Published in final edited form as:

Int J STD AIDS. 2003 August ; 14(8): 532–538.

HIV Risk Behaviour among Psychiatric Inpatients: Results from a Hospital-Wide Screening Study in Southern India

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Summary

This study was carried out to investigate the prevalence and correlates of sexual risk behaviour among psychiatric inpatients in India. Consecutive inpatients ($n = 618$) were assessed using a structured interview and standardized measures. Women were more likely to be sexually active (50%) than men (36%), but equally likely (6% v. 5%) to engage in risky behaviour. Common risk behaviours included having a risky partner, having multiple partners, and exchanging money for sex. Being sexually active was associated with younger age, being married, being diagnosed with a disorder other than schizophrenia, and a history of drug use problems. Engaging in risky sexual behaviour was associated with being male, using tobacco products, and screening positive for either drug use or alcohol problems. Screening psychiatric patients for HIV risk behaviour can identify those who may benefit from risk reduction programs.

Keywords

HIV; Severe Mental Illness; Risky sexual behaviour; Psychiatric

Introduction

Research on HIV and other STDs often focuses on those who are most vulnerable, including men who have sex with men, injection drug users, and commercial sex workers. However, a less well-recognized risk group are men and women living with a severe mental illness, such as schizophrenia, bipolar disorder, and other severe mood disorders.[Carey, 1997 #3135] The limited research that has been conducted in both Europe[Stefan, 1995 #4275] and the United States (USA)[Carey, 1995 #2025] suggests that persons living with a severe mental illness are disproportionately vulnerable to HIV infection, with infection rates ranging from 4% to 23%, rates that are much higher than those reported for the general population. Outside of western Europe and the USA, little is known about HIV risk in psychiatric patients.

In India, HIV is expanding at an alarming rate.[Kumar, 2000 #4272] Information regarding HIV and psychiatric patients in India is very limited. One study investigated the prevalence of HIV infection among psychiatric patients in India, and found that 3.4% of 2,139 inpatients were infected.[Chandra, 1996 #3531] A second study investigated 59 patients admitted to a state psychiatric hospital to investigate the characteristics of risk behaviour. The most common risk behaviour was unprotected heterosexual intercourse with a high-risk partner; however,

this study relied upon a small convenience sample making it difficult to determine the representativeness of its findings.

The current study provides evidence regarding the prevalence and correlates of HIV-risk behaviour of psychiatric patients in India. To obtain a representative sample, we screened new admissions for information regarding risk behaviour as well as its demographic, psychiatric, and substance use correlates. We emulated methods used in previous research in the US, and tested hypotheses that sexual activity and risk behaviour would be greater as a function of younger age, male gender, less severe psychiatric disorder, and concurrent substance use.

Material And Methods

Participants

Participants were drawn from new admissions to the inpatient unit of the National Institute of Mental Health and Neuro Sciences (NIMHANS) in Bangalore, India during April to October 2001. NIMHANS is a 600-bed state psychiatric teaching hospital. Patients come to the hospital directly from urban, semi-urban, and rural areas, or through referrals from all states of India, predominantly from the South. HIV rates are highest in southern India, where HIV prevalence among patients at sexually transmitted infection clinics range from 15% to 33%.

Newly admitted patients were eligible if they were: (a) at least 18 years of age, (b) diagnosed with a primary psychiatric illness, (c) judged to be able to complete the assessment by clinical and research staff, (d) not acutely psychotic or otherwise unable to participate meaningfully in the assessment, and (e) able to provide informed consent. Patients who were less than 18 years of age, whose only diagnosis was a substance use disorder, who stayed in the hospital for less than one week (e.g., those discharged early, or those who left the hospital against medical advice), or those who were too psychiatrically ill to give consent for the study were excluded.

