COMPARISON OF ANXIETY AND DEPRESSION BETWEEN MEN WITH MODERATE VERSUS SEVERE ALCOHOL DEPENDENCE

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Abstract
Background: Alcohol dependence (AD) is frequently associated with anxiety and depression, with symptom severity often linked to the level of dependence.
Aim: To compare anxiety and depression between men with moderate AD and severe AD.
Methods: A cross-sectional study was conducted on 109 married male patients with AD at a tertiary care centre in Rajasthan. Participants were categorized into moderate (n = 57) and severe (n = 52) dependence groups using the Severity of Alcohol Dependence Questionnaire. Anxiety and depression were assessed with the Hamilton Anxiety Rating Scale (HAM-A) and Hamilton Depression Rating Scale (HAM-D).
Results: Participants with severe AD reported significantly earlier initiation of alcohol use (p = 0.013) and higher mean HAM-A (p = 0.04) and HAM-D (p < 0.001) scores. Severe AD was characterized by a greater proportion of severe anxiety and severe to very severe depression, whereas moderate AD was more commonly associated with moderate symptoms. Logistic regression indicated that shorter duration of dependence (<10 years) reduced odds of higher anxiety, while severity of dependence strongly predicted depressive symptoms.
Conclusion: Severe AD is associated with significantly greater anxiety and depression. These findings highlight the need for early detection and severity-focused psychiatric interventions in alcohol dependence care.

Keywords: Alcohol dependence, Anxiety, Depression, Men, Male.

INTRODUCTION

Alcohol is one of the oldest and commonly used substance. Alcohol consumption represents a major global health challenge, contributing significantly to morbidity, mortality, and psychiatric comorbidities worldwide. In recent years, there has been a growing social acceptance of alcohol consumption across different sections of society, marking a shift from its earlier stigmatization to a more normalized aspect of daily life. [1] Cultural transitions, economic liberalization, and urbanization have diluted traditional taboos, rendering alcohol use simultaneously a public health concern, a social problem, and a social necessity in contemporary India. [2]

This transformation fosters environments in which craving—the intense desire or urge to consume alcohol—becomes more easily triggered. Indian young adult social drinkers demonstrate attentional biases toward alcohol-related cues, indicating heightened craving responses that are shaped by environmental and contextual prompts.[3] Moreover, research suggests that stress and emotional cues further intensify craving, especially among individuals with alcohol dependence.[4]

Craving in the Indian context is also influenced by social dynamics. The acceptance of alcohol in familial or peer settings can reduce internal conflict about use, while simultaneously increasing cue-induced desire to drink. Normalization of alcohol via social circles makes cravings not just a physiological reaction but a response shaped by social reinforcement and cultural permissiveness. These sociocultural influences heighten vulnerability, particularly when social environments valorise drinking behaviour.

Indian research underscores that craving for alcohol often emerges within socially sanctioned or emotionally charged contexts. This intersection mandates integrative interventions that address both social drivers and internal motivational states to mitigate risk of sustained or harmful alcohol use.

Alcohol dependence (AD) is closely intertwined with psychiatric morbidity. Hospital data from India show that up to 92% of people with alcohol dependence also have another psychiatric disorder, most commonly depression or anxiety.[5] Alcohol-dependent patients also "frequently experience episodes of intense depression and/or severe anxiety," underscoring the clinical salience of these symptoms in routine care.[6]

Severity of alcohol involvement appears to shape mental health burden. More problematic alcohol use was linked to greater severity of depression, with harmful patterns of drinking showing a stronger positive association.[7] This suggests a dose–response relationship, where higher levels of alcohol misuse correspond to more severe depressive symptoms. Complementing this, Indian reviews conclude that co-occurring psychiatric disorders with alcohol use disorders are common and clinically consequential, reinforcing the need to address them together.[8]

Early initiation of drinking is a consistent predictor of more severe dependence in Indian settings. In a large general-hospital study of Indian males, the "age of onset of initiation had a significant negative correlation with severity," and those who began ≤18 years had notably higher severity scores.[9] Indian studies have shown that an earlier age at first drink is associated with greater severity of alcohol dependence. [10] These findings align with Indian clinical observations that earlier onset is tied to faster progression and greater problems, amplifying psychiatric risk.

