

Determinants of unprotected sex among HIV-positive patients in South Africa

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Abstract *This study examined the prevalence of unprotected sex, other sexual risk behaviours, and factors associated with unprotected sex among men and women recently diagnosed with HIV in South Africa. One hundred and forty-nine outpatients (44 males and 105 females) were assessed, of whom 101 were sexually active at least 6 months prior to study entry. Subjects were asked about sexual risk behaviours with reference to their most recent sexual encounter. Logistic regression analysis was employed to determine the predictors of condom use, with independent variables selected from five general categories: (1) sociodemographic characteristics; (2) situational characteristics regarding sexual intercourse (i.e. alcohol or drugs used before intercourse); (3) clinical diagnoses; (4) negative life events; and (5) coping styles. Fifty-five patients (19 males and 36 females), representing 54.4% of those sexually active in the 6 months preceding the study, had not used a condom during the most recent intercourse. Compared with those who used condoms, participants who did not significantly reported shorter duration of HIV infection ($t = -2.7$, $p < 0.001$), have a current partner ($\chi^2 = 3.98$, $p = 0.005$), and lack knowledge of their partner's HIV status ($\chi^2 = 4.78$, $p = 0.004$). Also they were significantly more likely to engage in denial ($t = 3.2$, $p < 0.002$) and to use substances ($t = 1.98$, $p < 0.05$) as a means of coping. Logistic regression showed that shorter duration of illness (odds ratio (OR) = 1.2, 95% confidence interval (CI) = 1.01–1.41) and coping styles characterized by denial (OR = 0.6, 95% CI = 0.45–0.96) were significantly associated with unprotected sex. These data suggest the need for interventions to further reduce sexual risk behaviours in HIV-positive patients in South Africa.*

Introduction

Studies have shown that people who are HIV-positive, despite receiving information and counselling, continue to practise unsafe sexual behaviours which place them and their partners at considerable risk (Cleary *et al.*, 1991; Marks *et al.*, 1999). Such behaviours include engaging in unprotected anal and vaginal intercourse, having multiple sex partners, using substances before a sexual encounter, commercialization of sex (i.e. the exchange of sex

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for money, drugs or housing), and intravenous drug use (Kelly *et al.*, 1993; Kennedy *et al.*, 1993; Kalichman *et al.*, 1997a; Eich-Hochli *et al.*, 1998; Kalichman, 1999; Skydsberg *et al.*, 2001).

A number of studies have examined the predictors of risky sexual behaviours in HIV-positive individuals. This work has suggested that certain sociodemographic variables and situational characteristics (i.e. alcohol or drugs used before intercourse, clinical diagnoses, antiretroviral treatment, negative life events, and coping styles) are associated with these behaviours (Kelly *et al.*, 1993; Kennedy *et al.*, 1993; Kalichman *et al.*, 1997b; Eich-Hochli *et al.*, 1998; Kalichman, 1999; Hutton *et al.*, 2001; Bouhnik *et al.*, 2002; DiClemente *et al.*, 2002). A recent study also found that HIV-positive men's disclosure of their serostatus, in combination with communication of safer sex practices with their partners, was more likely to be associated with protected intercourse than disclosure alone (Crepaz & Marks, 2003).

The work on sociodemographic predictors of risky sexual behaviour in HIV-positive subjects has been inconsistent. Thus one study reported increased risky sexual behaviour in HIV-positive patients who were married and in long-term relationships (Kalichman *et al.*, 1997). However, another study found that unprotected sexual intercourse was more frequent in unmarried individuals and those in casual relationships, and where partners were ignorant about each other's serological status (Kalichman, 1999).

The overlapping relationships between environmental factors (e.g. stressful negative life events, coping behaviours) and risky sexual practice suggest a need for further study of these factors in HIV-positive populations. From the cognitive theory of stress and coping (Lazarus & Folkman, 1984), it may be hypothesized that environmental stress, such as the knowledge of being infected with HIV/AIDS, may provoke negative mood states (e.g. depression), which in turn may impact on coping and give rise to risky sexual practice aimed at reducing tension and obtaining temporary relief.

On the other hand, evidence from a recent meta-analysis (Crepaz & Marks, 2001) questions whether negative affect is associated with increased sexual risk. Certainly, risky sexual behaviour in HIV-positive patients has been associated with clinical diagnoses such as depression (Kelly *et al.*, 1993; Kalichman *et al.*, 1997; Kalichman, 1999; Alegria *et al.*, 2000), post-traumatic stress disorder (Hutton *et al.*, 2001), and substance use (Kelly *et al.*, 1993; Kalichman *et al.*, 1997; Kalichman, 1999). Heavy use of alcohol before sexual intercourse has also been found to be associated with lack of condom use (Eich-Hochli *et al.*, 1998).

