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Original Research Article

Association between depression and suicidal ideation among people living with HIV

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ABSTRACT

Background: Psychological illnesses among PLHIV may cause poor engagement to their HIV care and it may lead to poor treatment outcomes. Therefore, early detection of depression and suicidal behaviour is important for timely intervention to improve mental health and HIV/AIDS-related treatment outcomes. So, the AIM of the study was to assess the prevalence of depression and its relation with suicidal ideation among PLHIV.
Methods: This was a cross-sectional and facility-based study, 205 PLHIV were recruited by using systematic random sampling from ART plus centre, Lucknow. Depression and suicidal ideation were assessed using the nine-item patient health questionnaire (PHQ-9) tool. Data were analysed using Chi-square test and multivariate logistic regression in SPSS version-23.
Results: The results revealed that the prevalence of depression among study participants was 36.6%, in which about more than half (56.0%) were females and about 54.4% females had suicidal ideation. In the multivariate logistic analysis, gender; AOR=3.07, 95% CI (1.53-6.14), category; AOR=3.66, 95% CI (1.60-8.34), type of family; AOR=0.26, 95% CI (0.12-0.58), socio-economic status; AOR=7.93, 95% CI (2.32-27.06) and PLHIV on co-trimoxazole prophylactic treatment; AOR=0.47, 95% CI (0.23-0.99) were significantly associated with depression
Conclusions: The results signify the psychological morbidities of illness among PLHIV, so without good mental health care, people with HIV may fail their treatment, which also affects their health.

Keywords: Depression, HIV/AIDS, Suicidal ideation, PHQ-9, Mental health

INTRODUCTION

Depression is the most common mental disorder that affects people living with HIV/AIDS. Depression is characterised with altered mood, low energy, loss of pleasure, and lack of interest that may lead to poor concentration, low self-esteem, poor appetite, guilty feelings, and disturbed sleep.[1,2] Such mental disorders are a global public health burden, as more than 264 million people worldwide are affected by depression.[3,4] It is the fourth leading cause of disability worldwide.[5] As per WHO, depression can also lead to suicide, in its worst condition. Globally, approximately 8,00,000 people die due to suicide every year.[6] Suicide is the second leading cause of death in 15-29-year-olds.[4,6] Centers for Disease Control and Prevention (CDC) defines suicide as death caused by self-directed harmful behaviour with an intention of dying as a result, while suicidal ideation is defined as having a thought of, considering or planning suicide.[7-9] For every suicide there are many more people who attempt suicide every year. A prior suicide attempt is the single most important risk factor for suicide in the general population.[6] WHO analysis on the availability of mental health services for people living with HIV showed that only 38% of National HIV Programme managers reported providing mental health screening in some HIV

care settings, while 43% reported not providing any mental health screening or treatment for people with HIV.[10] Lack of treatment for mental health disorders can affect a person's health and their quality of life. Depression has deleterious consequences on the wellbeing and overall health of PLWHA. It may lead to alteration of economic productivity and poor quality of life.[11] It may also associated with increased suicidal attempt, hopelessness, poor drug adherence, fast disease progression and treatment failure.[12] Research has shown those individuals who are suffered 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.[13,14] therefore, early detection of depression among PLHIV is important. The aim of current study was to determine the prevalence of depression and its association with suicidal ideation among PLHIV.

METHODS

This study was a cross sectional study on people living with HIV (PLHIV) who visited the antiretroviral therapy (ART) plus facility at the Lucknow tertiary care hospital. The research was carried out between August 2017 and July 2018. The sample size was determined by applying the formula

$$n = (Z\ (1/2))\ 2\ p\ (1/p)/d2$$

The sample size was calculated to be 205 using the value of the Z statistic at a 5% level of significance as 1.96, the expected prevalence of poor QoL in PLHIV as taken as 26.0%, and assuming a 6% margin of error. Systematic random sampling was used to select cases of PLHIV. Participants aged >18 years and who were on HAART for at least 6 months attending ART plus center were included in the present study, while those who were not able to give valid consent due to any psychiatric illnesses were excluded from the study. Every day, over 100 patients visited the ART plus centre. The study included every fifth patient enrolled at the ART plus centre, and if the chosen patient did not meet the inclusion criteria, the following registered patient was included.

