

# Common Mental Disorders: A Challenge Among People Living with Human Immunodeficiency Virus Infection/Acquired Immunodeficiency Syndrome in Udupi, India

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## Abstract

**Background:** Globally, the prevalence of common mental disorders (CMD) is greater among people living with human immunodeficiency virus/acquired immunodeficiency syndrome (PLHA) as opposed to the general population. There is relatively limited research on mental health in PLHA in India and this study seeks to gain insight in this area. **Aim:** The aim of this study is to find the prevalence of CMD among PLHA in Udupi district. **Subjects and Methods:** In this cross-sectional study, 227 PLHA were selected using a convenience sampling method and interviewed at a district antiretroviral treatment center. The Kessler Psychological Distress Scale (K10 scale) and the General Health Questionnaire (GHQ-12) were used to measure distress and stress, respectively to assess CMD. Statistical analysis was performed with categorical variables expressed as frequencies and percentages. Continuous variables were measured using mean and standard deviation. Univariate and multivariate analyses using binomial logistic regression was carried out. SPSS version 15 (SPSS Inc., Chicago, IL, USA) was used to analyze the data. **Results:** The K10 Psychological Distress Scale indicated that 78.9% ( $n = 179/227$ ) of participants suffered from mild to severe mental disorder and it was higher among divorced, separated or widowed PLHA followed by the married participants versus unmarried individuals. The GHQ-12 scale showed 68.3% ( $n = 155/227$ ) suffering from mild to severe mental stress with the female gender developing stress 2.3 times more often. **Conclusion:** High levels of distress were seen among PLHA. They should be periodically screened for CMD and provided early psychological intervention at the point of contact with health professionals. Psychological care needs to be integrated along with the clinical care.

**Keywords:** Common mental disorders, India, People living with human immunodeficiency virus/ Acquired immunodeficiency syndrome, Prevalence

## Introduction

Common mental disorders (CMD) are classified under International Classification of Diseases-10 as “neurotic, stress-related and somatoform disorders” and “mood disorders”.<sup>[1]</sup> They broadly constitute depressive and anxiety

disorders.<sup>[2]</sup> The prevalence and the risk factors for CMD vary across countries. In low and middle-income countries, CMD along with self-inflicted injuries due to underlying mental condition account for 11.1-14%<sup>[2,3]</sup> of the global burden of mental disorders among low- and middle-income nations, contributing significantly to long-term disability, dependency and mortality.<sup>[4]</sup> This is in part due to poor access to the available health services, leading to a “treatment gap.”<sup>[5]</sup> It has been shown that CMD is prevalent among the poor and marginalized communities world over.<sup>[6]</sup> However, they largely are under diagnosed per the World Health Organization.<sup>[7]</sup>

The cultural context may have influences on the way CMD presents, further giving rise to differences in modalities of

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diagnosis and treatment.<sup>[8]</sup> This difference exists between inter- and even intra-national communities due to sub-cultural and socio-economic variations.<sup>[8]</sup>

Concurrent chronic diseases have been shown to be associated with CMD. Evidence shows consistent association between human immunodeficiency virus (HIV)-infection and poor mental health.<sup>[6,7]</sup> The prevalence of CMD in developed, as well as developing nations is seen to be higher among those with concurrent HIV infection in comparison with HIV-negative individuals;<sup>[8-14]</sup> thus, bringing about the need for further insight into this problem to facilitate effective interventions among those infected with HIV.

The current HIV/acquired immunodeficiency syndrome (AIDS) burden is approximately 33.2 million people world-wide,<sup>[15]</sup> including 4.7 million people in Asia.<sup>[16]</sup> India accounts for half of Asia's burden of HIV/AIDS with 2.39 million people infected per the 2011-2012 National AIDS Control Organisation report, with an adult prevalence of 0.31%.<sup>[17]</sup> HIV prevalence is reportedly on the decline in the southern states of India, including Karnataka.<sup>[16]</sup> However, it is still cause for concern because of the absolute number of people infected with the disease. A complex and intertwined relationship is shown to exist between mental disorders and HIV infection. The risk of developing HIV is higher among those with pre-existing mental disorders and those with HIV also consistently show patterns of developing CMD.<sup>[18]</sup> A study by John *et al.*, reported major depression as occurring nearly twice as often in them as compared with the general population.<sup>[19]</sup> Comorbidity leads to obstacles in seeking care and inadequate diagnosis and effective treatment modalities. There is a gap in research investigating mental health-related concerns among people living with HIV/AIDS (PLHA) in low-income nations including India<sup>[18]</sup> and hence, this study is significant.