Risky sexual behaviours in HIV patients may also be associated with prior exposure to stressful life events. One study (McKusick *et al.*, 1985) found that a history of sexual intercourse with three or more partners in the previous month was related to self-reported stress. Again, however, not all studies have produced consistent findings (Folkman *et al.*, 1992). Similarly, work on the role of coping behaviours in influencing risky sexual behaviours has also produced inconsistent results (Folkman *et al.*, 1992; Kalichman, 1999).

Studies of the predictors of unsafe sexual behaviours in HIV-positive patients have focused on intravenous drug users (Singh *et al.*, 1993; Bouhnik *et al.*, 2002), homosexual men (Skydsbjerg *et al.*, 2001; DiClemente *et al.*, 2002), homeless people (Kalichman *et al.*, 1997), and mixed samples of homosexual, bisexual and heterosexual outpatient attendees (Crepaz & Marks, 2003). There has been little work in the context of sub-Saharan Africa, despite the epidemic spread of HIV/AIDS in the region (World Health Organization, 2002). The aims of this study were: (1) to establish the prevalence of unprotected sex (non-use of condom) and other sexual risk behaviours among recently diagnosed HIV-positive men and women; and (2) to identify those factors associated with unprotected sex.

Methods

Procedure

The study was approved by the ethics committee of the University of Stellenbosch, Cape Town. Consecutive patients were included. All patients were first seen by their treating physician. Thereafter patients were interviewed by a trained researcher. Included in the interview were assessments of sexual behaviour (in the month and 6 months preceding the interview), stressful life events (in the month of interview and in the preceding 6 months), psychiatric morbidity, and coping styles.

Participants/setting

The study sample consisted of 149 (44 males and 105 females) recently diagnosed HIV patients (mean duration of diagnosis = 5.80 months, standard deviation (SD) = 4.1). Patients were recruited from the outpatient Infectious Diseases Clinic of the Department of Internal Medicine and Infectious Diseases, Tygerberg Hospital, Cape Town, South Africa. Inclusion criteria were: age 18–55 years; recently diagnosed (< 1 year) HIV infection; no neurological or cognitive disorder; and willingness to give written, informed consent. The hospital is one of two major tertiary health facilities in the Western Cape and receives referrals from surrounding community health centres as well as medical and obstetric/gynaecology clinics at Tygerberg Hospital.

Measures

Sociodemographic variables. A brief questionnaire was used to gather information about age, gender, marital status, home language, years of education, and employment status.

Sexual risk behaviour questionnaire. This 20-item interviewer rating measure was adapted from the work of Kelly *et al.* (1992) and McKinnon *et al.* (1993). Participants were asked about their sexual activities in both the preceding month and in the 6 months preceding the study. Questions included ‘Have you had sex with a partner who used intravenous drugs?’, ‘had sex after heavy use of alcohol or other drugs?’ and ‘had sex with a partner known to you for less than 1 day?’ However, use of a condom was elicited by a single-item question, ‘Have you used a condom at last sex?’, limited to the most recent episode of sexual intercourse. This method is consistent with the measure adopted by Watkins *et al.* (1993).

Psychiatric morbidity. Psychiatric morbidity was assessed with the Mini International Neuropsychiatric Interview (MINI) (Sheehan *et al.*, 1998). This instrument was designed as a brief structured diagnostic interview for major psychiatric disorders.

Negative life events scale. This scale was adapted (Kaminer *et al.*, 2001) from a scale developed by Swartz Elk *et al.* (1983). It is a 42-item clinician-administered checklist that inquires about the number of life events (positive and negative) occurring during the past 6 months as well as the degree of stress associated with these events (impact, 0–2 score).

Coping behaviours. Coping behaviours, namely specific styles used by HIV-positive patients to deal with the stress associated with living with HIV, were assessed with the abridged version of the COPE called the Brief COPE (Carver, 1997). The Brief COPE is a 14-scale questionnaire

spanning active coping, planning, positive reframing, acceptance, humour, turning to religion, venting of emotions, mental disengagement, denial, substance use, behavioural disengagement, and emotional support. Each item is rated on a four-point Likert scale from 1 (= 'I did not do this at all') to 4 (= 'I did a lot') for the activities in the past 3 months.

Statistical analysis

First, frequency counts of risky sexual behaviours such as lack of condom use, multiple partners, sleeping with a person known only for a short time, and exchange of sex for money, drugs or accommodation were determined. Since non-use of a condom in most recent sexual vaginal intercourse was the most frequent risky sexual behaviour, forward stepwise logistic regression was performed to assess its associated factors. The independent variables used were selected from five general categories: (1) sociodemographic characteristics; (2) characteristics regarding sexual intercourse (i.e. alcohol or drugs used before intercourse); (3) clinical diagnoses; (4) negative life events; and (5) coping styles. Data were analysed with the Statistical Package for the Social Sciences software version 10.

