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Depression Among PLHIV On ART, Attending Drop-In Centre Run by Positive People Network: A Cross Sectional Study in Surat, India

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ABSTRACT

Background: PLHIV often suffer from depression and anxiety during their quest to adjust to the diagnosis and face the difficulties of living with a chronic illness, of which permanent cure is yet to be discovered. Positive people network linkages should be established by each ART centre for its respective locality. The objective of the study is to assess depression among HIV positive beneficiaries registered with Network of Surat People Living with HIV (NSP+) in Surat.

Methods: A cross sectional study was conducted among 30 PLHIV on ART from Network of Surat People Living with HIV (NSP+). Beck Depression Inventory was applied to assess depression.

Results: The mean BDI score among male and female participants was 25.6 (± 11.39) and 23 (± 12) respectively, 9 male participants were having moderate depression, 3 as severe, and 2 as extreme depression. Among females 4 participants were found to having mild mood disturbance while 4 were classified as having moderate depression, whereas only 1 participant was classified as having extreme depression (score of 53). Pearson's correlation between CD4 count and BDI score was found to be -0.35.

Conclusion: Though majority of the participants are in WHO clinical stage 1, yet all the participants had borderline to extreme depression. Males had lower CD4 count, higher proportion of OI and higher mean score of BDI. Lower the CD4 count higher the severity of depression.

Key words: Depression, BDI, PLHIV, ART

INTRODUCTION

Mental health problems account for 13% of the global burden of disease and are highly intertwined with chronic manageable conditions like HIV/AIDS.[1] Mental Health issues are not adequately addressed when it comes to the burden of non-communicable disorders among PLHIV on ART. PLHIV often suffer from depression and anxiety during their quest to adjust to the diagnosis and face the difficulties of living with a chronic illness, of which permanent cure is yet to be discovered.[2] Depression is one of the most common psychiatric disorders in PLHIV.[3] PLHIVs have prevalence of existing depressive disorder or incidence of developing disorder nearly two times higher developing major depressive disorders when compared to HIV non-infected person.[4] Depression among PLHIV leads to alteration of economic productivity, decrease of working abilities, social isolation, physical decline, and difficulties in solving problems. Depression among PLHIV could be clinically quite different from the depression among non-infected patients, as reported in one study, in revealing that compared to depressed uninfected patients, depressed PLHIV have a later onset of depressive illness, are more likely to take medications prior to the

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onset of depression and have more severe symptoms (i.e. self-criticism, poorer sleep, tired, loss of appetite).[5] In this context, depression could seriously compromise ART outcomes at individual and population levels.

The Network of Surat People Living with HIV (NSP+) was established in Surat (first of its kind in the Gujarat State). The NSP+ was seen as the bridge to link positive people with ART services. The NSP+ plays a pivotal role in linkage of PLHIV to care, ensure that the PLHIV remains in care and in case of missed or loss to follow up tracking the PLHIV and relinking them again to care. Apart from these services the NSP+ is also involved with the rehabilitation services which include supporting the family of PLHIV with ration, schooling, education services for infected and affected children of positive people and positive people marriage bureau.

Positive people network has a key role of identification, linkage to care and retention to care of its beneficiaries with ART centers. Differentiated service delivery model suggested by WHO and adapted by NACO by involving network people and High-Risk Groups for better management. It simplifies and adapts HIV services across the cascade in ways that both serve the needs of people living with and vulnerable to HIV and optimize available resources in health systems.[6] NACO has identified positive people network as a partner to deliver ART from Drop-In Centers. Current study provides baseline information upon one aspect of depression.[7]

METHODOLOGY

A cross sectional study was conducted among 30 PLHIV on ART from Network of Surat People Living with HIV (NSP+). Participant recruitment was done by consenting consecutive sampling method (2 participants per day enrolment) at Drop-In Centre (DIC) of NSP+ at Surat Medical Institute of Medical Education and Research (SMIMER), Surat, for 15 days posting, short term project, during February 2017.

