondents had a current sex partner; those partners were male (33.6%), female (8.8%), or meti (2.7%). Nearly 59% of respondents were living with their family, 63.7% supported their family from their earnings, and 74% of respondents had a good relationship with family (Table 2).

All of the respondents have sex with men, 23.8% also with female at sometime in their life. Similarly, most respondents had their last sex act with a male (80.5%), 11.5% with a female, and 7.1% with a meti. The majority of respondents (76%) had anal sex, followed by oral sex (69.2%), and 17.3% had vaginal sex as their last sex act. Of all respondents in the present study, 49.6% had sex in exchange for money and materials (Table 2).

Nearly 53% of respondents reported having 1–20 sex partners, followed by 40.7% having had 21–100 sex partners, and 6.2% having more than 100 partners in the last 3 months (mean = 74, SD = 43). The majority of respondents (95.2%) had used a condom during their last sex act and nearly 13% had to pay for the condoms (Table 2).

Table 1 Demographic characteristics of the study population

| Characteristics | Frequency | Percentage |
|------------------------------|-----------|------------|
| Age (n = 113) | | |
| 20 years or Less | 18 | 15.9 |
| More than 20 years | 95 | 84.1 |
| Residence (n = 113) | | |
| Kathmandu | 79 | 69.9 |
| Bhaktapur | 20 | 17.7 |
| Lalitpur | 12 | 10.6 |
| Outside valley | 2 | 1.8 |
| Place of birth (n = 113) | | |
| Eastern | 28 | 24.8 |
| Central | 62 | 54.9 |
| Western | 12 | 10.6 |
| Mid-western | 10 | 8.8 |
| India | 1 | 0.9 |
| Religion (n = 113) | | |
| Hindu | 92 | 81.4 |
| Muslim | 1 | 0.9 |
| Buddhist | 18 | 15.9 |
| Christian | 2 | 1.8 |
| Ethnicity (n = 113) | | |
| Advantaged group | 78 | 69 |
| Disadvantaged group | 35 | 31 |
| Educational status (n = 113) | | |
| Illiterate | 10 | 8.8 |
| Up to secondary | 56 | 49.6 |
| SLC or above | 47 | 41.6 |
| Profession (n = 113) | | |
| Student | 13 | 11.5 |
| Driver | 5 | 4.4 |
| Employee | 53 | 46.9 |
| Business/trader | 21 | 18.6 |
| Laborer | 6 | 5.3 |
| MSW | 10 | 8.8 |
| Unemployed | 5 | 4.4 |
| Income (n = 92) | | |
| <8000 rupees/month | 50 | 54.3 |
| 8001–15,000 rupees/month | 30 | 32.6 |
| >15,001 rupees/month | 12 | 13 |

Abbreviations: SLC, school leaving certificate; MSW, Male sex worker.

The majority (85.8%) of respondents reported drop-in centers of NGO working for MSM as their major source of condoms; followed by private pharmacies (20.4%), and friends (15.9%) as their source of condoms. Most respondents (86.7%) could obtain a condom every time they needed it. When we explored the reason among the MSM who did not have access to a condom in their last sexual act, cost (30%) and access (50%) were the main reported reasons. This study revealed that 85% of respondents were carrying a condom at the time of interview. Only 13.3% of respondents reported buying a condom during the last sexual intercourse (Table 2).

The majority (92%) of respondents had used lubricant during their last sex act. Two thirds of respondents always

