



PSYCHOSOCIAL FACTORS AND PSYCHIATRIC CO-MORBIDITIES AMONG HIV PATIENTS: A CROSS-SECTIONAL STUDY.

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Abstract

Background: Despite advances in ART, HIV remains a health challenge, though it is more manageable. PLWHA face psychiatric issues such as depression, anxiety, substance use, and suicidal behaviour, which affect treatment and outcomes. Beyond biological effects, stigma, social isolation, financial difficulties, lack of support, sleep problems, and stress exacerbate psychological distress. While psychiatric morbidity is well documented, limited research examines how psychosocial factors influence these conditions.

Objectives: To evaluate psychosocial factors associated with psychiatric disorders among HIV-positive individuals and to investigate comorbidities in relation to socio-demographic variables. **Materials and Methods:** A 12-month cross-sectional study was conducted among 150 HIV-positive individuals at the ART Centre in Vijayawada, using convenience sampling. Socio-demographic and psychosocial factors were assessed using standardised scales, and psychiatric comorbidities were identified using the M.I.N.I. instrument. Ethical approval was granted by Siddhartha Medical College. Data were analysed using SPSS version 28.0, with significance set at $p < 0.05$. **Results:** The mean age of participants was 41.43 ± 9.81 years, with most female (57.3%). Most respondents reported high quality of life, good sleep (79.3%), and social support (72.0%), while 18.7% experienced severe stress. Psychiatric comorbidities were present in 41.3%, mainly Major Depression (21.3%), Nicotine Dependence (6.7%), Anxiety (4.7%), Alcohol Dependence (3.3%), and combined dependencies (3.3%). Significant correlations were observed between psychiatric comorbidities and age, gender, marital status, and socio-economic status; no links were found with education, religion, or residence. All areas of quality of life, stress, sleep, and social support showed significant relationships with psychiatric conditions, highlighting the psychosocial impact. **Conclusion:** People with HIV/AIDS face mental health issues worsened by societal stigma and limited social support, especially women, impacting their quality of life. Promoting social inclusion, empowerment, and gender equality is vital. Support groups can help combat stigma. Mental health professionals should understand HIV's psychiatric effects and use various assessment tools to support affected individuals.

Keywords: HIV patients, Psycho social factors, Psychiatric co-morbidities.



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INTRODUCTION

Human Immunodeficiency Virus (HIV) infection remains a major global health challenge despite advances in diagnosis, treatment, and prevention. Since the 1980s, HIV has become a manageable chronic disease, thanks to widespread antiretroviral therapy (ART).¹ Although ART improves survival and reduces morbidity, people with HIV/AIDS (PLWHA) face significant psychological challenges.^{2,3} Psychiatric conditions such as depression, anxiety, substance use disorders, and suicidal behaviour are common and linked to poorer treatment adherence, lower quality of life, and worse clinical outcomes.⁴ India bears a considerable burden of HIV infection, with approximately 2.47 million people currently living with HIV/AIDS.⁵ Beyond the physical consequences of the disease, HIV infection is often accompanied by stigma, discrimination, social isolation, financial difficulties, and uncertainty about future health, all of which contribute significantly to psychological distress.⁶ Among psychiatric disorders associated with HIV infection, depression is the most commonly reported, with prevalence estimates ranging from 20% to 40% across different populations and settings.³ Studies from several countries have demonstrated a high prevalence of depression among PLWHA, including 57% in India, 40.9% in China, and 32.2% in Pakistan.⁷ The presence of psychiatric comorbidities not only impairs emotional and social functioning but also reduces adherence to ART, accelerates disease progression, and increases mortality risk.³

The relationship between HIV and psychiatric disorders is complex and bidirectional. People with psychiatric illnesses, particularly substance use disorders, may engage in behaviours that increase HIV risk.⁸ Conversely, an HIV diagnosis, together with chronic disease, stigma, neurocognitive issues, and medication side effects, can worsen mental health problems.⁹ Depression and anxiety are linked to poor treatment adherence, immune decline, lower quality of life, and higher treatment failure among PLWHA.^{8,10} These findings highlight the need to integrate mental health services into routine HIV care. Despite growing recognition of the importance of mental health in HIV care, research on psychiatric comorbidities and psychosocial determinants among PLWHA remains limited in many low- and middle-income countries, including India. Historically, HIV programmes have largely focused on prevention, diagnosis, and biomedical management, while psychosocial aspects have received comparatively less attention.⁵ Several Indian studies have documented substantial psychiatric morbidity among HIV-positive individuals, including depression, anxiety disorders, and cognitive impairment.¹¹⁻¹³ However, relatively few studies have comprehensively examined the relationship between psychiatric disorders and psychosocial factors such as quality of life, perceived stress, sleep quality, and social support.

Understanding psychosocial factors influencing psychiatric issues in PLWHA is vital for holistic care. Early diagnosis of psychiatric disorders can boost treatment adherence, quality of life, social functioning, and clinical outcomes. This study explores psychosocial factors and psychiatric comorbidities among people with HIV/AIDS, examining their prevalence and links to quality of life, stress, sleep, and social support. The goal is to support integrating mental health into HIV care programs.