Results

Risky sexual behaviours

Among the participants, 101 (68%) (33 males, 68 females) had engaged in vaginal intercourse in the 6 months preceding the study. Only 65.5% of subjects reported having received formal counselling on safe sex practices.

Of those who had engaged in intercourse in the past 6 months, 55 (19 males and 36 females), representing 54.4% subjects, did not use a condom (Table 1). Less common risky sexual behaviours included sex with multiple partners (6%) in the past 6 months, sex after heavy use of alcohol in the past 1 month (9.4%) and 6 months (21%), or sex with partners known for only a day in the past month (3.4%) and 6 months (9.4%). Compared with participants who used condoms, those who did not were significantly more likely to have a shorter duration of HIV infection ($t = -2.7, p < 0.001$), to have a current partner ($\chi^2 = 3.98, p = 0.005$), and to lack knowledge of their partner's HIV status ($\chi^2 = 4.78, p = 0.004$). The two groups were not significantly different with regard to both the number and impact of negative life events in the 6 months preceding the study.

Coping behaviours and unprotected sex

Table 2 shows the differences in coping behaviours between HIV patients who used condoms and those who did not. Compared with those who used condoms, participants who did not were significantly more likely to engage in denial ($t = 3.2, p < 0.002$) and to use substances ($t = 1.98, p < 0.05$) as a means of coping. Conversely patients who did use condoms were more likely to be accepting of their illness ($t = -2.7, p < 0.008$).

Unprotected sex and psychiatric morbidity

As shown in Table 3, comparison of MINI psychiatric diagnoses between HIV patients who used condoms and those who did not reveal any significant differences between the two groups.

Table 1. *Unprotected sex in the past 6 months: sociodemographic and clinical characteristics*

Variable	Condom use, N (%) (N=46)	Non-condom use, N (%) (N=55)
Gender		
Male	14 (30.4)	19 (34.5)
Female	32 (69.6)	36 (65.5)
Language		
African	9 (19.6)	16 (29.1)
Xhosa	33 (71.7)	34 (61.8)
Others	4 (8.7)	5 (9.1)
Currently with a partner*		
Yes	44 (95.7)	46 (83.6)
No	2 (4.3)	9 (16.4)
Knowledge about partner's infection*		
Yes	25 (54.3)	18 (32.7)
No	21 (45.7)	37 (67.3)
History of formal counselling about HIV/AIDS		
Yes	29 (63)	36 (65.5)
No	17 (37)	19 (34.5)
HIV clinical stage		
Asymptomatic	28 (60.9)	29 (52.7)
Symptomatic	18 (39.1)	26 (47.3)
Employment		
Presently employed	19 (41.3)	12 (21.8)
Presently unemployed	16 (34.8)	27 (49.1)
Never employed	11 (23.9)	16 (29.1)
Mean age in years	29.8 (SD =5.5)	28.3 (SD =6.6)
Mean education in years	9.7 (SD =2.9)	9.6 (SD =3.5)
Mean duration of HIV infection in months	6.47 (SD =4.1)	4.41 (SD =3.6)
Age at first intercourse in years	16.76 (SD =3.1)	16.27 (SD =2.3)
Number of negative life events	3.97 (SD =3.29)	4.70 (SD =3.03)
Impact of negative life events score	7.43 (SD =6.50)	8.90 (SD =5.86)

* $p < 0.05$.

Predictors of unprotected sex

Logistic regression analysis showed that shorter duration of illness (odds ratio (OR) = 1.2, 95% confidence interval (CI) = 1.01–1.41) and a copying style of denial (OR = 0.6, 95% CI = 0.45–0.96) were predictive of unprotected sex.

Discussion

This study examined the prevalence and predictors of unsafe sex among individuals recently informed of their positive HIV status. Consistent with previous studies where 28–58% of subjects failed to use condoms during sexual intercourse (Kalichman *et al.*, 1997; Kalichman, 1999; Crepez & Marks, 2003), we found a high rate (54.4%) of unprotected sex.

Also consistent with previous findings, where up to 52% and 73% (Marks *et al.*, 1991; Crepez & Marks, 2003) of HIV-positive patients did not know of their partner's HIV status, we found that 46% of those who practised safe sex and 68% of those who do not practise safe

Table 2. Mean differences in coping behaviour between HIV patients who used condoms and those who did not