There are significant correlations between the duration of alcohol dependence and the severity of anxiety and depression, with individuals dependent for over 15 years showing higher mean scores for anxiety and depression. Longer and more severe dependence is closely linked to greater anxiety and a higher burden of depressive symptoms.[11]

Despite a substantial Indian literature on alcohol use disorders, relatively few Indian hospital-based studies have directly contrasted anxiety and depression across moderate versus severe alcohol dependence strata. One available investigation explicitly assessed "the level of anxiety and depression among the patients of moderate and severe alcohol dependence," but such comparisons remain sparse overall.[12]

Alcohol dependence is closely linked with psychiatric comorbidities, particularly anxiety and depression, whose severity often rises with the intensity of dependence. Indian evidence further suggests that earlier initiation and prolonged use of alcohol are associated with greater psychiatric morbidity, with dependence severity potentially influencing anxiety and depression differently.

However, there is limited research from India that directly compares these mental health parameters across varying levels of alcohol dependence. Against this backdrop, the present study aimed to assess, compare, and correlate the severity of anxiety and depression among men with moderate and severe alcohol dependence, thereby addressing an important gap in understanding and highlighting the need for early identification and tailored psychiatric care.

MATERIALS AND METHODS

Study design & site: The present study was a cross sectional study conducted at department of psychiatry, Ananta institute of medical sciences and research Centre, Rajsamand, Rajasthan. The study received ethical approval from the Institutional Ethical Committee (Ref no. AIMS/IEC/2023/120).

Study duration: The study duration was 18 months (July 2023 to December 2024).

Sample Size: The final number of the study participants was 109. Indian males with diagnosis of ADS with psychiatric morbidity is as high as 92%[5], and applying the formula for sample size determination for cross-sectional study design (n = 4pq/L2) and for small populations n can be adjusted so that n (adj)* = (Nxn)/(N+n), we got required a number of sample size to be 109. In the formula mentioned, p is prevalence of heavy drinking in patients of ADS, q = 100 − p, L is allowable error, and it is 20% of the p. Hence, by taking the prevalence of heavy drinking in patients of ADS with psychiatric morbidity is 92%,[5] 95% confidence interval, 20% allowable error of margin and 150 finite population for limited number of case and duration, the minimum sample size required was 109.

* Adjustment for finite population size is described by Thrusfield M, 2005[13].

Inclusion and exclusion criteria: Married adult literate male patients who fulfilled the criteria of alcohol dependence according to ICD-11 DCR diagnosed independently by two psychiatrists, and consented to participate were included in the study. Patients who were in active alcohol withdrawal state, had history of substance uses other than alcohol and tobacco, diagnosed cases of dementia, delirium and other organic disorders, mental retardation, psychotic disorders such as schizophrenia, delusional disorder and others, mood disorders, and anxiety disorders, and patient of diagnosed medical illness (Hypertension, Diabetes mellitus, Stroke, Thyroid disorders etc.) were excluded from the study.

Study procedure: A written informed consent was taken from the study participants, then inclusion/ exclusion criteria were applied. A total of 109 patients were selected for the study. The data about sociodemographic variables and clinical variables were collected using a semi structured sociodemographic proforma. The diagnosis of alcohol dependence was made as per the International Classification of Diseases (ICD-11) Diagnostic Criteria for Research (DCR) diagnosed independently by two psychiatrists. And later the following study tools were applied.

Study tools:

1. **Semi-structured proforma** designed for this study, which included sociodemographic variables (age, religion, domicile, employment status and family type) and clinical variables (history of nicotine use, age at regular alcohol use, duration since last regular use and daily alcohol intake in units).

2. **Severity of Alcohol Dependence Questionnaire [14]**: Severity of alcohol dependence was assessed by using severity of alcohol dependence questionnaires (SAD-Q). The SAD-Q is a short, easy-to-complete, self-administered, 20-item questionnaire designed to measure severity of dependence on alcohol as formulated by Edwards & Gross (1976) and Edwards (1978). It contains 20 items, each of which is rated on a four-point Likert scale, ranging from "never or almost never" (score zero) to "nearly always" (score three). The minimum and maximum possible scores are 0 and 60, respectively. A score of 31 or higher indicates "severe alcohol dependence". A score of 16 -30 indicates "moderate dependence." The SAD-Q has good test-retest reliability (0.85) and concurrent validity. Internal consistency of the SADQ within the current study was good (Cronbach's α = 0.98).

