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Predictors of Major Depression in Recently Diagnosed Patients with HIV/AIDS in South Africa

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ABSTRACT

There is increasing evidence that major depression impacts the course of HIV infection, yet few studies have explored demographic and clinical predictors of depression in people who with HIV/AIDS. This study investigated predictors of depression (e.g., demographic and clinical variables, negative life events, and coping response) among outpatients with recently diagnosed HIV/AIDS patients in South Africa. One hundred forty-nine recently diagnosed HIV/AIDS patients (44 males and 105 females; mean time since diagnosis = 5.8, standard deviation [SD] 4.1) were evaluated. Subjects were assessed using the Mini International Neuropsychiatric Interview (MINI), the Carver Brief COPE coping scale, and the Sheehan Disability Scale. In addition, previous exposures to trauma and past risk behaviors were assessed. Three variables: gender (odd ratio [OR] = 1.23; 95% confidence interval [CI] 1.56, 1.93), impact of negative life events (OR = 1.13; CI, 1.03, 1.23), and disability (OR = 1.51, CI, 1.28, 1.80) predicted current major depression. It is well known from non-HIV populations that female gender and increased negative life events predict depression. These data also emphasize the importance of these links in HIV.

INTRODUCTION

Evidence from meta-analyses suggests that major depression is a common psychiatric complication of HIV/AIDS.[1] Prevalence of depression in HIV/AIDS ranges from 0%[2] to 47.8%[3] in studies predominantly of white homosexuals and injecting drug users.[1] Methodologic differences with respect to subject selection and outcome measures may account for some of this variance, as may differential reporting rates in different countries.

Findings about factors associated with depression have been mixed. For example, it is unclear whether or not negative life events impact on the prevalence of depression. Some work has found a relationship between depression in HIV and prior negative life events[4,5] but other work has not.[6,7] Again variations in subject populations across studies may account for some of this inconsistency.

Studies on the association of coping styles and depression in HIV/AIDS have, however, consistently documented the relationship be-

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tween depression and dysfunctional coping styles such as denial or venting of emotion.[1,8–11]

Studies on disability either in relation to physical, role and social functioning in HIV/AIDS have been conducted within the context of the assessment of quality of life.[12–14] This work demonstrates that HIV/AIDS is accompanied by substantial impairment in role as well as physical functioning at both an early stage of disease[13] and at the symptomatic or AIDS-defining stages.[12] The relationship of such disability to psychiatric morbidity or major depression in recently diagnosed HIV/AIDS patients remains to be substantiated.

A number of studies have also examined the association between decreased CD4 and CD8 T lymphocytes and depression.[15–17] Early reports have been mixed. For example, whereas, an early study[15] found no association between depression and HIV disease stage or CD4 or CD8 cells over a 6-month period in HIV-positive gay men, a later study[16] showed a relationship between baseline depression scores and accelerated rate of CD4 decline over a 5.5 years follow-up among HIV-positive gay men. Differences in time frame across these studies may account for some of the inconsistency.

Other factors found to be associated with major depression among HIV-positive individuals include HIV clinical stages, for example Maj[18] reported that the symptomatic stage of HIV infection is associated with an increased prevalence of depressive symptoms. Female gender has also been found to be associated with a higher risk for major depression.[19] Kalichman[20] found an association between depression and history of substance abuse, and risky sexual practice. Low socioeconomic variables,[4] younger age,[3] and an advanced HIV disease stage[1] have all been reported to be associated with depression in HIV/AIDS patients. Thus there is evidence, that particular variables increase the risk for depression in HIV-positive individuals.

Although several studies have investigated psychiatric morbidity over the long-term in individuals living with HIV/AIDS, few studies have focused on newly diagnosed patients.[21,22] Some patients may experience severe distress at the time they learnt about HIV infection, with distress diminishing after a period of adaptation to the diagnosis.[23] Distress may increase again with the onset of HIV related symptoms or with an AIDS diagnosis.[24,25]

In South Africa, where 5 million people are infected,[26] there are few studies investigating the psychiatric morbidity of HIV/AIDS infection and potential risk factors of depression in this group remain relatively unexplored. We examined the predictors of major depression in patients with HIV/AIDS who had recently learned about their diagnosis. Potential risk factors were selected based on the prior work summarized above). We hypothesised that negative life events, sexual risk behavior, coping styles, HIV disease stage, CD4 and CD8 lymphocyte count would be associated with a clinical diagnosis of major depression in this sample.

METHODS

Participants

Participants for this study comprised 149 recently diagnosed HIV patients (mean duration of diagnosis in months = 5.8, standard deviation [SD] = 4.1), attending an outpatient Infectious Diseases Clinic of the Department of Internal Medicine at Tygerberg Hospital, Cape Town. Inclusion criteria were: 18–60 years of age, recently diagnosed (<1 year) HIV infection with no diagnosable neurologic disorder, and willing to provide informed consent. The hospital is one of two major tertiary health facilities in the Western Cape and receives referrals from surrounding community health centers as well as medical and obstetric/gynaecology clinics at Tygerberg Hospital.

