Unsafe Sexual Behaviors among HIV-positive Men in Kathmandu Valley, Nepal

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Abstract We assessed unsafe sexual behaviors of the Nepalese HIV-positive men and their knowledge about the consequences of unsafe sex. We interviewed 167 participants recruited conveniently in the Kathmandu Valley, Nepal. Of total, 125 participants (75%) had sex in the past 6 months, 47% of whom with multiple partners. Fifty-seven (46%) of 123 participants who had sex did not always use condoms; unsafe sex was common in seroconcordant or serodiscordant relationships or in sero-unknown relationships. Only 41% (50/123) participants knew about the possibility of HIV superinfection. Our results suggest the urgent need of HIV prevention interventions for the Nepalese HIV-positive men.

Keywords HIV infection · Sexual behavior · Superinfection · Nepal

Introduction

South Asia is facing a serious HIV/AIDS epidemic. Although many of the people living with HIV/AIDS (PLWHA) in this region have not been tested and are not aware of their HIV status, the number of PLWHA who knows their HIV status is increasing with the availability of antiretroviral (ARV) treatment (World Health Organization 2007). It is suggested that PLWHA of this region were infected with HIV most commonly through unsafe sex (World Health Organization 2007). However, little has been known about the sexual behaviors of PLWHA in this region, particularly after they know their HIV status. Such information would be useful to design specific HIV prevention interventions with PLWHA that help to prevent new HIV infections and to protect their health (Kalichman 2005).

Unsafe sex of PLWHA can adversely affect their own health. First, it can increase their risk of other sexually transmitted infections (STIs). The presence of such infections in PLWHA can exacerbate HIV diseases by increasing viral load (Buchacz et al. 2004; Cohen et al. 1997). Second, unsafe sex among PLWHA can cause superinfection with multiple strains or subtypes of HIV (Smith et al. 2005). Superinfection with subsequent recombination may produce more pathogenic or drug resistant viruses that can complicate ARV therapy. Additionally, recombinant viruses and superinfection can accelerate HIV disease progression and increase the likelihood of HIV transmission by increasing viral load (Smith et al. 2005).

Although unsafe sex among PLWHA can have serious health implications, little is known about how well they understand the negative consequences of having unsafe sex. A qualitative study reported that several PLWHA had negative perceptions towards “safer sex” practices, particularly in seroconcordant relationships (Poudel et al. 2007). The study also reported that several PLWHA do not believe in the possibility of HIV superinfection and they did not think that they were at risk of any serious health conditions despite their risky behaviors.

Another study reported the beliefs of HIV superinfection among the men who have sex with men (MSM) in the United States (Colfax et al. 2004). In this study, participants’ belief on superinfection was associated with their safer sexual practices in seroconcordant or sero-unknown relationships. However, the field work of this study was conducted prior to scientific confirmation of superinfection; concern of superinfection might have changed among PLWHA in the United States following its evidences in human. However, little is known about its concern among PLWHA in South Asia.
Nepal, one of the least developed countries in South Asia, has been facing a serious HIV/AIDS epidemic. Currently, Nepal is classified as a country that is experiencing a ‘concentrated epidemic’ of HIV/AIDS. Since the first case of HIV/AIDS in Nepal was reported in July 1988, the number of PLWHA increased to 75,000 in Nepal by the end of 2005 (UNAIDS/UNICEF/WHO 2006). HIV prevalence is reportedly over 5% among injecting drug users, female sex workers, and migrant workers to India (UNAIDS/UNICEF/WHO 2006). It is suggested that unsafe heterosexual intercourse is the main route of HIV transmission in Nepal (World Health Organization 2007). However, scant attention has been paid to assess the sexual behaviors of the Nepalese PLWHA after they know their HIV status and to assess their knowledge about the consequences of unsafe sex.

Therefore, the objectives of this study were to assess the unsafe sexual behaviors of the Nepalese HIV-positive men and their knowledge about the consequences of unsafe sex and to identify the factors associated with their unsafe sexual behaviors.

Methods

Participants

Participants were 167 HIV-positive men living in the Kathmandu Valley, Nepal. The inclusion criteria were: age 18–50 years; self-reported diagnosis with HIV infection at least 3 months prior to the date of interview; and giving written informed consent to participate in the study voluntarily. The Nepal Health Research Council reviewed and approved the study protocol.

