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Journal of Psychosomatic Research 61 (2006) 479–484

Journal of Psychosomatic Research

Persistence of psychiatric disorders in a cohort of HIV/AIDS patients in South Africa: A 6-month follow-up study

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Received 24 June 2005

Abstract

Background: Psychiatric disorders in HIV/AIDS are common, emerging soon after diagnosis or during the subsequent course of illness. However, there are few prospective studies on the rates of psychiatric disorders in HIV/AIDS, particularly in the context of the developing world. **Methods:** Sixty-five patients with recently diagnosed HIV were interviewed on presentation to a hospital-based HIV clinic and then 6 months later. On both interviews, the patients were assessed using the MINI International Neuropsychiatric Interview, the Carver Brief COPE, and the Sheehan Disability Scale. Exposure to negative life events and risk behaviors was also evaluated. **Results:** The overall prevalence of psychiatric disorders in the follow-up period remained high (56% of patients had at least one psychiatric disorder at baseline, and 48% of patients had at least one psychiatric disorder at 6 months). Depression and posttraumatic stress disorder (PTSD) were the most prevalent disorders at both baseline (34.9% and 14.8%) and follow-up (26% and 20%), respectively. More than half of all patients with depression at baseline improved (16 of 29; 55.1%). However, there was a new onset of both depression (4 of 49; 8.1%) and PTSD (12 of 17; 70.5%) on follow-up. In univariate analysis, depression on follow-up was significantly associated with: (a) disability in work/social/family functioning, (b) greater number of negative life events, and (c) a decline in CD4 lymphocyte count. Univariate analysis also revealed that a diagnosis of PTSD on follow-up was significantly associated with (a) a longer duration of infection and (b) baseline disability in work/social/family functioning. However, in multivariate analysis, only disability scores predicted the diagnoses of major depression and PTSD on follow-up assessment. Persistence of risky sexual behaviour was also noted, with a significantly higher number of participants reporting nonuse of condom on follow-up. There appeared to be a shift from maladaptive coping behaviors to more adaptive coping behaviors over the 6-month period. **Conclusion:** The rate of psychiatric disorders in HIV/AIDS patients was consistent over time. These findings emphasize the importance of regular evaluation for psychiatric disorders in HIV/AIDS patients, not only at the commencement of treatment but also during subsequent follow-up visits.

Keywords: HIV/AIDS; South Africa; Psychiatric morbidity; Follow-up

Introduction

While several studies have demonstrated high levels of psychiatric morbidity [1], especially depressive disorders [2], in HIV/AIDS in cross-sectional samples, few have examined longitudinal stability or change over time. Findings of change in, or persistence of, psychiatric morbidity in HIV/AIDS have been mixed [3–11]. While some studies have found a modest increase in anxiety and depression on follow-up [3–5], other studies have found diagnostic status to be stable over time [6,7]. For example, in a recent national survey in the United States, Tsao et al. [4] found a declining prevalence of psychiatric disorders, including major depression, over 6 months in a nationally

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0022-3999/06/$ – see front matter © 2006 Published by Elsevier Inc.
doi:10.1016/j.jpsychores.2006.03.010

representative cohort of HIV/AIDS patients, using data from the HIV Cost and Service Utilization Study. However, major depression persisted across time in a subsample of patients, with a high baseline HIV symptom count and with a growing number of HIV symptoms increasing the likelihood of persistence and the development of new cases. Similarly, Joseph et al. [6], in the Chicago Multicenter AIDS cohort study group, found stable scores on self-rating scales of depression on six semiannual occasions despite illness progression. Across studies, the heterogeneity of HIV/AIDS samples may, to some extent, account for such inconsistent findings.

Several factors may predict the course of psychiatric disorders in HIV/AIDS. Stressful experiences may impact on the course of depression and anxiety, although data in this regard are inconsistent [12–14]. Conversely, there is some evidence of a relationship between perceived sufficiency of social support and improvement of depression in HIV/AIDS [6–8]. There have also been reports of a relationship between persistent depression and dysfunctional coping styles, such as denial or venting of emotion [12–16].

In this paper, we examine the potential effects of clinical and psychosocial factors on the stability of psychiatric diagnosis over 6 months in a cohort of HIV/AIDS patients. It has been suggested that antiretroviral treatments may improve the course and prognosis of psychiatric disorders in HIV/AIDS [17]; however, at the time that this study was performed, antiretrovirals were not available to the sample under study.