Coping behaviour	Condom use (<i>N</i> = 46), mean(SD)	Non-condom use (<i>N</i> = 55), mean (SD)	<i>t</i>
Acceptance	6.56 (1.73)	5.47 (2.29)	-2.72**
Denial	2.69 (1.71)	4.09 (2.56)	3.26***
Substance use	2.32 (1.15)	2.94 (1.85)	1.98*
Emotional support	5.19 (2.14)	5.29 (2.51)	0.20
Humour	2.39 (1.18)	2.56 (1.48)	0.64
Religion	5.47 (2.22)	5.00 (2.53)	-0.96
Self-blame	3.39 (2.15)	4.01 (2.27)	1.42
Instrumental support	4.80 (2.28)	4.87 (2.57)	0.14
Behavioural disengagement	3.00 (1.59)	3.23 (1.60)	0.73
Ventilation	3.41 (1.84)	3.60 (1.85)	0.50
Positive reframing	4.97 (2.30)	4.41 (2.28)	-1.23
Planning	5.34 (2.32)	4.80 (2.00)	-1.27

p* < 0.05.*p* < 0.01.****p* < 0.005.

sex did not know of their partner's HIV status. This lack of disclosure about HIV status probably reflects ongoing stigmatization of HIV/AIDS, with fears that disclosure will lead to discrimination, isolation, or job loss. Addressing these issues remains crucial in the South African context.

Of concern is the fact that only 64% of subjects remembered having received counselling for HIV/AIDS (Cleary *et al.*, 1991). Given that all HIV-positive patients are required to receive counselling about safe sexual practice on notification of their HIV status, this represents a low figure. Presumably, subjects did not regard the communication of information about their serological status as 'counselling'. There is therefore a need to enhance this aspect of clinical practice.

The importance of safe sex has been a key message in psycho-education campaigns aimed at preventing and reducing HIV infection. The use of condoms during sexual intercourse is important for several reasons. First, heterosexual intercourse remains the most important way in which the HIV virus is spread (World Health Organization, 2002). Second, prevention of secondary infections such as gonorrhoea and syphilis, which may accelerate HIV disease, can be achieved through the use of condoms (Fleming & Wasserheit, 1999). Third, HIV-positive

Table 3. Unprotected sex by MINI (psychiatric diagnosis)

MINI (psychiatric diagnosis)	Condom use (<i>N</i> = 46), <i>N</i> (%)	Non-condom use (<i>N</i> = 55), <i>N</i> (%)
Current major depression	12 (36.4)	21 (63.6)
Past major depression	7 (43.8)	9 (56.2)
Current dysthymic disorder	9 (40.9)	13 (59.1)
Suicidality	2 (20.0)	8 (80.0)
Social anxiety disorder	2 (25.0)	6 (75.0)
Post-traumatic stress disorder	3 (23.1)	10 (76.9)
Alcohol dependence	4 (28.6)	10 (71.4)
Drug dependence	0 (0)	3 (100.0)
Generalized anxiety disorder	2 (33.3)	4 (66.7)

individuals can be co-infected with different HIV strains or strains which are resistant to antiretroviral treatment (Furci *et al.*, 2002).

Previous work has indicated that denial, following on knowledge of diagnosis, is one of the commonest coping styles used in HIV-positive patients (Kaplan *et al.*, 1997). Our data suggest that denial may be predictive of lack of condom use. Furthermore we found that those who used condoms were more likely to accept their predicament and more apt to protect themselves. This has implications for counselling where acceptance of illness is encouraged early in the course of illness. Nevertheless, previous work linking unprotected sex with different coping styles has been inconsistent (Folkman *et al.*, 1992; Kalichman, 1999).

Although 21% of the sample used alcohol heavily before sex, we were unable to replicate findings of an association between such use and unprotected sex (Kelly *et al.*, 1993; Kennedy *et al.*, 1993). On the other hand, patients who did not use condoms were more likely to use substances as a coping behaviour. The small sample may have accounted for this variance. Psycho-education or counselling programmes involving safe sexual behaviour among HIV patients should certainly include information on alcohol misuse and its harmful effects, including its effect on social judgement. We were not able to confirm previous findings of a relationship between unprotected sex and psychiatric disorders in HIV-positive patients (Kelly *et al.*, 1993; Kalichman *et al.*, 1997; Alegria *et al.*, 2000). The number and impact of negative life events in the 6 months prior to study were also not predictive of unprotected sex. This supports the contention of Crepez & Marks (2001), who documented that little evidence exists for an association between negative affective states and HIV sexual risk behaviours.

Several limitations of this study are worth mentioning. First, as this study relied on self-report, response bias cannot be excluded. Second, while assessment of risky sexual behaviour was anchoring to the most recent sexual intercourse to minimize patient recall bias and memory loss, the last sexual encounter may not accurately reflect average sexual behaviour. Furthermore, the urban treatment-seeking sample here may not be representative of HIV-positive subjects in South Africa as a whole.

Nevertheless, these findings of a high rate of unprotected sex in HIV-positive patients and relatively low recall of having received counselling deserve to be heeded. In addition, a shorter duration of illness and coping characterized by denial were significant predictors of lack of condom use. These findings suggest the need for more effective interventions to reduce sexual risk behaviours in HIV-positive patients in South Africa.

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