Procedure: Participant recruitment was done at the time of their routine visit to DIC. Participants who gave consent and were more than 18 years of age were included in the study. Informed written consent was obtained by counsellor of NSP+ in two steps first to declare their positive status to study investigator and second to voluntarily participate in study. Next the participants were accompanying referral by NSP+ counsellor (to introduce participant to investigator) to special identified room where interview was conducted to maintain confidentiality in DIC.

A semi structured proforma was used to collect information regarding socio demographic profile (age, gender, and place of residence-urban/rural), clinical profile (CD4 count-baseline/current, Opportunistic Infections, WHO clinical staging) was collected at DIC (NSP+) office with records available with them. Beck Depression Inventory proforma was filled by Investigator himself during interview. Participants who were identified as having moderate to extreme depression were referred to NSP+ counsellor and who further linked this PLHIV to Psychiatry department and Medical Officer, at ART centre of the institute for further management.

Measurement Tool: Beck Depression Inventory (freely available and use worldwide) was applied to assess depression. The Beck Depression Inventory (BDI) is a self-administered questionnaire designed to measure depression symptoms during the past week.[8,9] The 21-item inventory has an answer scale with four points for each item, with total scores ranging from 0 to 63 points.[10] The Beck Depression Inventory (BDI) was translated in local language (Hindi/Gujarati) and was used locally in previous studies by the faculty of Psychiatry department. Kappa agreement values show a moderate agreement between English–Gujarati BDI and a fair agreement between English–Hindi BDI and Gujarati–Hindi BDI. The reliability of BDI score was found to be Cronbach's alpha value of 0.861.[11] After completing the Beck Depression Inventory, the scores of the twenty-one questions were added by counting the number to the right of each question marked by the study participants. The level of depression among study participants was assessed as per the following scores 11-16 as mild mood disturbances, 17-20 as borderline clinical depression, 21-30 moderate depression, 31-40 severe depression, more than 40 extreme depression. It has numerous advantages including the fact that since it is self-applicable, once it has been adapted and validated for a population it can be used in everyday clinical practice. It can be administered by health personnel not involved in mental health, provided mechanisms are in place to refer patients in the event they test positive.[12]

Statistical Analysis: SPSS version 24[13] was used for the analysis. For the descriptive analysis of the responses received from the study participants we used central tendency and variability measures for the demographic variables collected during the interview. The data for psychometric assessment of Beck Depression Inventory was analysed as per the procedure:

1) Item-by-item frequency analysis to determine and assess the completeness of responses and whether all the answer options were answered accordingly. 2)Item-by-item cross tables to observe the correlation among items in Beck Depression Inventory. 3)Internal Consistency Analysis. 4)Cronbach's alpha coefficient was obtained to determine the inter item scale reliability.

RESULTS

Out of 30 participants who agreed to take part in the study 18 (60%) were male and 12 (40%) were female, with mean age of 37 (± 9.31) years and 38 (±11.15) years respectively.

Table 1 Sociodemographic, immunological, and clinical profile of study participants (n=30)

Variable	Male (n=18)	Female (n=12)	Total (n=30)
Age (mean ± SD)	37 (± 9.31) years	38 (±11.15) years	37.8 (±9.90) years
Urban (%)	15 (83.3)	10 (83.3)	25 (83.3)
Rural (%)	3 (16.7)	2 (16.7)	5 (16.7)
WHO Clinical Staging			
Stage 1 (%)	14 (77.8)	12 (100)	26 (86.7)
Stage 2 (%)	1 (5.6)	0 (0)	1 (3.3)
Stage 3 (%)	1 (5.6)	0 (0)	1 (3.3)
Stage 4 (%)	2 (11.1)	0 (0)	2 (6.7)
Baseline CD4 count (mean ± SD) cells/mm^3	169.5 (±169.3)	351.3 (±272.7)	242.23 (±230.72)
Current CD4 count (mean ± SD) cells/mm^3	386.44 (±207.5)	590 (±218.6)	467.9 (±231.66)
Opportunistic Infections (n=8) (%)	7 (87.5)	1 (12.5)	8 (100)

Table 2 Gender wise Classification of depression (n=30)