Of the 1511 admissions to the hospital during this period, 554 were not interviewed because of the following reasons: left the hospital against medical advice ($n = 37$), did not reach the inpatient facility despite admission or absconded before formal admission ($n = 170$), early discharge ($n = 105$), unable to comprehend and respond to the interview because of the psychiatric problem ($n = 213$), unwilling to consent to the interview ($n = 2$), and primary therapist opinion that it would not be advisable to interview the patient ($n = 4$), not eligible for reasons such as readmission, age more than 65 years, language constraints, transferred to other medical units ($n = 23$). In addition, 339 admissions had only a substance use diagnosis, and are excluded from the current report. Thus, 618 subjects with a primary psychiatric illness not related to substance use were available, psychiatrically stable, and consented to participate in the study.

Measures

Chart information

A systematic review of the medical records provided the following information: ICD-10 diagnosis for the psychiatric condition (made by two qualified psychiatrists), duration of current episode, and total duration of illness, drug compliance, and number of hospitalisations.

Semi-structured interview

Socio-demographic details collected include age, gender, place of residence (rural, semi-urban, or urban), living arrangement, marital status, education, income, and employment status.

Alcohol Use Disorders Identification Test (AUDIT)

The AUDIT is a widely used 10 item screening measure designed to identify drinkers at risk for alcohol abuse and dependence. AUDIT scores range from 0 – 40 and correlate with other widely used screening instruments. A score of > 7 identifies persons at higher risk for alcohol abuse in psychiatric settings.

Drug Abuse Screening Test (DAST - 10)

The DAST-10 is a short version of the 28-item DAST, designed to identify drug-use related problems in the previous year. The DAST-10 is internally consistent ($\alpha = .86$), temporally stable ($ICC = .71$), and able to discriminate between psychiatric outpatients with and without current drug abuse/dependence diagnoses. Sensitivity and specificity with this population are optimised with a score of > 2. The DAST score orders individuals along a continuum with respect to the risk of problems related to drug use.

HIV-Risk Screening Instrument (HSI)

The HSI is a 10-item questionnaire that has been validated for use in health care settings to screen for HIV-related risk behaviour. The HSI is internally consistent (Kuder-Richardson-20 coefficient = .73) and able to discriminate between low- and high-risk groups. Minor modifications were made to the HSI to make it more appropriate to the Indian context. A score of zero reflects low-risk, whereas a score of one or more reflects possible risk for HIV infection. Given the purposes of this study (and to allow us to compare our findings with previous research conducted before the HSI was available), we expanded the time frame assessed to include the past year as well as lifetime risk behaviour.

Procedures

All new admissions were reviewed with the clinical team to determine their eligibility, and to be certain that each person was psychiatrically stable and able to participate meaningfully in the research. The research staff then approached all eligible patients to explain the study, answer questions that the patient might have, and invite the patient to participate. (All research staff were physicians with an interest in psychiatry, public health, and/or HIV/AIDS, who had received training from the investigators prior to working with patients.) Confidentiality was emphasized with assurances that information would be shared with the treating team only with consent from the individual. Patients who were interested in participating were asked to provide informed consent.

Because of traditional cultural taboos against explicit discussion of sexual material in India, and to promote candid reporting, we used well-trained and supervised medical professionals who took the time to establish rapport with patients and provided considerable reassurances regarding confidentiality before actually conducting the interview. All assessment materials were administered in an interview using the language most comfortable for the patient in order to ease the cognitive burden on the patients, and thereby to enhance reliable reporting of sexual behaviour. An interview (rather than self-administered format) was used to afford greater sensitivity regarding cultural norms, to avoid potential problems associated with patient endurance, and to avoid misunderstandings associated with language or literacy concerns. The sequence of the interview was to begin with the demographic items, and then proceed to the AUDIT, DAST, and then the HSI.

