Prevalence and Contexts of Inconsistent Condom Use Among Heterosexual Men and Women Living with HIV in India: Implications for Prevention

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Abstract

This investigation examined sexual behaviors among heterosexual persons living with HIV (PLHIV) in India. Study participants (mostly married) were interviewed during August to November 2006 in five Indian states using a quantitative survey ($n = 100$ men and 100 women), eight focus groups ($n = 58$ participants), and in-depth interviews ($n = 31$). One third of men and one fourth of women reported inconsistent condom use with regular sexual partners. Facilitators of condom use with regular partners included a feeling of personal responsibility to protect the health of the partner, desire to prevent acquisition and/or transmission of sexually transmitted infections, and the belief that condoms are needed for antiretroviral therapy to be effective. Barriers to consistent condom use with regular partners included the belief that condoms are unnecessary in HIV-positive seroconcordant relationships; lack of sexual satisfaction with condoms; the desire to have a child; husband's alcohol use, depression, and anxiety; fear that disclosure of HIV status will bring marital discord and family shame; and inadequate counseling by health care providers. Positive prevention programs should include counseling about benefits of safer sex in HIV-positive seroconcordant relationships, counseling about integrating condom use with sexual satisfaction and intimacy, condom use self-efficacy and negotiation skills-building, family planning counseling, mental health and alcohol dependence treatment, and counseling and skills-building about disclosure. Health care providers must be trained to provide these services. Furthermore, efforts are needed to promote tolerance for family planning choices made by couples and to counter the stigma associated with HIV/AIDS and condoms in the broader society.

Introduction

THE INDIAN NATIONAL AIDS CONTROL ORGANISATION (NACO) estimated that approximately 2.5 million people were living with HIV in India in 2007.¹ HIV transmission in India is predominantly through the sexual route. Men generally acquire HIV through multiple sexual relations, while the majority of women acquire HIV from their husband.^{2,3}

After knowing their HIV status, many persons living with HIV (PLHIV) in developed countries adopt safer sex practices to avoid HIV transmission to their sexual partners, although up to one in three PLHIV continues to practice unprotected sex, often with partners of unknown or HIV-negative serostatus.⁴⁻¹⁰ Given the logic that every HIV infection involves both an HIV-negative and an HIV-positive person, some de-

veloped countries have started focusing on helping PLHIV avoid HIV transmission to others while at the same time protecting their own health (positive prevention).¹⁰⁻¹² Although NACO has included positive prevention in the strategic plan of the third phase of the National AIDS Control Programme,¹³ prevention programs for PLHIV have been inadequate in India.

In India, high-risk sexual behavior has been documented among HIV-positive injection drug users¹⁴ and prisoners.¹⁵ Both of these groups face particular challenges to consistent condom use (e.g., trading sex for drugs; lack of condom availability). PLHIV on antiretroviral treatment (ART) in India reported a high level of condom use.¹⁶ A qualitative study of sexual behaviors among PLHIV in Chennai indicated adoption of less risky behaviors following HIV diagnosis and

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identified facilitators of and barriers to condom use,¹⁷ but had limited information on the contexts (e.g., family, social, health care system, policy) of high-risk sexual behavior among heterosexual PLHIV.

Positive prevention strategies used in developed countries may not be directly applicable to India. To design positive prevention interventions for PLHIV in India, we need to understand both the extent and contexts of sexual risk behaviors.^{18,19} To that end, we conducted a mixed methods investigation of sexual risk behaviors among heterosexual PLHIV in India.

Methods

This mixed methods study used a concurrent triangulation design²⁰ in which a quantitative survey and qualitative in-depth interviews and focus group discussions (FGDs) were conducted simultaneously during August to November 2006. Heterosexual men and women were recruited from district-level PLHIV networks of the Indian Network for People Living with HIV/AIDS (INP+) in five Indian states (Tamil Nadu, Andhra Pradesh, Maharashtra, West Bengal and Uttar Pradesh). Recruitment was performed in two district-level PLHIV networks from each state except Maharashtra, where recruitment was carried out in a single district-level network. Eligible participants were known to be HIV-positive for at least 1 year; 18 years of age or older; sexually active in the past 3 months; and able to understand and give consent to the study. Volunteer peer educators who are paid small honoraria for their work by district-level networks, part-time peer outreach workers for district-level networks, and HIV-positive staff for district-level networks or for other nongovernmental organizations (NGOs) were eligible to participate. Henceforth we refer to these participants collectively as NGO staff, most of whom were volunteer peer educators and part-time peer outreach workers.

Quantitative component

We used systematic sampling to recruit every *k*th eligible heterosexual male or female PLHIV, respectively, who attended INP+ support group meetings and drop-in centers of the participating district-level PLHIV networks. The value of “*k*” was site-specific. Overall, we recruited 100 males and 100 females. An interviewer-administered structured questionnaire was used to assess sociodemographic characteristics, alcohol and substance use, HIV testing and treatment, sexual behavior and condom use, family planning and reproductive health, and sexually-transmitted infections (STIs). Questionnaires were administered in the participant’s native languages (e.g., Hindi, Tamil, Telugu, Marathi, Bengali).