Methods

Procedure

One-hundred forty-nine patients (44 males, 105 females) with recent knowledge of their serostatus [months since diagnosis (mean±S.D.)=5.8±4.1] were recruited at the Infectious Diseases Clinic at Tygerberg Hospital (Cape Town, South Africa). Baseline data were collected between September 2002 and February 2003. Collection of follow-up data commenced in August 2003. Diagnostic interviews were conducted by two researchers (a doctoral-level clinical psychologist and a master's-level research psychologist) after interrater reliability had been established in the administration of the MINI International Neuropsychiatric Interview (MINI) [18]. On follow-up, patients were seen first by their treating physicians and thereafter interviewed by the same researchers who had conducted baseline assessment. Interviews lasting approximately 75 min were conducted in private.

We report on follow-up data that formed part of a prospective study. A full description of study methodology, recruitment procedures, and baseline psychiatric status of participants has been provided elsewhere [18].

Measures

Data collection followed the same procedures as those at baseline. In addition to obtaining demographic data from patients (e.g., age, marital status, home language, years of education, religion, employment status, and date of HIV diagnosis), clinical data, including CD4/CD8 status, were collected from treating physicians. HIV staging was also determined, and patients were classified as symptomatic or asymptomatic. CD4 (helper/inducer) and CD8 (suppressor) T lymphocyte subsets were analyzed by staining peripheral blood specimens with flow cytometry enzyme-linked immunosorbent assay and Western blot analysis.

Psychiatric diagnostic status was assessed with the MINI, either the English version questionnaire or the translated Xhosa version (the predominantly spoken language in our sample) [19]. The MINI assesses "current" disorders, such as major depression, dysthymia, suicidality, panic disorder, agoraphobia, social anxiety disorder, obsessive–compulsive disorder, posttraumatic stress disorder (PTSD), alcohol and drug abuse/dependence, psychotic disorders, anorexia nervosa, bulimia nervosa, generalized anxiety disorder, antisocial personality disorder, as well as lifetime diagnoses for major depressive episode, panic disorder, psychotic disorders, and antisocial personality disorder. Coping styles were assessed with the abridged version of the COPE, called Brief COPE [20]. Functional impairment/disability was assessed with the Sheehan Disability Scale [21].

Negative life events were measured using a modified 42-item clinician-administered checklist that inquires about the number of events (positive and negative) and the degree of associated distress (impact score=0–2) in the past 6 months. Higher scores reflect greater stress impact [22]. Sexual risk behaviors were assessed using a 20-item interviewer rating measure adapted from the work of Kelly et al. [23] and Mckinnon et al. [24]. On follow-up, items were modified so as to inquire about sexual activities since baseline.

Data analyses

Analyses were computed with SPSS software, version 10, for Windows. First, several univariate tests of association for categorical variables (chi-square tests) and continuous variables (Student's *t* tests) were performed to look for associations between demographic and clinical status and psychopathology. To examine changes in coping and disability scores between baseline and follow-up, a series of repeated paired *t* tests was performed. Variables identified as statistically significant in univariate analyses were then entered into two logistic regression models, with major depression and posttraumatic disorder (the two most prevalent psychiatric diagnoses on follow-up) as dependent variables. All statistical tests were two-tailed, with $P<.05$ denoting significance and 95% confidence intervals (CIs).

Results

Sociodemographic characteristics

At baseline, the sample consisted of 149 HIV-positive patients (44 males, 105 females) with a mean age of 30 years (S.D.=7.0) and a mean duration of diagnosis of 5.8 months (S.D.=4.1 months). Most patients (98.7%) did not receive antiretroviral drug therapy. The majority of patients were asymptomatic, with an average CD4 lymphocyte count of 346.32 (S.D.=236.21) and an average CD8 lymphocyte count of 989.95 (S.D.=554.41).

Sixty-five HIV/AIDS patients (representing 43.6% of the total sample) returned for follow-up visit 6 months after the initial baseline assessment. They included 14 males (21.5%) and 51 females (78.5%), with a mean age of 28.9 years (S.D.=6.7 years) and a mean of 9.5 years of education (S.D.=3.1) (see Table 1). There were no significant differences in sociodemographic characteristics between patients who were seen for follow-up and those who were not. Some of the reasons posited for defaulting on follow-up included problems with access (e.g., moving to a rural area) and death from AIDS.