Level of depression

The Level of depression among PLHIV was measured using nine-item Patient Health Questionnaire (PHQ-9) which is a validated depression screening tool. The PHQ-9 includes items on somatic depressive symptoms (e.g., trouble eating or sleeping), cognitive symptoms (e.g., little interest or pleasure in things), and suicidal ideation.[15] All the PHQ items are rated on a Likert scale of "0" (not at all) to "3" (nearly every day), with the scores summated to derive a total score that ranges from 0 to 27. In terms of severity of depressive symptoms, scores of 5-9 points, 10-14 points, 15-19 points, and 20-27 points indicate mild, moderate, moderately severe, and severe levels of depressive symptoms, respectively.[2] Consistent with previous studies, a cut-off score of ≥10 was used in the present study to define a positive depression screen in the respondents.[5,11,15,16] Suicidal ideation was assessed using question 9 on the PHQ- 9, which states "During the past two weeks how often have you had thoughts that you would be better off dead or hurting yourself in some way?" Responses included: "not at all (0) to nearly every day (3)". Any response other than "not at all" was considered experiencing suicidal ideation.[15-17]

Statistical analysis

Socio-demographic and clinical variables were assessed for any significant association with depression and suicidal ideation by using chi-square test, and all the significant factors i.e., $p<0.05$ obtained from bivariate analysis were entered into a multivariate logistic regression model.

RESULTS

Prevalence of depression and suicidal ideation

The PHQ-9 tool was used to screen the study participants for depression. The prevalence of depression among study participants was 36.6% and among male and female it was 28.0% and 48.3% respectively. The scores of depression revealed that 8.0% of the participants had symptoms of severe depression, 17.3% experienced moderately severe depression, 24.7% had moderate depression and 50.0% suffered from mild depression. About 43.9% study participants had suicidal thoughts at least once in the past 2 weeks (Table 1). The proportion of participants who had suicidal thoughts were statistically higher in the depression group compared to non-depression group (65.6% and 34.4% respectively). Higher rates of suicidal ideation were related to higher rates of depressive disorder symptoms ($p <0.001$) (Table 2).

Socio-demographic characteristics

The study outcomes show that participants aged up-to 25 years, majority (58.3%) were depressed and about 70.8% had suicidal thoughts. Percentage of PLHIV belongs to SC/ST category and lower socio-economic status in the depressed group was statistically higher than that in non-depression group ($p=0.001$ and $p=0.016$ respectively). Suicidal thoughts once in the past two weeks were more likely present in younger age ($p=0.005$), unmarried/widowed/or divorced marital status ($p=0.003$), rural locality ($p=0.008$) and lower socio-economic status ($p<0.001$) (Table 3).

Clinical characteristics of the study participants

Adults of HIV positive child were more depressed and about 53.3% adults had suicidal thoughts. About 52.2% adults who were motivated by others to take ART had suicidal ideation (Table 4).

Table 1: Prevalence of depression and suicidal ideation among PLHIV.

Psychosocial characters		Total (N=205) Frequency (%)	Male (N=118) Frequency (%)	Female (N=87) Frequency (%)	P value
Prevalence of depression	Present	75 (36.6)	33 (44.0)	42 (56.0)	0.003*
	Absent	130 (63.4)	85 (65.4)	45 (34.6)	
Severity of depression (PHQ-9)	No depression	55 (26.8)	39 (70.9)	16 (29.1)	0.012*
	Mild	75 (36.6)	46 (61.3)	29 (38.7)	
	Moderate	37 (18.0)	19 (51.4)	18 (48.6)	
	Moderately Severe	26 (12.7)	8 (30.8)	18 (69.2)	
	Severe	12 (5.9)	6 (50.0)	6 (50.0)	
Suicidal Ideation	Yes	90 (43.9)	41 (45.6)	49 (54.4)	0.002*
	No	115 (56.1)	77 (67.0)	38 (33.0)	

*p<0.05 is statistically significant.