Participants were queried about sexual behavior and condom use in the previous three months with regular and casual partners. Regular partners were defined as “your main or primary partner with whom you have an ongoing sexual relationship (you might call him/her your lover or husband/wife).” Casual partners were defined as “your sexual partner whom you have not met before having sex or with whom you have had only casual acquaintance. You may or may not pay or receive money for having sex with her/him. And she/he is not your regular partner.” Consistent condom use was defined as always using a condom for vaginal and anal sex; otherwise condom use was considered to be inconsistent.

Qualitative component

We recruited heterosexual PLHIV to participate in in-depth interviews and FGDs using snowball sampling, with PLHIV associated with the participating district-level networks serving as seeds, combined with stratified purposive sampling, to obtain representation from both single and married persons and from persons with seroconcordant and serodiscordant spouses. Thirty-one heterosexual men and women participated in in-depth interviews, each lasting 60 to 90 minutes. Interview guides were based on the literature and on the experience of INP+ working with PLHIV. The interview consisted of open-ended questions to explore the contexts of unprotected and safer sex. We conducted 8 FGDs (*n* = 58 participants), each lasting 1 to 2 hours. Separate FGDs were held for men and women. Discussion focused on the sexual and reproductive health needs and prevention challenges of PLHIV. All in-depth interviews and FGDs were conducted in native languages.

Data analyses

Results were described using means ($\pm$ standard deviation) and proportions, by gender. Unconditional logistic regression models were used to calculate univariate and multivariate odds ratios (ORs) and corresponding 95% confidence intervals (CIs) for potential correlates of inconsistent condom use with regular partners. A final multivariate model was developed through a backward elimination procedure. All *p* values were two-sided. *p* values < 0.05 were considered to be statistically significant.

In-depth interviews and FGDs were audiotaped, transcribed verbatim in native languages, and translated into English. During transcription, all personal identifiers were removed. Data were explored using narrative thematic analysis using techniques adapted from grounded theory.^{21,22} Initial themes were identified using line-by-line coding. Themes were then listed, compared, and contrasted independently by three researchers using a method of constant comparison. Themes were subdivided according to the data that emerged, and were then applied across all interviews and FGDs. We discussed the findings and interpretation at a meeting with the field research staff and selected community representatives (“community debriefing”).

Ethics and consent

The study protocol was reviewed and approved by the Institutional Review Board at the University of Toronto, Canada, and by a community advisory board constituted by INP+. All participants provided informed consent. No names or other personal identifying information was collected. Interviewers took a pledge and signed an agreement to keep in strict confidence their discussions with the interviewees. All participants in the quantitative survey, in-depth interviews, and FGDs were paid 250 Indian rupees.

Results

Sample characteristics

Eighty-seven percent of eligible persons who were invited to participate completed the quantitative survey. The mean age of the survey sample (100 men; 100 women) was 34.0 ± 5.1 years for males and 28.3 ± 4.4 years for females (Table 1). Most

TABLE 1. SOCIODEMOGRAPHIC CHARACTERISTICS OF STUDY PARTICIPANTS

Characteristic	Quantitative survey		Qualitative component	
	Men (n = 100)	Women (n = 100)	In-depth interviews (n = 31)	Focus group discussions (n = 58)
Age (mean $\pm$ SD)	34.0 $\pm$ 5.1	28.3 $\pm$ 4.4	29.9 $\pm$ 4.8	30.1 $\pm$ 4.8
Gender				
Male	100 (100%)	—	16 (51.6%)	20 (34.5%)
Female	—	100 (100%)	15 (48.4%)	38 (65.5%)
Marital status				
Married	93 (93%)	97 (97%)	23 (74.2%)	43 (74.1%)
Widowed	0 (0%)	0 (0%)	5 (16.1%)	10 (17.2%)
Separated/divorced	3 (3%)	3 (3%)	0 (0%)	0 (0%)
Single	4 (4%)	0 (0%)	3 (9.7%)	5 (8.6%)
Education				
< Primary	17 (17%)	32 (32%)	1 (3.2%)	4 (6.9%)
Primary (5th STD)	20 (20%)	21 (21%)	11 (35.5%)	14 (24.1%)
Elementary (8th STD)	24 (24%)	19 (19%)	7 (22.6%)	14 (24.1%)
High school (10th STD)	22 (22%)	20 (20%)	7 (22.6%)	16 (27.6%)
Higher secondary (12th STD)	12 (12%)	6 (6%)	0 (0%)	6 (10.3%)
College or higher	5 (5%)	2 (2%)	5 (16.1%)	4 (6.9%)
Occupation				
Daily wage laborer	41 (41%)	27 (27%)	2 (6.5%)	1 (1.7%)
Private company staff	12 (12%)	7 (7%)	0 (0%)	4 (6.9%)
NGO staff	13 (13%)	10 (10%)	19 (61.3%)	24 (41.4%)
Self-employed	21 (21%)	3 (3%)	2 (6.5%)	4 (6.9%)
Homemaker	0 (0%)	34 (34%)	3 (9.7%)	16 (27.6%)
Unemployed	10 (10%)	15 (15%)	1 (3.2%)	3 (5.2%)
Other	3 (3%)	4 (4%)	4 (12.9%)	6 (10.3%)