Table 2 Sexual characteristics of the study population

| Characteristics | Frequency | Percentage |
|---|-----------|------------|
| Sexual role (n = 113) | | |
| Penetrative | 40 | 35.4 |
| Receptive | 52 | 46 |
| Dohori | 21 | 18.6 |
| Self identification by sexual orientation (n = 113) | | |
| Meti | 49 | 43.4 |
| Gay | 33 | 29.2 |
| Ta | 12 | 10.6 |
| Homosexual | 15 | 13.3 |
| Bisexual | 3 | 2.7 |
| Don't know | 1 | 0.9 |
| Marital status (n = 113) | | |
| Ever married | 52 | 46 |
| Never married | 61 | 54 |
| Married partner (n = 113) | | |
| Male | 24 | 21.2 |
| Female | 28 | 24.8 |
| Never married | 61 | 54 |
| Regular sex partner (n = 113) | | |
| Yes | 51 | 45.1 |
| No | 62 | 54.9 |
| Regular sex partner (n = 113) | | |
| Male | 38 | 33.6 |
| Meti | 3 | 2.7 |
| Female/wife | 10 | 8.8 |
| No regular sex partner | 62 | 54.9 |
| Sex in life (n = 113) multiple responses | | |
| Male | 113 | 100 |
| Meti | 44 | 23.8 |
| Female | 43 | 23.2 |
| Last sex (n = 113) | | |
| Male | 8 | 7.1 |
| Meti | 91 | 80.5 |
| Female | 13 | 11.5 |
| No response | 1 | 0.9 |
| Type of last sex (n = 113) multiple responses | | |
| Vaginal | 18 | 17.3 |
| Oral | 72 | 69.2 |
| Anal | 79 | 76 |
| Sex in exchange for money (n = 113) | | |
| Yes | 56 | 49.6 |
| No | 57 | 50.4 |
| No of sex partners in last 3 months | | |
| 1–20 | 60 | 53.1 |
| 21–100 | 46 | 40.7 |
| > 100 | 7 | 6.2 |
| Partner used condom in last sex (n = 113) | | |
| Yes | 99 | 95.2 |
| No | 5 | 4.8 |
| Source of condom (n = 113) | | |
| Shop | 15 | 13.3 |
| Medical | 23 | 20.4 |
| Friends | 18 | 15.9 |
| Health posts | 11 | 9.7 |
| Drop-in centers | 97 | 85.8 |

(Continued)

Table 2 (Continued)

| Characteristics | Frequency | Percentage |
|------------------------------------|-----------|------------|
| Pay for condom last time (n = 113) | | |
| Yes | 15 | 13.3 |
| No | 98 | 86.7 |
| Reasons for no access (n = 10) | | |
| Expensive | 3 | 30 |
| Facility is far | 5 | 50 |
| Don't know where to get condom | 1 | 10 |
| Don't want to carry condom | 1 | 10 |

used lubricant during sexual intercourse in the last 3 months. The most common lubricant used by MSMs were water based lubricants (59.3%) followed by saliva (11.5%) (Table 3).

Nearly four in ten (38%) respondents perceived that they were at risk of HIV infection in contrast to 61% without a perceived risk of HIV infection. When we explored the reason for perceived risk of HIV infection (n = 43), the habit of irregular use of lubricant (25%), irregular use of condom (34.6%), the fear of condom tear (50%), having multiple sex partners (38.5%), and the habit of exchanging needles (7.7%) were mentioned. Similarly, respondents (n = 43) were asked about the reasons for no perceived risk of HIV infection, and a significant number of respondents provided reasons such as regular use of lubricants (50.8%), regular use of condoms (58.7%), had not shared syringes (17.5%), did not have many sex partners (30.2%), had infrequent anal sex (14.3%), and perception that partners were healthy (23.8%) (Table 3).

The majority (96.5%) of respondents had knowledge of a place for confidential HIV testing in Kathmandu. The majority of respondents (94.7%) had been tested in the last 12 months. The majority (87.6%) of respondents had tested voluntarily and the remaining 10.6% were asked by their partner to do a HIV test.

Discussion

This study aimed to find out the prevalent sexual behavior and perceived risk of HIV infection among MSM of Kathmandu Valley. The MSM population in Nepal is younger than the study revealed in Shandong province in People's Republic of China.³⁰ Levels of education among MSM is higher than similar studies in 2007 and 2009.^{7,27} This may be the result of increased reach of educational activities by NGOs working for MSM.

