Prevalence of Depression in HIV Patients on Antiretroviral Therapy (ART)

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ABSTRACT

Human immunodeficiency virus (HIV)/AIDS is a major cause of disability and death, particularly in low and middle income nations (WHO 2008). Depression also is recognized as strong predictor of non- adherence to treatment, high risk behaviour, worse HIV outcomes like immunologic decline, progression to AIDS and AIDS related mortality. Hence we are going to conduct this study which emphasizes an urgent need for HIV care provides to recognize and treat depression among their patients or to refer them to psychiatrists for diagnosis and treatment when necessary.

Material and methods: A hospital based cross-sectional study was conducted in ART Centre Jammu. All the patients attending ART centre over a period of one year from Nov 2017 to Nov 2018 after obtaining the ethical clearance were included. The patients were administered predesigned and validated oral questionnaire CES-D (Centre for epidemiologic studies depression scale) to detect depression. Scale Score of >16 were considered clinically significant. Descriptive statistics were reported as mean (SD) for continuous variables, frequencies (percentage) for categorical variables. Chi-Square at 5% level of significance was used to find statistical significance.

Results: Prevalence of depression was 54.5%. Mean age of depression was 39.8 Years. Prevalence of depression was higher in females. Prevalence of depression decreased with the duration of ART (P<0.001). Among depressive patients, majority of patients had possibly major depression episode (23%). Prevalence of depression increased with increase in age as depression was more in elderly patients then young patients (P<0.001). Prevalence of depression was more in patients who were non compliant to ART treatment (71.6%) compared to those who were compliant to ART (40.2%).

Conclusion: Routine screening of the more common psychiatric condition among HIV positive subjects should be practiced to optimize patient care and improve clinical outcomes.

Keywords: Depression, Mood disorder, HIV, ART

INTRODUCTION

Human immunodeficiency virus (HIV)/AIDS is a major cause of disability and death, particularly in low and middle income nations (WHO 2008). [1] The first cases were reported in 1981 and from the beginning of the pandemic more than 3 decades ago to the end of 2015, about 35 million (29.6–40.8 million) people have died of HIV/AIDS- related illnesses, [2] with Sub-Saharan Africa being the most affected, accounting for 74% of AIDS-related deaths worldwide in 2013. [3] Nearly 30 years after its discovery, HIV infection remains the number one cause of disease-related mortality in Sub- Saharan Africa. [4]

Globally, 36.7 million (34.0–39.8 million) people were living with HIV (PLWH) at the end of 2015 with approximately 70% residing in Sub-Saharan Africa, an area with only approximately 12% of the world's population. Sub-Saharan Africa also accounted for 410,000 cases of new HIV infection in 2015. [1] Depression contributes significantly to disease morbidity and affects people in all communities across the

globe. Depression nowadays is estimated to affect 350 million people. [5] It is well known that major depressive disorder (MDD) is the most common prevalent neuropsychiatric symptom in HIV-1 patients. [6] Depression is one of the most common mental health disorders people with HIV experience. Depression and HIV/AIDS are forecasted to be the world's two leading causes of disability by 2030. [7] Research has shown those individuals who are infected with HIV are more likely to develop depression than the general population. Depression affects an individual's ability to comply with HIV/AIDS treatment, as well as quality of life and lifespan. [8]

Data on the prevalence of depression in HIV-infected patients are conflicting. A study carried out in South Africa gave the prevalence of depression in HIV patients as 42.4%. [8] Similarly a systematic review and meta-analysis carried out in 2014 from studies of low-, middle and high-income countries on 42,366 HIV patients showed a prevalence of depression ranging from 12.8% to 78% (there was no significant difference in the rate of depressive symptoms in HIV patients across low, middle and high-income countries) and found that the likelihood of achieving good adherence was 42% lower in patient with depressive symptoms compared to those who were not. [9] However, a lower prevalence of major depressive disorder (8.1%) was reported in a study carried out in HIV/AIDS patients in a semi-urban district in Uganda. [10] Few studies to date have examined correlates of unprotected sex among South African PLWH. Significant associations have been reported between PLWH's condom nonuse and several risk factors, including alcohol/substance use, HIV stigma, HIV non-disclosure, and ART-related perceptions. [7] Across these investigations, however, PLWH samples consisted primarily of non-ART populations, and risk outcomes focused almost exclusively on the occurrence of any unprotected sex, rather than on HIV transmission risk events in which PLWH engaged in unprotected sex with partners who were HIV-negative or of unknown HIV status. Furthermore, the research in this area has generally not been based on psychological theories of health behavior change, thus potentially complicating the translation of these findings to the development of effective behavioral interventions aimed at reducing risky sex among South African PLWH. Mental disorders, especially depression, are common in HIV infected persons globally.

