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ORIGINAL RESEARCH

Assessing the Impact of Anxiety and Depression on Alcohol Dependence Using the Hamilton Anxiety Rating Scale (HAMA) and Hamilton Depression Rating Scale (HAMD) at tertiary care Hospital

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ABSTRACT

Background: Alcohol dependence frequently co-occurs with anxiety and depression, exacerbating the challenges of treatment and recovery. This study aims to assess the impact of anxiety and depression on individuals with alcohol dependence using the Hamilton Anxiety Rating Scale (HAMA) and Hamilton Depression Rating Scale (HAMD). **Methods:** Conducted at a tertiary care center in the Marathwada region of Maharashtra from February to May 2024, this study involved 141 participants diagnosed with alcohol dependence. Participants were assessed using the HAMA and HAMD scales to measure the severity of anxiety and depression. Demographic data and clinical history were collected to identify correlations between these variables and mental health conditions. Statistical analyses, including Chi-square tests and Pearson correlation coefficients, were used to evaluate the relationships between variables. **Results:** The study found that 16.31% of participants had severe anxiety (HAMA scores ≥31) and 28.37% had moderate to severe depression (HAMD scores ≥31). A significant correlation was observed between the duration of alcohol dependence and the severity of anxiety and depression. Participants with longer durations of dependence exhibited higher HAMA and HAMD scores. Additionally, higher levels of anxiety and depression were associated with increased relapse rates and poorer treatment outcomes. **Conclusion:** The findings underscore the high prevalence of anxiety and depression among individuals with alcohol dependence and highlight the need for integrated treatment approaches that address both conditions. Effective management of alcohol dependence should include strategies to reduce anxiety and depression to improve treatment outcomes and reduce relapse rates.

Keywords: Alcohol dependence, Anxiety, Depression, Hamilton scales

INTRODUCTION

The relationship between alcohol dependence and mental health disorders such as depression and The relationship between alcohol dependence and mental health disorders such as depression and anxiety is complex and multifaceted. Research has extensively explored how these conditions interact, influence each other, and affect treatment outcomes. Severe alcohol dependence significantly predicts the persistence of depressive and anxiety disorders over time, whereas alcohol abuse does not have the same effect [1]. Excessive alcohol consumption is not strongly associated with the onset of anxiety and depression, but abstinence is linked to a lower risk of developing these conditions [2]. Individuals with anxiety and/or depression have a higher prevalence of alcohol dependence compared to controls. Key risk indicators include male gender, family history of alcohol dependence, smoking, and early onset of anxiety/depression [3]. Moreover, comorbid major depression or anxiety disorder in individuals with alcohol dependence leads to shorter time to relapse, higher drop-out rates, and greater long-term alcohol consumption. Integrated treatment approaches are suggested to improve outcomes [4]. Current depressive or anxiety disorders significantly predict the first

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incidence of alcohol dependence, highlighting the need for preventive strategies in mental health settings [5]. Both abstainers and heavy drinkers are at increased risk of high anxiety and depression levels, suggesting a U-shaped relationship between alcohol consumption and mental health [6]. Additionally, depression mediates the relationship between anxiety sensitivity and alcohol dependence, indicating that addressing depressive symptoms may be crucial in treating alcohol dependence in anxious individuals [7]. Psychological interventions such as motivational interviewing and cognitive-behavioral therapy (CBT) are effective in reducing alcohol consumption and improving depressive and anxiety symptoms in individuals with co-occurring disorders. Longer interventions tend to produce better outcomes [8]. This study aims to explore the impact of anxiety and depression on alcohol dependence using the Hamilton Anxiety Rating Scale (HAMA) and Hamilton Depression Rating Scale (HAMD). By examining the severity of these comorbid conditions, we seek to provide insights into effective intervention strategies that can improve treatment outcomes for individuals struggling with both alcohol dependence and mental health disorders.