MATERIALS AND METHODS

Study population and Setting: HIV/AIDS positive individuals attending the ART Centre, Government General Hospital, Vijayawada

Type of study: Cross-sectional observational study.

Duration of study: 12 months

Sampling method: Convenient sampling

Sample size: 150

Inclusion Criteria:

1. Persons diagnosed with HIV aged 18 to 60 years of all genders.
2. Persons who gave written informed consent.

Exclusion Criteria:

1. Persons who have not given consent for the study.
2. Persons diagnosed with HIV aged below 18 years and above 60 years.
3. Persons with severe cognitive impairment.
4. Persons who are terminally ill.
5. Persons who are aggressive and non-co-operative.

Study Tools:

1. B.G Prasad Socio-economic Status Scale. (B.G. Prasad – Revised 2022)
2. WHO Quality of Life – HIV BREF. (WHO – 2012)
3. Presumptive Stressful Life Events Scale (PSLES).
4. Mini International Neuropsychiatric Interview [M.I.N.I.] in adults
5. The Pittsburgh Sleep Quality Index (PSQI).
6. Multi-dimensional scale of Perceived Social Support (MSPSS)

Ethical Issues: Ethical clearance was obtained from the Institutional Ethics Committee, Siddhartha Medical College, Vijayawada, Andhra Pradesh, India.

Study Procedure: After ethics approval, patients at the ART Centre, Government General Hospital, Vijayawada, who meet the criteria are enrolled. Participants complete a pro forma and the B.G. Prasad scale. Psychosocial factors are assessed using the WHO QOL-HIV BREF, the Stressful Life Events Scale, the Pittsburgh Sleep Quality Index, and the Multidimensional Scale of Perceived Social Support. Psychiatric comorbidities are assessed using the Mini International Neuropsychiatric Interview.

Statistical Analysis: Data were analysed using SPSS version 28.0. Categorical variables were summarised as frequencies and percentages, and continuous variables as mean $\pm$ standard deviation. Chi-square tests (Pearson's and Fisher's exact) were used to compare variables. For all statistical analyses, $p < 0.05$ was considered statistically significant.

RESULTS

SOCIO-DEMOGRAPHIC VARIABLES (N=150)			
VARIABLE	CATEGORY	FREQUENCY (n)	PERCENTAGE (%)
Age (Years)	18-30	20	13.3
	31-40	51	34.0
	41-50	57	38.0
	51-60	22	14.7
	MEAN $\pm$ SD: 41.43 $\pm$ 9.81		
Gender	Male	64	42.7
	Female	86	57.3
Education	Illiterate	53	35.3
	Primary	53	35.3
	Secondary	24	16.0
	Tertiary	20	13.3
Marital Status	Unmarried	15	10.0
	Married	66	44.0
	Widow	55	36.7
	Divorced/Separated	14	9.3
Socio-Economic Status	Upper	53	35.3
	Upper Middle	63	42.0
	Middle	32	21.3
	Lower Middle	2	1.3
	Lower	0	0
Religion	Hindu	92	61.3
	Christian	51	34.0
	Muslim	7	4.7
Place of Residence	Urban	80	53.3
	Semi Urban	18	12
	Rural	52	34.7

The average age of participants was 41.43 $\pm$ 9.81 years, mostly in the 41–50 years group (38.0%), followed by 31–40 years (34.0%). Participants aged 18–30 made up 13.3%; those aged 51–60 accounted for 14.7%, indicating that most were middle-aged. Females (57.3%) outnumbered males (42.7%), indicating a slight female dominance. Regarding education, 35.3% were illiterate, and an equal share had primary education. Secondary education was 16.0%, and tertiary 13.3%, suggesting low overall education levels. Marital status showed 44.0% married, 36.7% widowed, 10.0% unmarried, and 9.3% divorced or separated. Socio-economic status: 42.0% upper-middle class, 35.3% upper, and 21.3% middle class. Only 1.3% were lower-middle, none in the lower class. Religiously, Hindus (61.3%) were the majority, followed by Christians (34.0%) and Muslims (4.7%). Over half lived in urban areas (53.3%), 34.7% in rural areas, and 12.0% in semi-urban areas.

PSYCHO SOCIAL FACTORS (N=150)					
QUALITY OF LIFE (WHO Quality of Life – HIV BREF)					
DOMAIN		SCORES			
		Low (4-9.9)	Medium (10-4.9)	High (15-20)	MEAN $\pm$ SD
Physical	Frequency (%)	8 (5.3%)	41 (27.3%)	101 (67.3%)	15.40 $\pm$ 2.97
Psychological	Frequency (%)	5 (3.3%)	44 (29.3%)	101 (67.3%)	15.07 $\pm$ 2.36
Level of Independence	Frequency (%)	4 (2.7%)	117 (78.0%)	29 (19.3%)	13.05 $\pm$ 1.71
Social Relationships	Frequency (%)	9 (6.0%)	110 (73.3%)	31 (20.7%)	12.82 $\pm$ 1.99

Citation: Kumar SSA, Nightingale KS, Rao UR, Kumar SP. Psychosocial factors and psychiatric co-morbidities among HIV patients: a prospective cross-sectional study. *Int. J. Med.*, 2026;**8**(8):521-531.