SD, standard deviation; NGO, nongovernmental organization.

participants (93.0% of males and 97.0% of females) were currently married. Sixty-one percent of males and 72.0% of females did not complete high school. Twenty-three participants (11.5%) were NGO staff.

The mean age of the in-depth interview participants (16 men; 15 women) was 29.9 $\pm$ 4.8 years (Table 1). Approximately three fourths (74.2%) were currently married and approximately three fifths (61.3%) did not complete high school. Three fifths (61.3%) were NGO staff. A total of 58 PLHIV (20 men; 38 women) participated in 8 FGDs. The mean age of the participants was 30.1 $\pm$ 4.8 years (Table 1). Approximately three fourths (74.1%) were currently married and more than half (55.2%) did not complete high school. Two fifths (41.4%) were NGO staff.

Correlates of inconsistent condom use with regular partners in the survey sample

Almost all survey participants reported heterosexual sex with a regular partner in the past 3 months (97.0% of males and 98.0% of females), and almost all regular partners were spouses. Most participants with regular partners reported disclosing their HIV status to their regular partners (87.6% [85/97] of males and 94.9% [93/98] of females); reported their regular partners to be HIV positive (70.1% [68/97] of males and 91.8% [90/98] of females); and reported consistent condom use with regular partners (69.1% [67/97] of males and 73.5% [72/98] of females). However, about one third (30.9%) of men and one quarter (26.5%) of women reported inconsistent condom use for vaginal or anal sex with regular partners.

In univariate logistic regression models, currently taking ART was a significant negative correlate of inconsistent condom use with regular partners; the significant positive correlates were having had casual sex in the past three months and using non-condom contraceptives (Table 2). In the final multivariate model, currently taking ART remained as a significant negative correlate (OR = 0.3; 95% CI = 0.1–0.6) and having had casual sex in the past three months remained as a significant positive correlate (OR = 3.6; 95% CI = 1.1–12.0) of inconsistent condom use (Table 2). Being female was a significant negative correlate (OR = 0.4; 95% CI = 0.2–0.9) in the multivariate model.

Facilitators of condom use

Some qualitative interview participants expressed a personal responsibility to use condoms to protect the health of their regular partners (most of whom were spouses). A man who had not disclosed his HIV status to his wife said: "Since [HIV] diagnosis I have been using [condoms]. I told her it is to avoid childbirth... One day—later—I will tell her [disclose his HIV status]." Another man explained, "I want to tell her [wife] about my status... I did not disclose because it might lead to breakage of the marital relationship... I was afraid of getting separated from her. I always use *Nirodh* [brand of condom]."

A man (part-time peer outreach worker for a PLHIV district-level network) in a seroconcordant marriage, who did not want to "share" his virus with his wife, listed reasons for always using condoms:

TABLE 2. UNIVARIATE AND MULTIVARIATE CORRELATES OF INCONSISTENT CONDOM USE WITH REGULAR PARTNERS AMONG PLHIV IN INDIA

Predictor	Condom use		Univariate		Multivariate	
	Inconsistent	Consistent	Odds ratio (95% CI)	p value	Odds ratio (95% CI)	p value
Gender						
Male	30	67	1.0	0.50	1.0	0.03
Female	26	72	0.8 (0.4–1.5)		0.4 (0.2–0.9)	
Age						
18–29	22	58	1.0	0.87	—	—
30–39	30	69	1.1 (0.6–2.2)			
> 39	4	12	0.9 (0.3–3.0)			
Education completed						
< High school	43	87	1.0	0.06	1.0	0.10
≥ High school	13	52	0.5 (0.2–1.0)		0.5 (0.2–1.1)	
Alcohol use						
No	40	105	1.0	0.55	—	—
Yes	16	34	1.2 (0.6–2.5)			
Years since diagnosis						
2 or less	25	63	1.0	0.98	—	—
3–5	19	48	1.0 (0.5–2.0)			
> 5	12	28	1.1 (0.5–2.5)			
Currently taking ART						
No	42	74	1.0	0.006	1.0	0.002
Yes	14	65	0.4 (0.2–0.8)		0.3 (0.1–0.6)	
HIV status of regular sex partner						
Negative or unknown	7	30	1.0	0.15	1.0	0.13
Positive	49	109	1.9 (0.8–4.7)		2.1 (0.8–5.8)	
Disclosed HIV status to regular sex partner						
No	6	11	1.0	0.53	—	—
Yes	50	128	0.7 (0.3–2.0)			
Casual sex in past 3 months						
No	47	131	1.0	0.03	1.0	0.04
Yes	9	8	3.1 (1.1–8.6)		3.6 (1.1–12.0)	
Uses noncondom contraceptive						
No	35	110	1.0	0.04	1.0	0.10
Yes	21	29	2.3 (1.2–4.5)		1.9 (0.9–4.0)	
Visited health care facility for evaluation of STI in past 12 months						
No	32	91	1.0	0.28	—	—
Yes	24	48	1.4 (0.8–2.7)			