3. **The Clinical Institute Withdrawal Assessment for Alcohol–Revised** (CIWA-Ar)[15] was used to exclude the Alcohol withdrawal state at the time of the assessment. The CIWA-Ar scale is validated and having high inter-rater reliability. Its three components out of 10 (tremor, paroxysmal sweats, agitation) are rated by observation alone. The other 7 components require at least some discussion with the patient. The CIWA-Ar scale measures 10 symptoms which are- Nausea and vomiting, Tremor, paroxysmal sweats, Anxiety, Agitation, tactile disturbances, auditory disturbances, visual disturbances, headache, Orientation and clouded sensorium. All components were assessed on a Likert scale ranging from 0 to 7, with the exception of the component to assess the orientation that was scored on a range of 0 to 4. A total scores of less than seven was taken as exclusion of alcohol withdrawal in the present study as was taken in past Indian study.

4. **Hamilton rating scale for anxiety (HAM-A)** [16]: HAM-A was used for the screening of anxiety. It is a clinician-rated evaluation whose purpose is to analyze the severity of anxiety. The HAM-A is one of the first rating scales developed to measure the severity of anxiety symptoms, and is still widely used today in both clinical and research settings. The scale consists of 14 items, each defined by a series of symptoms, Anxious mood, Tension, Fears, Insomnia, Intellectual, Depressed mood, Somatic (muscular), Somatic (sensory), Cardiovascular symptoms, Respiratory symptoms, Gastrointestinal symptoms, Genitourinary symptoms, Autonomic symptoms and Behavior at interview. Each item is scored on a scale of 0 (not present) to 4 (severe), with a total score range of 0 to 56. A total score of 8 to 14 denotes mild anxiety, 15 to 23 denotes moderate anxiety while a total score of 24 or more denotes severe anxiety. A total score of ≤ 7 were considered to represent no or minimal anxiety. In terms of its reliability and validity, the HAM-A scale had generally stood the test of time. It offers a consistent measurement across various contexts and over the repeated uses.

5. **Hamilton rating scale for depression (HAM-D)** [17]: HAM-D was used for screening of depression. It is the most widely used clinician-administered depression assessment scale. A 21-item version of the HAM-D was used to assess the severity of Depressive symptoms. A total score of 0 to 7 is considered as normal, 8 to 13 is mild depression, 14 to 18 is moderate depression, and 19 to 22 is severe depression while a total score of 23 or more denotes very severe depression. HAM-D provides a reliable assessment of depression.

Statistical analysis: Data was collected using the designed proforma and an excel sheet was prepared. Statistical analysis was performed with the help of software SPSS 22 (IBM crop 2011. IBM SPSS statistics for windows, version 20.0. Armok, NY: IBM crop). All quantitative variables were summarized by mean and standard deviation, while qualitative variables were summarized by frequencies and percentage. Study group with moderate and severe alcohol dependence were matched in respect of sociodemographic profile. Matching was performed according to the type of variables using Chi-square test and independent "t" test. Ordinal logistic regression analysis illustrating the predictive relationship between severity of alcohol dependence, duration of alcohol dependence, and likelihood of anxiety disorder (HAM-A Score). All results were considered significant at p<0.05.

RESULTS
Of our total 109 participants with Alcohol dependence (AD), number of participants with moderate alcohol dependence (i.e., SAD-Q score 16 to 30) was 57 while number of participants with severe alcohol dependence (i.e., SAD Q score 31 and above) was 52. Table 1 shows further distribution as per their variables.

Table 1 Distribution of Participants.

Serial Number	Variable	Total sample (N= 109)	Moderate AD (N= 57)	Severe AD (N= 52)
1.	**Religion**			
	Hinduism	102	52	50
	Islam	5	3	2
	Buddhism	2	2	0
2.	**Domicile**			
	Rural	77	44	33
	Urban	32	13	19
3.	**Employment status**			
	Never employed	6	2	4
	Presently unemployed	29	16	13
	Full-time employed			
	Part-time employed	4	4	0
	Self-employed			
	Student	29	13	16
		40	22	18
		1	0	1
4.	**Family type**			
	Joint	65	30	35
	Nuclear	26	13	13
	Extended nuclear	18	14	4
5.	**Nicotine use**			
	Present	93	52	41
	Absent	16	5	11

Table 1 showed that the majority of participants with alcohol dependence were Hindus, predominantly from rural backgrounds. Employment status revealed that most were either self-employed or unemployed, reflecting limited economic stability in this population.

 A higher proportion of participants came from joint families, particularly in the severe dependence group, while nuclear and extended nuclear families were more common in the moderate group. Nicotine use was very common overall, with slightly greater prevalence among those with moderate dependence.