Environmental	Frequency (%)	3 (2.0%)	20 (13.3%)	127 (84.7%)	15.46±1.42
Spirituality	Frequency (%)	14 (9.3%)	47 (31.3%)	89 (59.3%)	14.77±3.31
STRESS (Presumptive Stressful Life Events Scale)					
	No Stress (<40)	Less – Moderate Stress (41-200)		Severe Stress (>200)	
Frequency (%)	0	122 (81.3%)		28 (18.7%)	
QUALITY OF SLEEP (Pittsburgh Sleep Quality Index)					
	Good (5 or less)		Poor (>5)		
Frequency (%)	119 (79.3%)		31 (20.7%)		
PERCEIVED SOCIAL SUPPORT (Multi-dimensional scale of Perceived Social Support)					
	Low (1-2.9)		Moderate (3-5)		High (5.1-7)
Frequency (%)	1 (0.7%)		41 (27.3%)		108 (72.0%)

The study found a generally positive psychosocial profile among participants. Most reported high quality of life in physical (67.3%), psychological (67.3%), and environmental (84.7%) areas, with the highest mean scores for environment (15.46). Spirituality was also positive, with 59% scoring high and a mean of 77. Conversely, independence and social relationships were mostly medium, with lower scores (13.05 and 12.82), indicating some challenges. Stress assessment showed that 81.3% experienced low to moderate stress, with 18% experiencing severe stress; none reported no stress, implying common exposure to stress. Sleep quality was good in 79.3% and poor in 20.7%, indicating that sleep disturbances affected some. Most participants (72%) reported high levels of social support, suggesting strong networks that may protect psychological well-being and quality of life.

PSYCHIATRIC CO-MORBIDITIES (Mini International Neuropsychiatric Interview [M.I.N.I])		
	FREQUENCY (n)	PERCENTAGE (%)
NIL	88	(58.7%)
Alcohol Dependence Syndrome (ADS)	5	(3.3%)
Nicotine Dependence Syndrome (NDS)	10	(6.7%)
Both ADS & NDS	5	(3.3%)
Major Depressive Episode (MDE)	32	(21.3%)
Both MDE& ADS	3	(2.0%)
Anxiety Disorders	7	(4.7%)

Assessment of psychiatric comorbidities using the Mini International Neuropsychiatric Interview (M.I.N.I.) found that 88 participants (58.7%) showed no psychiatric disorder, indicating no psychiatric morbidity in over half the group. Among those with comorbidities, Major Depressive Episode (MDE) was most common, affecting 32 (21.3%), highlighting depressive symptoms as a key issue. Substance use disorders included Nicotine Dependence Syndrome (NDS) in 10 (6.7%), Alcohol Dependence Syndrome (ADS) in 5 (3.3%), and 5 (3.3%) with both ADS and NDS, showing co-occurring substance dependence. Additionally, 3 (2.0%) had both MDE and ADS, indicating some overlap. Anxiety disorders were diagnosed in 7 (4.7%), less common but clinically important. The coexistence of mental health issues underscores the need for routine screening and comprehensive evaluation.

ASSOCIATION BETWEEN SOCIO-DEMOGRAPHIC VARIABLES AND PSYCHIATRIC CO-MORBIDITIES								
CHARACTERISTIC	NIL N = 88	ADS N = 5	NDS N = 10	ADS + NDS N = 5	MDE N = 32	MDE + ADS N = 3	GAD N = 7	p-value
AGE (Years)								0.043
18 - 30	10 (11.4%)	1 (20.0%)	0 (0.0%)	0 (0.0%)	5 (15.6%)	0 (0.0%)	4 (57.1%)	
31 - 40	26 (29.5%)	4 (80.0%)	4 (40.0%)	2 (40.0%)	14 (43.8%)	0 (0.0%)	1 (14.3%)	
41 - 50	36 (40.9%)	0 (0.0%)	4 (40.0%)	3 (60.0%)	10 (31.3%)	3 (100.0%)	1 (14.3%)	
51 - 60	16 (18.2%)	0 (0.0%)	2 (20.0%)	0 (0.0%)	3 (9.4%)	0 (0.0%)	1 (14.3%)	