Odds ratios and 95% confidence intervals (CIs) were calculated by unconditional logistic regression. The final multivariate model was developed through a backward elimination procedure.

PLHIV, people living with HIV; CI, confidence interval; ART, antiretroviral treatment; STI, sexually transmitted infection.

Number one—to avoid pregnancy. Number two—while having sex without a condom some share of my virus might be passed on to her [wife] as I have seen [the evidence] so many times—if I do not use a condom her face looks tired . . . if I had used a condom she looks energetic. She also told me the same thing . . . for all these reasons I made it [condom use] compulsory whenever we have sex.

Personal responsibility to prevent HIV transmission extended beyond marital relationships. One unmarried man claimed that he had never had unsafe sex with his lover in spite of nondisclosure of his HIV-positive status: “Suppose if I do not use it [condom] and then we break our relationship and she gets married to someone else. There might be chances of spreading this [HIV] not only to her but also to her husband. For this reason, I take my own precautionary measures [always using condoms].” Another single man, who said he was motivated to practice safer sex by the counseling he received

in the government hospital and by PLHIV networks, related, “I do not want to give [HIV] to others. I realized that I have to make safer sex a habit.”

Some participants used condoms to prevent acquisition and/or transmission of STIs. A married woman with a seroconcordant husband said, “If we do not use condoms, I will face problems . . . itching and burning sensation in the lower stomach [pubic area]. So we are using it [condoms] without fail.” A man with a seroconcordant wife related, “Since we came to know about it [HIV-positive status], we always use condoms because I heard from doctors that without condoms one can get sexually-transmitted diseases and also heard that the womb can be affected.”

Some participants believed that condoms are mandatory for ART to be effective. According to a married woman, “After starting the medicine [ART], they [PLHIV network staff] said that if you do [have sex] without condoms, the drugs will not

have any effect on you. So even with ART, *Nirodh* [brand of condom] is a compulsory item . . . My husband told me."

One man believed that condoms prevented loss of his "immunity" by transfer to his wife:

. . . They [PLHIV network staff] said, if you have sex without condoms, the "immunity" power may be transferred to my wife [and thus lost]. I do not know what is "immunity"! Thus you have to use condoms or else you will lose much [of your immunity].

Although the beliefs about tiredness, ART, and 'immunity' lacked validity, they did motivate participants to consistently use condoms.

Barriers to condom use with regular partners

As shown above, in the quantitative survey a substantial minority of participants reported inconsistent condom use with their regular partners (almost all spouses). Qualitative interview participants gave a variety of reasons for not using condoms.

"Both of us are positive—so why condoms?". Some members of HIV seroconcordant couples believed that it is acceptable to have unprotected sex occasionally. As one man said, ". . . one or two times it [sex] was done without a condom . . . thinking that I am doing it to my own wife and it is not going to affect [us]. Like this, I did it [sex without condoms] once or twice but not frequently." Some complained of diminished sexual pleasure if a condom was used. One man explained, ". . . When I do it [have sex] without a condom I get full satisfaction. My wife knows that I am positive. My wife also felt that as both of us are positive she also agreed to have sex without a condom." Another man said, "Sometimes I feel like using it, sometimes not . . . Main reason is, there is no satisfaction . . . Yes, both of us are infected so what is the necessity in using condoms – thinking in this manner we won't use condoms."

"Heat of the moment," sexual pleasure, and intimacy. The latter two quotes illustrate that male dissatisfaction with condoms contributes to inconsistent condom use. Women participating in FGDs confirmed that some men do not find sexual satisfaction with condoms. According to one woman, "Some other women [coming to the PLHIV network] said, 'My husband does not like condoms. No satisfaction.' They said that was why their husbands do not use condoms."

Both men and women indicated condoms were a barrier to spontaneity, passion and intimacy. A man explained, "You cannot always plan in advance [to have sex]. It just happens—whether or not you want to use condoms." A woman offered a similar explanation: "We use [condoms] regularly. But whenever we were in 'excessive emotion,' they are not used. Sometimes, it is not properly worn."