Level of Depression (BDI score for each level)	Male (n=18)	Female (n=12)	Total (n=30)
Normal ups and downs (1-10)	2 (11.1)	1 (8.3)	3 (10)
Mild mood disturbance (11-16)	0 (0)	4 (33.3)	4 (13.3)
Borderline clinical depression (17-20)	2 (11.1)	1 (8.3)	3 (10)
Moderate depression (21-30)	9 (50)	4 (33.3)	13 (43.3)
Severe depression (31-40)	3 (16.7)	1 (8.3)	4 (13.3)
Extreme depression (over 40)	2 (11.1)	1 (8.3)	3 (10)
Mean Score	25.6 (± 11.39)	23 (± 12)	24.56 (±11.79)

Table 3 Inter-item correlation matrix

Category	Positive Correlation (ρ) - value	p-value
Feeling sad		
Future	0.473	0.008
Failure	0.403	0.027
Guilty	0.366	0.047
Punishment	0.463	0.010
Disappointment	0.412	0.024
Interest in others	0.359	0.05
Decision	0.379	0.039
Outset towards Future		
Failure	0.444	0.014
Things	0.490	0.006
Disappointment	0.376	0.039
Killing thoughts	0.411	0.024
Irritated	0.371	0.044
Interest in others	0.507	0.004
Look	0.553	0.002
Work	0.603	0.001
Fear of Failure		
Disappointment	0.390	0.033
Blame	0.382	0.037
Killing thoughts	0.503	0.005
Cry	0.553	0.002
Irritated	0.418	0.021
Interest in others	0.455	0.012
Decision	0.488	0.006
Look	0.385	0.036
Sleep	0.492	0.006
Appetite	0.635	0.00
Satisfaction towards things done in daily routine		
Guilty	0.472	0.009
Disappointment	0.615	0.00
Blame	0.650	0.00
Killing thoughts	0.379	0.039
Interest in others	0.521	0.003
Decision	0.490	0.006
Look	0.510	0.004
Work	0.383	0.037
Health	0.386	0.035

The mean baseline CD4 count at the time of diagnosis was 169.5 (±169.3) cells/mm^3 for males and 351.3 (±272.7) cells/mm^3 for females. The CD4 count at the time of recruitment for study was 386.44 (±207.5) cells/mm^3 for males and 590 (±218.6) cells/mm^3 for females. Majority of study participants were residents of urban locality (83%) while participants residing in rural areas were only 17%. 87% of study participants belonged to WHO clinical staging 1 whereas 2 belonged to WHO stage 4 and 1 each in stage 2 and 3. Detailed description of Sociodemographic and Clinical profile is given in Table 1.

Beck Depression Inventory scores: The mean score among male participants was 25.6 (± 11.39) and that of female participants was 23 (± 12), as per the classification of Beck Depression Inventory 9 male participants were classified as having moderate depression, 3 as severe, and 2 as extreme depression (with score of 41 & 44). Among females 4 participants were found to have mild mood disturbances while 4 were classified as having moderate depression, whereas only 1 participant was classified as having extreme depression (score of 53), a detailed gender wise breakdown has been provided in Table 2. As a whole, out of 20 participants were having moderate to extreme depression, 14 (70%) of them were male and 6 (30%) were female.

The overall Beck Depression Inventory in the current study gave the high inter scale reliability with Cronbach's alpha of 0.920. Out of all 21 items four items such as feeling sad, outset towards future, fear of failure and satisfaction towards things done in daily routine were found to be significantly correlated with seven, eight, ten, and nine other items of Beck Depression Inventory. A detailed item wise breakdown of inter item correlation matrix has been given in Table 3 below.

Pearson's correlation between current CD4 count and BDI score was found to be -0.35. This suggests negative correlation between current CD4 count and BDI score.

DISCUSSION

The diagnosis of HIV infection itself is shocking to many people who apparently must first accept the diagnosis, followed by pill burden and side effects[14-15] associated with Antiretroviral Therapy. The associated pill burden, side effects and opportunistic infection results in suboptimal adherence followed by mild mood disturbances which eventually leads to poor personal care and falling into the pit of depression.

