

Prevalence and Factors associated with Depression among Clinically Stable People Living with HIV/AIDS on Antiretroviral Therapy

Sharanabasappa Algoodkar, Ajithkumar Kidangazhiathmana¹, P. P. Rejani², K. S. Shaji³

ABSTRACT

Background: Individuals with HIV/AIDS are prone for psychiatric/psychological morbidities. Many studies have reported significantly higher prevalence of depression in people living with HIV/AIDS (PLWHA's) when compared to general population. However, there are only very few studies looking at the prevalence of depression in patients on antiretroviral therapy (ART). **Objectives:** To estimate the prevalence and factors associated with depression among clinically stable PLWHAs. **Materials and Methods:** We used a cross-sectional study design to estimate the prevalence of depression and factors associated with it among clinically stable PLWHAs with CD4 cell count >400 cells/mm³ and on ART for >2 years. We assessed 100 PLWHAs and diagnosed depression using ICD-10 diagnostic criteria. **Results:** The prevalence of depression was 30% in this sample. Female gender, lack of family support, and HIV-positive status of the spouse were associated with depression in this study. Multiple logistic regression analysis showed lack of family support significantly associated with depression. High prevalence of depression and its association with stressful life circumstances even in individuals stable on ART points toward need for psychosocial interventions to improve mental health and well-being of these patients.

Key words: AIDS, antiretroviral therapy, CD4 cells, depression, HIV, people living with HIV/AIDS

INTRODUCTION


The prevalence of psychiatric symptoms/disorders, especially depression and anxiety are more in people living with HIV/AIDS (PLWHAs) than HIV-negative controls.^[1] One meta-analysis

suggests that the prevalence of depression and anxiety was at least double than that of the general population.^[2] Stress-related psychiatric disorders often

This is an open access article distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 3.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as the author is credited and the new creations are licensed under the identical terms.

For reprints contact: reprints@medknow.com

How to cite this article: Algoodkar S, Kidangazhiathmana A, Rejani PP, Shaji KS. Prevalence and factors associated with depression among clinically stable people living with HIV/AIDS on antiretroviral therapy. Indian J Psychol Med 2017;39:789-93.

Access this article online	
Website: www.ijpm.info	Quick Response Code 
DOI: 10.4103/IJPSYM.IJPSYM_364_17	

Department of Psychiatry, Sapthagiri Institute of Medical Sciences and Research Centre, Bengaluru, Karnataka, ¹Department of Dermatology and Venereology, Government Medical College, Kozhikode, Departments of ²Community Medicine and ³Psychiatry, Government Medical College, Thrissur, Kerala, India

Address for correspondence: Dr. sharanabasappa Algoodkar
Department of Psychiatry, Sapthagiri Institute of Medical Science, Chikkasandra, Hesaraghatta Main Road, Bengaluru - 560 090, Karnataka, India. E-mail: algoodkar@gmail.com

remain undetected and untreated in HIV health-care settings.^[3-6] High prevalence of depression ranging from 10% to 40% has been reported in India among HIV seropositive individuals.^[7,8]

However, we have little information on the prevalence of depression in patients who are stable on antiretroviral therapy (ART). We estimated the prevalence and the factors associated with depression among a group of HIV-positive patients who are stable and taking ART for >2 years.

METHODS

The study conducted at ART center attached to Government Medical College provides care for people with HIV infection since late eighties. It runs a regular outpatient clinic for PLWHAs on all working days since 2002. More than 20000 patients on ART are on regular follow-up here. Patients attending this clinic, on two-specified research days in a week were screened by counselors trained to identify subjects meeting the study criteria. To be included in the study, the patients should have been receiving ART for >2 years and should be having CD4 cell count >400 Cells/mm³. Apart from this, they should have been on regular treatment with >95% drug adherence and no significant opportunistic infections in the past year. We did not include patients who were deaf and or dumb. All the subjects identified by the counselors were interviewed by a clinician trained in psychiatry. Those who met the study criteria were recruited after taking informed consent. The study was done between April 2011 and August 2013. The clinician administered the Montgomery-Asberg Depression Rating Scale (MADRS)^[9] for assessment of severity of depressive symptoms. We also used a symptom check list based on ICD-10 (The ICD-10 classification of mental and behavioral disorders) to capture the symptoms suggestive of a depressive episode. Diagnosis of depressive episode was made according to ICD-10 diagnostic criteria.^[10] Approval for the study has been granted by ethical committee board of Government medical college Thrissur. We took signed informed consent and interviewed patients.