Table 2: Prevalence of suicidal ideation by depression among PLHIV.

Prevelence		Depression present N=75	Depression absent N=130	P value
		Frequency (%)	Frequency (%)	
Suicidal ideation	Yes	59 (65.6)	31 (34.4)	0.000*
	No	16 (13.9)	99 (86.1)	

*p<0.05 is statistically significant.

Table 3: Distribution of PLHIV based on their sociodemographic characteristics (n=205).

Sociodemographic characteristics		Total N (%)	Depression#		P value	Suicidal ideation#		P value
			Present N (%)	Absent N (%)		Yes N (%)	No N (%)	
Age (years)	Up to 25	24 (11.7)	14 (58.3)	10 (41.7)	0.019	17 (70.8)	7 (29.2)	0.005
	>25	181 (88.3)	61 (33.7)	120 (66.3)		73 (40.3)	108 (59.7)	
Marital Status	Married	130 (63.4)	45 (34.6)	85 (65.4)	0.441	47 (36.2)	83 (63.8)	0.003
	Unmarried/ Widowed/ Separated/ Divorced	75 (36.6)	30 (40.0)	45 (60.0)		43 (57.3)	32 (42.7)	
Religion	Hindu	169 (82.4)	62 (36.7)	107 (63.3)	0.948	71 (42.0)	98 (58.0)	0.237
	Muslim	36 (17.6)	13 (36.1)	23 (63.9)		19 (52.8)	17 (47.2)	
Category	Unreserved	108 (52.7)	32 (29.6)	76 (70.4)	0.001	41 (38.0)	67 (62.0)	0.187
	OBC	54 (26.3)	17 (31.5)	37 (68.5)		28 (51.9)	26 (48.1)	
	SC/ST	43 (21.0)	26 (60.5)	17 (39.5)		21 (48.8)	22 (51.2)	
Residence	Rural	54 (26.3)	22 (40.7)	32 (59.3)	0.460	32 (59.3)	22 (40.7)	0.008
	Urban	151 (73.7)	53 (35.1)	98 (64.9)		58 (38.4)	93 (61.6)	
Type of family	Nuclear	107 (52.2)	46 (43.0)	61 (57.0)	0.047	45 (42.1)	62 (57.9)	0.578
	Joint	98 (47.8)	29 (29.6)	69 (70.4)		45 (45.9)	53 (54.1)	
Socio economic Status	Upper	35 (17.1)	8 (22.9)	27 (77.1)	0.016	10 (28.6)	25 (71.4)	0.000
	Upper Middle	33 (16.1)	13 (39.4)	20 (60.6)		11 (33.3)	22 (66.7)	
	Middle	43 (21.0)	13 (30.2)	30 (69.8)		12 (27.9)	31 (72.1)	
	Lower Middle	48 (23.4)	15 (31.3)	33 (68.8)		24 (50.0)	24 (50.0)	
	Lower Class	46 (22.4)	26 (56.5)	20 (43.5)		33 (71.1)	13 (28.3)	

#Chi-square test *p<0.005 is statistically significant

Table 4: Distribution of PLHIV based on their personal history.