Data Management and Analyses

All data were double entered into Epidata, and compared for accuracy. Discrepancies were compared against the raw data to correct any clerical errors. Initial descriptive analyses were

completed to provide estimates of the prevalence of sexual activity and of HIV-related risk behaviours. Chi-square tests were used for comparison between diagnostic groups. Next, to identify correlates of (a) sexual activity and (b) elevated HIV-risk status, we conducted two logistic regressions using predictors suggested by previous research. The logistic regression for sexual activity status contrasted patients who reported any penetrative sexual behaviour in the past year to patients who reported no sexual behaviour. The logistic regression for HIV-related risk compared patients who engaged in one or more HIV risk behaviours to all other patients. For each of these two logistic regression analyses, the predictor variables were entered simultaneously into the model so that the relation of the predictor to the criterion are reported with the other predictors controlled. For these analyses, adjusted odds ratios are reported to characterize the relative strength of the association between each predictor variable and the respective outcome.

Results

The sample consisted of 242 women and 376 men with a mean age of 32 years ($SD = 10.2$). Forty-three percent were married and living with their spouse, 9% were married but living apart, 43% were not married, 3% were widowed, and 2% were divorced. Preferred language was 41% Kannada, 11% Tamil, 8% Hindi, 14% Telugu, 3% English, and 23% others; religious affiliation was 82% Hindu, 11% Moslem, 5% Christian, and less than 1% Sikh or others. Approximately 38% of the sample lived in an urban area, 43% in a rural area, and 18% in a semi-urban area. Most lived either in their own home (34%) or with their family (56%) but a minority lived in the home of another person (8%), an institution (1%), or were homeless (1%). The vast majority had some formal education, with 22% completing primary level education, 27% high school, and 10% college; however, only 44% were employed outside their home. Patients were diagnosed with the following disorders: 233 (38%) with Psychotic Disorder [this included Schizophrenia ($n = 148$), Acute Psychosis ($n = 15$), Delusional Disorders ($n = 14$) and Unspecified Psychosis ($n = 56$)], 298 (48%) with a Mood Disorder [this included 196 with a bipolar disorder and 102 with depression], 53 (9%) had severe anxiety and somatisation disorders, 12 (2%) were admitted with organic psychiatric syndromes, and 22 (3%) with other disorders. The total duration of illness was less than 6 months in 21% cases, 6-12 months in 8%, 1-5 years in 34% and more than 5 years in 37%. The number of previous psychiatric admissions ranged from 0 to 20 with a mean of 1.11 ($SD = 2.02$).

Prevalence of Sexual Activity and Risky Sexual Behaviour

Lifetime

Approximately 63% of all patients ($n = 387$) reported that they had been sexually active in their lifetime. Univariate analyses indicated that women (72%) were more likely than men (57%) to report having been sexually active, Chi-square = 14.63, $p < .001$. Twenty percent of all patients ($n = 125$) reported high risk behaviour in their lifetime; women (11%) were less likely than men (26%) to report high risk behaviour in this interval, Chi-square = 22.17, $p < .001$.

Past ten years

Approximately 59% of all patients ($n = 365$) reported that they had been sexually active in the past ten years; women (66%) were more likely than men (55%) to report having been sexually active during this interval, Chi-square = 7.25, $p < .05$. Sixteen percent of all patients ($n = 98$) reported high risk behaviour in the past ten years; women (10%) were less likely than men (20%) to report high risk behaviour in the past 10 years, Chi-square = 10.52, $p < .05$.

Past year

Approximately 42% of all patients ($n = 257$) reported that they had been sexually active in the past year; women (50%) were more likely than men (36%) to report having been sexually active during this interval, Chi-square = 10.48, $p < .05$. Five percent of all patients ($n = 33$) reported high risk behaviour in the past year; women (6%) and men (5%) did not differ on rates of high risk behaviour they reported in the past year, Chi-square = .58, ns.