Researchers have identified stigma as one of the major factors associated with depression of PLWH. Research regarding depression and stigma is limited worldwide. The definition of stigma dates in 1960s where Goffman had defined it as a 'spoiled identity' of persons with an undesirable condition. In certain studies, stigma has been correlated to late presentation to HIV/AIDS care, [11,12] poor linkage to and retention in HIV/AIDS care, [13] poor ART adherence, [14] as well as VCT uptake. [15] Stigma is associated with various chronic illnesses such as HIV/AID and the effects of stigma are strikingly similar across different health conditions and cultures. [16, 17] Researchers through various studies found that stigma experienced by individuals with various health conditions is associated with depression. [18] In a study done by Rao et al, he defined the process through which stigma comes, has got negative effect on person's mental health status. [19] Individuals with a stigmatizing condition are aware of the stereotypes associated with their illness. [20] Because of this, they know how other people view them and what characteristics they attribute to them because of their illness. Hence, it is called as perceived stigma. [19] Over time, if individuals with a stigmatizing illness have been excluded from social activities because of their status, they may start to agree with the negative stereotypes associated with the condition. [21] This can lead to psychosocial distress and the process is referred to as internalized stigma. [21]

The HIV/AIDS Costs and Services Utilization Study (HCSUS) study, a U.S. national study of HIV infected individuals, found that nearly half (48%) of participants had a probable mental disorder. [22] The major mood and anxiety disorders are five to ten times more prevalent in HIV-positive individuals than in the general U.S. population, with a similar increased risk found in SSA settings. The most common psychiatric diagnoses among HIV-positive individuals are mood and anxiety disorders, particularly MDD and other depressive disorders. [23] Similar data are limited for persons with HIV in SSA generally and, to the best of our knowledge, are lacking for Cameroon. Depression is associated with worse HIV-related outcomes. In individuals with HIV/AIDS, mental illness (MI) in general and depression in particular, have been consistently associated with negative HIV-related behaviors, particularly poor ART adherence, a critical consideration in HIV care where ART plays a central role in suppressing virus and protecting the immune system. A recent meta- analysis of 95 studies encompassing 35,029 participants confirmed the consistent association of depression with poor ART adherence low-resource and high-resource settings. [24] Additionally, depression predicts a higher likelihood of engaging in unsafe needle-sharing and sexual behaviors that risk secondary transmission of HIV infection. [4] Depression has also been associated with poorer physical health, decreased quality of life, and AIDS-related mortality. Thus, identifying those at risk of a depressive illness can highlight patients especially in need of active follow-up. Recent prominent blue-ribbon panel reports have concluded that HIV treatment programs in less wealthy countries must integrate mental health identification and treatment into normal HIV clinical care and that research on mental health and HIV should be a high priority, especially in less wealthy countries. [25] Rationale behind this study is that depression is highly prevalent among HIV / AIDS patients but is highly under-diagonosed and undertreated. Depression also is recognized as strong predictor of non- adherence to treatment, high risk behaviour, worse HIV outcomes like immunologic decline, progression to AIDS and AIDS related mortality. The aim of this study was to investigate prevalence of depression among HIV/AIDS patients undergoing ART at ART Centre and features associated with it.

