

# Assessment of depression, anxiety, hopelessness and suicidal risk in HIV+ inpatients

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## ABSTRACT

**Introduction.** People living with HIV frequently experience anxiety, depression, hopelessness and suicide risk, particularly if they are hospitalized due to HIV complications. **Objective.** The aim of this study was to evaluate the presence of anxiety, depression, hopelessness and suicide risk in HIV+ inpatients at admission and discharge. **Method.** A comparative study was conducted with the HIV+ inpatient population of the National Institute for Respiratory Diseases in Mexico City, from February to November 2013. The Hospital Anxiety and Depression Scale, the Beck Hopelessness Scale and the Plutchik Suicide Risk Scale were applied at hospital admission and discharge. **Results.** One hundred and fifteen patients completed all three assessments. Upon admission, 10.4% of the patients scored above the cut-off point for suicide risk; 1.7% presented high levels of hopelessness; 5.2% had clinical depression, and 7% had clinical anxiety. The comparison of scores at admission and discharge showed significant decreases in all symptom levels. **Discussion and conclusion.** Most of the patients presented low levels of all symptoms assessed at admission and these decreased at discharge. Further research is necessary with the hospitalized HIV population.

**Keywords:** Depression, anxiety, hopelessness, suicide risk, HIV, hospitalization.

## RESUMEN

**Introducción.** Las personas que viven con VIH experimentan con frecuencia ansiedad, depresión, desesperanza y riesgo suicida, particularmente si son hospitalizadas debido a complicaciones por el VIH. **Objetivo.** El propósito del presente estudio fue evaluar y comparar la presencia de ansiedad, depresión, desesperanza y riesgo suicida en pacientes hospitalizados con VIH, a su ingreso y su egreso. **Método.** Se llevó a cabo un estudio comparativo con pacientes de VIH+ hospitalizados en el Instituto Nacional de Enfermedades Respiratorias en la Ciudad de México de febrero a noviembre de 2013. Se aplicaron la Escala de Ansiedad y Depresión Hospitalaria, la Escala de Desesperanza de Beck y la Escala de Riesgo Suicida de Plutchik. **Resultados.** Ciento quince pacientes completaron las tres escalas. A su ingreso, 10.4% de los pacientes obtuvieron puntajes por encima del punto de corte en la Escala de Riesgo Suicida; 1.7% presentaron niveles altos de desesperanza; 5.2% puntuaron con depresión clínica; y 7% puntuaron para ansiedad clínica. La comparación entre los resultados obtenidos al ingreso y el egreso hospitalario mostró una disminución significativa en todos los síntomas al egreso. **Discusión y conclusión.** La mayoría de los pacientes presentaron niveles bajos de los síntomas evaluados y éstos disminuyeron al egreso. Son necesarias investigaciones adicionales de salud mental en población hospitalizada con VIH.

**Palabras clave:** Depresión, ansiedad, desesperanza, riesgo suicida, VIH, hospitalización.

## INTRODUCTION

Anxiety, depression, hopelessness and suicide risk are experienced more frequently by people living with HIV (PLWH) than by the general population (Vargas-Mendoza, Cervantes-Ramírez & Aguilar-Morales, 2009), and are recognized risk factors associated with a lack of adherence to antiretroviral treatment (ART) and lower quality of life (Wolff, Alvarado & Wolff, 2010).

Most research on anxiety and depression in PLWH has been focused in the outpatient setting (Govender & Schleichbusch, 2012; Nogueira-Campos, De Fátima-Bonolo & Crossland-Guimaraes, 2006; Perdices, Dunbar, Grunseit, Hall & Cooper, 1992). In contrast, little is known about the prevalence of anxiety, depression, hopelessness and suicide risk among the inpatient HIV+ population. The evaluation of these aspects in HIV+ individuals requiring hospitalization may ensure prompt identification of mental health needs and an opportunity for early interventions.

The aim of this study was to identify the presence of anxiety, depression, hopelessness and suicide risk in HIV+ hospitalized patients in tertiary care hospital in Mexico City, as well as to compare the severity of symptoms at admission and discharge.

## METHODS

### Design

A comparative study with repeated measures within subjects design was conducted in the inpatient population of the Center for Research in Infectious Diseases (CIENI) of the National Institute of Respiratory Diseases (INER) in Mexico City.

### Participants

From February to November 2013, a nonprobability convenience sample of newly diagnosed HIV+ individuals, as well as PLWH with previous diagnosis, admitted to hospitalization, were eligible to participate. Inclusion criteria were: confirmed HIV diagnosis, age >18 years, a nonscheduled hospitalization admittance and willingness to participate by providing verbal consent. Exclusion criteria were current substance dependence and patients not suitable to participate (e.g. altered state of consciousness, delirium, psychosis, cognitive impairment, dementia or mechanic ventilation assistance), assessed through a clinical interview.

