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High-risk behaviour in young men attending sexually transmitted disease clinics in Pune, India

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Abstract

The present study reports sexual risk factors associated with HIV infection among men attending two sexually transmitted disease (STD) clinics in Pune, India and compares these behaviours between young and older men. Between April 1998 and May 2000, 1,872 STD patients were screened for HIV infection. Data on demographics, medical history and sexual behaviour were collected at baseline. The overall HIV prevalence was 22.2%. HIV risk was associated with being divorced or widowed, less educated, living away from the family, having multiple sexual partners and initiation of sex at an early age. The risk behaviours in younger men were different to older men. Younger men were more likely to report early age of initiation of sex, having friends, acquaintances or commercial sex workers as their regular partners, having premarital sex and bisexual orientation. Young men were more educated and reported condom use more frequently compared with the older men. Similar high HIV prevalence among younger and older men highlights the need for focused targeted interventions aimed at adolescents and young men and also appropriate interventions for older men to reduce the risk of HIV and STD acquisition.

Introduction

More than four million persons are estimated to be HIV-infected in India, with a population prevalence of 0.7–1.0% and data suggest that 85% of AIDS cases have resulted from heterosexual transmission (NACO, 2002). Studies among sexually transmitted disease (STD) patients in Pune, India, have documented that prevalent HIV infection is independently associated with commercial sex work and other sexual risk behaviours such as multiple lifetime partners, receptive anal intercourse and lack of condom use (Bentley et al., 1998; Mehendale et al., 1996; Rodrigues et al., 1995). Other Indian studies have shown that the risk of HIV acquisition is associated with both premarital and extramarital relationships (Bhattacharjee et al., 2000; Giri et al., 1995). A study conducted on four different populations (Cote d'Ivoire, Tanzania, Lusaka and Thailand) showed a direct relationship between premarital sexual behaviour and extramarital sex (White et al., 2000).

Among married monogamous women attending STD clinics in Pune, India, the HIV prevalence of 14% was observed with no reported risk behaviour and evidence of sexual relationship primarily with husbands (Gangakhedkar et al., 1997). In several studies among French, American, African and English populations, age of initiation of sex was associated

with sexual practices of an individual in later life (Bozon, 1996; Johnson et al., 1994; Michael et al., 1994; Wawer et al., 1994).

Men having STDs and risk behaviour appear to play the role of a bridge population between the core high-risk populations of sex workers and the low or no risk general population. Young HIV-infected men with high-risk behaviour are likely to play an important role in the spread of HIV because they have a longer span of sexually active life. Therefore it is important to understand whether the sexual behaviour in younger people is different to older men and that may help to plan and design appropriate and focused interventions.

Methods

Between April 1998 and May 2000, men between 18 and 60 years of age, attending two STD clinics in Pune, India, were screened for HIV infection. Pre-test and post-test counselling were provided and information about safe sex practices was given to all persons before withdrawal of blood for HIV testing. Written informed consent was obtained from each person. A structured questionnaire was administered by trained counsellors in the regional language to obtain data on demographics (such as age, education, occupation and staying with whom), along with data on knowledge and practices related to HIV/AIDS. Information related to sexual behaviours was obtained and that included number of sexual contacts in lifetime, age of initiation of sex, type of first and regular partners, history of condom use and contacts with sex workers. Participants had a right to refuse to answer any question. All questions were coded and had multiple options. Study clinicians documented the STD history, reproductive history and symptoms reported by the patients at the time of screening. The participants were offered counselling and appropriate treatment for STDs.

Serum samples were screened using commercial enzyme-linked immunosorbent assay (ELISA) kits for detection of HIV-1 and HIV-2 antibodies. Sera found to be reactive by ELISA were confirmed by Rapid test.

Statistical analysis was carried out using the SPSS (Version 10) package. Associations of demographic factors and sexual practices with the prevalent HIV infection were determined by univariate analysis. Multivariate logistic regression analysis was carried out to identify risk factors that were independently associated with HIV infection by including factors found to be significantly associated with HIV infection in the univariate analysis.

Based on the Government of India's definition of youth (13–30 years) (National Youth Policy, 2002), age was stratified as 30 and below 30 years (young) and above 30 years (old) to compare the profile and sexual risk behaviour of the participants. Analysis using chi-square tests was performed to determine whether risk behaviours were different in men who were younger and older than 30 years of age.

Results

Description of study participants and HIV prevalence

The mean age of 1,872 study participants was 29 years (range = 18–55 years) and the majority of them (69%) were between 20 and 30 years of age. Forty-five per cent were never married and 76% were educated from 5th to 10th standard (middle and high school). A high proportion of these men were staying with their family (71%). Forty-three per cent of the study participants were unskilled workers. The overall HIV prevalence among these men was 22.2% (416/1,872).