Personal characteristics		N (%)	Depression#		P value	Suicidal ideation#		P value
			Present	Absent		Yes	No	
Family history of HIV								
Couple concordance (N=140)	Discordant	75 (53.6)	25 (33.3)	50 (66.7)	0.949	25 (33.3)	50 (66.7)	0.414
	Concordant	65 (46.4)	22 (33.8)	43 (66.2)		26 (40.0)	39 (60.0)	
Adult with at-least one positive child (N=169)	Yes	15 (8.9)	8 (53.3)	7 (46.7)	0.052	8 (53.3)	7 (46.7)	0.326
	No	154 (91.1)	49 (31.8)	105 (68.2)		62 (40.3)	92 (59.7)	
Disease history								
Motivation to take ART	Self	159 (77.6)	54 (34.0)	105 (66.0)	0.147	66 (41.5)	93 (58.5)	0.199
	Other	46 (22.4)	21 (45.7)	25 (54.3)		24 (52.2)	22 (47.8)	
On CPT	Yes	58 (28.3)	27 (46.6)	31 (53.4)	0.046*	25 (43.1)	33 (56.9)	0.885
	No	147 (71.7)	48 (32.7)	99 (67.3)		65 (44.2)	82 (55.8)	
Duration of taking ART (months)	Up to 12	31 (15.1)	14 (45.2)	17 (54.8)	0.282	14 (45.2)	17 (54.8)	0.878
	>12	174 (84.9)	61 (35.1)	113 (64.9)		76 (43.7)	98 (56.3)	

#Chi-square test *p<0.005 is statistically significant

Table 5: Multivariate logistic analysis for predictors of depression and suicidal ideation.

Characteristics		Depression present		Suicidal Ideation	
		AOR (95% CI)	P value	AOR (95% CI)	P value
Age	>25	-		Reference	
	Up to 25			2.731 (0.99-7.51)	0.052
Gender	Male	Reference		Reference	
	Female	3.068 (1.53-6.14)	0.002*	1.963 (1.04-3.67)	0.035*
Category	Unreserved	Reference		-	
	OBC	0.777 (0.34-1.75)	0.544		
	SC/ST	3.662 (1.60-8.34)	0.002*		
Type of family	Nuclear	Reference		-	
	Joint	0.263 (0.12-0.58)	0.001*		
Marital Status	Married	-		Reference	
	Unmarried/ Widowed/ Separated/ Divorced			1.966 (1.01-3.84)	0.048*
Socio-economic status	Upper	Reference		Reference	
	Upper Middle	3.089 (0.96-9.95)	0.059	0.835 (0.27-2.51)	0.748
	Middle	1.932 (0.61-6.06)	0.259	0.985 (0.35-2.75)	0.978
	Lower Middle	1.374 (0.44-4.24)	0.581	2.164 (0.81-5.76)	0.122
	Lower Class	7.931 (2.32-27.06)	0.001*	4.110 (1.38-12.22)	0.011*
On CPT	Yes	Reference		-	
	No	0.473 (0.23-0.99)	0.049*		

*p<0.005 is statistically significant

Factors associated with depression and suicidal ideation among HIV positive people

Multivariate logistic regression was used to identify factors predicts depression and suicidal ideation. The results revealed that women were thrice times more likely to develop depression (AOR=3.07, 95% CI (1.53-6.14) and two times more likely to acquire suicidal ideation (AOR=1.96, 95% CI (1.04-3.67). Similarly, results show that, a higher prevalence of depression (AOR=7.93, CI (2.32-27.1) and suicidal ideation (AOR=4.11, 95% CI (1.38-12.2) was present in PLHIV belongs to lower socio-economic status. The findings displayed that SC/ST category; AOR=3.66, 95% CI (1.60-8.34), joint family; AOR=0.26, 95% CI (0.12-0.58) and PLHIV on co-trimoxazole prophylactic treatment; AOR=0.47, 95% CI (0.23-0.99) were significantly predicted depression, while PLHIV of younger age group; AOR=2.73, 95% CI (0.99-7.51) and of unmarried/widowed or separated;

AOR=1.96, 95% CI (1.04-3.67) were significantly associated with suicidal ideation (Table 5).