Kuppuswamy's Socioeconomic Status Scale was used for assessing the socioeconomic status. This scale takes account of education, occupation, and income of the family to classify the study groups into high-, middle- and low-socioeconomic status. The income scores were modified using all India average consumer price index for industrial workers to overcome the effects of inflation and fall in the value of rupee.^[11]

The family support was assessed by interview and was rated as, no family support, poor, average, and good

family support. For statistical analysis, the family support was reclassified by combining the patients who were having no or poor family support as a group without family support, and those having average and good family support as a group with family support.

Statistical analysis

The Epi info software was used for data analysis. The descriptive statistics was computed for background variables. Chi-square test was applied to know the association between the attributes. The average measures were compared for depressed and nondepressed subjects using the Student's *t*-test. Multiple logistic regression technique was used for multivariate analysis.

RESULTS

Hundred consenting patients who met the study criteria were recruited and assessed. Majority of patients (89%) were aged between 10 and 49 years [Table 1]. There were more males (65%) in the sample. The prevalence of depression was 30% as per ICD-10 diagnostic criteria. Four (4%) met criteria for severe depressive episode without psychotic symptoms, 12 (12%) for mild depressive episode, and 14 met criteria for moderate depressive episode. The most common symptom was sadness of mood, reported by 48 (48%). Lack of interest was reported by 35 (35%), and easy fatigability by 35 (35%). Forty-six (46%) patients had bleak and pessimistic views of their future, 23 (23%) patients reported ideas of guilt and unworthiness, 14 (14%) reported suicidal ideas, and 10 (10%) patients reported marked loss of libido. None of the 100 PLWHAs had psychotic symptoms.

Among those who had depression, 28 (93.4%) were aged between 16 and 50 years. Depression was more prevalent among women 15 (42.9%) than men 15 (23.1%) and this difference was statistically significant ($\chi^2 = 4.24$ and $P = 0.04$).

The prevalence of depression was 26.3% in the upper middle socioeconomic class (Class 2), 35.9% in the lower middle class (Class 3), and 26.2% in upper lower socioeconomic class (Class 4). The occurrence of depression was not significantly different between these socioeconomic groups ($\chi^2 = 1.06$, $P = 0.59$). Educational status of patients was not correlated to the presence of depression ($\chi^2 = 1.14$, $P = 0.56$).

The relationship of various factors with depression is summarized in Table 2. Female gender, family support, concordant HIV status, and higher MADRS score were significantly associated with the presence of depression in the study group. Depression was not associated with marital status, living alone, substance abuse, duration of ART or CD4 count. Patients not having family

support were more likely to have depression compared to patients having family support, ($P = 0.0002$). On multivariate analysis using logistic regression, family support ($P = 0.002$), HIV-positive status of the spouse ($P = 0.06$) and unemployment ($P = 0.06$) had significant association with depression.

Table 1: Age- and sex-wise distribution of Plwha's

Age (years)	Male	Female	Total
10-29	4	2	6
30-39	15	17	32
40-49	40	11	51
50-60	6	5	11
Total	65	35	100

DISCUSSION

We found depression to be common among patients stabilized on ART and almost one-third of them having clinically significant depressive symptoms. This is (30%) comparable to the 32% prevalence reported from a similar population in Brazil^[12] who used Beck Depression Inventory (BDI) which chose a cutoff of BDI score >12 to identify the cases of depression. The reported prevalence of severe depression (BDI score >36) was 4% in their study where as it was, 14% for moderate depression, and 14% for mild depression. We have also found similar rates.