From March to June 2006, we recruited the participants using a convenience snowball sampling method as the detail database of PLWHA was not available to select them randomly. For this, we identified the initial participants through key informants such as the members of local non-government organizations working with PLWHA and the networks of PLWHA in the Kathmandu Valley. The Kathmandu Valley consists of three districts, namely Kathmandu, Lalitpur, and Bhaktapur, with an estimated population of 1.9 million in 2006. According to the Nepalese National Centre for AIDS and STD Control, 13% of the 60,000 estimated adult PLWHA in Nepal were residing in the Kathmandu Valley at the end of 2003.

Measures

We used a structured Nepali language questionnaire to conduct the interviews. Measures included socio-demographic and health characteristics, sexual risk and protective behaviors, knowledge about the consequences of unsafe sex, condom availability, beliefs that condoms interfere with sex, and condom use self-efficacy.

We asked the participants if they had had sexual intercourse in the past 6 months and if they used condoms during these encounters. We asked them about their behavior with both regular partner and casual partners (defined as any occasional sexual encounter within the past 6 months). Moreover, we asked the participants if they knew the HIV status of their partners. We defined unsafe sex as not always having used condoms during the sex with a regular or casual partner within the past 6 months.

We used a 3-item test to assess participants’ knowledge about the consequences of unsafe sex among PLWHA. Items were developed based on the previous studies by Colfax et al. (2004) and Wingood et al. (2004). The participants responded these questions as true, false, or don’t know. For analysis, we coded these responses as correct and incorrect; don’t know responses were coded as incorrect.

We measured condom availability with a question “Most of the time we don’t have condoms when we need one” (Wingood et al. 2004). The participants responded to this question on a four-point scale ranging from 1 ‘Strongly disagree’ to 4 ‘Strongly agree.’ For analysis, we coded these responses into dichotomous ‘disagree’ or ‘agree’ to reduce the influence of random error.

We measured ‘Beliefs that condoms interfere with sex’ using an 8-item scale (Wingood et al. 2004) (α = 0.87) (e.g., “Condoms rub and make you feel sore”). The items had a response scale ranging from 1 ‘Strongly disagree’ to 4 ‘Strongly agree.’ We averaged the scores to form composite measures. The mean score (standard deviation; SD) of ‘belief that condoms interfere with sex’ was 2.44 (0.59). As our measurement was based on ordinal categories, the score was categorized as high or low levels for analysis. A high level included score above the mean; a low level included score below the mean and the mean score.

We measured ‘Condom use self-efficacy’ using an 8-item scale that assessed the participants’ confidence in their ability to use condoms properly (α = 0.89). Sample question included “Put a condom on a hard penis.” The original
scale had 9 items (Wingood et al. 2004). However, we deleted one item “Use spermicide or lubricant with a condom” as the practice is not common in Nepal. The items had a response scale ranging from 0 ‘Not at all confident’ to 2 ‘Very confident.’ We averaged the scores to form composite measures. The mean score (SD) of ‘self-efficacy of condom use’ was 1.31 (0.51). For analysis, the score was categorized as high or low levels as our measurement was based on ordinal categories. A high level included score above the mean; a low level included score below the mean and the mean score.

We first developed the questionnaire of this study in English, translated it into Nepali language, and then back translated it into English. After the back translation, we revised the Nepali version again. Then, we pre-tested it among 10 HIV-positive men and made additional modifications based on the pre-test results; these participants were not included in the main survey.

We hired four interviewers. The first author gave them one day training on the questionnaire and on the interview technique. These interviewers first informed all the participants individually about the study procedures using the information sheet. All the participants then signed informed consent forms agreeing to participate in the study. Subsequently, the interviewers conducted face-to-face interviews in a private setting. Each interview took about 30–45 min. During the field study, the first author visited the study site and supervised the fieldwork. To enhance confidentiality, the interviewers reassured the participants that, rather than names, codes would be used in all records.

Data Analysis

A total of 167 participants completed the survey. However, we excluded one participant from the analysis as the length of HIV-positive status of this participant was not known; thus we included the responses of 166 participants in our analysis. For analysis, firstly, we compared the participants who were and who were not sexually active in the past 6 months before the survey. Secondly, we compared the participants who reported multiple sex partners in the past 6 months with those who reported only one partner. Thirdly, we compared the participants who had unsafe sex in the past 6 months with those who did not have unsafe sex. These analyses included comparisons on demographic and health characteristics, partner statuses, knowledge about the consequences of unsafe sex, condom availability, participants’ beliefs that condoms interfere with sex, and condom use self-efficacy. We obtained unadjusted odds ratio (OR) and 95% confidence interval (CI) using logistic regression analysis. Then, we conducted multivariate logistic regression analysis between the participants ‘who had unsafe sex’ and those ‘who had safe sex’ simultaneously entering all the variables included in the bi-variate analysis except ‘HIV-status of primary partner’ due to multicollinearity with ‘at least one partner in the past 6 months was HIV-positive;’ variance inflation factor of these variables was greater than 5.0. Finally, we compared the participants who had unsafe sex with those who had safe sex in seroconcordant primary relationships using Fisher’s exact test. This analysis included comparison of participants’ knowledge about the consequences of unsafe sex.