A man in a seroconcordant marriage related, "Now my wife has already got it [HIV]. We have so much love for each other that whenever we have sex she would say 'Oh Ji [Sir]! Why are you using a condom? Let us do [have sex] without it.'" Thus, dissatisfaction with condoms, belief that condoms are not needed by seroconcordant couples, and unprotected sex as a symbolic way to express love all might have contributed to this couple's inconsistent condom use.

Desire to have a child. The desire to have a child, often reinforced by perceived social pressure, led some in serodiscordant marriages to have unprotected sex. According to a man who is also a full-time counselor in a PLHIV network:

I have told this [being HIV-positive] only to my wife. Others [in the family] do not know . . . We got married only last year. People were asking about "good news" [conception]. We then tried [without condoms] twice. [Being a counselor] I know about the "fertile period" and we tried [had unprotected sex] during those days.

The wives of some HIV-positive men in serodiscordant marriages insisted on unprotected sex in order to conceive. This was observed among men who had disclosed their HIV status to their wives, as well as those who had not. A male participant working as a full-time counselor in a PLHIV network spoke about an HIV-positive friend:

As they had only one child, his wife wanted another child. In order to hide his secret, he again started not using condoms . . . thus he has three children now . . . He told his wife [about his HIV status] when his condition became critical. His wife and two children were found to be positive.

In India, many couples (especially from lower socioeconomic classes) prefer to have male children for reasons such as social prestige, the hope that the child will provide financial security during their old age, and the expectation that a future daughter-in-law will come with a dowry. A married man in a seroconcordant marriage explained that despite having two daughters, he and his wife wanted to have another child: "I have two daughters and they were found to be [HIV] negative. Consulting with my wife, we are planning to have a boy child . . . we tried [unprotected sex] twice. Earlier we always used condoms. After we came to know she had become pregnant we consulted a doctor and after that as per doctor's advice we always use condoms." The desire to have a boy led this seroconcordant couple to have unprotected sex, accompanied by the risk of HIV transmission to their third child.

Couples who are satisfied with the number and gender of their children tend to use condoms more consistently. A man explained, "From [PLHIV] network we get condoms. We have enough children. No more . . ."

Alcohol use by husband. In the survey, approximately half of men (48.0%) but only 4.0% of women consumed alcohol in the previous 3 months. Among the men who consumed alcohol, 50.0% consumed alcohol at least once per week. Qualitative findings illustrated that when men were under the influence of alcohol there was a higher likelihood of unprotected sex. As one woman explained, "Yes, one or two times it [unprotected sex] happened . . . Only when he is drunk such things happen . . . He troubles me by asking to do so [have sex] . . . no condom in such situations."

Husband's anxiety and depression. Women reported that their husband's anxiety and depression, about his HIV-status as well as about other matters, sometimes interfered with condom use. According to one woman, "My husband, when he has some problem, would be worried a lot. At that time he may not think about using it [condom] and I will not insist. Sometimes, the condom fails under such conditions [distress] and the problem arises." Although this HIV-positive

couple did know the importance of using condoms, the husband's anxiety led to inconsistent use of condoms, along with condom failure. A man reported having unprotected sex shortly after he learned about his HIV-positive status because he was too distressed. However, another man (part-time peer outreach worker for a PLHIV district-level network) reported not engaging in sex at all immediately following his HIV-positive diagnosis because of depression.

Health care providers did not discuss safer sex. Participants reported that many healthcare providers did not discuss safer sex or family planning options. A woman related that she and her husband were unaware of the risks involved in sex between HIV-positive couples:

No, we did not use condoms. At that time there was no counseling after diagnosis with HIV. They [health care providers] will just leave us. They will throw the note [outpatient case sheet] and say "Take this and go. There will be death." ... Later I conceived although I did not want a child at that time."

A male participant believed that health care providers did not talk about safer sex with PLHIV because "they [providers] expect you not to have sex at all," while another male participant thought that providers were uncomfortable talking about sex.

Unavailability of condoms at home. Some men reported that unavailability of condoms led to unprotected sex. An HIV-positive man with an HIV-negative wife said, "I usually take care to have condoms always. But not everything is in our hands. Isn't it? We do not always have condoms in our home. Thus, it [unprotected sex] happens." Several participants did not store condoms at home due to fear of embarrassment if the condoms were discovered by children or other family members.

Nondisclosure of HIV status. Men who did not disclose their HIV status to their wives used a variety of risk reduction strategies to prevent HIV transmission including: deliberately picking fights with or neglecting the wife so that the wife would return to her parents' home; emotionally distancing from the wife to decrease the chances of sexual encounters; initiating condom use with excuses such as "excess heat in the body" or, if the wife was using another form of contraception, needing to add extra protection to ensure that the wife does not conceive; early withdrawal to avoid ejaculation into the vagina; practicing nonpenetrative sex; and no longer having sex with casual partners.

