Patterns of Depressive Symptoms Among Patients with HIV Infection

W De La Haye[1], TR Clarke[2,3], G Lipps[4], GA Lowe[1], S Longman-Mills[1], EN Barton[2,3], B Bain[5]

ABSTRACT

Objective: *To identify the level of depressive symptoms among patients with HIV infection and to examine the reported patterns of depressive symptoms not confounded by the physical manifestations of HIV-infection.*

Method: *A total of 191 patients with HIV infection (75 males (39%) and 116 females (61%), mean age 40.48 ± 10 years), from three HIV clinics were administered the Beck Depression Inventory – II as well as a demographic questionnaire as part of a larger study.*

Results: *Moderate to severe depressive symptoms were reported by 17.3% of the HIV-infected patients with females reporting significantly higher levels of depressive symptoms than males. A principal components analysis identified three clusters of depressive symptoms: cognitive-affective, negative cognitions and somatic symptoms. The HIV-infected patients were found to display mainly cognitive-affective symptoms of depression.*

Conclusion: *HIV-infected patients, especially female patients, may be at an increased risk of experiencing high levels of depressive symptoms. It is recommended that HIV-infected patients be routinely screened for depression, particularly cognitive-affective symptoms of depression.*

Keywords: BDI-II Scores, depression, HIV, patterns of depressive symptoms

Patrones de Síntomas Depresivos entre Pacientes con Infección por VIH

W De La Haye[1], TR Clarke[2,3], G Lipps[4], GA Lowe[1], S Longman-Mills[1], EN Barton[2,3], B Bain[5]

RESUMEN

Objetivo: *Identificar el nivel de síntomas depresivos entre pacientes con infección por VIH y examinar los patrones reportados sobre los síntomas de depresión, no confundidos por las manifestaciones físicas de la infección por VIH.*

Método: *A un total de 191 pacientes con infección por VIH (75 varones (39%) y 116 hembras (61%), con edad promedio 40.45 ± 10 años), de tres clínicas de VIH, se les aplicó el Inventario de Depresión de Beck II, así como una encuesta demográfica como parte de un estudio más grande.*

Resultados: *Un 17.3% de los pacientes infectados por VIH, informaron síntomas depresivos de moderados a severos, reportando las hembras niveles de síntomas de depresión significativamente más altos que los varones. Un análisis de los componentes principales identificó tres grupos de síntomas depresivos: cognitivos afectivos, cogniciones negativas y síntomas somáticos. Se halló que los pacientes infectados por VIH presentaban principalmente síntomas afectivos cognitivos de depresión.*

Conclusión: *Los pacientes infectados con VIH, especialmente las hembras, pueden hallarse en un mayor riesgo de experimentar niveles altos de síntomas depresivos. Se recomienda que los pacientes infectados con VIH sean sometidos de forma rutinaria a tamizajes de depresión, particularmente de los síntomas de depresión cognitivos afectivos.*

From: [1]Department of Community Health and Psychiatry, [2]Department of Medicine, [3]Centre for HIV/AIDS Research Education and Services, (CHARES), University Hospital of the West Indies, [4]Department of Sociology, Psychology and Social Work and [5]UWI HIV/AIDS Response Programme, The University of the West Indies, Kingston 7, Jamaica, West Indies.

Correspondence: Dr W De La Haye, Lecturer and Consultant Psychiatrist, Department of Psychiatry, The University of the West Indies, Kingston 7, Jamaica, West Indies. Email: wdela@yahoo.com

INTRODUCTION

The Acquired Immune Deficiency Syndrome (AIDS) was first described in June 1981 (1) and recognized by that name in 1982 (2). Since then, it has claimed the lives of over 25 million persons (3). In 1983, the Human Immunodeficiency Virus (HIV) was identified as the specific microbial cause of AIDS (4). At the end of 2008, 33.4 million persons were living with HIV/AIDS [PLWHA] (3). In 2008, the highest reported prevalence of adult HIV/AIDS (5.2%) was in Sub-Saharan Africa, while the Caribbean had the second highest prevalence (1.1%). In Jamaica, the estimated adult prevalence in 2007 was 1.5% (5). Cases of HIV/AIDS have been reported from all of Jamaica's parishes, with the majority being documented in persons from Kingston, St Andrew and St James, the three most urbanized parishes (5).

The HIV/AIDS pandemic has resulted in unprecedented mobilization of financial and human resources globally (3). The returns on this huge investment are now starting to be apparent as estimated new infection rates have declined from 3.2 million in 2001 to 2.7 million in 2008 (3) due to improvement in clinical care and in large measure because of wider availability and the judicious use of combinations of antiretroviral drugs (ARVs). This has made a huge positive difference to survival for the majority of patients. HIV-infection may now be regarded as a chronic illness.