METHODOLOGY

A hospital based cross-sectional study was conducted in ART Centre Jammu. All the patients attending ART centre over a period of one year from Nov 2017 to Nov 2018 after obtaining the ethical clearance from the Institutional Ethical Committee were included. The patients were administered predesigned and validated oral questionnaire CES-D (Centre for epidemiologic studies depression scale) to detect depression. CESD.R.20 Scale Score of >16 in CESD Scale was considered clinically significant. A detailed history including socio demographic profile, symptomatology, treatment, past and personal history were also taken. HIV patients (both males & females) of age group 14-60 years on ART and those following ART Centre Jammu were included in our study. Female patients in post-partum period; HIV positive patients who have underlying chronic medical diseases like chronic kidney disease; hypertension with hypothyroidism; HIV positive patients on long term steroid therapy; HIV positive patients who have underlying psychiatric illness were all excluded from the study.

During routine clinic days, all participants will be included in the study. The aim of the study, including the risks and benefits, were explained in local languages. A pre-designed and validated questionnaire was administered to each participant. Demographic data such as age, sex, educational level, occupation, marital status and residence were recorded. The CESD-R-20 scale has been used to assess depression

in HIV positive patients. Severity of depression was assessed on the basis of the score obtained on the CESD-R-20 SCALE. A Score equal to or above 16 was indicating a person at risk of clinical depression. On the basis of score, patient were grouped as having Major Depressive Episode, Probably Major Depressive Episode, Possibly Major Depressive Episode, Sub- threshold Depressive symptoms or patients having No clinical significance (score < 16).

The sample comprised of PHLW (people who are living with HIV) and are on ART coming for their routine check up at ART Centre Jammu. Researchers used a convenience sample for this study. Patients who had a routine appointment in the duration of the study period were approached by someone who has regular contact with the patients' course of treatment (ART clinic nurses). We asked patients if they were interested in participating in a study designed to measure depression. Potential participants were told their participation in the study would be entirely voluntary and that they could withdraw from the study procedure at any time. Patients were also informed that their participation or non-participation would not affect the treatment they receive. They were informed that participation in the study involved being part of a recorded interview. Participants were made aware that there would be no follow-up to the study, and that after a one time interview, their participation in the study was complete. Patients who were interested in the research were introduced to oral consent procedure. The researcher further explained that the study was being conducted to better understand the hardships PLWHA. Investigator explained that factors associated with depression among PLWHA such as stigma was going to be examined. Participants were also informed that results from the current investigation will be an important step towards developing future research and interventions that achieve better treatment outcomes for patients living with HIV/AIDS. Participants also knew that

they would not directly benefit from this research. Researcher then asked participants to consent to the interview. Participants who were not willing to participate were thanked for their willingness to hear about the study. Those who were willing to participate were interviewed. In cases where participants were not willing to participate because they were nervous about the interview being recorded, the audio recorder was not used. Data Collection Strategy Data were collected in a one on one interview in participants' native language. For most participants, interviews were recorded and the researcher also marked participant responses on a paper copy of the interview questionnaire. Interviews were conducted in an office adjacent to the ART clinic. Participants were informed that the interview can take up to one hour. Interviews took anywhere from 20 minutes to 1 hour; time of interview depended on the length of participant answers.

CESD-R-20 scale has been used to assess depression in HIV positive patients. This scale is a self-report measure of depression. Questions measure 8 different subscales, including: Sadness (Dysphoria): (Q. 2, 4, 6), Loss of Interest (Anhedonia): (Q. 8, 10), Appetite: (Q. 1, 18), Sleep: (Q. 5, 11, 19), Thinking / concentration: (Q. 3, 20), Guilt (Worthlessness): (Q. 9, 17), Tired (Fatigue): (Q. 7, 16), Movement (Agitation): (Q. 12, 13), Suicidal Ideation: (Q. 14, 15). Internal consistency for the CES-D-20 = (Cronbach's α=0.85 – 0.90) Test-retest reliability for the CES-D-20 = (0.45 - 0.70). Validity: The CES-D was moderately correlated to the Hamilton Clinician's Rating scale and the Raskin Rating scale (.44 to .54). The total score is calculated by finding the sum of 20 items. Scores range from 0-60. A score equal to or above 16, indicates a person at risk for clinical depression. Meets criteria for Major depressive episode: Anhedonia or dysphoria nearly every day for the past two weeks, and symptoms in an additional 4 DSM symptom groups noted as occurring nearly every day for the past two weeks; Probable major