Nondisclosure by both men and women was often, but not always, associated with sex without condoms. Participants gave a variety of reasons for not disclosing their HIV status to their spouse and, thus, for not using condoms:

Fear of marital discord, bringing shame to the family, and loss of respect. Many men expressed fear of disrupting their family peace and fear of rejection and possible separation from their wife if they were to reveal their HIV status. Because they felt that using condoms could raise suspicion, they continued to have unprotected sex with their wives. One man said, "... No ... never [used condoms with wife] ... once when I used a condom she raised several questions. So from

then onwards I never used condoms." Another man explained, "Once I tried [using condoms]. She [wife] did not like to use condoms. She often told me 'why should we use condoms since we are husband and wife?'"

In addition to fear of marital discord, many men feared bringing "shame and disgrace" to their family and did not want their family or personal prestige to be damaged because of their HIV status. As one man said, "What would happen to my prestige? How can I walk on the road?"

Women FGD participants explained that a woman diagnosed with HIV might hesitate to disclose her HIV status to her husband because he might blame her for bringing HIV into the family. One woman (part-time peer outreach worker for a PLHIV district-level network), who did disclose, related her experience: "I might have gotten HIV from repeated blood transfusions after I donated one of my kidneys to my sister. But my husband told me 'I don't have HIV. Even your sister does not have. But you have. Have you gone out [had sex outside the marriage]?' Lot of problems ... I even had seizures after all this mental stress."

HIV-positive women who had not disclosed worried about being shunned by their husband. One woman (part-time peer outreach worker for a PLHIV district-level network) said, "So they just blame women. That is why, even if positive, most ladies do not want to tell their status to their husband. They may even decide to get separated from their husband by picking frequent fights with him." When asked whether condoms are used before women disclose or separate from their husband, a woman replied: "We got it [HIV] from them [husbands]. Isn't it? There is no question of us talking about condoms. Some [women] continue as usual [sex without condoms] until it [HIV status] is somehow known [to husband and others]. Some [women] move away."

Perceived HIV-positive status of wife. Some men believed it likely that their wife had already contracted HIV from them. They therefore felt no need to disclose their HIV status or use condoms. According to one man:

In 2005 I knew my status. During my long course on drugs I never had sex with women other than my wife. My children looked healthy. I think my wife might be positive as we had a very active family [sex] life [no condoms] ... yet I have not tested her. Now my wife has come out with some symptoms such as skin problems on her body so I plan to test her soon.

Another man disclosed his HIV-positive status to his wife only when she became seriously ill:

I was sure she must have got [HIV] from me ... No. I did not tell [my HIV status] ... Once she had a severe fever. I thought it was better to tell at that time. Otherwise the doctor would have found out. She underwent [HIV] testing and was found positive.

Wife with tubal ligation or intrauterine device. Some men who did not disclose and whose wives had a tubal ligation or intrauterine device could not find a convincing justification for initiating condom use. As one man explained, "I had the idea of using condoms without telling my wife. But how could I? She had a family control [planning] operation. She would ask me why I want to use condoms now. She will become suspicious. Then it will create problems." Another man noted, "I did not want to use *Nirodh* [brand of condom]. Hence my

wife already got a "Copper-T" [intrauterine device]... If I want to use *Nirodh* now my wife will suspect and [this will result in] unnecessary problems."

Unprotected sex with casual partners

In the survey, 17 men (17.0%) reported sex with female casual partners in the past 3 months; 3 women (3.0%) reported sex with male casual partners. Among the 17 males, 8 (47.1%) reported inconsistent condom use and 12 (70.5%) did not disclose their HIV status to their casual partners. Six of the males who reported inconsistent condom use with casual partners also reported inconsistent condom use with regular partners, thus additionally placing their regular partners at risk. All three females did not disclose their HIV status, but reported consistent condom use with their casual partners.

Men gave a variety of reasons for engaging in unprotected sex with casual partners:

Not my responsibility. Men reported that they expected "full" sexual pleasure during casual sex, and thus were disinclined toward condom use with their casual partners, including sex workers. Furthermore, men tended to shift responsibility for safer sex negotiation to their casual partners, and presumed their partners accepted unprotected sex unless they demanded otherwise. A man explained, "I do have sex with women other than my wife. Those women [sex workers] with whom I have sex will ask me whether I want to use a condom or not. That means she has no objection whether I use a condom or not. I want full pleasure—I did not use [a condom]."

Unplanned sex. Men reported that many of their casual sexual encounters were not planned in advance and they did not always carry condoms. One man said, "When my sexual feelings become stronger I go to a medical shop [pharmacy] or to a DIC [drop-in center] and take some condoms... but if I meet them [sex workers] suddenly, where I can get condoms? In such situations, I did not use condoms."