The Human Immunodeficiency Virus affects individuals physically and emotionally (6). Stress tends to be associated with this illness; therefore the mental health of PLWHA is of serious concern (7). The chronicity of HIV-infection results in a longer exposure to the psychological burden of living with this stigmatized condition. It is therefore uncertain whether this will increase or lessen perceived stress and its possible sequelae for these patients.

Reports from outside of the Caribbean indicated that HIV-infection is often accompanied by many systemic symptoms including those related to cognition, mood and behaviour (8−11) with clinical depression being the most frequently observed psychiatric disorder (12). However, there is a paucity of research material on co-morbid depression in Caribbean countries, including Jamaica.

La Hee (13) reported a 26.2% prevalence of depression among non-psychiatric patients referred to the Consultant-Liaison Psychiatric Service (C-LPS) at the University Hospital of the West Indies (UHWI). Approximately ten years later, De La Haye found a 27.8% prevalence of depression among a similar population within the same hospital (14).

However, none of these studies included known PLWHA.

The objective of this study is to examine the patterns of depressive symptoms reported by HIV-infected persons as well as the incidence of these symptoms, in addition to identifying the symptoms of depression which are not confounded by the physical manifestations of HIV infection. The results may help to highlight symptom patterns related to the emotional health of PLWHA and this may serve to alert clinicians to a potential area requiring medical attention, which could improve the patients' quality of life, particularly if recognized early and adequately managed.

SUBJECTS AND METHODS

Participants for this research study were part of a larger project that compared HIV-positive clinic attendees with matched samples of community members and patients attending a Cardiology clinic. The current study focusses on depressive symptoms among 191 patients with HIV infection (75 males and 116 females), from three HIV clinics in Kingston, Jamaica. Patients 18 years and older who were diagnosed with the HIV virus for more than one year were included in the study. Participants who were diagnosed with HIV-infection for less than one year were excluded from the study as they may have been experiencing acute psychological distress (15). A cross-sectional, correlational research design was used to explore the patterns of depressive symptoms among patients diagnosed with HIV infection.

Data for the study were collected using two measures – the Beck Depression Inventory-II (BDI-II) and a Background Questionnaire. Both measures were piloted using a think-aloud procedure. Use of the think-aloud procedure ensured that participants clearly understood the meaning of all questions on each measure and that each question was phrased using language commonly understood by participants. Think-aloud interviewing suggested that no changes needed to be made. As such, no modifications were made to the measures.

Beck Depression Inventory-II (BDI-II): The Beck Depression Inventory-II has been widely used as a screening instrument for depression with a wide variety of psychiatric and non-psychiatric populations (16). It consists of 21 items measuring depressive symptoms and has been found to demonstrate an internal consistency of 0.86 in psychiatric populations and 0.81 in non-psychiatric populations (16). The BDI-II also demonstrates concurrent validity with other widely used measures of depressive symptoms (16).

Factor analytic studies suggest that the BDI-II consists of three separate dimensions which respectively assess the somatic, cognitive and the affective symptoms of depression (17). The BDI-II recommends that only scores from reported moderate or severe depressive symptoms be considered in identifying depression, in order to reduce the number of false positives (17). As some of the symptoms of depression and HIV infection overlap, a subscale assessing only cognitive and affective symptom of depression was created for some of the analyses. Being able to distinguish between the physical (somatic) *versus* the psychological (cognitive and affective) symptoms of depression allowed us to distinguish true symptoms of depression from those that may simply be the result of HIV infection. Past research using Caribbean samples (18, 19) has provided some evidence that the BDI-II has acceptable levels of reliability and validity for these populations.

Background Questionnaire: The Background Questionnaire was designed to obtain information on patients' demographic features (age, gender, level of education and place of residence), their medical histories, recent stressful events and their religious affiliation.

Procedure
Data were collected by four research assistants. These research assistants attended a training seminar where they were trained in the administration of the questionnaire, ethical standards in research, facts and myths related to HIV infection and how to use a handheld personal digital device (PDA) for recording data. All data for the study was collected using the Episurveyor data collection software installed on PDAs. Research assistants interviewed participants from all three clinics in a quiet, private location to maintain the confidentiality of participants' responses and to facilitate the data collection process.

Each respondent who agreed to be interviewed signed an informed consent form prior to the interview. A small snack was given to each respondent upon completion of the questionnaires as an incentive for participating. To respect participants' privacy and their identities, participants' names were not recorded. Instead a special identity code was assigned to each completed interview.