depressive episode: Anhedonia or dysphoria nearly every day for the past two weeks, and symptoms in an additional 3 DSM symptom groups reported as occurring either nearly every day for the past two weeks, or 5-7 days in the past week; Possible major depressive episode: Anhedonia or dysphoria nearly every day for the past two weeks, and symptoms in an additional 2 other DSM symptom groups reported as occurring either nearly every day for the past two weeks, or 5-7 days in the past week; Sub thresh hold depression symptoms: People who have a CESD-style score of at least 16 but do not meet above criteria; No clinical significance: People who have a total CESD-style score less than 16 across all 20 questions. [25]

Statistical Analysis:

Descriptive statistics were reported as mean (SD) for continuous variables, frequencies (percentage) for categorical variables. Chi-Square at 5% level of significance was used to find statistical significance. Data were statistically evaluated with IBM SPSS Statistics for Windows, Version 20.0., IBM Corp., Chicago, IL.

RESULTS

Around 200 patients were included in study out of which 22 were excluded. Table 1 shows the distribution of study participants. Mean age of patients was 39.8± 8.71. Majority of patients were males (53.9%) compared to females (46.1%). Significant proportion of patients was illiterate. Majority of them are home makers by occupation (42%). Around 94% of them are Hindu by religion. About 38% of them have duration of ART for 3-5 years. Retrostatus of the spouse was found to be positive in 44% of the study subjects. Around 77% of them were compliant to ART treatment.

Table 1: Demographic distribution of study participants (N=178)

S.no.	Variable	Frequency	Percentage
1	Age		
	<20	3	1.7
	20-29	11	6.2
	30-39	72	40.4
	40-49	66	37.1
	50-59	26	14.6
2	Gender		
	Male	96	53.9
	Female	82	46.1
3	Education		
	Illiterate	34	19.1
	Primary	27	15.2
	Middle	53	29.8
	High school	48	27.0
	Graduate	11	6.2
	Post Graduate	5	2.8
4	Profession		
	Home maker	75	42.1
	Driver	29	16.3
	Labourer	26	14.6
	Private Job	15	8.4
	Defense personnel	13	7.3
	Government employee	8	4.5
	Mechanic	5	2.8
	Farmer	3	1.7
	Student	2	1.1
	Shopkeeper	2	1.1
5	Religion		
	Hindu	169	94.9
	Muslim	2	1.1
	Sikh	7	3.9
6	Duration of ART		
	<1 year	14	7.9
	1-3 year	36	20.2
	3-5 year	68	38.2
	5-7 year	41	23.0
	≥7 year	19	10.7
7	Retrostatus of spouse		
	Positive	79	44.4
	Non-reactive	99	55.6
8	Compliance to ART		
	Yes	138	77.5
	No	40	22.5
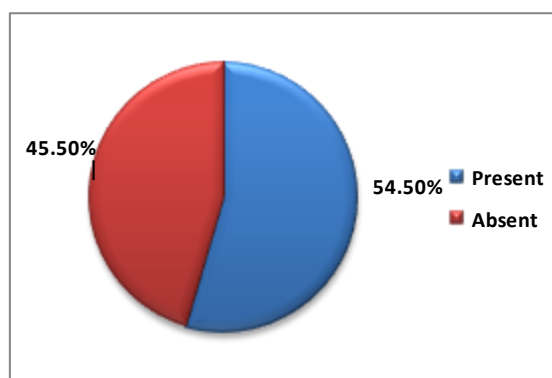
Figure 1: Prevalence of depression among HIV/AIDS patients on ART (N=178)