Results

Of the 166 participants, 125 (75%) were sexually active in the past 6 months. The participants who were sexually active were more likely to be currently non-married ($P < 0.01$) and were less likely to be employed ($P < 0.01$) than those who were not sexually active (Table 1). No other significant differences were detected between the participants who were sexually active and those who were not sexually active.

Among 125 sexually active participants, 111 (89%) had sex with regular partner in the past 6 months. Sixty-six (40%) of 125 sexually active participants had sex with casual partner in the past 6 months, of whom 42 (64%) participants had two or more casual partners. In total, 66 (53%) participants indicated having only one sex partner and the remaining 59 (47%) had two or more partners in the past 6 months.

Demographic and Health Characteristics

The participants with multiple sex partners were more likely to be currently non-married than those with single partner ($P < 0.01$) (Table 2). The participants with multiple sex partners and those with one partner did not show any significant differences in education, HIV-positive duration, or current status of ARV treatment.

Partner Statuses

HIV status of the regular partner of those with multiple partners ($n = 52$) was as below: 13% HIV-positive, 62% unknown serostatus, and 25% HIV-negative. In contrast, HIV status of the regular partner of those with one partner ($n = 59$) was as below: 19% HIV-positive, 34% unknown serostatus, and 47% HIV-negative. Similarly, among the participants with multiple partners ($n = 59$), 20% had at least one HIV-positive partner, 68% had unknown serostatus partner, and 12% had HIV-negative sex partners in
the past 6 months. In contrast, HIV-positive status of at
least one partner among those with one partner (n = 66)
was as below: 17% HIV-positive, 41% unknown serosta-
tus, and 42% HIV-negative.

### Table 1  Demographic and health characteristics of sexually active and sexually non-active HIV-positive men in Kathmandu, Nepal

<table>
<thead>
<tr>
<th>Marital status</th>
<th>Currently sexually active (n = 125)</th>
<th>Currently sexually not active (n = 41)</th>
<th>OR</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>Currently non married</td>
<td>56</td>
<td>(62.2)</td>
<td>34</td>
<td>(37.8)</td>
</tr>
<tr>
<td>Currently married</td>
<td>69</td>
<td>(90.8)</td>
<td>7</td>
<td>(9.2)</td>
</tr>
</tbody>
</table>

** Education*  
- Up to primary: 33 (70.2) vs 14 (29.8), OR 0.66 (0.30–1.44)  
- Above primary: 85 (78.0) vs 24 (22.0)   

** Employmentb  
- No: 29 (59.2) vs 20 (40.8), OR 0.32* (0.15–0.67)  
- Yes: 94 (81.7) vs 21 (18.3)   

** Months since testing HIV-positive  
- 26 or more: 59 (72.0) vs 23 (28.0), OR 0.70 (0.34–1.42)  
- 25 or less: 66 (78.6) vs 18 (21.4)   

** On ARV treatment  
- Yes: 19 (70.4) vs 8 (29.6), OR 0.73 (0.29–1.84)  
- No: 94 (81.7) vs 21 (18.3)   

** Age (mean) (SD)  
- 30.5 (5.5) vs 30.3 (6.6), OR 1.00 (0.94–1.07)  

* P < 0.05; ** P < 0.01  
* Ten participants did not respond to this question  
b Two participants did not respond to this question

### Table 2  Factors associated with having multiple sex partners among sexually active HIV-positive men in Kathmandu, Nepal

<table>
<thead>
<tr>
<th>Marital status</th>
<th>Multiple partners (n = 59)</th>
<th>One partner (n = 66)</th>
<th>OR</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>Currently non married</td>
<td>36</td>
<td>(64.3)</td>
<td>20</td>
<td>(35.7)</td>
</tr>
<tr>
<td>Currently married</td>
<td>23</td>
<td>(33.3)</td>
<td>46</td>
<td>(66.7)</td>
</tr>
</tbody>
</table>