Clinical characteristics

There was no significant decrease in the prevalence of psychiatric disorders over time. At baseline, 56% had at least one psychiatric disorder; at 6 months, 48% had at least one disorder. Depression and PTSD were the most prevalent disorders at both baseline (34.8% and 14.8%) and follow-up (26% and 20%), respectively. More than half of the patients with depression at baseline no longer met criteria for depression on follow-up (16 of 29; 55.1%). In addition, new cases of depression (4 of 49; 8.1%) and PTSD (12 of 17; 70.5%) that were not present at baseline were diagnosed on follow-up (Table 2). The rate of risk for suicide remained notable on follow-up (6.2% vs. 9.2%). Low rates of other disorders, such as alcohol/drug dependence, social anxiety disorder, and generalized anxiety disorder, were documented at both baseline and follow-up.

Table 1
Demographic characteristics

Variables	Followed up (n=65)	Not followed up (n=84)
Age [mean (S.D.)]	28.9 (6.7)	30.7 (7.0)
Duration of HIV infection [mean (S.D.)]	5.9 (4.0)	5.6 (4.2)
Years of education [mean (S.D.)]	9.5 (3.1)	9.5 (3.3)
% Asymptomatic	46.2	53.6
% Symptomatic	53.8	46.4
% Male	21.5	35.7
% Married	24.6	33.3
% Unemployed	75.4	69
% Afrikaans	30.8	31.0
% Xhosa	60.0	57.1
% Others	9.2	11.9

Table 2
Comparison of rates of psychiatric disorder at baseline and on follow-up

Clinical diagnoses	Baseline (n=149) [n (%)]	Follow-up (n=65) [n (%)]
Current major depression	52 (34.9)	13 (20)
Past major depression	27 (18.1)	10 (15.4)
Dysthymic disorder	32 (21.5)	2 (3.1)
Suicidality	13 (8.7)	4 (6.2)
PTSD	22 (14.8)	17 (26.2)
Generalized anxiety disorder	10 (6.7)	4 (6.2)
Alcohol dependence	15 (10.1)	1 (1.5)

Table 3 compares the rate of baseline psychiatric diagnoses in patients who were followed up versus those who were not. There were no significant differences between groups. A significant decline in CD4 lymphocyte count (t=2.24, P<.02) from baseline was also observed. Symptomatic HIV infection (χ^2=27.3, df=1, P<.001) and the presence of major depression at baseline (χ^2=4.71, df=1 P<.05) were significantly associated with a decline in CD4 lymphocyte count.

Sexual risk behaviors

At baseline, 42 patients (65%) reported that they were sexually active in the 6 months prior to study entry. Twenty (48%) of these patients had not used a condom in their last sexual encounter. On follow-up, 57 patients (88%) reported being sexually active, and more than twice as many compared to baseline (n=48; 84%) had not used a condom in their last intercourse.

Negative life events and disability

A significant decline in both the number of negative life events (t=4.10, P<.001) and the stressful impact associated with these negative events (t=3.81, P<.001) between baseline and follow-up was reported. The degree of disability reported by patients also diminished between baseline and follow-up, but differences were not significant.

Table 3
Rates of psychiatric disorder at baseline in patients followed up versus patients not followed up

Clinical diagnoses	Followed up [n (%)]	Not followed up [n (%)]
Current major depression	25 (16.8)	27 (18.1)
Past major depression	13 (8.7)	14 (9.4)
Dysthymic disorder	15 (10.1)	17 (11.4)
PTSD	11 (7.4)	11 (7.4)
Generalized anxiety disorder	7 (4.7)	3 (2.0)
Suicidality	6 (4.2)	7 (4.7)
Alcohol dependence	5 (3.4)	10 (6.7)

Coping behaviors

Coping behaviors are presented in Table 4. There was a significant decline in the use of denial ($t=2.14$, $P<.05$) and ventilation ($t=4.45$, $P<.00$), and there was an increased use of instrumental support ($t=-2.54$, $P<.01$), emotional support ($t=-2.64$, $P<.01$), positive reframing ($t=-5.66$, $P<.001$), planning ($t=-5.14$, $P<.001$), and acceptance ($t=-2.19$, $P<.05$) at 6 months.