## Subjects and Methods

### Study setting

This cross-sectional study was conducted between the months of February and August 2012 in the antiretroviral treatment (ART) center located at the Udupi district hospital. Udupi district is located at the southern coastal belt of Karnataka state. The district has a population of 1,117,908 and literacy rate of 86.29%, which is higher than the national average of 74.04% (Census 2011). Udupi district is administratively divided into three taluks, namely Udupi, Kundapura, and Karkala. The PLHA who were on ART treatment, above the age of 18 years and willing to participate were included in the study. Seriously ill- or bedridden-patients who may have lost their ability to comprehend participation in the study and PLHA diagnosed with psychiatric illnesses that may impair cognition were excluded from the study. Following exclusion of patients, who were lost to follow-up, transferred out or those who died, the district ART center (Udupi) reported

a total of 1,563 above the age of 18 years and currently on ART treatment at the time of the study who were eligible. Of the eligible population, 246 participants were sampled using the convenience sampling method. Of them, 19 declined participation and a sample of 227 was included in the study. The response rate was calculated at 92%.

A convenience sampling technique was used to obtain the sample. Appropriate ethical clearance was obtained from the institutional ethics committee of a tertiary care hospital and measures were undertaken to maintain patient confidentiality throughout the study and during the analysis of data. All participants were fully informed regarding the purpose of the study. The consent form was read by the participant or by the investigator for the participant when required and written informed consent was obtained from each participant. The consent form was written in Kannada, the local language and clearly stated that participation was completely voluntary and that the participant could withdraw from the study at any time.

Confidentiality was assured throughout the study. During data collection, each person was identified by a unique identification number. The participant was required to enter their name only while signing for written consent.

### Study tools

Data on socio-demographics were obtained in keeping with the standard socio-demographic pro forma followed at the ART center. Socio-demographic information along with information on duration of ART, adherence to ART (if the patient did not miss more than 3 doses in a month, his/her adherence was considered  $\geq 90\%$ ), recent CD4 count, HIV clinical staging, HIV-tuberculosis (TB) co-infection, treatment regimen and treatment type was obtained.

### Kessler psychological distress scale

The Kessler Psychological Distress Scale (K10 scale) was used in this study to measure levels of psychological distress (mild, moderate, and severe mental distress) among PLHA.<sup>[20,21]</sup> The K10 scale was developed by Kessler<sup>[20]</sup> to use in population surveys. The participants were interviewed to obtain data on this scale. Ten questions were asked about the negative emotional states experienced by the person during the past 4-week period and an assessment was made. The K10 scale consists of Likert items (1 = never, 2 = rarely, 3 = some of the time, 4 = most of the time, 5 = all of the time) questions. The scores range from 10 to 50. Scores 10-19 are likely to be well, 20-24 have mild mental disorder, 25-29 have moderate mental disorder and 30-50 have severe mental disorder.

### General health questionnaire (GHQ-12)

This questionnaire was used to measure stress in the study. This standardized scale designed by Goldberg and Williams<sup>[22]</sup> was self-administered except among those participants who were illiterate, where the interviewer collected data by the

interview method. The questionnaire consists of 12 questions, asking individuals about their general level of happiness, experience of depressive and anxiety symptoms and sleep disturbance over the last 4 weeks. The GHQ-12 consists of four-point Likert items, with responses scored from 0 to 3 in each question (Symptoms present: 0 = not at all 1 = same as usual 2 = more than usual and 3 = much more than usual). The score ranges from 0 to 36. Scores less than 12 are considered as normal, scores from 13 to 15 are mildly distressed, scores from 16 to 20 show evidence of distress and scores greater than 20 suggest severe psychological problems.

### Tool development

The K10 scale and the GHQ-12 scale were translated into Kannada, which is the local language, by an expert translator and then reviewed by a bilingual group and necessary corrections were made. The questionnaires were back-translated to English by a translator before using them for data collection. A pilot study was carried out on 30 participants between May 14<sup>th</sup> and 16<sup>th</sup>, 2012 and internal reliability (Cronbach's  $\alpha$ -coefficient) was found to be 0.671 and 0.664 for GHQ-12 scale and K10 scale respectively. The internal consistency was calculated based on a pilot study performed prior to commencing the study on 30 HIV-positive individuals who were aged above 18 years of age and on ART treatment.