GENDER								<0.001
Male	31 (35.2%)	5 (100.0%)	10 (100.0%)	5 (100.0%)	7 (21.9%)	3 (100.0%)	3 (42.9%)	
Female	57 (64.8%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	25 (78.1%)	0 (0.0%)	4 (57.1%)	
EDUCATION								0.474
Illiterate	30 (34.1%)	1 (20.0%)	5 (50.0%)	2 (40.0%)	13 (40.6%)	1 (33.3%)	1 (14.3%)	
Primary	27 (30.7%)	2 (40.0%)	5 (50.0%)	2 (40.0%)	11 (34.4%)	2 (66.7%)	4 (57.1%)	
Secondary	14 (15.9%)	2 (40.0%)	0 (0.0%)	0 (0.0%)	6 (18.8%)	0 (0.0%)	2 (28.6%)	
Tertiary	17 (19.3%)	0 (0.0%)	0 (0.0%)	1 (20.0%)	2 (6.3%)	0 (0.0%)	0 (0.0%)	
MARITAL STATUS								<0.001
Unmarried	8 (9.1%)	3 (60.0%)	0 (0.0%)	0 (0.0%)	2 (6.3%)	0 (0.0%)	2 (28.6%)	
Married	38 (43.2%)	2 (40.0%)	10 (100.0%)	5 (100.0%)	9 (28.1%)	1 (33.3%)	1 (14.3%)	
Widowed	34 (38.6%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	19 (59.4%)	0 (0.0%)	2 (28.6%)	
Divorced/Separated	8 (9.1%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	2 (6.3%)	2 (66.7%)	2 (28.6%)	
SOCIO-ECONOMIC STATUS								0.002
Upper Middle	35 (39.8%)	2 (40.0%)	4 (40.0%)	2 (40.0%)	18 (56.3%)	0 (0.0%)	2 (28.6%)	
Lower Middle	1 (1.1%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (33.3%)	0 (0.0%)	
Middle	15 (17.0%)	0 (0.0%)	3 (30.0%)	1 (20.0%)	8 (25.0%)	2 (66.7%)	3 (42.9%)	
Upper	37 (42.0%)	3 (60.0%)	3 (30.0%)	2 (40.0%)	6 (18.8%)	0 (0.0%)	2 (28.6%)	
RELIGION								0.3
Hindu	52 (59.1%)	3 (60.0%)	8 (80.0%)	3 (60.0%)	23 (71.9%)	0 (0.0%)	3 (42.9%)	
Christian	32 (36.4%)	2 (40.0%)	2 (20.0%)	2 (40.0%)	7 (21.9%)	2 (66.7%)	4 (57.1%)	
Muslim	4 (4.5%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	2 (6.3%)	1 (33.3%)	0 (0.0%)	
PLACE OF RESIDENCE								0.5
Urban	35 (39.8%)	2 (40.0%)	4 (40.0%)	2 (40.0%)	6 (18.8%)	0 (0.0%)	3 (42.9%)	
Semi-urban	14 (15.9%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	4 (12.5%)	0 (0.0%)	0 (0.0%)	
Rural	39 (44.3%)	3 (60.0%)	6 (60.0%)	3 (60.0%)	22 (68.8%)	3 (100.0%)	4 (57.1%)	

The study found significant associations between socio-demographic variables and psychiatric comorbidities. Age was notably associated ($p = 0.043$), with MDE most common in the 31–50 age group and anxiety more frequent in the 18–30 age group (57.1%). Participants with both MDE and ADS were only in the 41–50 age group. Gender also showed a strong association ($p < 0.001$), with all ADS, NDS, and combined cases occurring among males, whereas females mainly had MDE (78.1%). Anxiety occurred in both genders, slightly more in females (57.1%). Education was not significantly linked ($p = 0.002$), but lower education was associated with more depressive disorders and dependence. Marital status was significantly associated ($p < 0.001$): widowed individuals had more MDE (59.4%), married participants had NDS and ADS+NDS, and unmarried participants mainly had ADS. Divorced/separated participants had a higher combined MDE and ADS rate (66.7%). Socio-economic status was significant ($p = 0.002$): the upper-middle class had the highest MDE (56.3%), and the upper class had more ADS (60.0%). Combined MDE and ADS were frequent in the middle class (66.7%). No significant links were found for religion ($p = 0.300$) or residence ($p = 0.500$), though rural residents had more MDE and all MDE+ADS cases.