Regarding the sexual role they played during sexual intercourse, the number of respondents performing the receptive role was found to be slightly higher than in a similar study conducted in Nepal.¹⁵ This suggests that

Table 3 Safer sex behaviors and perceived risk of HIV infection among the study population

| Characteristics | Frequency | Percentage |
|--|-----------|------------|
| No of sex partners in last 3 months | | |
| 1–20 | 60 | 53.1 |
| 21–100 | 46 | 40.7 |
| >100 | 7 | 6.2 |
| Sex with female in last 3 month (n = 104) | | |
| Yes | 31 | 30.5 |
| No | 73 | 69.5 |
| Partner used condom in last sex (n = 113) | | |
| Yes | 99 | 95.2 |
| No | 5 | 4.8 |
| Source of condom (n = 113) | | |
| Shop | 15 | 13.3 |
| Medical | 23 | 20.4 |
| Friends | 18 | 15.9 |
| Health posts | 11 | 9.7 |
| Drop-in centers | 97 | 85.8 |
| Pay for condom last time (n = 113) | | |
| Yes | 15 | 13.3 |
| No | 98 | 86.7 |
| Reasons for no access (n = 10) | | |
| Expensive | 3 | 30 |
| Facility is far | 5 | 50 |
| Don't know where to get condom | 1 | 10 |
| Don't want to carry condom | 1 | 10 |
| Ever used lubricant (n = 113) | | |
| Yes | 105 | 92.9 |
| No | 8 | 7.1 |
| Consistency of lubricant use in 3 months (n = 113) | | |
| Always | 70 | 61.9 |
| Most of the time | 23 | 20.4 |
| Sometimes | 12 | 10.6 |
| Haven't used lubricant | 8 | 7.1 |
| Type of lubricant (n = 113) | | |
| Saliva/spit | 13 | 11.5 |
| Ghee/oil | 11 | 9.8 |
| Cream/lotion | 3 | 2.7 |
| Water based lubricant | 67 | 59.3 |
| Antiseptic/antibiotic cream | 10 | 8.8 |
| Don't remember | 1 | 0.9 |
| Haven't used lubricant | 8 | 7.1 |
| Perceived risk (n = 112) | | |
| Perceived risk | 43 | 38.1 |
| No perceived risk | 69 | 61.1 |
| Reason for yes (n = 43) | | |
| Irregular use of lubricant | 13 | 25 |
| Irregular use of condom | 18 | 34.6 |
| Fear of condom tear | 26 | 50 |
| Many sex partners | 20 | 38.5 |
| Exchanges syringes | 4 | 7.7 |
| Repeated anal sex | 14 | 26.9 |

the range of people exposed to a high risk of HIV and sexually transmitted diseases is widely expanded to include their wives, sex partners, and other populations.³² MSM having regular sex partners has increased in comparison to what was found in IBBS, 2009.⁷ Marriage among the

Nepali MSM population was found to have increased when compared with one previous study in Nepal in 2009 (39.3%),⁷ but was similar to a study in Nepal.⁷ As our study population was comparatively younger, there is a likelihood that they may get married in the future. This trend of MSM being married is one area that public health practitioners can focus on for HIV and sexually transmitted infection prevention, as marriage with the opposite sex may increase their vulnerability, as well as that of their partner, if they practice unprotected sex.³³ Again, use of condoms among married couples is not as common as with other partners.² This might make the female partner vulnerable if their male partner (MSM) is not practicing safe sex with their other partners.

However, the present study revealed that 23.2% of the MSMs have had sex with a female. Bisexual relationships with male and female partners have been demonstrated among MSM from similar studies in Nepal.^{7,15,27} As the female partners are more likely to acquire sexually transmitted infections, it is necessary to focus on female partners of MSMs while implementing health programs for MSMs.³¹

The predominant sex practice among MSM during their last sex act was anal sex (76%), with oral sex (69.2%), and vaginal sex (17.3%). Almost half the respondents have had sex in exchange for money and materials. This has increased in comparison to the findings from studies in Nepal (IBBS 2009; 35.5%)⁷ and Ho Chi Minh City, Vietnam (31%).⁸ This increase in sex work might be attributed to widespread unemployment in Nepal. If the trend continues, dependency on sex work may increase in the future. This has an increased risk of HIV and sexually transmitted infections among the MSMs and their clients. Aside from the infections, security concern is another issue. Sex work is not legal in Nepal,⁴ therefore, MSM as sex workers may suffer legal problems and violence from the police. Again, their identity as MSM may make them more vulnerable as a result of stigma due to homophobia.³⁴

Multiple sex partners was common among the respondents of this study. A similar finding was also reported in another study among MSM from Kathmandu Valley, Nepal, where 45% of the partners had multiple sex partners.¹⁵ The practice of having multiple sex partners might pose the risk of HIV, sexually transmitted infection, and other blood-borne infections. Such a high number of partners is alarming and is regarded as an important public health issue.