### Statistical analysis

The data were analysed using the SPSS version 15.0 (SPSS Inc., Chicago, IL). Categorical variables were expressed as frequencies and proportions. Mean, standard deviation and range were calculated for all continuous variables including GHQ-12 scores and K10 scale scores. After univariate analysis, the variables, which had significant  $P$  values, were taken for multivariate analysis to adjust for confounding variables. The odds ratio (OR) was calculated with 95% confidence intervals (CI) using the binomial logistic regression. A  $P$  value of less than 0.05 was considered statistically significant.

## Results

The socio-demographic factors [Tables 1 and 2] revealed that males predominated (56.8%, 129/227) in this sample. The mean age of male participants was 42.7 (8.83) years and the mean age of females was 38.7 (8.18) years. Most participants (63.9%, 145/227) were married. The majority (80.2%, 194/227) lived in nuclear or extended nuclear families. Most participants (92.5%, 210/227) followed the Hindu religion. The larger majority of individuals (79.3%, 180/227) had less than primary education and were employed (61.7%, 140/227); however, most (48.9%, 111/227) were unskilled. Assessing for habits, 7% (16/227) of the participants reported habitual alcohol use and 2.2% (5/227) stated that they currently smoked.

The mean K10 score [Table 3] for psychological distress was 24.1 (5.7) and the mean GHQ-12 score [Table 3] for

stress level was 14.8 (4.4). The K10 scale revealed that the majority of the PLHA (78.9%, 179/227) suffered from mild to severe mental disorder. The analysis showed that divorced, separated or widowed PLHA were more psychologically distressed ( $P < 0.01$  OR = 6.24, CI: 1.78-21.77) than unmarried PLHA when adjusted for employment status and religion and married PLHA were more psychologically distressed than those who were unmarried ( $P = 0.04$ , OR = 2.41, CI: 1.04-5.63) when adjusted for employment status and religion.

The GHQ-12 scale showed that 68.3% of participants (155/227) suffered from mild to severe mental stress. The study indicates that female PLHA were more stressed than males ( $P < 0.01$  OR = 2.32, CI: 1.26-4.30) when adjusted for family type and CD4 count. The PLHA living in nuclear or extended nuclear families were found to be more stressed than PLHA living in joint families ( $P = 0.03$ , OR = 2.35, CI: 1.07-5.10) when adjusted for gender and CD4 count. The PLHA who had a CD4 count  $> 200$  cells/ $\mu$ L had more stress than PLHA who had a CD4 count  $< 200$  cells/ $\mu$ L ( $P = 0.01$ , OR = 2.45, CI: 1.24-4.87) when adjusted for gender and family type comparable to another study.<sup>[20]</sup>

Based on the clinical factors [Tables 1 and 2], 38.3% (87/227) were on ART treatment for  $\geq 3$  years. The mean duration of ART treatment was 29.9 (22.96) months. Most (84.1%, 191/227) fell under stage I of the HIV clinical staging with 67.8% (154/227) on Nevirapine-based treatment and 48.5% (110/227) on the – Zidovudine + Lamivudine + Nevirapine treatment regimen. Almost 84.1% of the participants had  $\geq 90\%$  level of adherence to ART treatment and the mean CD4 cell count was 369.4 (217.3) cells/ $\mu$ L. It was concerning, however that 16.3% (37/227) had co-infection with TB.

The odds of becoming stressed on the GHQ-12 scale was seen to be 2.4 times more among those with a recent CD4 count of  $> 200$  cells/ $\mu$ L when compared with people who had CD4 counts  $< 200$  cells/ $\mu$ L.

## Discussion

There is increasing evidence for the occurrence of mental disorders among PLHA. Comorbidity with mental disorders has been indicated as having an effect on the long-term prognosis of PLHA affecting the quality-of-life as significant numbers of PLHA are known to have or develop mental health problems.<sup>[23-25]</sup> This evidence necessitates an urgent focus on the issue of CMD among PLHA in India.