### Measures

A clinical interview and a set of clinimetric instruments were applied at hospital admission and discharge by trained

psychologists. Anxiety and depression were assessed by the homologous sub-scales of the Hospital Anxiety and Depression Scale (HADS) (Zigmond & Snaith, 1983). Cut-off points classify anxiety and depression symptoms into normal ( $\leq 7$  points), probable cases (8-11 points) and clinical cases ( $\geq 12$  points). Psychometric properties of these instruments in Mexican populations have been evaluated (Nogueda-Orozco, Pérez-Terán, Barrientos-Casarrubias, Robles-García & Sierra-Madero, 2013).

The Spanish-adapted and validated version of the Beck Hopelessness Scale (BHS) was used to evaluate hopelessness (Córdova-Osnaya & Rosales-Pérez). BHS consists of 20 true or false propositions, cut-off points classify hopelessness into minimal ( $< 3$  points), mild (4-8 points), moderate (9-14 points) and severe (15-20 points) (Aguilar García Iturrospe et al., 1995; Beck, Weissman, Lester & Trexler, 1974).

Suicide risk was assessed through the Plutchik Suicide Risk Scale (PSRS). PSRS is a 15-item self-reported measure that describes the degree to which an individual reveals characteristics similar to those of a suicide prototype (Plutchik, Van Praag, Conte & Picard, 1989; Rubio et al., 1998). Cut-off is 6 points and discriminates those with suicide risk and a history of suicide attempts (Plutchik, Van Praag, Conte & Picard, 1989; Rubio et al., 1998). Psychiatric diagnoses were established based on the MINI International Neuropsychiatric Interview (Ferrando, Bobes & Gibert, 2000).

Demographic characteristics were collected through a clinical interview in order to identify a potential high risk profile due to sociodemographic or geographic residence aspects.

Relevant clinical data related to HIV status, such as CD4 cell counts (the measurement of the number of CD4 positive T- cells in a cubic millimeter of blood) and plasma viral load (viral load is the term used to describe the amount of HIV in a fluid) were obtained through medical record.

### Statistical analysis

Descriptive statistics were used to describe basic demographic and clinical sample data. T-Student test for paired samples was used to compare clinimetric scores at admission and discharge. Statistical significance was set at  $p < 0.05$ . Statistical analysis was carried out using SPSS 20.0 (IBM).

### Ethical considerations

Psychiatric consultation was provided to all patients scoring above the cut-off points for anxiety (HADS  $\geq 11$  points), depression (HADS  $\geq 11$ ), hopelessness (BHS  $\geq 15$  points) and suicide risk (PSRS  $\geq 6$  points). The study was approved by the Research and Ethics Committee of the INER.

## RESULTS

Two hundred and fifty three HIV+ individuals were hospitalized from February to November 2013; 65% ( $n = 164$ ) answered a clinimetric evaluation. Most of them (87%,  $n = 142$ ) completed the assessment at hospital admission, and 71% ( $n = 117$ ) at discharge. Missed discharge assessment were associated to hospital discharge before responding to clinimetric scales ( $n = 25$ ). Two patients were not included in the analysis because they did not fulfill all clinimetric assessment at hospital admission. Data analysis was made with 115 participants who completed both assessments.

Ninety percent ( $n = 104$ ) of the participants were male, with mean age 34.4 years ( $SD = 9.5$ , range 19-62); with an educational level equivalent to incomplete high school. Most were single (71.3%,  $n = 82$ ) and were Mexico City residents (60.9%,  $n = 70$ ). Half of the patients received their HIV diagnosis within the three months previous to hospitalization or during their stay at the hospital. Most were in their first hospitalization (86.1%,  $n = 99$ ). Twelve percent ( $n = 14$ ) corresponded to hospital readmissions, and all were readmitted within 12 months of their previous hospitalization.

At admission, fifty-two percent ( $n = 60$ ) of the individuals were on ART and had a median viral load of 81,206

copies RNA-HIV per ml and CD4 count 75 cells/mm<sup>3</sup>. Ninety-eight percent ( $n = 113$ ) were discharged by medical approval. Detailed sociodemographic and clinical characteristics are shown in table 1.

### Status at admission

The psychometric assessment carried out upon entry to the hospital (table 2) showed that 10.4% ( $n = 12$ ) of the HIV+ individuals had suicide risk and 5.2% ( $n = 6$ ) had moderate to high levels of hopelessness. Probable and clinical depression and anxiety were present in 13.9% ( $n = 16$ ) and 23.5% ( $n = 27$ ), respectively.