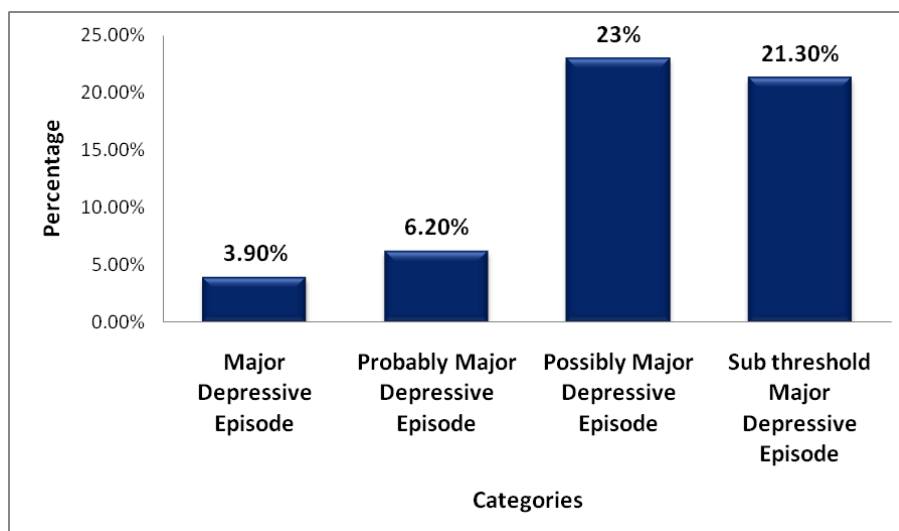Prevalence of depression in HIV patients was found to be 54.5%.

Figure 2: Prevalence of depression among HIV/AIDS patients according to class of depression (n=97)

Figure 2 shows prevalence of class of depression in HIV/Aids Patients. Majority of patients (23%) were having possibly major depressive episode. Around 21.3% were having sub threshold depressive symptoms and 3.9% were having major Depressive Episode.

Table 2: Association of depression across the demographic characteristics of the study participants (N=178)

Slno	Variable	Depression present (n=97)	Depression absent (n=81)	p value
1	Age			
	<20	0 (0)	3 (3.7)	
	20-29	4 (4.12)	7 (8.64)	0.04
	30-39	35 (36.08)	37 (45.68)	
	40-49	39 (40.20)	27 (33.33)	
	50-59	19 (19.59)	7 (8.64)	
2	Gender			
	Male	51 (52.58)	45 (55.56)	0.69
	Female	46 (47.42)	36 (44.44)	
3	Education			
	Illiterate	28 (28.86)	6 (7.40)	
	Primary	20 (20.62)	7 (8.64)	<0.001
	Middle	27 (27.83)	26 (32.1)	
	High school	19 (19.59)	29 (35.80)	
	Graduate	2 (2.06)	9 (11.11)	
	Post Graduate	1 (1.03)	4 (4.93)	
4	Profession			
	Home maker	38 (39.17)	36 (44.44)	
	Driver	20 (21.98)	9 (11.11)	<0.001
	Labourer	15 (15.46)	11 (13.58)	
	Defense personnel	12 (12.37)	1 (1.23)	
	Other profession	11 (11.34)	24 (29.63)	
5	Duration of ART			
	<1 year	11 (11.34)	3 (3.70)	
	1-3 year	25 (25.77)	11 (13.58)	<0.001
	3-5 year	44 (45.36)	24 (29.63)	
	5-7 year	14 (14.43)	27 (33.33)	
	≥7 year	3 (3.09)	16 (19.75)	
6	Compliance to ART			
	Yes	39 (40.20)	58 (71.60)	<0.001
	No	58 (59.79)	23 (28.40)	

Majority of HIV patients having depression belonged to 50-59 years of age (73.1%) followed by 40-49 years (59.1%) Statistically significant difference was found (p=0.037). Depression was more in females (56.1%) compared to males (53.1%). Prevalence of depression decreases with duration of ART (P=<0.001). Depression was more in Defense personal (92.3%) followed by Driver (69.0%) followed by Labourer (57.7%). Depression was more in Illiterate patients compared to educated

ones. Depression was less in patients who were compliant to ART compared to Non-complaint patients.