Major depression and PTSD on follow-up: univariate results

A diagnosis of major depression on follow-up was significantly associated with a greater number of negative life events over time ($t=-2.24$, $P<.04$), a declining CD4 count ($t=2.32$, $P<.03$), and higher disability total scores on follow-up ($t=-3.46$, $P<.003$). PTSD on follow-up was associated with a longer duration of HIV infection ($t=-2.55$, $P<.02$) and higher baseline total disability scores ($t=-4.77$, $P<.001$).

Predictors of major depression and PTSD on follow-up: multivariate results

Table 5 shows the variables that were included in multivariate (logistic regression) analyses to identify predictors of major depression and PTSD on follow-up. Only total disability (work plus family plus social) scores on follow-up predicted major depression during the follow-up visit ($P<.04$; 95% CI=1.0–1.6). For PTSD, total disability scores at baseline ($P<.001$; 95% CI=1.2–1.6) predicted the presence of the disorder at 6-month follow-up.

Discussion

In this sample, the prevalence of psychiatric disorder remained high at 6 months, with 48% of HIV-infected patients meeting criteria for at least one psychiatric disorder. Major depression and PTSD, respectively, were the most common disorders at both baseline (35% and 15%) and follow-up (26% and 20%). A delay in the onset of PTSD symptoms may be one explanation for the high rate of PTSD on follow-up and may contribute to delayed help seeking. Another possibility might be the occurrence of new trauma exposure between baseline and follow-up, accounting for the increase in new cases of PTSD. The rate of PTSD in this study, as in other studies, is higher than that reported in many other patient groups exposed to life-threatening physical illnesses. For example, in patients with stroke and myocardial infarction, PTSD rates of 9.8% and 0–16%, respectively, have been documented [25].

Gender, duration of HIV infection, CD4 counts, risky sexual behaviors, and coping style did not predict persisting psychiatric morbidity on follow-up. Whereas patients with baseline depression often improved (16 of 29; 55.1%), new-onset depression (4 of 49; 8.1%) and PTSD (12 of 17; 70.5%) were evident on follow-up. Overall, a modest but not significant decline in psychiatric diagnoses was noted on follow-up. While the analysis was biased in favor of participants who returned for follow-up and was limited to a 6-month period, these findings are consistent with previous studies that have shown variability in the psychiatric morbidity of patients with HIV/AIDS [3–9]. Of note, there were no significant differences between defaulters and attenders in terms of baseline demographic characteristics, clinical characteristics, and rates of psychiatric disorder on the MINI.

In our study, the rate of psychiatric disorder at 6 months is higher than the rate of 15–33% found in a cohort of male and female injecting drug users with HIV/AIDS who were followed up over time [9] and is higher than the 23% rate in depressive symptoms in a study of predominantly homosexual white men who were followed up for 4 years [10]. However, this rate is lower than that in Lyketsos et al. [11], who reported a 45% higher rate of depressive symptoms in a cohort of HIV-seropositive men (community volunteers after 5 years). Differences in patient sample characteristics and other methodological discrepancies in assessment across studies may, to some extent, account for these variable results.

Table 4
Coping behaviors at baseline and on follow-up ($n=65$)

	Baseline		Follow-up		
Coping behaviors	Mean	S.D.	Mean	S.D.	*t*
Denial	3.43	2.28	2.80	1.79	2.14*
Substance use	2.29	1.08	2.10	0.61	1.62
Emotional support	5.23	2.43	6.24	2.47	−2.64**
Instrumental support	5.04	2.49	6.10	2.48	−2.54**
Behavioral disengagement	3.09	1.48	2.67	1.06	1.86
Ventilation	3.72	1.94	2.47	1.04	4.45***
Positive reframing	5.07	2.23	6.87	1.75	−5.66***
Planning	5.35	1.98	6.87	1.64	−5.14***
Humor	2.43	1.27	2.23	1.01	0.96
Acceptance	6.32	1.96	6.93	1.71	−2.19*
Religion	5.69	2.15	6.18	1.97	−1.44
Self-blame	4.04	2.42	3.46	2.44	1.85

* $P<.05$.
** $P<.01$.
*** $P<.001$.