In this study, psychological distress was seen in 78.9% ( $n = 179/227$ ) of participants suffering from mild to severe mental disorder as measured by the K10 Psychological Distress Scale. In comparison with a study conducted by Barua *et al.* in Karkala taluk of Udupi district, where psychiatric morbidity among the general population was found to be 63.8%,<sup>[26]</sup> CMD among PLHA in this study was higher. In the

**Table 1: Characteristics of participants based on socio-demographic, clinical and psychological variables**

Characteristic	N (%)
Gender	
Male	129 (56.8)
Female	98 (43.2)
Marital status	
Single	31 (13.7)
Married	145 (63.9)
Divorced/separated	7 (3)
Widowed	44 (19.4)
Family type	
Joint family	33 (14.5)
Nuclear family/extended nuclear	194 (85.5)
Religion	
Hindu	210 (92.5)
Muslim	5 (2.2)
Christian	12 (5.3)
Place (taluks)	
Udupi	103 (45.4)
Kundapura	84 (37)
Karkala	40 (17.6)
Education	
Illiterate	54 (23.8)
Primary school	126 (55.5)
Secondary school	37 (16.3)
College and above	10 (4.4)
Employed	
Yes	140 (61.7)
No	87 (38.3)
Source of income	
Yes	219 (96.5)
No	8 (3.5)
Occupation	
Professional	7 (3.1)
Skilled	23 (10.1)
Unskilled	111 (48.9)
Housewife	29 (12.8)
Unemployed	57 (25.1)
Alcohol use	
Habitual	16 (7)
Social	20 (8.8)
Never	191 (84.1)
Smoking	
Current smoker	5 (2.2)
Past smoker	23 (10.1)
Never	199 (87.7)
Level of adherence ( $\geq 90\%$ )	
Yes	191 (84.1)
No	36 (15.9)
TB co-infection	
Yes	37 (16.3)
No	190 (83.7)
HIV clinical staging	
Stage 1	191 (84.1)
Stage 2	22 (9.7)
Stage 3	8 (3.5)

Contd...

**Table 1: Contd...**

Characteristic	N (%)
Stage 4	6 (2.6)
Duration on ART treatment (months)	
$\leq 12$	58 (25.6)
13-24	40 (17.6)
25-36	42 (18.5)
$>36$	87 (38.3)
Most recent CD4 cell (cells/ $\mu$ L)	
$<200$	46 (20.3)
200-499	130 (57.3)
$\geq 500$	50 (22)
Treatment regimen	
STV+LMV+NVP	46 (20.3)
STV+LMV+EFV	13 (5.7)
ZDV+LMV+NVP	110 (48.5)
ZDV+LMV+EFV	58 (25.6)
Treatment type	
Nevirapine based	154 (67.8)
Efavirenz based	73 (32.2)
Stress levels (by GHQ scale)	
Normal	72 (31.7)
Mildly stressed	58 (25.6)
Evidence of distress	77 (33.9)
Severe psychological problems	20 (8.8)
Psychological status (by K10 scale)	
Likely to be well	48 (21.1)
Mild mental disorder	79 (34.8)
Moderate mental disorder	65 (28.6)
Severe mental disorder	35 (15.4)

TB: Tuberculosis, HIV: Human immunodeficiency virus, ART: Antiretroviral treatment, STV: Stavudine, LMV: Lamivudine, NVP: Nevirapine, ZDV: Zidovudine, EFV: Efavirenz, GHQ: General health questionnaire

present study, psychological distress was seen to be greatest among divorced, separated or widowed PLHA followed by the married participants and unmarried individuals experiencing the distress least among these groups. The odds of developing psychological distress were 2.4 times more among the married participants in comparison with those who were single. Married PLHA could probably experience more stress as they have the burden of caring for their families, which could include children while having to care for their own selves as well. The relationship status of the participants was also seen to have a bearing on the occurrence of psychological distress, which was seen to be 6.2 times greater among divorced/separated or widowed participants as against those who were single. The lack of family and social support with broken relationships could be key in explaining this phenomenon among PLHA. The status of being HIV positive could itself contribute to worry. Coping with family pressures due to possible morbidity as a result of opportunistic infections clubbed with domestic and work stress may be just some of the possible reasons contributing to the development of CMD.