Partners were known or suspected to be HIV-positive. A married man reported that he had two female casual partners and both were known to be HIV positive and to have lost their husbands to HIV. He stopped having sex with his wife after he disclosed his HIV status. However, with these two casual partners he did not consistently use condoms. He related that he probably contracted HIV from one of them because he had sexual relationships with them, knowing about their HIV-positive status. He said, "Sometimes I feel like using it [condom], and sometimes not... Main reason is, there is no satisfaction... Yes, both of us are positive so why is there a need to use condoms—thinking in this manner we won't use condoms."

Another man argued that there was no need to use condoms with sex workers because they were likely to be HIV-positive: "... since I am positive they may also be positive... [hence] I sometimes did it [had sex] without condoms."

Discussion

The quantitative findings of this mixed methods study showed that more than two thirds of PLHIV reported consistent use of condoms with their regular partners (almost all of whom were spouses). This prevalence of consistent con-

dom use among PLHIV was substantially higher than the prevalence of consistent condom use with spouses by currently married persons who reported ever use of condoms with their spouse (13.6% of males; 19.5% of females) in NA-CO's 2006 National Behavioral Surveillance Survey (BSS) of the General Population.²³ (The prevalence of consistent condom use among all currently married persons in the BSS [not reported] would be substantially lower.) Consistent with our results, a previous qualitative study reported an increase in consistent condom use among PLHIV in South India after they learned of their infection.¹⁷

Interestingly, as with PLHIV in the current study, in the BSS women reported a higher prevalence of consistent condom use with spouses than did men. Further research is needed to explain this sex difference.

Nevertheless, in the current study, approximately one third of men and one quarter of women living with HIV reported inconsistent condom use with their regular partners, thus posing health risks to themselves and their partners. The qualitative findings revealed various contextual facilitators of and barriers to condom use, at the individual, sexual partnership, family, and societal levels, that need to be addressed when designing positive prevention programs for heterosexual PLHIV in India.

We identified facilitators of consistent condom use at the individual and partnership levels. Some facilitators were based on correct knowledge about protecting one's own health, such as the desire to avoid STIs. Others were based on correct knowledge combined with personal responsibility toward one's regular partner—the desire not to transmit HIV (including reinfection of an HIV-positive spouse). A previous qualitative study also reported motivation among PLHIV in South India to protect themselves and others from infection.¹⁷ Finally, some facilitators were based on incorrect beliefs, such as condom use being necessary for ART to be effective and prevention of loss of "immunity" by transfer to the wife.

The relatively high rate of consistent condom use that we observed in the quantitative survey suggests that these various facilitators are valuable contributors to consistent condom use and should be reinforced in positive prevention programs for PLHIV. Thus, it will be important to support altruistic motives along with accurate knowledge about the benefits of safer sex, focusing not only on preventing HIV transmission to others, but also on protecting oneself from STIs and from reinfection with more aggressive or ART-resistant HIV strains.²⁴ This knowledge is particularly important to counter the belief among seroconcordant couples that it is acceptable to have unprotected sex, at least occasionally, because they are both HIV positive. Although not statistically significant, in our quantitative survey, persons with an HIV-positive regular partner had twice the odds of practicing inconsistent condom use with that partner compared to persons with an HIV-negative regular partner (Table 2).

Knowledge about the benefits of safer sex for PLHIV is also important to counter the practice of HIV-positive men having unprotected sex with casual partners who they know or suspect to be HIV-positive. In the quantitative survey, almost one fifth of men reported sex with casual partners in the past three months and about half of these men reported inconsistent condom use. Furthermore, persons who had casual sex in the past 3 months had more than three times the odds of practicing inconsistent condom use with regular partners

compared to persons who did not have casual sex in the past 3 months (Table 2), thus placing their regular partners at potential risk of STIs or HIV reinfection.

However, it is well known, and our results confirm, that knowledge is not sufficient to support safer sex and that contextual factors need to be taken into account.^{8,18} At the individual and sexual partnership levels, the desire for sexual spontaneity and perceived interference of condoms with sexual satisfaction and intimacy posed barriers to consistent condom use, as also reported in a previous qualitative study of PLHIV in South India.¹⁷ Furthermore, husbands' alcohol use, anxiety, and depression resulted in unprotected sex. Thus, as in developed countries, risk reduction measures must include instruction about integrating condom use with sexual spontaneity, satisfaction, and intimacy¹⁸; supporting condom use self-efficacy and negotiation skills-building^{12,18}; and providing mental health and alcohol dependence treatment for PLHIV. Approximately one quarter of the men in our quantitative study consumed alcohol at least once per week, underscoring the importance of making alcohol dependence treatment available.