Prevalent sexual risk behaviours

Bisexuality was reported by nearly 10% of the study participants and anal sex was reported by 20% of them. Among those who reported practising anal sex, the majority reported insertive anal sex (88%). Overall, consistent condom use was very low (7.4%). Men who reported having a commercial sex worker (CSW) as a regular partner were more likely to report consistent condom use compared to others (OR = 11.91; 95% CI, 7.0–20.25; $p < 0.001$).

The mean age of initiation of sex was 19 years (range = 6–40 years) and 34.3% initiated sex before the age of 18 years. Of the 36 men who reported initiating sex before the age of 12 years, 11 (30.6%) tested positive for HIV infection. The first sexual partner was more likely to be a friend or an acquaintance among persons who initiated sex before the age of 18 years compared to those who initiated sex after 18 years (OR = 2.26, 95% CI, 1.83–2.79, $p < 0.001$). Men who initiated sex before the age of 18 years were significantly more likely to report bisexuality (OR = 3.13, 95% CI, 2.32–4.22, $p < 0.001$) and multi-partner relationships (OR = 1.56, 95% CI, 1.20–2.03, $p < 0.001$).

Correlates of HIV infection

The prevalence of HIV infection according to characteristics of the study population at baseline and sexual risk behaviours is presented in Table I. HIV prevalence was significantly higher among persons who were divorced, separated or widowed (35.2%, $p < 0.001$), who had a lower level of education (30.5%, $p < 0.01$), who were staying away from their families (26.2%, $p < 0.009$), who reported more number of lifetime sexual partners (27.9%, $p < 0.001$) and those who had a younger age at initiation of sex (25.6%, $p < 0.03$). Other factors such as age, first sexual partner, type of regular partner, condom use with regular partner, sexual orientation, premarital sex and presence of STDs were not significantly associated with prevalent HIV infection in the univariate analysis. Multivariate analysis revealed that lower level of education and increase in the number of sexual partners were found to be independently associated with HIV infection (Table II).

Risk behaviour of young (30 years and below) and older men (above 30 years)

Both the younger and the older men demonstrated high HIV prevalence: 22.5% and 21.6%, respectively (Table I). It was observed that the risk profile was different for the older and the younger men (Table III). The younger men were significantly more likely to have initiated sex before the age of 18 ($p < 0.001$). This particular group was more likely to have non-spouse as the first sexual partner, as well as regular partners ($p < 0.001$) and more likely to be practising premarital sex ($p < 0.001$). Moreover, these men were more likely to be bisexual ($p < 0.001$). In contrast, older men were more likely to have a positive STD diagnosis ($p < 0.001$) and more likely to have a higher number of lifetime sexual partners ($p < 0.001$). Their condom use pattern was reportedly inconsistent when they were with their regular sexual partners ($p < 0.001$).

Discussion

With documentation of the spread of HIV infection to the non 'at risk' population in India, it is crucial to study the mechanisms and determinants of disease transmission. Previous reports from this cohort have revealed that the STD clinic attendees were likely to be infected through sexual contact with core high-risk groups such as commercial sex workers (Mehendale et al., 1996). The present study provides in-depth analysis of risk behaviour of men that may help in developing appropriate strategies for reducing the spread of HIV infection in them as well as from them to their spouses.

Previously, older age was described as one of the risk factors for HIV acquisition (Rodrigues et al., 1995) in STD patients in Pune, India. However, similar HIV prevalence among younger and older men (22.5% and 21.6%, respectively) was observed in this study. Since the first report of HIV infection in India in 1986, efforts directed at creating awareness in the general population have been in place. Hence, during the past decade, younger men have been exposed to HIV awareness and education programmes. However, men in their late thirties and above, who were the 'youth' in the 'pre-1986' era, were not likely to be benefited from the education efforts that came into practice in the late 1980s. It is possible that the men who are currently categorized as 'older' were likely to practise risky behaviour in their youth. In spite of this, the observation that HIV prevalence is high in both the young and the old STD patients in this study also partly reflects the differences in their sexual behaviour. It is a matter of great concern that in spite of higher levels of education and better exposure to HIV/AIDS awareness in recent times, sexual risk behaviours are widely prevalent in young people and HIV prevalence is high. Specifically, younger men were observed to practise premarital sex more often, to initiate sex earlier, even when they were minors, and were more likely to be bisexual.