** Education*  
- Up to primary: 12 (36.4) vs 21 (63.6), OR 0.58 (0.25–1.33)  
- Above primary: 42 (49.4) vs 43 (50.6)   

** Months since testing HIV-positive  
- 26 or more: 33 (55.9) vs 26 (44.1), OR 1.95 (0.95–3.98)  
- 25 or less: 26 (39.4) vs 40 (60.6)   

** On ARV treatment  
- Yes: 10 (52.6) vs 9 (47.4), OR 1.29 (0.48–3.43)  
- No: 49 (46.2) vs 57 (53.8)   

** Regular partner statusb  
- HIV-positive: 7 (38.9) vs 11 (61.1), OR 1.37 (0.43–4.34)  
- Unknown serostatus: 32 (61.5) vs 20 (38.5), OR 3.44** (1.45–8.16)  
- HIV-negative: 13 (31.7) vs 28 (68.3)   

** At least one partner in past 6 months was HIV-positive  
- Yes: 12 (52.2) vs 11 (47.8), OR 4.36* (1.36–13.97)  
- Don’t know: 40 (59.7) vs 27 (40.3), OR 5.92** (2.26–15.49)  
- No: 7 (20.0) vs 28 (80.0)   

** Age (mean) (SD)  
- 29.6 (5.0) vs 31.4 (5.7), OR 0.94 (0.87–1.00)  

* P < 0.05; ** P < 0.01  
* Seven participants did not respond to this question  
b Data were available only for 52 participants in the multiple partners category and 59 in the one partner category

Sexual Behaviors  
Forty-nine (44%) of 111 participants who had sex with regular partner did not use condom consistently with
regular partner in the past 6 months. HIV status of the regular partner of these 49 participants was as below: 13 (27%) HIV-negative, 26 (53%) unknown serostatus, and 10 (20%) HIV-positive. In contrast, HIV status of the regular partner of those who had safe sex with regular partner \((n = 62)\) was as below: 28 (45%) HIV-negative, 26 (42%) unknown serostatus, and 8 (13%) HIV-positive. HIV status of regular partner was not significantly different between the participants who had unsafe sex and those who had safe sex with regular partner.

Among 66 participants who had sex with casual partners, two participants did not report their condom use history. Of 64 participants who reported their condom use history, 27 (42%) participants did not use condom consistently. HIV status of the casual partner of these 27 participants was as below: 4 (15%) HIV-negative, 14 (52%) unknown serostatus, and 9 (33%) HIV-positive. In contrast, HIV status of the casual partner of those who had safe sex with casual partner \((n = 37)\) was as below: 3 (8%) HIV-negative, 31 (84%) unknown serostatus, and 3 (8%) HIV-positive. HIV status of casual partner was not significantly different between the participants who had unsafe sex and those who had safe sex with casual partner.

Of the total 123 sexually active participants who reported their condom use history, 57 (46%) did not use condom consistently with regular or casual partners in the past 6 months. The participants with having unsafe sex and those with safe sex did not differ significantly in marital status, education, HIV-positive duration, and ARV treatment status (Table 3). The participants with HIV-positive regular partner were more likely to have unsafe sex than those with HIV-negative one \((P < 0.05)\). Similarly, the participants with at least one HIV-positive sex partner in the past 6 months were more likely to have unsafe sex than those with HIV-negative one \((P < 0.01)\).

Knowledge About the Consequences of Unsafe Sex

The participants displayed poor knowledge about the consequences of unsafe sex, particularly about HIV superinfection (Table 4). For example, 73 (59%) participants did not know the possibility of HIV superinfection. Similarly, 35% participants did not know that the “presence of STIs in a HIV-positive person increases the HIV disease progression.” Twenty-nine percent participants did not know that “HIV-positive person can become sicker if they have unprotected sex with a partner who has HIV or

