Prevalence of Major Depressive Disorder Among Patients with Alcohol Use Disorders

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Abstract

Background: Alcohol use disorder (AUD) is frequently associated with psychiatric comorbidities, particularly major depressive disorder (MDD), which further impairs quality of life and treatment outcomes. Despite abundant literature from Western countries, data on the prevalence of MDD among patients with AUD in India remain limited. This is study to determine the prevalence of MDD among patients with AUD and to assess its association with the severity of alcohol dependence. **Materials and Methods:** A cross-sectional observational study was conducted among 300 patients (aged 18–60 years) diagnosed with AUD attending the Psychiatry outpatient and inpatient services of a tertiary care hospital. Sociodemographic data were recorded, and diagnoses were confirmed using ICD-10 criteria. The Severity of Alcohol Dependence Questionnaire (SAD-Q) was used to grade dependence, and the Hamilton Depression Rating Scale (HAM-D) was employed to assess MDD. Data were analyzed using descriptive statistics and chi-square tests. **Results:** Most participants were male (90%) and in the 31–40-year age group (36.7%). Moderate alcohol dependence was most prevalent (46.7%), followed by mild (30%) and severe (23.3%). The prevalence of MDD among patients with AUD was 40%. The occurrence of MDD significantly increased with the severity of alcohol dependence 22.2% in mild, 39.3% in moderate, and 64.3% in severe cases ($p < 0.05$). **Conclusion:** MDD is common among patients with AUD, with prevalence rising alongside the severity of alcohol dependence. Routine screening for depression in this population is essential for comprehensive management and improved outcomes.

Keywords: Alcohol use disorder, Major depressive disorder, Comorbidity, Prevalence, SAD-Q, HAM-D.

INTRODUCTION

Alcohol use disorder (AUD) is a chronic, relapsing condition characterized by compulsive alcohol consumption, loss of control over intake, and negative emotional states during withdrawal.[1] Globally, alcohol is a major contributor to morbidity and mortality, accounting for 5.3% of all deaths and 5.1% of the global burden of disease.[1] Beyond its physical health consequences, AUD is strongly associated with psychiatric comorbidities, particularly major depressive disorder (MDD).[2]

The relationship between AUD and MDD is complex and bidirectional. While some individuals consume alcohol to alleviate or self-medicate depressive symptoms, prolonged alcohol use can precipitate or exacerbate depression through neurobiological dysregulation and psychosocial deterioration.[3] Comorbid depression in individuals with AUD is linked to poorer treatment adherence, higher relapse rates, increased suicide risk, and greater functional impairment.[4]

International studies have reported varying prevalence rates of MDD among individuals with AUD, ranging from 20% to over 50%, with differences largely influenced by study settings, population characteristics, and diagnostic tools used.[5] However, in India, data remain scarce. Socio-cultural factors, including patterns of alcohol consumption, stigma, and help-seeking behaviors, may influence both the prevalence and clinical profile of comorbid depression.[2,5] Moreover, the severity of alcohol dependence may play a critical role in determining the likelihood and intensity of depressive symptoms, yet this association remains underexplored in the Indian context.

Aim and Objectives:

Considering these gaps, the present study aimed to determine the prevalence of MDD among patients with AUD in a tertiary care hospital setting and to assess its association with the severity of alcohol dependence. The specific objectives were: To estimate the prevalence of MDD among patients diagnosed with AUD. To evaluate the relationship between the severity of alcohol dependence and the occurrence of MDD.

MATERIALS AND METHODS

Study Design and Setting: This cross-sectional observational study was carried out in the Department of Psychiatry, Kakatiya

Medical College, Warangal, Telangana, India, at a tertiary care teaching hospital over a six-month period from September 2024 to February 2025.

Study Population: Patients aged 18–60 years, of either gender, diagnosed with alcohol use disorder (AUD) according to the International Classification of Diseases, 10th Revision (ICD-10) criteria, and attending the Psychiatry outpatient or inpatient services were eligible for inclusion. Participants were recruited using convenient sampling.

Inclusion and Exclusion Criteria:
Patients fulfilling the ICD-10 diagnostic criteria for Alcohol Use Disorder (AUD), aged between 18 and 60 years, who are willing to provide written informed consent and are accompanied by a reliable informant, will be included in the study.

Exclusion Criteria:
Patients aged below 18 years or above 60 years, those with a known intellectual disability or severe cognitive impairment, and individuals with severe medical or neurological illnesses that interfere with assessment will be excluded from the study.

Sample Size: A total of 300 patients meeting the inclusion and exclusion criteria were enrolled.