Types of risk behaviour reported

Table 1 presents the most common risk behaviours by gender for the 99 men and the 26 women who reported any risk behaviour during their lifetimes. As can be seen there, having a risky sexual partner (i.e., a partner who had a STI, injected drugs, or had other sexual partners; $n = 110$), having multiple sexual partners ($n = 76$), and exchanging money for sex ($n = 65$) were the most common risk behaviours reported. However, the prevalence of these risk behaviours varied by gender. Women were more likely to report a history of a sexually transmitted infection (58%) or having exchanged sex for money (27%) whereas men were likely to report exchanging money for sex (66%). Of the 125 patients who reported risky sexual behaviour, 23 (18%) reported only one risk factor, 48 (38%) reported two, and 54 (43%) reported more than two risk factors. Intravenous drug use and needle sharing were not commonly reported risk behaviours in this sample. Correlates of Sexual Activity and Risky Sexual Behaviour

Table 2 presents the results of the two logistic regression analyses, predicting sexual activity in the last year and lifetime risky sexual behaviour.

Sexual activity

The criterion for the first logistic regression was sexual activity status in the past year; thus, the sample was divided into two groups of patients: sexually active ($n = 257$; 42%) versus sexually inactive ($n = 361$; 58%). Using logistic regression that adjusted for other factors, we found that patients were more likely to be sexually active if they were younger; married; diagnosed with a mood, anxiety/personality disorder, and if they had a DAST score > 2 (suggesting high risk for drug use problems).

Risk behaviour

The criterion for the second logistic regression was high risk status in their lifetime; for this analysis, the sample was divided into two groups: those who reported behaviours that placed them at risk for HIV ($n = 125$; 20%) versus those who did not ($n = 493$; 80%). This logistic regression indicated that patients were more likely to have reported risky sexual behaviour if they were men; and if they currently used tobacco, or had a DAST score > 2 (suggesting risk for a drug use problem) and had an AUDIT SCORE ≥ 8 (suggesting risk for an alcohol use problem).

Discussion

This report provides the first, large-scale investigation of sexual activity levels and HIV-related risk behaviour among psychiatric patients in India. Strengths of the study include the use of hospital-wide screening, direct patient assessment using standardized measures by trained personnel, sensitivity to language and cultural assessments of assessment, and a large diverse sample; these strengths enhance confidence in the validity and representativeness of the findings.

Prevalence and Correlates of Sexual Activity

Nearly two-thirds of all patients had been sexually active in their lifetimes, and 42% had been active in the past year. Contrary to expectation, women were more likely to report being sexually active during all three assessment intervals (lifetime, 10 years, and 1 year); this may reflect women's vulnerability to unwanted sexual advances or other cultural factors, but probably does not reflect a reporting bias, given men's tendency to embellish reports of their sexual behaviour.

It is interesting to compare the current findings to those obtained in similar research that has been conducted in the west. Because two earlier studies had similar goals and methods, we have summarized the methods and findings from these studies with the current study in Table 3. As can be seen there, rates of sexual activity in the current study (42% in the last year) are lower than those (49% and 69%) previously. It is not surprising that the lowest rates came from the current study, which recruited inpatients (presumed to be more impaired than outpatients and expected, therefore, to be less sexually active). One might also explain the lower rates in the Indian context as a reflection of cultural differences; that is the lower level of sexual activity among Asians, particularly women in comparison to Non-Asians. Further, in India it is more common than it is in the west for adults to continue to live with their families, which may restrict opportunities for sexual activity. However, because the current study required informed consent, it is also possible that the differences observed among these three studies reflects a selection bias in the current study; that is, sexually active patients may have been less likely to agree to participate in the current study but such patients would have been included in earlier studies because the latter involved archival chart reviews (Table 3). The design of the current study does not allow strong conclusions regarding these differences, but it does allow the conclusion that psychiatric patients remain sexually active and require sexual health services to help them to avoid unintended pregnancies and sexually transmitted infections, including HIV.

Using multivariate logistic regression analyses, we found that being sexually active was associated with younger age, being married, being diagnosed with a disorder other than schizophrenia, and a history of drug use problems. These associations were anticipated, and provide cross-cultural replication of earlier findings obtained in the US. Interestingly, all three studies found that a similar set of patient characteristics was associated with sexual activity status.