DISCUSSION

Several years ago, it had been prominently reported that mental health must be integrated in global initiatives for HIV/AIDS, and that research on mental health and HIV should be a high priority, especially in less wealthy countries, but still there is less data on mental health in India.[18] In the present study, prevalence of depression was 36.6% and about 8.0% of the participants had symptoms of severe depression while 17.3% experienced moderately severe depression. Among male and female prevalence of depression was found to be 28.0% and 48.3% respectively. These findings corroborated to previous findings done in Ethiopia (38.9%).[19] This prevalence is higher than studies done in South Wollo, Ethiopia (20%), Indonesia (17.4%), Aksum Ethiopia (14.6%), southwest Cameroon (26.7%) and Uganda(17.4%).[5,7,12,13,20] On the other hand, this finding is lower than studies of L'akoa et al in Cameroon (63%), Cai et al in China (43.0%) and Yeneabat in Ethiopia (76.7%).[14,18,21] This difference might be due to variation in different factors like sample size, study population, study period and inclusion criteria. The severity of depression revealed that 50.0%, 24.7%, 17.3% and 8.0%, had mild, moderate, moderately severe and severe depression respectively, this finding was higher than study of S. Seid et.al. on HIV/AIDS patients(51.9%, 39.2%, 7.6% and 1.3%) and Ngum et al on southwest Cameroon (23.3%, 2.7%, 0.7% and none had severe depression).[12,13] In our study about 43.9% study participants had suicidal thoughts at least once in the past 2 weeks, while in the study of Ophinni et al done in Indonesia found lifetime suicidal ideation was in 23.3% PLHIV.[7] A study of Ophinni et al shows that mean T-score of depression was significantly higher among subjects with suicidal ideation (p=0.000), similarly in our study, participants who had suicidal thoughts, majority of them were depressed (65.6%).[7]

The study outcome shows that participants aged up-to 25 years, majority (58.3%) were depressed and about 70.8% had suicidal thoughts compared to elders. Also PLHIV belongs to SC/ST category and lower socio-economic status were more depressed and it was found statistically significant (p=0.001 and p=0.016 respectively). This is in line with the literature showing that most people experience depression between the ages of 20 and 30.[12–14,20] However in-contrast, a study of China showed age category between 30-39 years had 2.7 times more likely to develop depression than the age category between 20-29 years.[19] Other factors such as educational status, religion, marital status and duration of taking ART were not found to be significantly associated with depressive symptoms which is supported by study done in Cameroon, However it is contrast with study of S Cai in China.[13,14] We did not find association between newly diagnosed HIV patients and depression, in contrast to report by L'akoa et al showed depression is highly frequent among newly diagnosed HIV-infected patients.[18] This study revealed that PLHIV women were thrice times more likely to develop depression; AOR=3.07, 95% CI (1.53-6.14) and two times more likely to acquire suicidal ideation; AOR=1.96, 95% CI (1.04-3.67), which is in line with a Chinese study that, being female; AOR=2.071 (1.077, 3.985) was associated with depression, also a study of Yeneabat showed that women experienced two-fold; COR=2.12 (1.31-3.44), p<0.005 depressive symptoms compared to men.

Limitations

Limitation of current study was it was a facility-based study, so many patients of depressive disorders were unlikely to present in the hospital because of their mental state.

CONCLUSION

This study found a high prevalence (25.3%) of moderate to severe depressive symptoms among adults receiving cART on the ART Plus centre and prevalence of suicidal ideation among PLHIV to be 43.9%. Suicidal ideation is significantly associated with the psychopathology of depressive symptoms, lower socio-economic status, unmarried/widowed marital status and younger age group. This study highlights the association between depressive symptoms and suicidal ideation among PLHIV, and thus, demonstrating the importance of depression screening as a component of HIV integrated care. Thus, early detection and treatment of depression must be a top priority since they may improve linkage to and retention in HIV care centres. Integration of mental health screening into HIV primary care in our setting and similar settings is highly recommended to speed up referral or treatment processes.

Recommendations

Our results only emphasise that clinicians should integrate the delivery of clinical care, targeted interventions and counselling against depressive symptoms through regular appointments to avoid poorer outcomes. We could only assess the prevalence of depressive symptoms and not the prevalence of diagnosed depression because PHQ-9 is a screening tool that is mainly suggestive rather than diagnostic like other instruments used for depression diagnosis.

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