Table 5
Predictors of major depression and PTSD at 6-month follow-up ($n=65$)

Variables	*B*	S.E.	*df*	Exp(*B*)	CI	*P*
Major depression						
Number of negative life events on follow-up	0.25	.14	1	1.29	0.9–1.7	.076
CD4 count on follow-up	0.22	.02	1	0.99	0.9–1.0	.115
Disability score (total) on follow-up	0.25	.12	1	1.29	1.0–1.6	.038
PTSD						
Disability score (total) at baseline	0.30	.08	1	1.35	1.2–1.6	.000
Duration of HIV infection	0.17	.09	1	1.19	0.9–1.4	.073

Four additional major findings emerge from this study. Perhaps most important and unexpected was the change in coping behaviors. There was a relative shift from maladaptive coping behaviors to more adaptive coping behaviors over 6 months. It might be that more adaptive ways of coping developed naturally over time as patients adjusted better to the illness; however, this was not explored as part of the study. Furthermore, certain maladaptive patterns of coping were associated with the persistence of major depression [14–16]. Our results, however, are inconsistent with earlier studies, where other coping styles have been associated with major depression [17].

A second finding was the persistence of risky sexual behavior, with more participants on follow-up reporting nonuse of a condom, suggesting that more rigorous educational interventions relating to safe sexual practices are needed in this setting.

Third, we found that disability scores predicted the diagnoses of major depression and PTSD on follow-up. This association has not been observed in other studies. However, there are some data on HIV-infected men that suggest a converse association, namely, that higher levels of depression at baseline might be predictive of disability (diminished role functioning) at 12-month follow-up [26].

Fourth, we found a significant increase in disability scores in the sample as a whole in the three functional areas of work, family, and social life over the time course of the study. A higher aggregate disability score at baseline was positively associated with a diagnosis of PTSD on follow-up, while a higher aggregate disability score on follow-up (but not at baseline) was associated with the presence of depression on follow-up. In a previously published analysis of the predictors of depression in this sample [18], disability scores also significantly predicted the presence of depression at baseline assessment. Two other variables were associated with the presence of baseline depression, namely, gender and the perceived impact of negative life events.

The high percentage of women, although reflective of the AIDS epidemic in South Africa, is striking considering that typical HIV-positive samples in the United States usually comprised a majority of men. Female preponderance might, to a large extent, explain the predominance of depressive disorders and PTSD in this sample.

The limitations of the study include the small sample, the low follow-up rate, the lack of inclusion of symptom severity measures for common psychiatric disorders (e.g., depression and PTSD), and the absence of a control group of HIV-negative matched individuals. In addition, the researchers who conducted the interviews on follow-up were not "blinded" to patients' psychiatric status at baseline; this may have potentially biased the findings. Caution should be exercised in interpreting these findings as the majority of patients did not receive any formal psychiatric intervention (i.e., medication or psychotherapy) between baseline and follow-up. It may, therefore, be that the least distressed and/or the most resilient subjects may have returned for follow-up interview.

In summary, these preliminary data underscore the need for comprehensive and longitudinal mental health assessments in HIV-infected patients and suggest that early intervention for psychiatric disorders (e.g., depression and PTSD) may be critical in minimizing morbidity and in improving life quality.

Acknowledgments

This work was supported by the Medical Research Council of South Africa and by a South African AIDS Vaccine Initiative Fellowship.

References

[1] Bing EG, Burnam MA, Longshore D, et al. Psychiatry disorders and drug use among human immunodeficiency virus-infected adults in the United States. Arch Gen Psychiatry 2001;58:721–8.
[2] Ciesla MA, Roberts JE. Meta-analysis of the relationship between HIV infection and risk for depressive disorders. Am J Psychiatry 2001;158:725–30.
[3] Johnson JG, Rabkin JG, Lipsitz JD, Williams JB, Remien RH. Recurrent major depressive disorder among human immunodeficiency virus (HIV)-positive and HIV negative intravenous drug users: findings of a 3-year longitudinal study. Compr Psychiatry 1999; 40:31–4.
[4] Tsao JC, Dobalian A, Moreau C, Dobalian K. Stability of anxiety and depression in a national sample of adults with human immunodeficiency virus. J Nerv Ment Dis 2004;192:111–8.
[5] Orlando M, Burnam MA, Beckman R, et al. Re-estimating the prevalence of psychiatric disorders in a nationally representative sample of persons receiving care for HIV: results from HIV Cost and Service Utilization Study. Int J Methods Psychiatr Res 2001; 11:75–82.
[6] Joseph JG, Caumartin S, Tal M, Kirscht J, Kessler R, Ostrow D, Wortman C. Psychological functioning in a cohort of gay men at risk for AIDS. J Nerv Ment Dis 1990;178:607–15.
[7] Rabkin JG, Johnson J, Lin S, Lipsitz JD, Remien RH, Williams JBW, Gorman JM. Psychopathology in male and female HIV-positive and negative injecting drug users: longitudinal course over 3 years. AIDS 1997;11:507–15.
[8] Siegel K, Karus D, Raveis VH. Correlates of change in depressive symptomatology among gay men with AIDS. Health Psychol 1997; 16:230–8.
[9] Lackner JB, Joseph JG, Ostrow DG, Eshleman S. The effects of social support on Hopkins Symptoms Checklist assessed depression and distress in a cohort of human immunodeficiency virus-positive and -negative gay men: a longitudinal study at six time points. J Nerv Ment Dis 1993;181:632–8.
[10] Rabkin JG, Goetz RR, Remien RH, Williams JB, Todak G, Gorman JM. Stability of mood despite HIV illness progression in a group of homosexual men. Am J Psychiatry 1997;154:231–8.
[11] Lyketsos CG, Hoover DR, Guccione M, Dew MA, Wesch J, Bing EG, Treisman GJ. Depressive symptoms over the course of HIV infection before AIDS. Soc Psychiatry Psychiatr Epidemiol 1996;31:212–9.
[12] Perry S, Fishman B, Jacobsberg L, Frances A. Relationships over 1 year between lymphocyte subsets and psychosocial variables among