Measures

Demographic and health characteristics. Information on age, gender, marital status, home language, years of education, religion, employment status, and date of HIV diagnosis was obtained. A brief questionnaire, which also doubled as a referral form, was used to collect clinical information (pulse rate, blood pressure, height, weight, medical/surgical history, and concomitant medications) from treating physi-

cians. The HIV staging was also determined,[27] with patients' rated as symptomatic or not. Both CD4 (helper/inducer) and CD8 (suppressor) T lymphocyte subsets were analyzed by staining peripheral blood specimens with flow cytometry enzyme-linked immunosorbent Assay (ELISA) and Western blot test.

Depression. Major depression was assessed with the Mini International Neuropsychiatric Interview (MINI),[28] a brief structured diagnostic interview for major psychiatric disorders. Results of studies comparing the MINI with the Structured Clinical Interview for DSM-III-R (SCID), Composite International Diagnostic Interview (CIDI), Diagnostic Interview Schedule (DIS), and Present Status Examination (PSE) show that the MINI has acceptably high validity and reliability scores.[28]

Coping styles. Coping responses to HIV infection were assessed with the abridged version of the COPE called Brief COPE.[29] Brief COPE is a 28-item measure comprising 14 scales: active coping, planning, positive reframing, acceptance, humor, turning to religion, venting of emotions, mental disengagement, denial, substance use, behavioral disengagement, and emotional support instrument. Each scale consists of two items. For each item, subjects are asked to respond on a four point Likert-scale: 1 = I did not do this at all to 4 = I did this lot, to the activities in the past 3 months. For the purpose of this study, an exploratory common factor analysis was undertaken to identify coping strategies from the 14 item scale in this population.

A principal components factor analysis with varimax rotation yielded 5 factors: active/planning, emotional venting, denial, social support and substance abuse. The goodness-of-fit χ^2 statistic was 47.69 ($df = 146$, $p > 0.003$), suggesting that this five-factor model provided an adequate fit. All loadings were above the acceptable Eigen value of 0.4[30] and accounted for 58% of the total variance.

Disability. Disability was assessed with the Sheehan Disability Scale SDS,[31] a patient-rated three-item measure that uses Likert scales for assessing impairment in the domains of work, family and social life, with higher scores indicating greater impairment and disability.

Negative life events. Negative life events were measured using a modified,[32] 42-item clinician-administered checklist that inquires about the number (positive and negative) as well as degree of stress (impact score = 0–2) occurring during the past 6 months.[33] Questions include: serious illness in a family member; loss of a home through disasters such as flood or fire; eviction from home because of inability to pay rent; loss of job; legal problems; divorce or separation; pregnancy/miscarriage/abortions/stillbirth; problems with child's involvement in drugs or gangs, etc. Two measures were derived: the number of life events and the degree of impact of each event. Two measures were derived from this: number of events and the degree of impact.[32]

Sexual risk behavior. A sexual risk behavior scale was also administered to the participants. This was a 20-item interviewer rating measure adapted from the work of Kelly et al.[34] and Mckinnon et al.[35] Subjects were asked about their sexual activities in both the preceding month and 12 months prior to study. Questions included: Have you used a condom at last sex?; Have you had sex with a partner who used intravenous drugs?; Have you had sex after using alcohol heavily or other drugs?"; Have you had sex with a partner you had known for less than 1 day? For the purpose of this analysis, unprotected sex was measured by nonusage of condom at last sex. Other risk behaviors could not be analyzed because they were infrequently admitted.

Procedure

The study was approved by the ethics committee of the University of Stellenbosch, Cape Town. All consecutive patients were seen first by their treating physicians. Thereafter patients were interviewed by three researchers each trained in the use of the MINI. Interviews were conducted in private offices within the clinic with either the English version questionnaire or the translated Xhosa version (this is a predominantly spoken language in our sample) version, and lasted approximately 75 minutes.

Statistical analysis

Analyses were computed with SPSS software version 10 for Windows (SPSS Inc., Chicago, IL). Logistic regression analysis was performed with the dependent variable being the presence and absence of current major depression. Independent variables were derived from sociodemographic characteristics (e.g., gender, age, years of education), clinical HIV status (CD4, and CD8 lymphocyte count, duration of HIV infection, and HIV disease stage), level of disability, negative life events, coping styles (active/planning, emotional venting, denial, social support and substance abuse), and unprotected sex (nonuse of condom). Prior to conducting a regression analysis, zero-order correlations were examined among e predictor variables for evidence of muliticollinearity. These correlations were generally small to moderate. For the outcome measure, univariate tests and estimation of odds ratios were performed by using exact odds ratios, confidence intervals, and *p* values for two-tailed tests of significance.