ASSOCIATION BETWEEN PSYCHO SOCIAL FACTORS AND PSYCHIATRIC CO-MORBIDITIES

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CHARACTERIST IC	NIL N = 88	ADS N = 5	NDS N = 10	ADS + NDS N = 5	MDE N = 32	MDE + ADS N = 3	GAD N = 7	p- value
QUALITY OF LIFE								
Physical								<0.001
4-9.9 (Low)	1 (1.1%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	7 (21.9%)	0 (0.0%)	0 (0.0%)	
10-14.9 (Medium)	17 (19.3%)	0 (0.0%)	2 (20.0%)	2 (40.0%)	14 (43.8%)	3 (100.0%)	3 (42.9%)	
15-20 (High)	70 (79.5%)	5 (100.0%)	8 (80.0%)	3 (60.0%)	11 (34.4%)	0 (0.0%)	4 (57.1%)	
Psychological								<0.001
4-9.9 (Low)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	5 (15.6%)	0 (0.0%)	0 (0.0%)	
10-14.9 (Medium)	14 (15.9%)	1 (20.0%)	1 (10.0%)	1 (20.0%)	20 (62.5%)	3 (100.0%)	4 (57.1%)	
15-20 (High)	74 (84.1%)	4 (80.0%)	9 (90.0%)	4 (80.0%)	7 (21.9%)	0 (0.0%)	3 (42.9%)	
Level Of Independence								<0.001
4-9.9 (Low)	2 (2.3%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (3.1%)	1 (33.3%)	0 (0.0%)	
10-14.9 (Medium)	62 (70.5%)	3 (60.0%)	7 (70.0%)	5 (100.0%)	31 (96.9%)	2 (66.7%)	7 (100.0%)	
15-20 (High)	24 (27.3%)	2 (40.0%)	3 (30.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	
Social Relationships								<0.001
4-9.9 (Low)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	6 (18.8%)	0 (0.0%)	3 (42.9%)	
10-14.9 (Medium)	64 (72.7%)	5 (100.0%)	7 (70.0%)	3 (60.0%)	25 (78.1%)	3 (100.0%)	3 (42.9%)	
15-20 (High)	24 (27.3%)	0 (0.0%)	3 (30.0%)	2 (40.0%)	1 (3.1%)	0 (0.0%)	1 (14.3%)	
Environmental								<0.001
4-9.9 (Low)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	3 (9.4%)	0 (0.0%)	0 (0.0%)	
10-14.9 (Medium)	8 (9.1%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	7 (21.9%)	3 (100.0%)	2 (28.6%)	
15-20 (High)	80 (90.9%)	5 (100.0%)	10 (100.0%)	5 (100.0%)	22 (68.8%)	0 (0.0%)	5 (71.4%)	
Spirituality								<0.001
4-9.9 (Low)	4 (4.5%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	7 (21.9%)	1 (33.3%)	2 (28.6%)	
10-14.9 (Medium)	17 (19.3%)	2 (40.0%)	2 (20.0%)	3 (60.0%)	16 (50.0%)	2 (66.7%)	5 (71.4%)	
15-20 (High)	67 (76.1%)	3 (60.0%)	8 (80.0%)	2 (40.0%)	9 (28.1%)	0 (0.0%)	0 (0.0%)	
PERCEIVED STRESS								
No Stress (<40)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	<0.001
Moderate Stress (40-100)	80 (90.9%)	5 (100.0%)	10 (100.0%)	4 (80.0%)	19 (59.4%)	0 (0.0%)	4 (57.1%)	
Severe stress (>100)	8 (9.1%)	0 (0.0%)	0 (0.0%)	1 (20.0%)	13 (40.6%)	3 (100.0%)	3 (42.9%)	
QUALITY OF SLEEP								
Good (≤5)	78 (88.6%)	3 (60.0%)	10 (100.0%)	2 (40.0%)	19 (59.4%)	0 (0.0%)	7 (100.0%)	<0.001
Poor (>5)	10 (11.4%)	2 (40.0%)	0 (0.0%)	3 (60.0%)	13 (40.6%)	3 (100.0%)	0 (0.0%)	
PERCEIVED SOCIAL SUPPORT								
Low (1-2.9)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (3.1%)	0 (0.0%)	0 (0.0%)	0.031
Moderate (3-5)	19 (21.6%)	0 (0.0%)	3 (30.0%)	1 (20.0%)	13 (40.6%)	3 (100.0%)	2 (28.6%)	
High (5.1-7)	69 (78.4%)	5 (100.0%)	7 (70.0%)	4 (80.0%)	18 (56.3%)	0 (0.0%)	5 (71.4%)	

A significant association was found between WHOQOL-HIV BREF domains and psychiatric disorders ($p < 0.001$). Participants without psychiatric issues had higher quality of life; those with MDE or ADS scored lower, particularly in physical and psychological domains. MDE was also associated with lower independence and social scores, indicating impairment. Participants with psychiatric issues were more dissatisfied, notably in the environment and spirituality domains, highlighting how comorbidities affect quality of life. Perceived stress was strongly linked to psychiatric disorders ($p < 0.001$). Most without disorders had moderate stress (90.9%), whereas severe stress was common among those with psychiatric conditions—40.6% with MDE, 42.9% with GAD, and all with MDE+ADS reported severe stress, linking higher stress to depression, anxiety, and substance use. Sleep quality was also significantly related to psychiatric comorbidity ($p < 0.001$). Most without disorders reported good sleep (88.6%), but poor sleep was more prevalent in MDE (40.6%), ADS (40.0%), ADS+NDS (60.0%), and especially MDE+ADS (100%). These findings underscore the link between psychiatric issues and sleep problems. Perceived social support was significantly linked to psychiatric conditions ($p=0.031$). Most without disorders reported high support (78.4%), whereas those with MDE often had moderate (40.6%) or low (3.1%) support. All with MDE+ADS had moderate support, suggesting that support deficits may contribute to psychiatric symptoms.