Assessment Tools:
Sociodemographic Proforma – to record age, gender, marital status, and other baseline details.
Alcohol Use Disorders Identification Test (AUDIT) – to confirm the diagnosis of AUD.
Severity of Alcohol Dependence Questionnaire (SAD-Q) – to assess dependence severity (mild, moderate, severe).
Hamilton Depression Rating Scale (HAM-D) – to diagnose and grade major depressive disorder (MDD).
Clinical Institute Withdrawal Assessment of Alcohol Scale, Revised (CIWA-Ar)–to assess withdrawal symptoms where relevant.
Procedure: After obtaining ethical clearance from the Institutional Ethics Committee, eligible patients were approached. Written informed consent was obtained, and assessments were conducted in a single session. The severity of alcohol dependence was graded using SAD-Q scores, and the presence of MDD was determined based on HAM-D criteria.

Statistical Analysis: Data were entered into Microsoft Excel and analyzed using SPSS version 26.0 (IBM Corp., Armonk, NY, USA). Descriptive statistics (mean, standard deviation, frequencies, and percentages) were calculated. The Chi-square test was used to examine the association between severity of alcohol dependence and depression, with a p-value <0.05 considered statistically significant.

Ethical Considerations: Ethical approval was obtained from the Institutional Ethics Committee of Kakatiya Medical College, Warangal. Participation was voluntary, informed consent was obtained, and confidentiality of patient information was maintained throughout the study.

RESULTS

A total of 300 patients diagnosed with alcohol use disorders were included in the study. The socio-demographic characteristics are summarized in [Table 1]. Most participants were in the 31–40 years' age group (36.7%), followed by 18–30 years (28.3%). Males constituted 90% of the study population, and most participants were married (80%) [Figure 1].

The distribution of alcohol dependence severity, as assessed using the SAD-Q, is presented in [Table 2]. Moderate dependence was most prevalent (46.7%), followed by mild (30.0%) and severe dependence (23.3%) [Figure 2].

The prevalence of major depressive disorder among patients with alcohol use disorders, determined using HAM-D criteria, is shown in [Table 3]. Depression was present in 40% of the study population, while 60% did not meet the diagnostic criteria for depression [Figure 3].

An analysis of the association between the severity of alcohol dependence and the presence of depression is detailed in Table 4. In Table 4, the proportion of depression increased with increasing severity of alcohol dependence, ranging from 22.2% in mild cases to 64.3% in severe cases. This association was statistically significant (p < 0.05).

Table 1: Socio-Demographic Characteristics of the Study Population (n = 300)

Variable	Number (n)	Percentage (%)
Age group (years)		
18–30	85	28.3
31–40	110	36.7
41–50	70	23.3
51–60	35	11.7
Gender		
Male	270	90.0
Female	30	10.0
Marital status		
Married	240	80.0
Unmarried	50	16.7
Divorced/Widowed	10	3.3

Table 2: Severity of Alcohol Dependence (SAD-Q Scores)

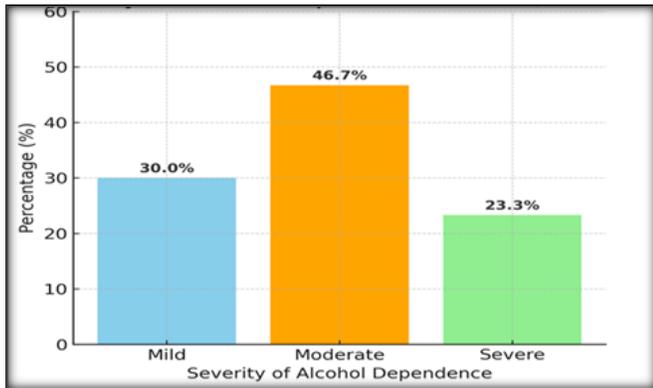| Severity	Number (n)	Percentage (%)
Mild	90	30.0
Moderate	140	46.7
Severe	70	23.3

Figure 1: Severity of Alcohol Dependence (SAD-Q Scores)

Table 3: Prevalence of Major Depressive Disorder among Patients with Alcohol Use Disorders (HAM-D Criteria)

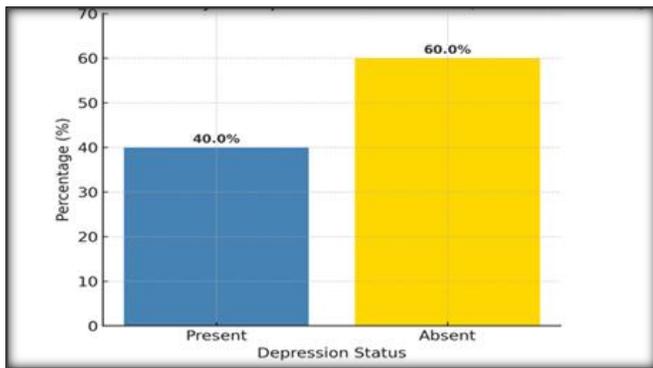| Depression Status	Number (n)	Percentage (%)
Present	120	40.0
Absent	180	60.0

Figure 2: Prevalence of Major Depressive Disorder among Patients with Alcohol Use Disorders (HAM-D Criteria)