The study tested the reliability of Beck Depression Inventory among the PLHIV residing in South Gujarat. The internal reliability of the BDI was high having the Cronbach's alpha value of 0.920. The study also tried to identify whether there were any differences among the comparison groups identified in the study.

Psychometric postulates of BDI:

1. Demographic characteristics: The mean age of the study participants was 37.8 (±9.90) years with male having 37 (± 9.31) years and female having 38 (±11.15) years. A study by Unnikrishnan et al also showed that majority of study participants belonged to age group between 30-50 years[16] while another study done by Lipps et al documented mean age of study participants to be 40.5 (± 10 years).[17]

2. Depression and CD4 count: The mean baseline CD4 count at the time of diagnosis of HIV infection was 169.5 (±169.3) cells/mm^3 for males and 351.3 (±272.7) cells/mm^3 for females, whereas at the time of recruitment for study was 386.44 (±207.5) cells/mm^3 for males and 590 (±218.6) cells/mm^3 for females. A study by Rupani et all showed that a CD4 count, 300 cells/mm^3 is a significant predictor of depression among PLHIV.[10] Another study done by Amanor et al also document a lower CD4 count as a predictor of depression.[18] The baseline CD4 count among male participants in the study at the time of HIV diagnosis was low (i.e.<200 cells/mm^3) which has increased by two times at the time of recruitment (i.e. >350 cells/mm^3), thus only 50% of them were found to be suffering from moderate depression.

3. Association with depression: As far as associated with depression, female participants are considered they have a high (both baseline and current) CD4 count in comparison to males and hence only 4 were found to be having moderate depression and only 1 had been classified as having extreme depression. In this study, Pearson's correlation between CD4 count and BDI score was found to be -0.35.

In a study conducted by D. Agus et al, moderately negative correlation has been established between depression and CD4 count.[19]

4.Beck Depression Inventory: As detailed analysis and inter item correlation of all 21 items in Beck Depression Inventory was it was found that 4 items such as feeling sad, outset towards future, fear of failure and satisfaction were the major domains contributing towards the early ups and downs, mild mood disturbances and borderline clinical depression among the study participants. As the diagnosis of being infected with HIV itself is a setback for majority of PLHIV the component of sadness and outlook towards future and change in daily routing becomes difficult for them to adjust and comprehend. The mode of acquiring infection here becomes the key component which remind the PLHIV again and again about how they have acquired infection and thus contributes towards early symptoms of depression.

5. Implications: After being diagnosed and put on Antiretroviral Therapy now comes the second challenge that the treatment is lifelong and no matter how healthy a PLHIV feels, skipping the daily dose is not an option so comes the third identified domain in the study which fear of failure as the PLHIV feels disappointment in life, try to blame themselves for acquiring infection, sometime having the killing thoughts, loose out interest in social activities, followed by lack of sleep and appetite. Fourth and the most concerning challenge identified in the study was the sense of satisfaction in thing done by PLHIV in daily routing, as the internal coping mechanism starts functioning but the components such as guilt, disappointment, and blame follows it, which eventually results in hampered decision making, inefficiency at work and eventually ending up in ill health.

CONCLUSION

Higher proportion of study participants (43.3%) were found to be having moderate depression. Only 24.4% were classified as having severe and extreme depression. Although majority of the participants are in WHO clinical stage 1, yet all of participants have reported to have borderline to extreme depression. Males are reportedly having lower CD4 count, higher proportion of OI and higher mean score of BDI. Lower the CD4 count higher the severity of depression. If we involve positive people network in service delivery point, it will help future outcome.

RECOMMENDATIONS

As NACO has implemented Differentiated Service Delivery model involving positive people network,

there should be special training imparted to network staff and counsellors for screening depression and provide support to beneficiaries.

ART counsellors should be trained to screen depression by using BDI depression scale and establish linkages with psychiatry department to take care of the mental health issues of PLHIV.

The results of the study will be used as a baseline study and further evaluate with other facilities having network support.

LIMITATION

The results of the study cannot be generalized as the participants were selected only from one organization and a follow up study is required with larger sample size in order to understand and document the current situation of depression among PLHIV.

CONFLICT OF INTEREST

The authors do not have any conflicts of interest to declare. This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

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