<table>
<thead>
<tr>
<th>Table 3</th>
<th>Factors associated with having unsafe sex among sexually active HIV-positive men in Kathmandu, Nepal</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Unsafe sex ((n = 57))</td>
</tr>
<tr>
<td>-----------------------</td>
<td>---------------------------------------------------------------</td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
</tr>
<tr>
<td>Currently non married</td>
<td>26 (48.1)</td>
</tr>
<tr>
<td>Currently married</td>
<td>31 (44.9)</td>
</tr>
<tr>
<td>Education(^a)</td>
<td></td>
</tr>
<tr>
<td>Up to primary</td>
<td>16 (51.6)</td>
</tr>
<tr>
<td>Above primary</td>
<td>36 (42.4)</td>
</tr>
<tr>
<td>Months since testing HIV-positive</td>
<td></td>
</tr>
<tr>
<td>26 or more</td>
<td>28 (48.3)</td>
</tr>
<tr>
<td>25 or less</td>
<td>29 (44.6)</td>
</tr>
<tr>
<td>On ARV treatment</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>7 (36.8)</td>
</tr>
<tr>
<td>No</td>
<td>50 (48.1)</td>
</tr>
<tr>
<td>Regular partner status(^b)</td>
<td></td>
</tr>
<tr>
<td>HIV positive</td>
<td>12 (66.7)</td>
</tr>
<tr>
<td>Unknown serostatus</td>
<td>27 (51.9)</td>
</tr>
<tr>
<td>HIV negative</td>
<td>13 (31.7)</td>
</tr>
<tr>
<td>At least one partner in past 6 months was HIV-positive</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>16 (69.6)</td>
</tr>
<tr>
<td>Don’t know</td>
<td>30 (46.2)</td>
</tr>
<tr>
<td>No</td>
<td>11 (31.4)</td>
</tr>
<tr>
<td>Had multiple partners in past 6 months</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>31 (53.4)</td>
</tr>
<tr>
<td>No</td>
<td>26 (40.0)</td>
</tr>
</tbody>
</table>

\(^a\) \(P < 0.05\); ** \(P < 0.01\)

\(^a\) Seven participants did not respond to this question

\(^b\) Data were available only for 52 participants in the unsafe sex category and 59 in the safe sex category
another STI.” None of the items were significantly different between the participants “with having multiple partners and those with single sex partner” or between those “with having unsafe sex and those with safe sex.”

Among the participants who had unsafe sex in seroconcordant primary relationships, only 40% participants knew the possibility of HIV superinfection (Table 5). In contrast, 50% knew about it among the participants who had safe sex. Similarly, 50% participants who had unsafe sex knew that “HIV-positive person can become sicker if they have unprotected sex with a partner who has HIV or another STI” than those who had unsafe sex in primary seroconcordant relationships. These differences were not statistically significant.

### Table 4

<table>
<thead>
<tr>
<th>Unsafe sex</th>
<th>Safe sex</th>
<th>OR</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>(n = 57)</td>
<td>(n = 66)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>Knew that the presence of STIs in a HIV+ person increases the HIV disease progression</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>38 (47.5)</td>
<td>42 (52.5)</td>
<td>0.87 (0.41–1.84)</td>
</tr>
<tr>
<td>No</td>
<td>19 (44.2)</td>
<td>24 (55.8)</td>
<td></td>
</tr>
<tr>
<td>Knew the possibility of HIV superinfection</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>22 (44.0)</td>
<td>28 (56.0)</td>
<td>1.17 (0.56–2.41)</td>
</tr>
<tr>
<td>No</td>
<td>35 (47.9)</td>
<td>38 (52.1)</td>
<td></td>
</tr>
<tr>
<td>Knew that HIV+ person can become sicker if they have unprotected sex with a partner who has HIV or another STI</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>40 (45.5)</td>
<td>48 (54.5)</td>
<td>1.13 (0.51–2.48)</td>
</tr>
<tr>
<td>No</td>
<td>17 (48.6)</td>
<td>18 (51.4)</td>
<td></td>
</tr>
</tbody>
</table>

### Condom Availability

Among the participants who had unsafe sex, 26% (15/57) disagreed that “most of the time they don’t have condom when they need one.” In contrast, 68% (45/66) disagreed among the participants who had safe sex. This difference was statistically significant (OR = 0.16; P < 0.01; 95% CI = 0.07–0.36). Condom availability was not significantly different between the participants who had multiple partners and those who had single sex partner.

### Beliefs that Condoms Interfere with Sex

Of total, 52% (64/123) participants had higher level of beliefs that condoms interfere with sex. Among the participants who had unsafe sex, 47% (27/57) had higher level of beliefs that condoms interfere with sex. In contrast, 56% (37/66) had higher level of beliefs that condoms interfere with sex among the participants who had safe sex. The participants’ level of beliefs that condoms interfere with sex was not significantly different between the participants “with having multiple partners and those who had single sex partner” or between the participants “who had unsafe sex and those who had safe sex.”