DISCUSSION

SOCIODEMOGRAPHIC VARIABLES: Most participants were aged 31–40 (34%) and 41–50 (38%), with an average age of 41.43 years, indicating that the sample was predominantly in their productive years. Similar trends were found by Gerbi et al.14 (37% aged 40–49), Zaffar et al.15 (62.66% aged 40+), and Peter et al.16 (65.9% over 35). Some studies, such as Charles et al.17, Parcesepe et al.18, and Filiatreau et al.19, identified younger groups, mostly aged 21–39 years, with Muniyandi et al.13 reporting that 48.5% were aged 25–35. The higher prevalence in the 31–50 age range may relate to increased sexual activity, risk exposure, or delayed diagnosis during early asymptomatic stages. Females comprised 57.3%, males 42.7%, consistent with other studies showing higher female proportions, possibly due to better health-seeking behaviour and HIV awareness. Some studies, including Wig et al.22, Gerbi et al.14, Muniyandi et al.13, Zaffar et al.15, and Leserman et al.23, found more males influenced by sociocultural factors and access to healthcare. Many participants had low education: 35.3% illiterate, 35.3% with primary, 16% secondary, and 13.3% tertiary, indicating low educational levels among people living with HIV/AIDS, similar to elsewhere. Lower education may reduce HIV awareness, delay healthcare, and limit understanding of treatment. Others, such as Charles et al.17, reported most with high school or higher education, with regional differences in literacy and socioeconomic status. About 44% of participants were married, 36.7% widowed, 10% unmarried, and 9.3% divorced/separated. Studies like Charles et al.17, Koduri20, Wig et al.22, Menon et al.24, Peter et al.16, Parcesepe et al.18, Muniyandi et al.13, Zaffar et al.15, and Filiatreau et al.19 mostly report married participants, while Gerbi et al.14, Hand et al.21, and Patterson et al.25 report more unmarried individuals. Higher HIV prevalence among married women may result from spousal transmission; the high widowed percentage likely reflects spouses' HIV-related deaths. Most belonged to the upper middle class (42%), contrasting with studies like Patterson et al.25 and Muniyandi et al.13, which reported more from lower socio-economic groups, possibly due to the urban ART centre's setting, offering better healthcare and awareness. Socioeconomic status impacts healthcare access, treatment adherence, and health outcomes. Most were Hindus (61.3%), followed by Christians (34%) and Muslims (4.7%), aligning with regional patterns; religion isn't a risk factor. Religious beliefs influence health-seeking, coping, and attitudes toward illness. Over half (53.3%) lived in urban areas, 34.7% in rural areas, and 12% in semi-urban settings, likely due to the ART centre's urban location. This aligns with Zaffar et al.15 (82.66% urban) and Muniyandi et al.13, who found more rural participants. Urban residents usually have better access to healthcare, testing, education, and support, enabling earlier diagnosis and treatment. Variations may stem from different settings, referral patterns, and demographics.

PSYCHO SOCIAL FACTORS: Most participants reported high quality of life across the physical, psychological, environmental, and spiritual domains of the WHOQOL- HIV BREF. However, independence and social relationships scored lower, with many indicating moderate quality of life. These results suggest overall well-being but ongoing challenges with independence and social interactions. Prior studies, such as Menon et al.24, also reported lower scores in social relationships and spirituality. Peter et al. 16 found the physical domain scored highest, followed by independence, environment, spirituality, psychological, and social domains. The improved quality of life here may be due to effective antiretroviral therapy, better healthcare access, strong family support, and increased HIV/AIDS awareness. Regular treatment and counselling at the ART centre likely enhanced physical and psychological health. The study found that 81.3% of participants had low-to-moderate perceived stress, with only 18.7% reporting high stress, indicating most managed psychosocial challenges well. Similar results were reported by Menon et al. 24, where 71.79% experienced moderate stress, and few had severe stress. Stress in people with HIV/AIDS may stem from concerns about disease progression, disclosure, stigma, finances, and treatment. The lower stress levels here could be due to better social support, healthcare access, awareness, and coping strategies. Support from family and healthcare providers likely helped reduce perceived stress. Most participants (79.3%) reported good sleep quality, while 20.7% experienced poor sleep. Adequate sleep is vital for health and quality of life. This contrasts with Najafi et al. 27, who found 72% had poor sleep and 28% good sleep. Better sleep here may relate to consistent antiretroviral adherence, stable health, lower psychological distress, and strong

support systems. Regular follow-up and counselling might also reduce disease-related concerns and improve sleep. Lower depression and anxiety may also contribute to better sleep. Perceived social support was high: 72.0% reported high support, 27.3% moderate, and only 0.7% low. Social support helps cope with HIV and improves mental health, treatment adherence, and quality of life. This may be due to the urban setting, greater HIV awareness, and close family ties offering emotional, financial, and practical support, reducing isolation and distress. Strong social networks enhance resilience and well-being among people living with HIV/AIDS.