Data analysis
Preliminary analyses were conducted to check and correct data capture problems using simple frequency and cross-tabulations. This was followed by descriptive analysis of the data. A principal components analysis was also conducted using oblique rotation (direct oblique with Kaiser normalization) to identify the underlying structure of the depressive symptoms.

RESULTS
A total of 191 patients (n = 191), 75 males (39%) and 116 females (61%), with HIV infection took part in the study. The respondents' age ranged from 21 to 71 years, with the mean age of the sample being 40.48 years ± 10.05 years (Table 1). All respondents attended one of three urban clinics, however 24% of them had rural addresses and 10% reported suburban addresses. One hundred and thirty-one respondents were from Clinic 1 (n_1 = 131; 69%), 30 from Clinic 2 (n_2 = 30; 16%) and 30 from Clinic 3 (n_3 = 30; 16%) [Table 1].

The majority of the respondents (67.5%) reported that their highest level of education was secondary or high school while 11% reported attaining tertiary level education. Only 21.5% of the sample reported attaining a primary level education or less. The average duration of diagnosis was 5.5 years; however 12.5% of the patients had been diagnosed with HIV infection for over 10 years. A CD4 count was available for most of the patients (157 or 82.2%). CD4 counts for these participants ranged from 6 to 2310. No significant relationship was found between CD4 counts and depressive scores (r = - 0.06).

Table 1:   Demographic characteristics of respondents by clinic

	Clinic 1; n_1 = 131		Clinic 2; n_2 = 30		Clinic 3; n_3 = 30	
	Males	**Females**	**Males**	**Females**	**Males**	**Females**
Frequency	52 (39.7%)	79 (60.3%)	11 (36.7%)	19 (63.3%)	12 (40%)	18 (60%)
Age	43.4 yrs (SD = 9.0)	38.1 yrs (SD = 10.2)	44.0 yrs (SD = 10.6)	39.6 yrs (SD = 9.0)	41.3 yrs (SD = 13.4)	41.0 yrs (SD = 9.0)
Mean Duration of Diagnosis	6.5 yrs (SD = 5.0)	5.7 yrs (SD = 3.5)	5.1 yrs (SD = 2.7)	5.5 yrs (SD = 3.6)	3.1 yrs (SD = 1.9)	3.7 yrs (SD = 2.4)
Level of Education						
Primary or less	9 (17.3%)	16 (20.3%)	5 (45.5%)	4 (21%)	3 (25%)	4 (22.2%)
Secondary	31 (59.6%)	58 (73.4%)	5 (45.5%)	14 (73.7%)	8 (66.7%)	13 (72.2%)
Tertiary	12 (23.1%)	5 (6.3%)	1 (9%)	1 (5.3%)	1 (8.3%)	1 (5.6%)

n = 191; mean age = 40.48 (SD = 10.05); mean years diagnosed = 5.53 years (SD = 3.89);

The BDI-II identified 71 (37.2%) of the HIV-infected patients as having mild to severe depressive symptoms, of this, 33 (17.3% of all HIV-infected patients) reported moderate or severe depressive symptoms. There was no statistically significant difference in BDI-II depression scores among the three clinics ($F_{(2, 188)} = 0.57$, $p > 0.05$).

One hundred and sixty-five HIV-infected patients (86.4%) reported that they were currently adhering to their ARV treatment. Patients on ARV drugs reported significantly lower BDI-II scores than those who were not (12.0 *vs* 16.4: $t_{(189)} = 1.99$, $p = 0.05$). Females reported significantly higher levels of depressive symptoms than males ($t_{(189)} = -2.56$, $p < 0.05$). Females also reported higher levels of sadness, pessimism, feeling like a failure, crying, irritability and loss of interest in sex on the BDI-II. No significant differences in BDI-II depression scores by age group was observed ($F_{(7, 153)} = 1.35$, $p > 0.05$).

Patients with tertiary level education reported lower BDI-II depression scores than patients with primary or lower level education ($F_{(2, 188)} = 2.87$, $p = 0.06$). Only very small correlations were observed between years of diagnosis and depression scores ($r = 0.12$), this suggests that depressive symptoms may occur at anytime during the course of HIV infection.

A principal components analysis using an oblique rotation was conducted to identify the underlying clustering of depressive symptoms. Three types of depressive symptom clusters were identified, namely cognitive-affective, negative cognitions and somatic. The cognitive-affective symptoms were the most prominent in this HIV/AIDS population, as seen in Table 2.