We also observed several family- and societal-level contextual barriers to consistent condom use. While nondisclosure of HIV status was manifest on the individual level, it was motivated by fear of marital and family discord, as well as fear of the consequences of stigma associated with HIV, including public humiliation. Stigma has previously been identified as a key barrier to disclosure of HIV-positivity in India,^{25–29} as well as in many other parts of the world.^{30,31} One cross-cultural study found HIV-related stigma to be remarkably consistent across contexts.³¹

Nevertheless, it has been argued that the potential for shame following disclosure is likely to be greater in Asian cultures, where individual identity is subsumed in groups (e.g., families), than in more individualistic cultures.²⁶ We should note that disclosure of HIV-positivity does not guarantee consistent condom use, as shown in this study (Table 2) and by others.^{32,33}

In addition to HIV-related stigma, there were other family- and societal-level barriers to consistent condom use. Nondisclosing men whose wives had a tubal ligation or intrauterine device, both of which are common in India,³⁴ reported particular difficulty in finding a convincing justification for condom use to present to their wives. Although the desire to have a child was manifest on the individual level, it was often motivated by family and societal pressure to have children, particularly boys, which is especially intense in India.^{35–37} Finally, condoms were sometimes not available at home due to fear of embarrassment if they were discovered by children or family members, as also reported in a previous qualitative study among PLHIV in South India.¹⁷ While this was an individual-level fear, it was motivated by social stigma associated with condoms, which has been observed previously in India.³⁸ Thus, stigma associated with condom use and stigma associated with HIV infection itself, in the context of Indian socio-cultural norms and expectations on a familial level, posed barriers to consistent condom use.

Overcoming these various barriers to positive prevention will require counseling for couples and families that addresses the complex family planning issues faced by PLHIV; counseling and skills building about disclosure; promotion of tolerance for choices couples make with respect to number of

children; promotion of the concept that girls and boys are of equal value; efforts to counter the stigma associated with HIV/AIDS in the broader society; and efforts to counter stigma associated with condom use.

In India, PLHIV have contact with a variety of treatment, care, and support venues, including government ART centers; community care centers; NGOs; tuberculosis, STI, and family planning clinics; and prevention of parent to child transmission centers.¹³ These venues all present opportunities for incorporating the types of counseling and prevention measures discussed above into routine HIV care. However, a critical health care system barrier is the reluctance of health care providers to discuss safer sex with PLHIV. It is imperative that providers, who also may be affected by stigma around HIV and condom use, be trained to give PLHIV high-quality risk reduction counseling and sexual health services.

In the multivariate analysis of our quantitative data, we observed a significant positive association between currently taking ART and consistent condom use. A recent meta-analytic review of studies conducted in developed countries found that prevalence of unprotected sex was not significantly associated with ART use.³⁹ Our result, which was consistent with the high level of condom use observed among persons receiving ART in a previous study in India¹⁶ may be explained by our qualitative finding that some PLHIV believe that condom use is necessary for ART to be effective. Lower risk behavior among PLHIV receiving ART was also observed in Kenya, another developing country setting.⁴⁰

The major limitation of our study was the sampling method. While study sites were located in five states, we did not attempt to select a nationally representative sample. Selection of specific study sites was based on the capacity to implement this research project. Thus, our findings may not be nationally generalizable. Study participants were recruited to the quantitative survey from district-level PLHIV network support groups and drop-in centers. Furthermore, about half of the participants in the qualitative component were NGO staff, most of whom were part-time peer outreach workers or volunteer peer educators for PLHIV district-level networks. It is likely that our participants had higher levels of consistent condom use and of HIV disclosure than PLHIV who are not associated with a PLHIV network or NGO.

Another limitation was reliance on self-reported data on sexual risk behavior, disclosure of HIV status, and information about regular partners' HIV status. Accuracy of these data may be compromised by social desirability bias, particularly for sexual behaviors.⁴¹ However, we took several measures to minimize biases. Interviews were conducted by trained interviewers, many of whom were PLHIV themselves, and were conducted in private places in a neutral and non-judgmental manner. To minimize recall error in the survey, we chose a relatively short recall period for sexual behaviors of the 3 months prior to the interview.

Despite these limitations, our study is the first multistate investigation in India to document not only the extent of sexual risk behaviors of heterosexual PLHIV, but also how the various contexts at the sexual partnership, family, and societal levels influence sexual risk behaviors at the individual level. Recently, there has been increasing recognition of the need for prevention interventions at multiple levels¹⁸ including among men who have sex with men in India.⁴² Our findings have important implications for designing such interventions

among heterosexual men and women living with HIV in India. Well-designed prevention intervention studies among heterosexual PLHIV in India are urgently needed to support the emphasis on positive prevention in the third phase of the National AIDS Control Programme.¹³

To conclude, although individual-level sexual risk reduction interventions for PLHIV are important, programs that can modify contextual factors that pose constraints to condom use—such as programs to reduce stigma and discrimination, to address family dynamics around HIV that may unintentionally abet sexual risk behaviors, and to address mental health issues of PLHIV—are also needed. Policymakers and health care providers should realize that it is crucial to acknowledge the sexual and familial aspirations of PLHIV, to assist them in leading a fulfilling sexual life, and to provide them the necessary information and support in adopting and sustaining safer sex.

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