Thirty seven patients (32.2%) received a psychiatric assessment: major depressive disorder was confirmed in 27% ( $n = 10$ ), 5.4% ( $n = 2$ ) had generalized anxiety disorder, and 67.6% ( $n = 25$ ) had no formal psychiatric diagnosis. Nearly half of these (43%,  $n = 16$ ) received psychopharmacologic treatment mainly due to delirium (with onset after initial assessment), or treatment of affective, anxiety and sleep disturbances.

Patients in our sample received a mean of five ( $SD = 3.2$ , range 1-17) individual sessions of psychological counseling focused on HIV education and emotional regulation strategies.

Table 1  
Sociodemographic characteristics of patients

|                             | Men ( $n = 104$ ) |            | Women ( $n = 11$ ) |            | Total ( $N = 115$ ) |            |
|-----------------------------|-------------------|------------|--------------------|------------|---------------------|------------|
|                             | $n$               | %          | $n$                | %          | $n$                 | %          |
| Marital status              |                   |            |                    |            |                     |            |
| Single                      | 79                | 68.7       | 3                  | 2.6        | 82                  | 71.3       |
| Married or Living w/partner | 20                | 17.4       | 5                  | 4.4        | 25                  | 21.8       |
| Separated/divorced/ Widowed | 5                 | 4.3        | 3                  | 2.6        | 8                   | 6.9        |
| Residence                   |                   |            |                    |            |                     |            |
| Mexico City                 | 66                | 58.9       | 4                  | 3.6        | 70                  | 60.9       |
| Other states                | 37                | 32.2       | 8                  | 6.9        | 45                  | 39.1       |
| Time of diagnosis           |                   |            |                    |            |                     |            |
| Less than 3 months          | 51                | 44.3       | 7                  | 6.1        | 58                  | 50.4       |
| 3 to 12 months              | 18                | 15.6       | 1                  | 0.9        | 19                  | 16.5       |
| 1 to 10 years               | 23                | 20.0       | 2                  | 1.8        | 25                  | 21.8       |
| More than 10 years          | 11                | 6.1        | 2                  | 1.8        | 13                  | 11.3       |
| Hospital admission          |                   |            |                    |            |                     |            |
| First time                  | 89                | 77.4       | 10                 | 8.7        | 99                  | 86.1       |
| Readmission                 | 13                | 11.3       | 1                  | 0.9        | 14                  | 12.2       |
| Programmed readmission      | 2                 | 1.7        | 0                  | 0.0        | 2                   | 1.7        |
| With ART at admission       | 57                | 49.6       | 3                  | 2.6        | 60                  | 52.2       |
|                             | Mean              | SD         | Mean               | SD         | Mean                | SD         |
| Age                         | 34.4              | 9.5        | 35.0               | 10.2       | 34.4                | 9.6        |
| Educational level           | 11.3              | 3.3        | 9.2                | 4.3        | 11.2                | 3.4        |
|                             | Median            | Range      | Median             | Range      | Median              | Range      |
| Viral Load                  | 74809             | 40-3.43 ma | 1.979 ma           | 40-2.68 ma | 81206               | 40-3.43 ma |
| CD4 Count                   | 80                | 1-580      | 43                 | 7-193      | 75                  | 1-580      |

Note: SD=Standard deviation; ma = Million.

Table 2  
Suicide risk, hopelessness, depression and anxiety at hospital admission and discharge

|                 | Admission    |               | Discharge    |               | <i>t</i> | gl  | <i>p</i> -value |
|-----------------|--------------|---------------|--------------|---------------|----------|-----|-----------------|
|                 | <i>n</i> (%) | <i>X</i> (SD) | <i>n</i> (%) | <i>X</i> (SD) |          |     |                 |
| Suicide risk    |              | 2.5(2.3)      |              | 2.09(2.4)     | 2.7      | 114 | 0.006           |
| Risk            | 12 (10.4)    |               | 11 (9.6)     |               |          |     |                 |
| No risk         | 103 (89.6)   |               | 104 (90.4)   |               |          |     |                 |
| Hopelessness    |              | 2.5(3.4)      |              | 1.92(2.7)     | 2.2      | 114 | 0.026           |
| Minimum         | 88 (76.5)    |               | 94 (81.7)    |               |          |     |                 |
| Mild            | 21 (18.3)    |               | 18 (15.7)    |               |          |     |                 |
| Moderate        | 4 (3.5)      |               | 2 (1.7)      |               |          |     |                 |
| High            | 2 (1.7)      |               | 1 (0.9)      |               |          |     |                 |
| HADS-Depression |              | 3.9(3.6)      |              | 2.7(3.05)     | 4.4      | 114 | 0.000           |
| Normal          | 99 (86.1)    |               | 109 (94.8)   |               |          |     |                 |
| Probable case   | 10 (8.7)     |               | 3 (2.6)      |               |          |     |                 |
| Clinical        | 6 (5.2)      |               | 3 (2.6)      |               |          |     |                 |
| HADS-Anxiety    |              | 5.7(3.7)      |              | 4.9(3.7)      | 2.7      | 114 | 0.007           |
| Normal          | 88 (76.5)    |               | 90 (78.3)    |               |          |     |                 |
| Probable case   | 19 (16.5)    |               | 18 (15.7)    |               |          |     |                 |
| Clinical        | 8 (7)        |               | 7 (6.1)      |               |          |     |                 |