PSYCHIATRIC CO-MORBIDITIES: This study found that 58.7% of participants had no psychiatric comorbidities, while 41.3% had at least one disorder. These findings align with previous research on individuals with HIV/AIDS. Thakur et al. 28 reported rates from 31% to 60%; Nebhinani et al. 11 observed 45% with psychiatric disorders; Israelski et al. 29 reported 38%; and Balasubramaniam et al. 30 noted 36.4%. Despite advances, psychiatric disorders remain common. Some studies, such as Parcesepe et al. 18 and Mittal et al. 31, reported higher rates, up to 85%. The lower prevalence here may be due to the urban ART centre setting, where participants had better access to healthcare, HIV awareness, and social support, reducing psychiatric morbidity. Major Depressive Disorder (MDD) was the most common comorbidity, affecting 21.3%, followed by Nicotine Use Disorder (6.7%) and Anxiety Disorders (4.7%). Alcohol Use Disorder was present in 3.3%, with 3.3% also experiencing co-occurring Alcohol and Nicotine Use Disorders, and 2.0% having both MDD and Alcohol Use Disorder. The prominence of depression aligns with other research showing depression as the most frequent psychiatric disorder in people with HIV/AIDS. For instance, Balasubramaniam et al. 30 identified depression as the leading diagnosis (14%), followed by adjustment disorders (11.2%), alcohol-related disorders (9.8%), and anxiety disorders (1.4%). Mittal et al. 31 found depressive disorders in 41%, dysthymic disorder in 28%, GAD in 16%, psychotic disorders in 5%, and substance use in 10%. The high depression rates may relate to HIV's chronic nature, social stigma, disease uncertainty, financial burdens, and relationship challenges. The higher female participation might also have increased depression and anxiety, as women with HIV face psychosocial stressors such as discrimination, caregiving, economic dependence, and stigma, which heighten mental health risks. Patterns of psychiatric comorbidity vary; Koduri 20 reported very high rates of Alcohol Use Disorder (76%) and Nicotine Use Disorder (84%), while Nedelcovych et al. 32 documented substance use disorders in 40–74%, depression in 22–50%, and anxiety in 2–40%. Zaffar et al. 15 reported Alcohol and Nicotine Use Disorders in 22.34%, and Abdu et al. 33 noted anxiety in 28.4%. Nagawa et al. 34 found Nicotine Use Disorder in 37.7%. These higher substance use disorder rates may reflect the predominantly male study populations, as such disorders are more common in men. The study highlights the heavy burden of psychiatric comorbidity in HIV/AIDS, especially depression, emphasising routine mental health screening, early detection, and integration into HIV care. This can improve adherence, quality of life, psychosocial functioning, and outcomes.

ASSOCIATION BETWEEN SOCIODEMOGRAPHIC VARIABLES AND PSYCHIATRIC CO-MORBIDITIES:

Research shows a clear connection between age and psychiatric comorbidities, with major depressive disorder most common in the 31–50 age group. Studies by Gerbi et al.¹⁴ and Zaffar et al.¹⁵ indicate that middle-aged adults with HIV experience higher levels of psychological distress and depression. This age group often juggles work, family, financial, and caregiving duties, which can be intensified by living with a chronic condition. Concerns about health, social acceptance, and financial stability may increase psychiatric risk. Gender differences reveal higher rates of depression and anxiety among women, consistent with findings by Charles et al.¹⁷, Koduri²⁰, Peter et al.¹⁶, and Leserman et al.²³, suggesting that women with HIV face more psychological challenges. This may be due to factors like gender discrimination, stigma, caregiving roles, economic dependency, and limited healthcare access. Women also tend to experience greater emotional strain from family responsibilities and worries about how HIV affects loved ones. Although educational level wasn't significantly associated with psychiatric issues, a trend showed fewer disorders with higher education, with primary education linked to more psychiatric conditions and tertiary education to fewer, aligning with studies by Peter et al.¹⁶ and Parcesepe et al.¹⁸. Higher education often correlates with better health literacy, coping skills, disease awareness, and healthcare access, which may protect against psychiatric disorders in PLWHA. Marital status was significantly related to psychiatric conditions; married participants had lower disorder rates than unmarried, divorced, or widowed individuals.

This aligns with research by Menon et al.²⁴, Peter et al.¹⁶, Hand et al.²¹, and Patterson et al.²⁵, emphasising the protective effect of social and emotional support. Marriage provides companionship, emotional security, financial stability, and practical assistance, which can reduce depression and anxiety risks among those with HIV/AIDS. The study also identified a relationship between socioeconomic status and psychiatric issues—more common in the upper-middle class and less so in the lower-middle class. While earlier studies linked poverty to more serious psychiatric problems, current findings suggest that those in higher socioeconomic brackets face psychosocial challenges like occupational stress, social pressures, stigma, and fears of losing status. Patterson et al.²⁵ highlighted how psychosocial stressors and socioeconomic factors influence mental health in HIV-positive individuals. Regarding religion, no significant association was found; although more Hindus had psychiatric disorders, this likely reflects their greater numbers in the sample. Similar outcomes were noted by Zaffar et al.¹⁵ and Azhar et al.²⁶, with no substantial link between religion and psychiatric issues in PLWHA. Spirituality may serve as a coping mechanism across different faiths, minimising differences in mental health outcomes.