### Condom Use Self-Efficacy

Of total, 46% (57/123) participants had lower level of condom use self-efficacy. Among the participants who had unsafe sex, 49% (28/57) had lower level of condom use self-efficacy. In contrast, 44% (29/66) had lower level of condom use self-efficacy among the participants who had safe sex. The participants’ level of condom use self-efficacy was not significantly different between the participants “with having multiple partners and those with single sex partner” or between the participants “with having unsafe sex and those who had safe sex.”

### Multivariate Model

We compared the participants engaging in unsafe sex with those in safe sex using multivariate logistic regression analysis. All predictors in the bivariate analysis except the HIV-status of primary partner were simultaneously included in the analysis. Controlling for other predictors, unsafe sexual behavior of the participants was associated with their unavailability of condoms (OR = 8.96, 95% CI = 3.15–25.43, P < 0.01). Although statistically not significant, the participants who had unsafe sex were tended to be tested HIV-positive 26 months or more than those...
who were tested 25 months or less (OR = 2.41, 95% CI = 0.81–7.13).

**Discussion**

This study revealed relatively high levels of unsafe sexual behaviors among the HIV-positive men in Kathmandu Valley, Nepal. Our data indicates that three in four HIV-positive men are sexually active and approximately half of them reporting multiple sex partners, many of whom are probably concurrent. Moreover, about half of the sexually active participants had unsafe sex in the past 6 months and such sex was common in seroconcordant or serodiscordant relationships or in sero-unknown relationships. The sex partners of our participants are therefore at particularly high risk for HIV transmission. Similarly, our participants who are engaging in such behaviors are at great risk of HIV superinfection or infection with other STIs.

This study revealed evidence of participants’ poor knowledge about the consequences of unsafe sex among PLWHA, particularly about HIV superinfection. Although statistically not significant due to small sample size, higher proportion of the participants with such knowledge engages in safer sexual behavior in seroconcordant primary relationship. In the United States, counseling and messages that emphasize the negative consequences of unsafe sex were effective in reducing such behaviors in HIV-positive patients with two or more partners at baseline (Richardson et al. 2004). Similar interventions might improve Nepalese HIV-positive men’s knowledge about the consequences of unsafe sex and their safer sexual practices.

In this study, the participants who had unsafe sex were less likely to have the condoms when they need them. In Nepal, PLWHA were underserved with respect to sexual risk reduction interventions (National Center for AIDS and STD Control 2003). As condoms are often promoted as parts of HIV prevention intervention, it is possible that condom use was not promoted as a health intervention to people who were already infected with the virus.

In general, it is a taboo to talk about sexuality in Nepalese society; and people might feel awkward about buying condoms from pharmacies. In addition, PLWHA might find it difficult to ask for condoms in the health institutions, as the denial of services to PLWHA by health professionals is common in Nepal when their HIV-positive status is known (Beine 2002). For these reasons, PLWHA might have less access to condoms in Nepal.

The participants who knew their HIV-positive status since longer period (26 months or more) were tended to have unsafe sex; although the association was not statistically significant the OR increases after taking into account the other variables in multivariate analysis. Post-test counseling is an opportunity for PLWHA to learn risk reduction strategies. Without further reinforcement, however, the impact of such counseling may become weak as time goes on.

Some limitations of this study should be noted. First, the participants of this study might not represent all the HIV-positive men in the Kathmandu Valley. We recruited our participants using the networks of PLWHA located in different sites of Kathmandu, Lalitpur, and Bhaktapur districts. HIV-positive men who have not disclosed their HIV status to their HIV-positive colleagues and who are not the members of such networks thus were not included in this study. Second, the participants of this study might have underreported their sexual behaviors in the interviewer-administered survey, although our methodology attempted to minimize its effect. Third, we were not able to collect data on HIV sero-status of each of the participants’ sex partners and their sexual behaviors with these partners separately. Finally, we asked participants to report their sexual behaviors over the past 6 months; some recall bias might have occurred. Despite such limitations, our findings have important implications for interventions with HIV-positive men in Nepal.

In conclusion, our study results underscore the urgent need of implementing HIV prevention interventions for the Nepalese HIV-positive men who knows their HIV-positive status. Such interventions should emphasize the consequences of unsafe sex among PLWHA. In this study, condom unavailability was associated with participants’ unsafe sexual behaviors. HIV prevention interventions, therefore, should also aim to improve condom availability among Nepalese HIV-positive men.

**References**