Table 2 Mean and comparison of Means between Moderate AD and Severe AD participants

S. No.	Variable	Total sample (N= 109)	*Comparison*			
			Moderate AD (N= 57)	**Severe AD (N= 52)**	**Df**	***p* value***
1.	Mean age in years (SD)	35.67 (5.35)	35.78 (5.24)	35.58 (5.52)	107	0.23
2.	Mean age at regular alcohol use in years (SD)	26.07 (3.16)	26.75 (3.09)	25.32 (3.10)	107	**0.013**
3.	Mean duration since last regular alcohol use in years (SD)	9.61 (4.97)	9.04 (5.09)	10.23(4.80)	107	0.21
4.	Mean Daily alcohol use in units per day	18.00 (3.88)	17.84 (3.59)	18.17 (4.21)	107	0.66
5.	Mean HAM-A (SD)	18.46 (3.38)	17.54 (4.17)	19.65 (6.56)	107	**0.04**
6.	Mean HAM-D (SD)	18.55 (5.52)	17.22 (2.89)	19.82 (3.37)	107	**0.000**

*Independent T- test; Results are significant at ($p< 0.05$)

Table 2 indicated that the mean age of participants was comparable across both groups, suggesting that age was not a differentiating factor. However, the mean age at initiation of regular alcohol use was significantly lower in the severe dependence group. Duration of regular alcohol use and daily

intake did not differ significantly between groups. Importantly, both anxiety (HAM-A) and depression (HAM-D) scores were significantly higher among participants with severe dependence.

Table 3 Distribution of participants as per severity of Anxiety and severity of Depression

S. No.	Variable	Moderate AD group (N= 57)	Severe AD group (N= 52)	Df	p-value*
1.	Mild Anxiety	16	16	2	0.003
2.	Moderate Anxiety	36	19		
3.	Severe Anxiety	5	17		
4.	Mild Depression	5	0	2	0.000
5.	Moderate Depression	32	16		
6.	Severe Depression	20	30		
7.	Very Severe Depression	0	6		

*Chi-square test; Results are significant at (p< 0.05)

Table 3 demonstrated clear differences in the distribution of anxiety and depression severity between the two groups. Mild anxiety was equally prevalent in both moderate and severe AD groups, whereas moderate anxiety predominated in the moderate group and severe anxiety was more frequent in the severe group, indicating a shift toward higher anxiety severity with increasing dependence. Similarly, depression severity showed a parallel pattern: mild and moderate depression were more common among the moderate AD group, while severe and very severe depression were concentrated in the severe AD group. These findings suggest that greater alcohol dependence is consistently associated with more severe forms of both anxiety and depression, underscoring the escalating psychiatric burden with increasing dependence severity.

Table 4 Ordinal logistic regression analysis illustrating the predictive relationship between severity of alcohol dependence, duration of alcohol dependence, and likelihood of anxiety disorder (HAM-A Score)

		Estimate	SE	Wald	df	sig.	95% Confidence Interval	
							Lower Bound	Upper Bound
Threshold	[HAM-A = Mild anxiety]	-2.026	.424	22.796	1	**.000**	-2.858	-1.194
	[HAM-A = Moderate Anxiety]	.400	.366	1.195	1	.274	-.317	1.118
Location	[SADQ=Moderate Alcohol dependence]	-.565	.371	2.321	1	.128	-1.291	.162
	[SADQ= Severe Alcohol dependence]	0ᵃ	.	.	0	.	.	.
	[duration= < 10 years]	-1.104	.400	7.607	1	**.006**	-1.889	-.320
	[duration> 10 years]	0ᵃ	.	.	0	.	.	.

a.   This parameter is set to zero because it is used as a reference.
SE=Standard error around the coefficient of constant, df=Degree of freedom for Wald Chi-square test, Wald=Wald Chi-square test that tests null hypothesis that constant equals 0 and used to determine statistical significance for each independent variable.

A duration of less than 10 years of alcohol dependence is significantly associated with lower odds of being in a higher HAM-A category, suggesting shorter duration may be protective or associated with less anxiety.

Moderate alcohol dependence shows a negative estimate but is not statistically significant, so its effect on anxiety levels is inconclusive in this model.

 The threshold between Mild anxiety and higher categories of anxiety is significant, but the one between moderate and severe anxiety is not, indicating potential difficulty in distinguishing moderate from severe anxiety levels.