RESULTS

Characteristics of subjects

Demographic as well as clinical characteristics of the participants for this study are presented in Table 1. They represent a predominantly female population with relatively young age group (mean age of 30 [SD = 7.0]). Duration of illness was an average of 6 months and participants tended to be of average education. Nearly all the participants (98.7%) were not taking antiretroviral drugs, because these agents are not readily available in our area. The majority of the participants were asymptomatic with an average CD4 lymphocytes count at 346.32 (SD = 236.21) and CD8 lymphocytes count at 989.95 (SD = 554.41).

Logistic regression analysis

The effect of negative life events, coping styles, risk sexual behavior, and certain demographic/clinical factors were examined on the presence of clinical depression using a stepwise

Table 1. Demographic/Clinical Characteristic of Recently Diagnosed HIV-Positive Patients

Variables	*Recently diagnosed HIV patients (n = 149)*
Mean age	30 (SD = 7.0)
Duration of HIV infection (in months)	5.8 (SD = 4.1)
No. of years of education	9.6 (SD = 3.23)
Mean CD4 T lymphocytes	346.32 (SD = 236.21)
Mean CD8 T lymphocytes	989.95 (SD = 554.41)
Gender	
% male	29.5
% female	70.5
% Asymptomatic	50.3
% Symptomatic	49.7
% Antiretroviral drugs	1.3
% Unemployment	73.2
% Language	
Afrikaans speaking	31.1
Xhosa	58.1
Others	10.8
% Marital status	
Single	53.7
Married	23.5
Divorced/separated	6.7
Widowed	6.0
Cohabiting	10.1
% Knowledge about partners' infection	
Yes	35.1
No	64.9

SD, standard deviation.

logistic regression analysis. Result showed that being a female HIV-positive patient (OR = 1.23; CI, 1.56–1.93) increased impact of negative life events (OR = 1.13; CI, 1.03–1.23), and increased disability (OR = 1.51, CI, 1.28–1.80) predicted current major depression among this group of patients.

DISCUSSION

This study investigated the impact of demographic and clinical variables, negative life events, coping response, and disability on major depression among outpatients with recently diagnosed HIV patients in South Africa. We found that being a female HIV/AIDS patient, experiencing a higher impact of negative life events, and greater disability predicted a diagnosis of major depression. These findings extend prior investigation by providing evidence of the role of gender, negative life events, and disability in major depression.

Previous data have similarly shown in non-HIV populations that gender[36] and negative life events[37] are associated with sequelae of depression, and our present findings emphasize the importance of these links in HIV. In our previous report we had found no gender differences in the rates of major depression. We attribute this to the relatively small sample size of males in that analysis, and the consequent lower statistical power to detect differences. However, the present report substantiates the evidence of some community studies, where women are at least twice as like men to have lifetime major depression.[38] Furthermore, within the context of HIV/AIDS, our study supports earlier reports that female have higher risk for developing major depression.[19]

We examined the relationship between the number and impact of negative life events in the preceding 6 months and the likelihood of major depression. We found that the impact but not the number of negative life events experienced by patients predicted major depression, supporting previous work that has found a similar association.[4,5] This may reflect the greater hardships and stressors faced by patients with HIV/AIDS, not only in the developed world but in developing countries as well. In South Africa, negative life events include unemployment, poverty, and lack of financial support.

Three studies,[12–14] demonstrate an association between disrupted role and physical functioning and symptomatic and AIDS-defining cases. Our data are consistent with an earlier report in South Africa,[13] showing an association between disability and early HIV infection

In contrast with other studies, our study did not find a relationship between symptomatic HIV disease stage,[1,18] unprotected sex,[20] younger age,[3] and major depression. Also, unlike previous reports, we were not able to find a relationship between CD4[17] and CD8[39] T lymphocytes and depression. Our results are consistent with those of Rabkin et al.[15] who found no relationship between CD4 counts and depression. Similar to Rabkin et al.,[15] participants in our study were relatively recently diagnosed patients with modest CD4 and CD8 counts and this may have impacted on these findings. Also the vast majority of work in this area has focused almost exclusively on psychiatric morbidity in HIV-positive men. Thus the present study is to or knowledge the first in sub-Saharan Africa to focus on psychiatric morbidity of HIV/AIDS in men and women, and may account for the differential findings.

We found that specific coping styles did not constitute a risk for major depression, despite previous evidence of such impact on global distress levels in HIV infection.[8–11] However, our findings find support in other work Dew et al.,[3] where coping strategies were not associated with depression. Limitations to our study were that subjects were receiving follow-up treatment and therefore constitute a highly selective group. Also the cross sectionality of the data makes it difficult to draw conclusions about causality. In conclusion, our findings provide evidence in sub-Saharan South Africa that recently diagnosed HIV/AIDS patients who are female, with experience a greater degree of distress from negative events, and have more functional disability are at higher risk of been diagnosed with major depression. These findings also highlight the importance of a careful assessment of negative life events and disability in newly diagnosed patients, particularly if a mood disorder is present.

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