Table 2: Study variables

	Depressed	Not depressed	Test statistic	P
Age (Mann-Whitney U-test), mean±SD	39.23±5.8	40.78±9.3	Z=-1.351	0.197
Gender				
Female	15	20	$\chi^2=4.224$	0.04
Male	15	50		
Socioeconomic status (Kuppuswamy classification)				
Class 2	5	14	$\chi^2=1.06$	0.59
Class 3	14	25		
Class 4	11	31		
Education				
Up to 7 th	6	21	$\chi^2=1.14$	0.56
8 th -10 th	15	29		
Degree and above	9	20		
Marital status				
Married	21	46	$\chi^2=0.17$	0.67
Unmarried	1	5		
Widowed	8	18		
Separated	0	1		
Living with spouse	21	46	$\chi^2=0.17$	0.68
Not living with spouse	9	24		
Occupation				
Job present	23	48	$\chi^2=0.67$	0.41
No job	7	22		
Duration on ART (years)				
2-3	5	14	t -statistic=0.56	0.57
3-12	25	56		
Rural	25	57	$\chi^2=0.05$	0.82
Urban	5	13		
Alcohol abuse				
Yes	5	16	$\chi^2=0.49$	0.49
No	25	54		
Family support				
Present	9	49	$\chi^2=13.4$	0.0002
Not present	21	21		
Spouse HIV status				
Concordant	27	47	$\chi^2=4.58$	0.03
Discordant	3	23		
Children present	24	50	$\chi^2=0.80$	0.37
Not present	6	20		
CD4 cell count (cells/mm ³), mean±SD	604.24±200.03	590.49±178.67	t -statistic=0.26	0.79
MADRS score (average MADRS score)	19.3	3.72	t -statistic=15.71	0.00

SD – Standard deviation; MADRS – Montgomery-Asberg Depression Rating Scale; ART – Antiretroviral therapy

A recent multisite study from South Africa reported the prevalence of anxiety and depression as 30.6% and 25.4%, respectively.^[13] However, the authors studied subjects who were being initiated on ART. Moreover, their inferences were based on the scores on rating scales administered by raters who were not mental health professionals. The use of standardized scales, though reliable, cannot be a substitute for clinical evaluation by a trained clinician. We relied on systematic clinical evaluations for the diagnosis of depression. Our evaluations were carried out by a clinician trained in psychiatry. We also used a symptom check list to elicit symptoms of depression and assessed the symptom severity using MADRS.

We found female gender, absence of family support, and HIV-positive status of the spouse to be associated with depression. Similar findings were reported from India.^[14] Female gender is a known risk factor for depression. Studies done in general population have also shown female gender as risk factors for depression.^[15,16]

We found lack of family support to be associated with depression. Similar findings were reported from Nepal.^[17] We found HIV-positive status of the spouse to be associated with depression. This finding had not been reported earlier. We like, studies from Africa also could not show any association between the CD4 count and depression.^[18] On the other hand, a cross-sectional study by Kaharuza *et al.* did find a statistically significant association between CD4 counts <100 cells/ml and the presence of a probable depressive disorder (with cutoff of 23 or more on the Centre for Epidemiological Studies scale original version.).^[19] The patients diagnosed to have depression were referred to psychiatry department, and appropriate treatment was given.

High prevalence of depression and its association with stressful life circumstances even in individuals stable on ART points toward need for psychosocial interventions to improve mental health and well-being of these patients. We need to look for depressive symptoms and sleep disturbance during the follow-up. Detection and management of depression will help to improve the clinical outcome. Those with poor social support need special assistance and care.

Limitations and strengths of the study

We tried to identify only depression in stable PLWHAs regular with antiretroviral therapy. Other psychiatric disorders such as anxiety disorders, adjustment disorder, psychosis and personality disorders, and cognitive impairment were not studied. Since this is only a cross-sectional study, the associations reported

here cannot be presumed to be causative. However, systematic assessments made by clinician trained in psychiatry, assessment using reliable and valid instrument such as MADRS and the use of ICD-10 research diagnostic criteria for making the clinical diagnosis of depression are strengths of our study.