Table 5 Ordinal logistic regression analysis illustrating the predictive relationship between severity of alcohol dependence, duration of alcohol dependence, and likelihood of depression disorder (HAM D Score)

Parameter Estimates								
		Estimate	Std. Error	Wald	df	Sig.	95% Confidence Interval	95% Confidence Interval
							Lower Bound	Upper Bound
Threshold	Mild Depression	-.383	.861	.198	1	.656	-2.071	1.305
	Moderate Depression	2.850	.837	11.601	1	**.001**	1.210	4.490
	Severe Depression	6.055	1.008	36.090	1	**.000**	4.079	8.030
Location	SADQ	1.600	.404	15.701	1	**.000**	.808	2.391
	Duration	.422	.404	1.092	1	.296	-.370	1.215

SE=Standard error around the coefficient of constant, df=Degree of freedom for Wald Chi-square test, Wald=Wald Chi-square test that tests null hypothesis that constant equals 0 and used to determine statistical significance for each independent variable.

Alcohol dependence is a significant predictor as higher SADQ scores increase the odds of being in a more severe depression. While duration of alcohol dependence does not significantly affect depression. The model shows good separation between higher HAMD categories, especially between moderate and severe.

DISCUSSION

This hospital-based cross-sectional study highlights a clear association between the severity of alcohol dependence and psychiatric morbidities, particularly anxiety and depression, among Indian men. Our sociodemographic findings, with the majority of participants being Hindu men from rural areas, predominantly unemployed or self-employed, and living in joint families with high nicotine co-use, closely align with patterns described in other Indian studies. For example, Chavan et al. (2007)[18] and Mutalik et al. (2018)[19] reported a similar rural preponderance and frequent tobacco co-use among alcohol-dependent patients. In contrast, Kalita et al. (2024)[20] reported a greater proportion of nuclear families and higher full-time employment rates, likely reflecting differences in regional socioeconomic structures and referral filters. These variations underscore the importance of contextualizing sociodemographic findings when planning targeted interventions.

Our analysis revealed that participants with severe alcohol dependence had a significantly lower mean age of regular alcohol use in comparison to participants with moderate alcohol dependence indicating early initiation as a potential predictor of greater severity. This aligns with Mane and Kadam (2012) [21], who found a negative correlation between age at first drink and SADQ scores in a tertiary-care cohort, reinforcing the need for early prevention programs. However, a prospective study by Gopalakrishnan et al. (2022) [22] among treatment-seeking men with alcohol use disorders in India reported no significant association between the age of first alcohol use and the severity of depressive symptoms ($\rho = 0.170$; $p = 0.28$).

Our study also found significantly higher mean HAM-A and HAM-D scores among participants with severe dependence compared to those with moderate dependence. These results echo findings from De Souza and Mateen (2018)[23], where higher SADQ scores were consistently associated with elevated depressive symptoms in alcohol-dependent inpatients, and from Rehman and Tyagi (2023)[24], who reported a strong positive association between severity of alcohol use and anxiety and depression scores in an Indian tertiary-care setting. These findings reinforce the gradient between dependence severity and mental health burden,

When examining categorical severity, our results demonstrated a clear shift toward severe anxiety and, severe and very severe depression in the severe dependence group. This finding is consistent with Sunny et al. (2025)[25], who reported that nearly 37% of alcohol-dependent patients experienced severe anxiety and nearly 45% experienced severe depression, indicating a clustering of high symptom severity in more severe cases. De Souza and Mateen (2018) [23] also observed a

similar pattern of more severe depressive categories in patients with higher dependence scores. In contrast, the study by Pushp and Lal (2017) [12] has reported a predominance of moderate severity levels, with fewer patients presenting in the very severe range. These discrepancies could stem from variations in the measurement instruments used (HAM-A and HAM-D vs. HADS) and differences in treatment settings (outpatient vs. inpatient populations).

Ordinal logistic regression for anxiety (HAM-A) indicated that a shorter duration of alcohol dependence (<10 years) was significantly associated with lower odds of being in higher anxiety categories, while dependence severity itself was not a significant predictor after adjustment. This supports the hypothesis that cumulative exposure and longer duration exacerbate anxiety symptoms, a finding corroborated by a study conducted by Bole and Ganeshrao (2024)[26] that reported higher anxiety levels in individuals with prolonged dependence. However, Sunny et al. (2025)[25] reported no significant association between duration and anxiety, suggesting that such relationships may be moderated by factors like detoxification status, psychosocial support, or even cultural coping mechanisms. This variability highlights the importance of individualized assessment in clinical settings.