We observed the highest HIV prevalence (30.6%) among study participants who had initiated sex before the age of 12 years. Similar observations have been made by Konings et al. (1994). This observation indicates a need to focus awareness and educational efforts on a much younger age group of adolescents in India. Early initiation of sex by young men predicted a higher level of sexual activity in a recent study (Cerwonka et al., 2002). We also observed that initiation of sex at a younger age was significantly associated with having more lifetime sexual partners and the choice of first sexual partner. In this study, the early initiators of sex reported friend or acquaintance as their first sexual partners. This finding was in contrast with a prior Indian study that reported commercial sex workers as the first sexual partners (Sharma & Sharma, 1997).

Bisexuality was reported by 9.8% of men, much higher than that previously reported in this cohort (Mehendale et al., 1996). In a recent study, it was reported that bisexually active adolescent males demonstrated high levels of AIDS-related risk behaviours (Goodehow et al., 2002). We also observed that bisexuality was higher in young men and significantly associated with early age at initiation of sex. This again reiterates the need to target the interventions at younger men as well as adolescents (early initiators) in the community, who might practise bisexuality or have sex with men. Premarital sexual activity was more commonly reported among the younger men compared to the older men in this study population. Considering the cultural taboos associated with sex and sex education, it will be difficult to reach this young segment through the usual education and awareness process. Peer education can be one of the approaches that can be recommended, as it has shown success particularly in this age group (Hope, 2003; Kelly, 1994; Siegel et al., 1998; Zwane et al., 2004). It appears important that educational efforts in young people should be initiated much earlier, even before they become sexually active and start practising unsafe sexual behaviours.

It has been reported that despite a marked increase in public awareness regarding HIV prevention and transmission, there has been no corresponding change in sexual high-risk behaviour (Hingson & Strunin, 1992). A preference for sexual partners other than commercial sex workers among the youth in this study population probably reflects the success of such awareness efforts. However, this observation raises a concern that sexual partners other than commercial sex workers may be viewed as safer or 'low risk' by young people.

Another parameter often used to measure the success of HIV/AIDS targeted education efforts is the acceptance of 'condom use'. Even though reported consistent condom use was low (7.4%) among the study participants, it was higher when the regular partner was a commercial sex worker. However, such men practising high risk behaviour did not prefer to use condoms with their spouses thus women are increasingly put at risk of acquiring HIV from their spouses, as documented earlier in this cohort (Gangakhedkar et al., 1997). Development and use of effective vaginal microbicide, therefore, may be an empowering option for women in such situations (Elisa & Coggins, 2001; Van de Wijgert et al., 2001). Various studies have reported that among young heterosexuals, condom use is a preferred option and is more likely to have greater efficacy with casual partners than with regular partners (Civic, 1999; Critelli & Suire, 1998; De Visser & Smith, 2001; Grimley et al., 1995). Even in the present study we observed that young men were using condoms more consistently than older men.

The findings indicate a need to define different strategies for older men. For older men, emphasis should be given to couple counselling and to ensuring no risk behaviour in marital relationship to minimize the risk to their regular partner. Couple-focused testing and counselling has appeared to be effective in reducing risky sexual behaviour in heterosexual males (Roth et al., 2001).

The present study was carried out among STD clinic attendees and hence cannot be generalized to the young population of India. As a part of the cohort study of HIV transmission and assessment of risk factors, it did not focus on in-depth probing of the sexual behaviour of young and old men. More focused qualitative studies could be particularly important in this regard.

In summary, men seem to play an important role in the transmission of HIV from populations with high-risk to low-risk behaviour in India. In spite of more than a decade of HIV awareness and education, risky behaviours are still commonly prevalent. A significant proportion of men below 30 years of age seem to initiate sex at very young ages, are bisexual and practise premarital sex and are therefore at risk for acquisition of HIV infection. The findings in the present study provide both opportunities and challenges, particularly in the Indian scenario of expanding HIV epidemic. It is necessary to strengthen the focus on creating awareness in young people observed to be practising high-risk behaviour and who are likely to drive the epidemic in India in the future. Reaching these populations might be a major challenge. Appropriate and adequate channels to reach young people including adolescents, peers, teachers and family members need to be explored.

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Table I

Univariate analysis of demographic factors and sexual behaviour with HIV infection in STD patients in Pune, India.