Acknowledgment

We thank ART Centre Government Medical college, Thrissur, Department of Psychiatry and the Department of Medicine, Government Medical college, Thrissur, for support in carrying out the study.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

REFERENCES

- Morrison MF, Petitto JM, Ten Have T, Gettes DR, Chiappini MS, Weber AL, *et al.* Depressive and anxiety disorders in women with HIV infection. *Am J Psychiatry* 2002;159:789-96.
- Ciesla JA, Roberts JE. Meta-analysis of the relationship between HIV infection and risk for depressive disorders. *Am J Psychiatry* 2001;158:725-30.
- Asch SM, Kilbourne AM, Gifford AL, Burnam MA, Turner B, Shapiro MF, *et al.* Underdiagnosis of depression in HIV: Who are we missing? *J Gen Intern Med* 2003;18:450-60.
- Eller LS, Corless I, Bunch EH, Kempainen J, Holzemer W, Nokes K, *et al.* Self-care strategies for depressive symptoms in people with HIV disease. *J Adv Nurs* 2005;51:119-30.
- Koopman C, Gore-Felton C, Azimi N, O'Shea K, Ashton E, Power R, *et al.* Acute stress reactions to recent life events among women and men living with HIV/AIDS. *Int J Psychiatry Med* 2002;32:361-78.
- Martinez A, Israelski D, Walker C, Koopman C. Posttraumatic stress disorder in women attending human immunodeficiency virus outpatient clinics. *AIDS Patient Care STDS* 2002;16:283-91.
- Krishna VA, Chandra PS. Concerns and psychiatric morbidity among people living with HIV/AIDS. *NIMHANS J* 1998;17:253-60.
- Chandra PS, Ravi V, Desai A, Subbakrishna DK. Anxiety and depression among HIV-infected heterosexuals – A report from India. *J Psychosom Res* 1998;45:401-9.
- Montgomery SA, Asberg M. A new depression scale designed to be sensitive to change. *Br J Psychiatry* 1979;134:382-9.
- World Health Organization. The ICD-10 Classification of Mental and Behavioural Disorders: Clinical Description and Diagnostic Guidelines. Geneva: AITBS Indian Edition; 2007. p. 119-31.
- Kumar N, Shekhar C, Kumar P, Kundu AS. Kuppaswamy's socioeconomic status scale-updating for 2007. *Indian J Pediatr* 2007;74:1131-2.
- Silveira MP, Guttier MC, Pinheiro CA, Pereira TV, Cruzeiro AL, Moreira LB, *et al.* Depressive symptoms in HIV-infected patients treated with highly active antiretroviral therapy. *Rev Bras Psiquiatr* 2012;34:162-7.
- Pappin M, Wouters E, Booyens FL. Anxiety and depression

- amongst patients enrolled in a public sector antiretroviral treatment programme in South Africa: A cross-sectional study. *BMC Public Health* 2012;12:244.
14. Bhatia MS, Munjal S. Prevalence of depression in people living with HIV/AIDS undergoing ART and factors associated with it. *J Clin Diagn Res* 2014;8:WC01-4.
 15. Silverstein B. Gender difference in the prevalence of clinical depression: The role played by depression associated with somatic symptoms. *Am J Psychiatry* 1999;156:480-2.
 16. Rohde P, Beevers CG, Stice E, O'Neil K. Major and minor depression in female adolescents: Onset, course, symptom presentation, and demographic associations. *J Int Assoc Provid AIDS Care* 2014;13:214-22.
 17. Shrestha S, Poudel KC, Poudel-Tandukar K, Kobayashi J, Pandey BD, Yasuoka J, *et al.* Perceived family support and depression among people living with HIV/AIDS in the Kathmandu Valley, Nepal. *J Int Assoc Provid AIDS Care* 2014;13:214-22.
 18. Moosa MY, Jeenah FY, Vorster M. HIV in South Africa - Depression and CD4 count. *S Afr J Psychiatr* 2005;11:12-5.
 19. Kaharuza FM, Bunnell R, Moss S, Purcell DW, Bikaako-Kajura W, Wamai N, *et al.* Depression and CD4 cell count among persons with HIV infection in Uganda. *AIDS Behav* 2006;10:S105-11.