adults with infection by human immunodeficiency virus. Arch Gen Psychol 1996;49:396–406.
[13] Evans DL, Leserman J, Perkins DO, et al. Severe life stress as a predictor of early disease progression in HIV infection. Am J Psychiatry 1997;154:630–4.
[14] Leserman J, Jackson ED, Petito JM, et al. Progression to AIDS: the effects of stress, depressive symptoms and social support. Psychosom Med 1999;61:397–406.
[15] Commerford MC, Gular E, Orr DA, Reznikoff M, O'Dowd MA. Coping and psychological distress in women with HIV/AIDS. J Commun Psychol 1994;22:224–30.
[16] Folkman S, Chesney M, Pollack L, Phillips C. Stress, coping, and high-risk sexual behavior. Health Psychol 1992;11:218–22.
[17] Judd FK, Cockram AM, Komiti A, Mijch AM, Hoy J, Bell R. Depressive symptoms reduced in individuals with HIV/AIDS treated with highly active antiretroviral therapy: a longitudinal study. Aust N Z J Psychiatry 2000;34:1015–21.
[18] Olley BO, Seedat S, Nel DG, Stein DJ. Predictors of major depression in recently diagnosed patients with HIV/AIDS in South Africa. AIDS Patient Care STDS 2004;18:481–7.
[19] Sheehan DV, Lecrubier Y, Hairnet-Sheehan K, Amorin P, Janavs J, Weiller E, Hergueta T, Baker R, Dunbar G. The MINI International Neuropsychiatric Interview (MINI): the development and validation of a structured diagnostic psychiatric interview. J Clin Psychiatry 1998;59(Suppl 20):22–33.
[20] Carver CS. You want to measure coping but your protocol's too long: consider the Brief COPE. Intl J Behav Med 1997;4:92–100.
[21] Sheehan DV. The anxiety disease. New York: Scribners, 1983.
[22] Kaminer DK, Stein DJ, Mbanga I, Zungu-Dirwayi N. The truth and reconciliation commission in South Africa: relations to psychiatric status and forgiveness among survivors of human rights abuse. Br J Psychiatry 2001;178:373–7.
[23] Kelly JA, Murphy DA, Bahr R, Brasfield TL, Davis DR, Hauth AC, Morgan MG, Stevenson LY, Eilers MK. AIDS/HIV risks behaviour among the chronic mentally ill. Am J Psychiatry 1992;149:886–9.
[24] Mckinnon K, Cournos F, Meyer-Bahlburg HFL, Guido JR, Caraballo LR, Margoshes ES, Herman R, Gruen RS, Exner TM. Reliability of sexual behaviour interviews with psychiatric patients. Am J Psychiatry 1993;150:972–4.
[25] Tedstone JE, Tarrier N. Posttraumatic stress disorder following medical illness and treatment. Clin Psychol Rev 2003;23:409–48.
[26] Jia H, Uphold CR, Wu S, Chen GJ, Duncan PW. Predictors of changes in health-related quality of life among men with HIV infection in the HAART era. AIDS Patient Care STDS 2005;19:395–405.