Characteristics	Total N = 1872	Prevalence of HIV (%)	Odds ratio (95% CI)	p
<i>Current age</i>				
30 years	1289	22.5	1 (Ref)	
>30 years	583	21.6	1.17 (0.94–1.46)	0.158
<i>Marital status</i>				
Unmarried	835	20.2	1 (Ref)	
Married	949	22.8	1.16 (0.92–1.45)	0.197
Separated/widowed	88	35.2	2.14 (1.34–3.42)	0.001
<i>Education</i>				
More than high school	226	12.8	1 (Ref)	
Literate	1423	22.4	2.98 (1.83–4.82)	<0.001
Illiterate	223	30.5	1.96 (1.30–2.95)	0.001
<i>Staying away from family</i>				
No	1333	20.6	1 (Ref)	
Yes	539	26.2	1.36 (1.08–1.72)	0.009
<i>Age of initiation of sex</i>				
More or equal to 18 years	1360	21.0	1 (Ref)	
Less than 18 years	512	25.6	1.30 (1.02–1.64)	0.032
<i>First sexual partner*</i>				
Wife	280	21.8	1 (Ref)	
Friend	493	20.7	0.93 (0.65–1.33)	0.720
Known person/acquaintance	320	21.9	1.00 (0.68–1.48)	0.979
Unknown/casual partner	44	29.5	1.50 (0.72–3.05)	0.257
Commercial sex worker	722	22.9	1.06 (0.76–1.48)	0.717
<i>Type of regular partner*</i>				
Wife	868	21.7	1 (Ref)	
Girl friend	77	20.8	0.94 (0.53–1.64)	0.857
Commercial sex worker	104	26.9	1.33 (0.83–2.11)	0.224
Other	33	33.3	1.80 (0.86–3.79)	0.117
<i>No. of partners in lifetime</i>				
One	271	14.4	1 (Ref)	
2–3	574	18.5	1.34 (0.90–2.0)	0.144
4–10	526	24.9	1.97 (1.3–2.9)	0.001
>10	501	27.9	2.30 (1.5–3.4)	0.000
<i>Condom used with regular partner*</i>				
Always	83	22.9	1 (Ref)	
Some time/never	1003	22.6	1.01 (0.59–1.72)	0.957
<i>Sexual orientation</i>				

Characteristics	Total N = 1872	Prevalence of HIV (%)	Odds ratio (95% CI)	p
Bisexual and homosexual	200	21.5	1 (Ref)	
Heterosexual	1672	22.3	1.05 (0.73–1.49)	0.795
<i>Premarital sex</i>				
No	280	21.8	1 (Ref)	
Yes	1592	22.3	1.03 (0.75–1.4)	0.849
<i>Sexually transmitted disease</i>				
Negative	887	20.6	1 (Ref)	
Positive	985	23.7	1.19 (0.95–1.48)	0.116

Note.

*Indicates $N < 1872$ due to 'not applicable' or 'unavailable' data.

Table II

Multivariate analysis showing the factors independently associated with HIV infection in STD patients in Pune, India.

Characteristics	Odds ratio (95% CI)	<i>p</i>
<i>Education</i>		
More than high school	1	
Literate	2.73 (1.68–4.46)	<0.001
Illiterate	1.78 (1.18–2.70)	0.006
<i>No. of partners in lifetime</i>		
One	1	
2–3	1.24 (0.82–1.85)	0.301
4–10	1.82 (1.23–2.72)	0.003
>10	2.11 (1.42–3.13)	<0.001

Table III

Behavioural risk differences among younger and older men attending STD clinic in Pune, India.

Factors	Total N=1872	Age 30 (n=1289) %	Age>30 (n=583) %	p
<i>Education</i>				
Illiterate	223	65	35	
Literate	1423	68	32	
Higher education	226	78	22	0.005
<i>Staying away from family</i>				
No	1333	66	34	
Yes	539	76	24	<0.001
<i>Age of initiation of sex</i>				
More or equal to 18 years	1360	77	23	
Less than 18 years	512	66	34	<0.001
<i>First sexual partner^a</i>				
Wife	280	35	65	
Friend	493	76	24	
Known person	320	73	27	
Unknown/casual partner	44	80	20	
Commercial sex worker	722	75	25	<0.001
<i>Type of regular partner^a</i>				
Wife	868	51	49	
Girl friend	77	91	9	<0.001
Commercial sex worker	104	88	12	
Other	33	73	21	0.004
<i>No. of partners in lifetime</i>				
One	271	87	13	
2-3	574	69	31	
4-10	526	66	34	
>10	501	62	38	<0.001
<i>Condom used with regular partner^a</i>				
Always	83	82	18	
Some time/never	1003	56	44	<0.001
<i>Sexual orientation</i>				
Bisexual and homosexual	200	82	18	
Heterosexual	1672	67	33	<0.001
<i>Premarital sex</i>				
No	280	35	65	
Yes	1592	75	25	<0.001
<i>HIV status</i>				
Negative	1456	69	31	
Positive	416	70	30	0.358

Factors	Total N=1872	Age 30 (n=1289) %	Age>30 (n=583) %	p
<i>STD status</i>				
Negative	887	76	24	
Positive	985	62	38	<0.001

Note.

^a indicates $N < 1872$ due to 'not applicable' or 'unavailable' data.