Residence also showed no significant relationship with psychiatric disorders, although urban residents had a somewhat higher prevalence. Research by Zaffar et al.¹⁵ and Muniyandi et al.¹³ supports this, as urban environments can contribute to mental health challenges due to stress, isolation, and work demands. However, since the difference wasn't statistically significant, residence alone isn't considered a primary factor for psychiatric problems in PLWHA.

This study examined sociodemographic factors and psychiatric comorbidities in people with HIV/AIDS. Psychiatric disorders affect treatment adherence, quality of life, disease progression, and outcomes. Results show age, gender, marital status, and socioeconomic status are linked to comorbidities, while education, religion, and residence are not. The findings highlight the multifactorial nature of psychiatric issues in PLWHA. These factors influence mental health and should be routinely assessed. Early detection and mental health integration into HIV care can improve adherence, psychosocial functioning, and quality of life.

ASSOCIATION BETWEEN PSYCHOSOCIAL FACTORS AND PSYCHIATRIC CO-MORBIDITIES: A significant relationship exists between all WHOQOL-HIV BREF quality-of-life domains and psychiatric comorbidities ($p < 0.001$). Individuals with psychiatric disorders, especially major depressive disorder and anxiety, report lower quality of life across the physical, psychological, independence, social, environmental, and spiritual domains. These findings align with Koduri's 20, which shows that poorer quality of life is linked to adverse psychological outcomes in PLWHA. Peter et al. 16 found that psychological well-being, social relationships, and environmental factors strongly influence quality of life among HIV-positive individuals on treatment. Depression and anxiety impair daily functioning, reduce motivation, limit social interactions, and harm physical health, thereby decreasing quality of life. HIV stigma, concerns about disease progression, and treatment issues further worsen quality of life in the presence of psychiatric symptoms. Srivastava and Bhatia 35 linked quality of life to alcohol use disorders, showing that psychiatric and substance issues negatively impact functioning. The current study observed similar patterns, with participants with alcohol dependence and psychiatric conditions having poorer quality-of-life scores. Stressful life events were linked to psychiatric comorbidity ($p < 0.001$), with higher stress associated with depression, anxiety, and substance use disorders. Filiatreau et al. 19 supported this, noting that stressful events relate to symptoms among HIV patients. Living with HIV/AIDS involves psychosocial stressors such as stigma, discrimination, fear of progression, financial issues, social isolation, and disclosure concerns. Chronic stress may cause psychiatric disorders through psychological and biological mechanisms, impairing coping, treatment adherence, and mental health, thereby increasing psychiatric morbidity. A significant association was found between sleep quality and psychiatric comorbidities ($p < 0.001$); those with poor sleep had higher rates of depression, anxiety, and substance use disorders. This aligns with studies by Hand et al.²¹ and Najafi et al.²⁷, which link sleep problems to psychiatric symptoms in PLWHA.

Sleep issues are common in HIV-positive individuals, driven by stress, medication, HIV symptoms, and social pressures, affecting mood, cognition, quality of life, and immunity. Depression and anxiety can also disrupt sleep, creating a bidirectional cycle that worsens mental health. The study also showed a significant relationship between perceived social support and psychiatric disorders ($p = 0.031$); lower support was associated with more psychiatric issues, consistent with Zaffar et al.¹⁵, who emphasised the vital role of social support in improving quality of life and mental health in people with HIV/AIDS. Social support offers emotional, practical, and community aid, helping individuals manage challenges such as stigma, treatment, and social isolation. Lack of support may lead to loneliness and hopelessness, increasing the risk of depression and anxiety. These findings highlight the importance of strengthening social support and community interventions in HIV care.

The study found significant associations between psychosocial factors and psychiatric comorbidities among people with HIV/AIDS (PLWHA). Quality of life, stress, sleep, and social support were linked to psychiatric disorders, highlighting the complex relationship between psychosocial well-being and mental health in HIV-positive individuals.

CONCLUSION

Our research shows PLWHA are more vulnerable to mental health issues, influenced by stigma and social support, especially among women, affecting quality of life. Promoting social inclusion, empowerment, acceptance, and addressing gender disparities in healthcare is crucial. Despite greater HIV/AIDS awareness, stigma persists, requiring support groups. Mental health professionals must recognise HIV's psychiatric effects, using comprehensive assessments. Future multicentric, longitudinal studies with diverse samples should explore clinical, family, and psychosocial factors impacting mental health. Integrating mental health services into HIV care and public campaigns can reduce stigma, support PLWHA, and improve their quality of life.

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