In our study severity of alcohol dependence emerged as the strongest predictor of severity of depressive symptoms, while duration of the dependence did not contribute significantly to severity of depressive symptoms. This finding is consistent with the observations of De Souza and Mateen (2018)[23] and Rehman and Tyagi (2023)[24], who found a strong positive correlation between SADQ scores and depressive symptom severity. Interestingly, Sunny et al. (2025)[25] also found that duration of use was not significantly related to depression levels, indicating that it is the current intensity of dependence, rather than chronicity, that primarily drives depressive morbidity. This suggests that in clinical practice, the severity of present dependence should be the key focus when planning psychiatric interventions for depression in alcohol-dependent individuals.

Collectively, our findings reinforce the need for early screening and intervention, especially among individuals initiating alcohol use at a younger age. The consistent relationship between severity of dependence and depression across multiple Indian datasets supports integrating structured depression screening and stepped-care interventions within de-addiction programs. The link between longer duration and heightened anxiety, though less consistent, also indicates a need for targeted psychosocial and anxiety-management interventions for chronic users. Furthermore, the clinical utility of reassessing anxiety and depression after a period of abstinence should not be overlooked, as earlier studies have shown that some psychiatric symptoms may remit after detoxification and stabilization.

Conclusion – The findings of the current study add to the growing Indian literature on the interplay between alcohol dependence severity and psychiatric morbidity, demonstrating that men with severe dependence experience significantly higher levels of anxiety and depression than those with moderate dependence. While age and daily intake did not differ meaningfully between groups, earlier initiation of alcohol use was strongly associated with greater dependence severity. Regression analyses revealed that anxiety was more closely linked to the duration of dependence, whereas depression was more strongly predicted by dependence severity. These findings underscore the need for severity-stratified, integrated psychiatric care in de-addiction settings and highlight the importance of early identification and intervention strategies to mitigate the escalating burden of anxiety and depression among individuals with alcohol dependence.

Implications of the study- The results underscore the necessity of incorporating routine psychiatric screening into the management of alcohol dependence, particularly in severe cases. Given the differential associations of anxiety and depression with duration and severity of dependence, tailored interventions are needed. Clinicians should be attentive to the earlier age of initiation as a risk factor, emphasizing preventive strategies among young adults to reduce long-term psychiatric morbidity. Moreover, treatment frameworks for alcohol dependence must adopt a dual-diagnosis perspective, addressing both substance use and co-occurring psychiatric symptoms in an integrated

manner. The findings of this study may help health policymakers in integrating sociocultural determinants of early alcohol initiation into preventive frameworks, thereby contributing to the reduction of future disease burden.

Limitations- Our study had certain limitations.

- The study used a cross-sectional design, which limits the ability to infer causal or temporal relationships between alcohol dependence severity and psychiatric comorbidities.
- The sample size (N=109), while adequate for statistical analysis, was relatively modest and drawn from a single-centre hospital-based setting, which may restrict generalizability to broader community or national populations.
- Only male participants were included; therefore, findings cannot be extended to females, despite evidence that gender differences exist in alcohol dependence patterns and psychiatric morbidity.
- The study excluded patients with comorbid psychiatric and medical disorders (e.g., schizophrenia, hypertension, diabetes), which limits applicability to real-world clinical populations where such comorbidities are common.
- Reliance on self-reported measures (SAD-Q, HAM-A, HAM-D) may introduce recall bias or reporting bias.
- Being conducted in a specific cultural and regional context (Rajasthan, India), the results may not fully capture variations across different Indian states or international populations.
- As the assessment was conducted at a single time point, excluding active alcohol withdrawal state, fluctuations in anxiety and depression symptoms over time (e.g., during abstinence or relapse) were not captured.

Future directions- Future research should employ longitudinal designs to track the progression of anxiety and depression across different stages of alcohol dependence, thereby clarifying causal and temporal relationships. Expanding the scope to include women, adolescents, and diverse sociodemographic groups will enhance representativeness. Neurobiological and psychosocial mediators of the differential associations found—such as the role of stress, family dynamics, or neuroadaptive changes—also warrant exploration. Furthermore, interventional studies evaluating the effectiveness of integrated dual-diagnosis treatment models, particularly those targeting early-onset drinkers, could provide critical evidence for refining clinical and public health strategies.

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