Prevalence and Correlates of Risky Sexual Behaviour

We found that only 5% of the patients reported high-risk sexual behaviour in the past year. Intravenous drug use (IDU) was reported by only one patient and was not a major risk factor in this sample. (IDU is seen mainly in the north-eastern India and is not a significant problem in southern India where this study was conducted.) The 5% rate of risky sexual behaviour (past year) found in the current sample is lower than the 11% and 23% rates found in earlier studies. This difference may reflect lower risk taking among inpatients relative to outpatients, differences in actual sexual risk taking between India and the west, under-reporting of risk, or a combination of these explanations. Vulnerability to HIV, however, remains high with approximately one-third of the current sample reporting risk behaviour during their lifetime.

Consistent with our expectations, men were more likely than women to report risky behaviour. The most common risk practices reported were having a risky sexual partner or multiple partners, and exchanging money for sex. Not surprising, women were more likely to report exchanging sex for money, whereas men were more likely to report exchanging money for sex. The prevalence of sex trading was relatively low, however, and should be interpreted mindful of previous results that indicates that most women in India – other than commercial sex workers

– become infected by their husbands and report no other sexual partners. Indeed, multiple logistic regression that controlled for the effects of other predictors indicated that risky sexual behaviour was associated with being male, current tobacco use, and risk for alcohol or drug use problems.

The association between risky sexual behaviour and substance use (other than intravenous drug use and needle-sharing) remains a consistent finding, regardless of setting. However, the interpretation of this global-level association remains complex because sophisticated event-level analyses fail to reveal a causal association between, for example, alcohol use and risky sex. Evidence points to the likely role of personality factors and situational influences, or their interaction. Nevertheless, evidence from several sources indicates that reducing substance use may also reduce risky sexual behaviour.

Future research needs to provide information regarding the prevalence of HIV infection among psychiatric patients, to clarify the relationship between risk taking behaviour and substance use, and to develop and evaluate strategies for risk reduction and HIV prevention in this population. The latter will be especially challenging given resources limitations resulting from other health priorities as well as cultural factors that discourage the direct discussion of sexual behaviour and may limit the acceptability of group-based HIV-risk reduction approaches that have been found to be useful in the west. Continued research is essential, however, to limit the spread of HIV and other STIs among Indian psychiatric patients, and curtail the pandemic's devastating impact on the sub-continent.

Acknowledgements

We thank the patients for their participation; the therapists and administrators at the National Institute of Mental Health and Neuro Sciences for their support; Drs. Willo Pequegnat, Juan Ramos, and Ellen Stover for their encouragement; and the Health Improvement Project team for their many fine contributions to this work.

Funding/Support: Supported by a grant R01-MH54929 from the National Institute of Mental Health. Drs M Carey and K Carey were supported by separate Independent Scientist Awards from the National Institute of Mental Health and the National Institute of Drug Abuse, respectively, during the course of this study.

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Table 1

Risk factors by Gender for Patients Reporting High Risk Sexual Behaviour

Risk characteristic	Males (<i>n</i> = 99)	Females (<i>n</i> = 26)	Chi-Square	<i>p</i>
Sexually transmitted infection	21 (21%)	15 (58%)	13.36	< .001
Multiple partners	64 (65%)	12 (46%)	2.95	ns
Exchanging sex for money	9 (9%)	7 (27%)	5.87	< .05
Exchanging money for sex	65 (66%)	0 (0%)	35.56	< .001
Partner has risky sexual behaviour	87 (88%)	23 (88%)	.01	ns