Table 2: The clustering of depressive symptoms. Pattern matrix from a principal components analysis

Component	Cognitive-affective	Negative cognitions	Somatic symptoms
Loss of interest	0.778		
Agitation	0.745		
Suicidal thoughts	0.734		
Sadness	0.664		
Crying	0.585		
Past failure	0.557		
Irritability	0.537		
Pessimism	0.519		
Loss of pleasure	0.415		
Self dislike		0.824	
Self criticalness		0.627	
Punishment feelings		0.515	
Changes in sleeping		0.421	
Guilty feelings			
Loss of energy			0.792
Tiredness or fatigue			0.713
Worthlessness			0.696
Concentration difficulty			0.621
Changes in appetite			0.544
Indecisiveness			0.532
Loss of interest in sex			0.457

n = 191; Rotation Method: Oblimin with Kaiser Normalization. Regression coefficients ≤ 0.40 are not displayed

Overall, the BDI-II results showed depression in this sample of patients with HIV infection as having mainly cognitive-affective symptoms with lesser somatic symptoms and low negative cognitions.

DISCUSSION

The scientific literature on the prevalence of depression in PLWHA is contradictory. Ciesla and Roberts (7) estimated that major depression is twice as frequent in HIV-positive patients when compared with HIV-negative patients while Kaplan and Saddock (20) reported that up to 40 per cent of HIV-positive patients meet the diagnostic criteria for depressive disorders. Morrison *et al* gives the rate of depression to be four times higher in HIV seropositive women when compared with HIV seronegative women (21). The National Institute of Mental Health, however, believes that as many as one in three persons with HIV may suffer from depression (8).

The exponentially high rates of depression that were reported by previous studies were not observed. This may be attributed to the fact that this study excluded all participants who were diagnosed with HIV infection for less than one year as they may have been experiencing acute psychological distress (15), thereby, excluding reactive depression to a perceived crisis situation. Additionally, the cut score for identifying depression in this study was raised to eliminate reports of mild depressive symptoms, in order to reduce the number of false positives, as recommended in the BDI-II manual (17).

In Jamaica, there is a high level of stigma associated with being HIV-positive (22) and therefore many HIV-infected patients do not disclose their status. The stigma associated with being known to be HIV-infected has been found to correlate significantly with having depressive symptoms (23). This tendency not to disclose HIV status, results in HIV-infected patients feeling less isolated. The HIV-infected patients also tend to go to clinics outside their communities to ensure that they are not recognised by members of their local community. This level of anonymity and reduced isolation may act as a buffer for depression in Jamaican HIV-infected persons.

Both depression and HIV infection result in similar somatic or physical symptoms. Fatigue, lethargy, low libido, decreased appetite and weight loss are physical manifestations of either HIV-related illnesses or a depressive disorder (12). These overlapping symptoms in both illnesses result in a wide variation of reported prevalence of depression amongst patients with HIV infection, with reports ranging as high as 47.8% (7). The pattern/clustering of depressive symptoms observed in the sample of HIV-infected patients in this study were predominantly cognitive-affective in nature, with lower levels of somatic symptoms and negative cognitions. Therefore, somatic manifestations of HIV/AIDS that could be misinterpreted as being a depressive presentation had minimal influence.

Females reported significantly higher levels of depressive symptoms than males. This gender difference in depression scores is consistent with the findings of past research (24).

There are international reports of an association between depression and increased morbidity and mortality (25). Depression, co-occurring with other medical conditions (co-morbid depression) leads to a reduction in quality of life and physical functioning, resulting in poorer outcomes (26). It is therefore important to identify and manage depression in patients with HIV infection.

Conclusion and Recommendations to Physicians

Depression has a significant impact on quality of life, antiretroviral adherence (27, 28, 29), accelerates the progression of HIV to AIDS (8) and is also a risk factor for suicide (9). Diagnosing and effectively treating depression may significantly reduce mortality and morbidity associated with HIV-infection as depression is associated with a rapid decline in CD4 lymphocyte counts (30) and also an increase in viral load (31).

Emotional reactions associated with a diagnosis of HIV-infection can be difficult to differentiate from depressive disorders (32). Additionally, patients with HIV infection are likely to experience periods of sadness and distress from time to time, particularly in relation to the illness or the death of friends (12, 20, 33). Symptoms of depression could be related to specific HIV-related disorders (*ie*, mood disorder due to a general medical condition), medication side effects, as well as psychosocial stressors such as associated stigmatization, isolation and discrimination (9, 32).

Accurately diagnosing depression among patients with HIV-infection is therefore an ongoing challenge (34, 35) and the early signs of depression are often misinterpreted, undiagnosed and untreated (9). However, by focussing on the presence of cognitive-affective symptoms of depression rather than somatic symptoms, depression in HIV-infected persons can be effectively diagnosed and managed.

HIV-infected patients, especially female patients, may be at an increased risk of experiencing high levels of depressive symptoms. It is recommended that HIV-infected patients be routinely screened for depression, particularly cognitive-affective symptoms of depression.

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