DISCUSSION

Prevalence of depression in the present study was 54.5%. Our study was consistent with M.S. Bhatia & Sahil Munjal et al [25] in which depression was found to be 58.7%, and Salman Hussain et al [26] in which prevalence of depression was found to be 57%. The possible reason for this difference might be due to different measuring tools for assessing the depression, Study design and sample size. In our study, mean age of depression was 39.8 yrs. Our study was consistent with Desalegn Asmare Eshetu et al [27] in which mean age of depression was 39 years, and Salman Hussain et al [26] in which mean age of depression was 38.8 years. In our study prevalence of depression was found to be more in female 56.1% compared to males 53.1%. Our study was consistent with study conducted by M.S. Bhatia & Sahil Munjal et al [25] in which mean age of depression was 61.3% Salman Hussain et al [26] in which prevalence depression in females was 66%.

Prevalence of depression decreased with increased in duration of ART. Our study was consistent with study conducted by by M.S. Bhatia & Sahil Munjal et al [25] in which it was found that prevalence of depression with increased in duration of ART. This can be attributed to the fact that the treatment decreases the symptoms of the disease and helps the patient to lead a full and productive life. Prevalence of depression was more in patients who were non compliant to ART (71.6%) compared to those who were compliant to ART (40.2%). Depression is very important factor in adherence of ART Our Study was consistent with Hutton et al [23] and M.S. Bhatia Sahil Munjal et al. [25] It was emphasized that depressed patients are more likely to miss doses of ART regime. Therefore early detection and effective treatment of depression goes a long way to improving the adherence of ART and thus improving

quality of life. Prevalence of depression increases with increase in age. Our study was consistent with findings of studies conducted in Ethiopia and Uganda. [25,27]

Ngum PA et al conducted a cross-sectional, hospital-based study in the BRH and LRH over a 3-month period. Three hundred HIV patients aged 21 and above were recruited. Depression and adherence to treatment were assessed using the nine-item Patient Health Questionnaire (PHQ-9) and eight-item Morisky Medication Adherence Scale questionnaires, respectively. Data were analysed using Epi-infoversion. The prevalence of depression was 26.7% (95% CI 20.6–33.7%); 75.0% of those with depression were non-adherent to HAART compared to 37.3% of those without depression (p value0.001). The statistically significant risk factors associated with depression were unemployment (OR 2.38; 95% CI 1.26–4.50), age B40 years (OR 2.13; 95% CI 1.20– 3.70) and CD4 counts B200 cells/ll (OR 3.70; 95% CI1.45–9.09). The prevalence of depression was high and depression was significantly associated with non-adherence to HAART. Interventions to enhance early identification and treatment of depression in patients with HIV/AIDS are needed. Depression screening should be included as part of the routine consultation of HIV/AIDS patients to ensure early detection and treatment. [28]

The older age groups are more likely to have depression normally and the impact of HIV infection and social factors may potentiate the development of depression with HIV. Among majority of depressed patients, majority of patients had "possibly major depressive episode" and major depressive episode was found in 3.9%. Conducted in urban South Africa, Mahir Mohammed et al [30] study showed that, mild to moderate depression was more common as compared to severe depression. High prevalence of depression was found in uneducated person or those having low education status. Our results were consistent with few studies. [25-29] This shows that level of education plays important role in the

prevalence of depression patients. Prevalence of depression was found to be higher in defense person, drivers and laborers.

The interpretation of the finding of this study have got certain limitations such as; the cross sectional nature of this study may limit the cause and effect interpretation of the factor observed. Since the study was institutional based it might not be generalized to the total population of people living with HIV in the region. Since current study was cross sectional, further study with longitudinal research design with appropriate intervention should be recommended in both public and ART centres in order in assess and compare the prevalence of depression and its associated factors. Despite having aforementioned of limitation our findings could be useful for the policy makers of develop an integrated mental health care in National AIDS program for early Diagnosis and prompt treatment of depression.

CONCLUSION

Prevalence of depression was high in HIV/AIDS patients on ART in our study and its important correlates were low education status, female gender, increased age, non- compliance to ART. There is a dire need to incorporate mental health care including screening and management of depression in HIV care guidelines. Routine screening of the more common psychiatric condition among HIV positive subjects should be practiced to optimize patient care and improve clinical outcomes.

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