Table 2

Correlates of Sexual Activity Status and High Risk Sexual Behaviour

Variable	% ¹	Sexually active last year (n=257) vs. Inactive (n=361) AOR(95%CI)	% ²	Lifetime High Risk (n=125) vs. Low risk (n=493) AOR(95%CI)
Age				
18-28	28	1.00 (Reference)	18	1.00 (Reference)
29-38	57	.73 (.38, 1.40)	22	1.20 (.70, 2.05)
39-48	57	.39 (.18, .85)*	28	1.64 (.84, 3.20)
48+	35	.10 (.04, .24)**	15	.81(.33, 1.98)
Gender				
Female	50	1.00 (Reference)	11	1.00 (Reference)
Male	36	1.30 (.73, 2.31)	26	1.79 (1.03, 3.09)*
Residence				
Rural	45	1.00 (Reference)	23	1.00 (Reference)
Urban	41	1.61 (.96, 2.73)	19	.75 (.47, 1.20)
Semi urban	33	.68 (.34, 1.35)	17	.76 (.41, 1.40)
Marital Status				
Not married	7	1.00 (Reference)	20	1.00 (Reference)
Married	73	88.91 (42.72, 185.07)**	20	.96 (.58, 1.59)
Psychiatric Diagnosis				
Sz-spectrum	31	1.00 (Reference)	21	1.00 (Reference)
Bipolar/Mania	44	3.13 (1.73, 5.68)**	23	.98 (.59, 1.62)
Depression	58	3.74 (1.86, 7.51)**	17	.80 (.42, 1.52)
Other	44	2.93 (1.39, 6.19)*	17	.80 (.40, 1.57)
Current use of tobacco				
No	42	1.00 (Reference)	13	1.00 (Reference)
Yes	41	.83 (.46, 1.49)	34	1.96 (1.20, 3.20)*
Significant AUDIT score (≥ 8)				
No	40	1.00 (Reference)	17	1.00 (Reference)
Yes	52	1.62 (.73, 3.59)	46	2.01 (1.10, 3.70)*
Significant DAST score (> 2)				
No	41	1.00 (Reference)	19	1.00 (Reference)
Yes	57	6.05 (1.74, 21.04)*	57	3.44 (1.37, 8.63)*

¹ Percentages indicate the proportion of participants within each stratification reporting sexual activity in the past year.

² Percentages indicate the proportion of participants within each stratification endorsing high risk sexual behaviour in their lifetime.

Sz-spectrum = Schizophrenia-spectrum disorders.

*
 $p < .05$

**
 $p < .001$

Table 3**Comparison of Three HIV-Risk Behaviour Screening Studies in Psychiatric Settings**

<p>Carey et al (1999) Population: $N = 1,214$ Sample: $N = 889$ (73%) 44% female Age (mean) = 41 years Diagnosis: 52% Schizophrenia-spectrum Setting: Outpatient, USA Archival Chart Review 49% Sexually Active in last year, 11% HRSB in last year</p>	<p>Predictors of Sexual Activity:</p> <ul style="list-style-type: none"> • Younger age, Ethnicity, Being married • Non-Schizophrenia Diagnosis • Substance use or abuse • Unsupervised residence <p>Predictors of HRSB:</p> <ul style="list-style-type: none"> • Younger age, Being female, Ethnicity, Being single • Non-Schizophrenia Diagnosis • Substance use or abuse
<p>Carey et al (2001) Population: $N = 1,620$ Sample: $N = 1,558$ (96%) 60% female Age (mean) = 37 years Diagnosis: 19% Schizophrenia-spectrum Setting: Outpatient, USA Archival Chart Review 69% Sexually Active in last year, 23% HRSB in last year</p>	<p>Predictors of Sexual Activity:</p> <ul style="list-style-type: none"> • Younger age, Being married • Non-Schizophrenia Diagnosis • Substance use or abuse <p>Predictors of HRSB:</p> <ul style="list-style-type: none"> • Younger age, Being single • Non-Schizophrenia Diagnosis • Substance use or abuse
<p>Chandra et al (2002) - current study Population: $N = 1,172$ Sample: $N = 618$ (53%) 39% female Age (mean) = 32 years Diagnosis: 38% Schizophrenia-spectrum Setting: Inpatient, India Active Recruitment 42% Sexually Active in last year, 5% HRSB in last year</p>	<p>Predictors of Sexual Activity:</p> <ul style="list-style-type: none"> • Younger age, Being married • Non-Schizophrenia Diagnosis • Substance use or abuse <p>Predictors of HRSB:</p> <ul style="list-style-type: none"> • Being single • Substance use or abuse

Note. HRSB = High-risk sexual behavior.