Note: SD=Standard deviation.

### Status at discharge

Discharge evaluations showed that 9.6% ( $n = 11$ ) of HIV+ individuals still showed suicide risk, 2.6% ( $n = 3$ ) had moderate to high levels of hopelessness, 2.6% ( $n = 3$ ) persisted with clinical depression and 6.1% ( $n = 7$ ) had clinical anxiety symptoms.

### Changes in symptoms between entry and discharge

Total scores in all measures had a significant decrease when compared with admission ones, as detailed in table 2.

## DISCUSSION AND CONCLUSION

Our results showed that most HIV+ inpatients in our sample presented normal levels of anxiety and depression, minimum levels of hopelessness and had no suicide risk at hospital admission; a significant decrease in all symptoms was observed at discharge in all these variables. To our knowledge, this is the first study in an HIV+ inpatient population comparing these variables at hospital admission and discharge.

Our results mimic those found in Brazil by Garcia-Capitão et al. (2011), who found similar levels of anxiety and depression in HIV+ inpatients. These similarities may be due to comparable low CD4 T-cell count ( $< 200$  cells/mm<sup>3</sup>) in both samples. CD4 T-cell counts correlate with physical symptoms and counts below 200 cells/mm<sup>3</sup> refer to an AIDS stage of the infection. Some studies have shown that depression and anxiety symptoms in PLWH can

increase in parallel to the magnitude of physical deterioration, being higher in AIDS stages of HIV infection (Perdices et al., 1992; Wolff et al., 2010).

In our cohort, however, prevalence of depression (5.2%) and anxiety (7%) at admission were lower than other general in-hospital populations where prevalence ranges from 41.3% to 46.5% (Rothenhäusler, 2006) and, surprisingly, lower than those reported in outpatient PLWH populations (range from 10% to 87%) (Nogueira-Campos et al., 2006). This may be due to low levels of anxiety and depression in the general HIV+ population.

Contradictory findings have been published concerning a potential relation between affective symptoms and length of hospital stay. Some studies reported a decrease in depression and anxiety after the third day of hospitalization (Costas-González, Prado-Robles & Crespo-Iglesias, 2013; Kathol & Wenzel, 1992), while others reported the persistence of symptoms throughout hospitalization (Grau et al., 2007). Different variables could influence the decrease in the severity of symptoms at time of discharge observed in our sample, such as improvement in physical condition, psychopharmacological treatment where needed and counseling sessions. However, no statistical differences in decrease in symptoms were found between those receiving and not receiving counseling and bedside psychotherapy (data not shown). Further studies will be required in order to tease out the influence of these variables in improvement of symptoms.

The hopelessness and suicide risk levels found in our study are also lower than those reported in HIV outpatient populations, where nearly 20% of patients reported suicidal ideation and hopelessness (Govender & Schlebusch, 2012).

Limitations of the study include the exclusion of patients with substance dependence, the fact that we did not collect other psychopathological variables –such as past psychiatric history– and that not all individuals completed both assessments. It is possible that patients that did not complete both assessments presented higher levels of anxiety and affective symptoms, although no differences were found in basic sociodemographic characteristics when comparing these two groups (data not shown). Main reasons for non-completion of assessments were inability to be evaluated due to discharge over the weekend or death. Assisted application of the instruments was made whenever possible.

Despite these limitations, the evaluation proposed in this study helped to identify patients at risk of severe mental health problems and/or suicide attempts, and allowed proper referral to psychiatric assessment and mental health interventions. Further research is necessary to assess the effectiveness of these mental health interventions in the long term.

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### Conflict of interests

Dr. Evelyn Rodríguez-Estrada is a speaker for Pfizer Mexico. The rest of the authors do not have any conflict of interests to disclose.

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