Table 4: Association between Severity of Alcohol Dependence and Depression

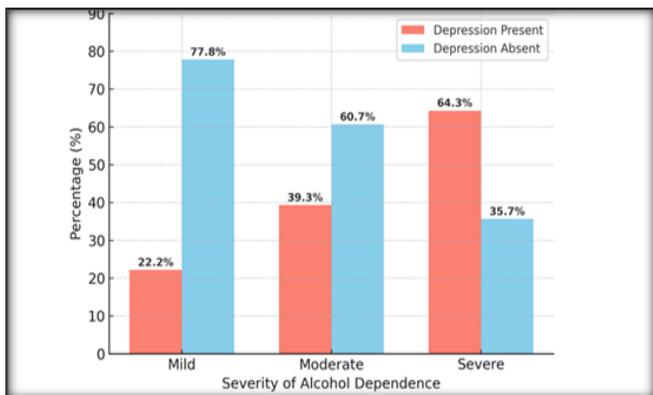| Severity of Alcohol Dependence	Depression Present (n, %)	Depression Absent (n, %)	p-value
Mild	20 (22.2)	70 (77.8)	<0.05
Moderate	55 (39.3)	85 (60.7)	<0.05
Severe	45 (64.3)	25 (35.7)	<0.05

Figure 3: Prevalence of Major Depressive Disorder among Patients with Alcohol Use Disorders (HAM-D Criteria)

DISCUSSION

The present study investigated the prevalence of major depressive disorder (MDD) among patients with alcohol use disorder (AUD) and examined its association with the severity of alcohol dependence in an Indian tertiary care setting. We found that 40% of patients with AUD had comorbid MDD, with the prevalence increasing significantly alongside dependence severity from 22.2% in mild cases to 64.3% in severe cases.

Our prevalence rate aligns with findings from international studies, which have reported comorbidity rates between 30% and 50%.[1,2] Similar rates have also been observed in Indian studies, though variations may arise due to differences in diagnostic criteria, instruments, and study populations.[3] Importantly, our results are consistent with Huang et al.[6] who reported a 38.9% prevalence of depressive symptoms among Chinese psychiatric patients with alcohol dependence, further noting higher rates in those with greater dependence severity. Acharya et al.[7] observed comparable figures in a Nepalese tertiary care population, supporting the generalizability of our findings to South Asian settings.

The observed association between higher dependence severity and increased depression prevalence supports the concept of a dose–response relationship, whereby chronic and heavy alcohol consumption induces neurochemical alterations that contribute to depressive symptomatology.[4] Bulloch et al.[8] similarly highlighted the critical role of dependence severity, demonstrating that it is not alcohol consumption alone, but the development of dependence, that most strongly predicts MDD risk.

Studies in other low- and middle-income countries, such as that by Luitel et al.[9] have also documented high rates of comorbidity between AUD and depression in primary care settings, underscoring the need for integrated mental health and substance use interventions at all levels of healthcare. Longitudinal research, including that of Brière et al.[10] indicates that this comorbidity often begins in adolescence and persists into adulthood, reinforcing the importance of early identification and intervention.

The bidirectional relationship between AUD and MDD is well documented. Alcohol consumption may initially function as a maladaptive coping strategy for depressive symptoms, but chronic use exacerbates neurobiological vulnerability via dysregulation of serotonin, dopamine, and GABA pathways.[5,11] Conversely, depression may impair self-regulation and decision-making, increasing the risk of developing or worsening alcohol dependence.[11] Napryeyenko et al.[11] have also emphasized that depressive syndromes in alcohol dependence are often heterogeneous, with distinct subtypes that may require tailored therapeutic strategies.

Our findings also resonate with the observations of Hirschtritt et al.[12] who demonstrated that individuals with higher levels of alcohol consumption are less likely to undergo depression screening in primary care, potentially leading to underdiagnosis and delayed treatment. This highlights a systemic barrier that could exacerbate the burden of comorbidity.

Taken together, these findings underscore the need for routine depression screening in patients with AUD, particularly those with moderate-to-severe dependence. Integrated treatment

approaches combining psychosocial interventions, pharmacotherapy, and targeted relapse prevention strategies may yield better outcomes for both conditions.[6–12] Addressing comorbidity early could improve adherence, reduce relapse rates, and enhance overall quality of life.

Limitations: This study was cross-sectional, limiting causal inferences. The use of a hospital-based sample may reduce generalizability to community populations. Self-reported measures could also be influenced by recall or social desirability bias.

CONCLUSION

This study demonstrates that major depressive disorder (MDD) is a common comorbidity among patients with alcohol use disorder (AUD), with a prevalence of 40% in the study population. The likelihood of depression increased significantly with the severity of alcohol dependence, highlighting a clear association between the two conditions. These findings emphasize the need for routine psychiatric screening in individuals with AUD, particularly those with moderate-to-severe dependence. Early identification and integrated treatment approaches addressing both alcohol dependence and depression could improve patient outcomes, reduce relapse rates, and enhance quality of life. Future multicentric, longitudinal studies are warranted to establish causal relationships and guide targeted interventions.

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Conflicts of interest
There are no conflicts of interest.

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