General stress levels measured by the GHQ-12 scale showed that 68.3% ( $n = 155/227$ ) suffered from mild to severe



**Table 2: Distribution of the participants according to socio-demographic and clinical variables**

Study participants (N=227)				
Variables	Mean (SD)	Minimum	Maximum	Range
Age in years	41 (8.8)	19	67	48
Age of males (years)	42.7 (8.8)	19	67	48
Age of females (years)	38.7 (8.)	22	60	38
Monthly income (rupees)	2794.9 (1367.3)	300	8000	7700
K10 score	24.1 (5.7)	10	46	36
GHQ-12 score	14.8 (4.4)	3	32	29
		Median		Interquartile range
Duration on ART (months)		29		33
CD4 count (cells/ $\mu$ L)		319		243

SD: Standard deviation, GHQ: General health questionnaire, ART: Antiretroviral treatment

**Table 3: Univariate and multivariate (binomial logistic regression) analysis**

Kessler 10 (K10) psychological distress scale						
Variables	Normal (%)	Stressed (%)	Crude OR (95% CI)	P value	Adjusted OR (95% CI)	P value
Marital status						
Single	12 (38.7)	19 (61.3)	Reference	0.01*		0.01*
Married	31 (21.4)	114 (78.6)	2.32 (1.02, 5.29)	0.04*	2.41 (1.035, 5.63)	0.04*
Divorced/separated/widowed	5 (9.8)	46 (90.2)	5.81 (1.79, 18.76)	<0.01*	6.24 (1.78, 21.77)	<0.01*
Religion						
Hindu	40 (19)	170 (81)	Reference	0.03*		<0.01*
Muslim	3 (60)	2 (40)	0.16 (0.02, 0.97)	0.05*	0.09 (0.01, 0.67)	0.02*
Christian	5 (41.7)	7 (58.3)	0.32 (0.09, 1.09)	0.07	0.25 (0.07, 0.89)	0.03*
Employed						
Yes	36 (25.7)	104 (74.3)	Reference			
No	12 (13.8)	75 (86.2)	2.16 (1.06, 4.43)	0.03*	2.14 (0.98, 4.64)	0.05
General health questionnaire 12 (N=227)						
Gender						
Male	51 (39.5)	78 (60.5)	Reference			
Female	21 (21.4)	77 (78.6)	2.39 (1.31, 4.35)	<0.01*	2.32 (1.25, 4.30)	<0.01*
Family type						
Joint family	16 (48.5)	17 (51.5)	Reference			
Nuclear family/extended nuclear	56 (28.9)	138 (71.1)	2.32 (1.10, 4.91)	0.03*	2.34 (1.07, 5.10)	0.03*
Most recent CD4 cell (cells/ $\mu$ L)						
<200 cells	23 (50)	23 (50)	Reference			
>200 cells	49 (27.2)	131 (72.8)	2.67 (1.37, 5.20)	<0.01*	2.45 (1.24, 4.86)	0.01*

\*P&lt;0.05, OR: Odds ratio, CI: Confidence interval

mental stress. The odds of becoming stressed were found to be 2.3 times more among females as compared with males. The reason behind CMD occurring more among women is not understood completely but could indicate myriad factors including perceived gender roles with cultural overtones. Coupled with poor health-seeking behaviour and gender-based discrimination, this could represent just the tip of the iceberg.<sup>[7]</sup> The odds of becoming stressed was noted to be 2.3 times more among those living in nuclear or extended families when compared with those living in joint families, indicating the need for family as a buffer and social support structure, which may be unavailable in nuclear families.

### Recommendations

With the high levels of CMD occurring with HIV, the identification and treatment of these conditions could potentially

improve the quality-of-life and health-related outcomes. There is an urgent need for PLHA to be periodically screened for CMD and provided early psychological intervention at the point of contact with health professionals. Psychological care needs to be integrated along with clinical care. The ART counsellors should be trained in this much needed area. Targeted interventions should focus on those who have lost family members or are coming to grips with life issues among those going through or are divorced, separated from family or spouse or are widowed without social support. Further research targeting the impact of psychological care among PLHA could provide valuable insight on this hitherto less explored theme.

### Limitations

Temporal association cannot be established as it is a cross-sectional study. This sample might not represent the

whole profile of PLHA in Udupi district as this study has excluded PLHA receiving ART from the private hospitals. There is a chance of response bias on the part of the participants. Furthermore, the PLHA who are not on ART were not included in this study.

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