In the current study it was found that the majority of respondents (95.2%) had used a condom during their last

sex act, which is higher than in previous Nepalese (IBBS 2009; 71.3%)²⁷ and Vietnamese (32%) studies.⁸ However it was still not universal compared to extensive promotion and free distribution of condom in Kathmandu valley by local NGOs working for MSM. The current finding should be understood with the caution that we covered condom use at the last sexual contact. Similarly, it should also be understood that this study population was accessed through BDS, which is working on the sexual health area of MSMs as well. It is likely that this rate is a reflection of a more aware population among MSM.

The majority (85.8%) of respondents used drop-in centers of NGO⁷ and a significant proportion (15.9%) received condoms from their peers. Most (86.7%) could obtain a condom every time they needed it. The respondent's expression of their ability to access a condom when they needed it has slightly decreased.⁷ The percentage of respondents who had used lubricant was higher (92.9%) in comparison to that during IBBS, 2009.⁷ When compared with the IBBS study, respondents using lubricant during their last anal intercourse is higher at 96.5%.⁷ It has given the picture of increasing use of lubricant among the MSMs of Kathmandu Valley. Lubricants make sex safer by reducing the likelihood of condom breakage and it also reduces tissue damage and tearing caused to the genitals.³¹ But the practice of using saliva (11.5% in this study) as a lubricant is alarming because when compared to other sexually active adults, MSM are more frequently infected with several pathogens including cytomegalovirus, hepatitis B virus, and Kaposi sarcoma-associated herpes virus, so there is a risk of transmission of saliva borne pathogens in MSM through use of saliva as a lubricant in anal sex. Nearly 38% of respondents perceived they have risk of HIV infection which is slightly more than in another study (34%) in Nepal.²⁷ The majority of respondents (94.7%) had been tested for HIV in the last 12 months, which was far higher than in another study in 2009 (54%).⁷

Although the study provides information on the relatively unexplored area of public health, it is not free from limitations. The current study was confined to the Kathmandu Valley of Nepal, one of the most developed and accessible places in Nepal. Therefore, the high rate of condom use should not be generalized for other parts of the country. The study included a small sample size which further limits the capacity for generalization. Due to the smaller number of observations, it was not possible to explore statistical association of the factors. Nevertheless, to the best of the authors' knowledge, it is one of few quantitative studies reporting the sexual behavior of MSM in Nepal.

Conclusion

This study provides information about the sexual behaviors of the most at risk population – MSM in Kathmandu Valley, Nepal. The majority of respondents practice unsafe sexual behaviors which include irregular condom and lubricant use, frequent and unprotected sex with many sex partners including female partners, and sex in exchange for money. MSM experience significant risk of HIV infection that can be attributed to their risky sexual behaviors. Thus, a HIV prevention program may become effective with a comprehensive intervention for MSMs practicing unsafe sexual behaviors,³⁵ and prioritizing partner tracing during HIV counseling and testing will be effective to reach their partners.³⁶ As MSM is a hidden population in Nepali society, HIV related services through drop-in centers, peer, and outreach activities provides better opportunities for MSM to access lubricants, condoms, information, and other HIV related services. Peer led participatory behavioral change communication activities are needed to foster consistent practice of condom and lubricant use, and to motivate MSMs to voluntarily screen for HIV and STIs.^{13,37} Lastly, more research is needed to explore novel intervention approaches that target young MSMs and partners of MSMs for HIV testing with greater attention to address unemployment, impaired access to education and quality care, substance abuse and dependence, low parental support, and early sexual initiation.

Acknowledgments

We wish to express our thanks to Sharad Raj Onta, Bandana Pradhan, and Sunil Babu Panta, as well as to all the respondents who participated in this study.

Disclosure

The authors report no conflicts of interest in this work.

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