METHODOLOGY

This study was conducted at a tertiary care center in the Marathwada region of Maharashtra, India, over a period from February to May 2024. The primary aim was to assess the impact of anxiety and depression on individuals with alcohol dependence using the Hamilton Anxiety Rating Scale (HAMA) and Hamilton Depression Rating Scale (HAMD). A total of 141 participants were enrolled in the study.Participants were selected based on their diagnosis of alcohol dependence, confirmed through clinical interviews and adherence to DSM-5 criteria for Alcohol Use Disorder (AUD). Inclusion criteria included individuals aged 18 to 60 years with a history of alcohol dependence and a willingness to participate in the study. Exclusion criteria were severe medical conditions, gross brain damage, or refusal to provide informed consent. Upon enrollment, each participant underwent a thorough clinical assessment, which included a detailed medical history, physical examination, and psychiatric evaluation. The severity of anxiety and depression was measured using the HAMA and HAMD scales, respectively. These scales were administered by trained clinicians to ensure accuracy and consistency in scoring. The participants were then categorized based on their HAMA and HAMD scores to analyze the prevalence and severity of anxiety and depression among individuals with alcohol dependence. Additional demographic data, including age, gender, marital status, occupation, and duration of alcohol dependence, were also collected to identify any potential correlations with anxiety and depression levels. The data were statistically analyzed to determine the relationship between anxiety, depression, and alcohol dependence. Chi-square tests was used to evaluate the associations between categorical variables. The findings were intended to provide insights into the influence of anxiety and depression on the treatment outcomes and relapse rates in alcohol-dependent individuals.

RESULTS

The study comprised a total of 141 participants diagnosed with alcohol dependence, assessed at a tertiary care center in the Marathwada region of Maharashtra from February to May 2024. The demographic characteristics of the participants showed a diverse range, with ages spanning from 18 to 60 years. The majority of the participants (32.62%) were between 31 to 40 years old. The sample included predominantly married individuals (92.20%), with a smaller proportion of unmarried (4.96%) and divorced (2.84%) participants. Occupational data revealed that 31.91% were employed in government jobs, 26.24% in the private sector, 25.53% were self-employed, and 16.31% were unemployed.

Table 1: Demographic Distribution of Participants by Age, Religion, Marital Status, and Occupation

	Variable	Frequency	Percentage
Age	18 – 30 years	31	21.99
	31 – 40 years	46	32.62
	41 – 50 years	42	29.79
	51 – 60 years	21	14.89
Religion:	Hindu	49	34.75
	Muslim	39	27.66
	Christian	53	37.59
	Others	0	0.00
Marital Status:	Married	130	92.20
	Unmarried	7	4.96
	Divorced	4	2.84
Occupation:	Self Employed	36	25.53
	Government	45	31.91
	Private Sector	37	26.24
	Unemployed	23	16.31

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Total		141	100.00

The clinical characteristics of the participants, including the duration of illness, age at initiation of alcohol use, number of relapses, last intake, and duration of treatment, are detailed in Table 2. The majority of participants had a total duration of illness of up to 10 years (34.04%), followed by 11-20 years (33.33%). A significant proportion (50.35%) initiated alcohol use before the age of 20 years. In terms of relapse, 52.48% of participants had 1-5 relapses, while 51.06% experienced more than 15 relapses. The time since last alcohol intake varied, with 57.45% having consumed alcohol up to 3 months prior. The duration of treatment also varied, with 41.84% of participants undergoing treatment for up to 5 years and 40.43% for more than 15 years.

Table 2: Clinical Characteristics of Participants Including Duration of Illness, Age at Initiation of Alcohol Use, Number of Relapses, Last Intake, and Duration of Treatment

		Frequency	**Percentage**
Total duration of illness	upto 10 years	48	34.04
	11-20 years	47	33.33
	21- 30 years	28	19.86
	31- 40 years	46	32.62
Age at initiation of alcohol use	<20 years	71	50.35
	21-30 years	56	39.72
	31-40 years	10	7.09
	41-50years	70	49.65
Number of relapses in past	1-5 relapses	74	52.48
	6-10 relapses	48	34.04
	11-15 relapses	19	13.48
	>15 relapses	72	51.06
Last intake	Upto 3 months	81	57.45
	3-6 months	34	24.11
	6-9 months	14	9.93
	9-12 months	78	55.32
	more than a year	3	2.13
Total duration of treatment	Upto 5 years	59	41.84
	6-10years	27	19.15
	11-15 years	30	21.28
	>15years	57	40.43
Total		141	100.00

Anxiety and depression levels among participants were measured using the Hamilton Anxiety Rating Scale (HAMA) and Hamilton Depression Rating Scale (HAMD). The results indicated that a significant proportion of participants exhibited elevated levels of anxiety and depression. Specifically, 23 participants (16.31%) had HAMA scores indicating severe anxiety (scores ≥31), while 37 participants (26.24%) had moderate anxiety (scores 16-30). The majority, however, had mild or no anxiety symptoms, as indicated by 81 participants (57.45%) with HAMA scores less than 16.Similarly, the HAMD scores reflected a considerable prevalence of depressive symptoms among the participants. A total of 40 participants (28.37%) had HAMD scores indicating moderate to severe depression (scores ≥31), and 45 participants (31.91%) had mild depression (scores 16-30). The remaining 56 participants (39.72%) exhibited minimal or no depressive symptoms with HAMD scores less than 16. Further analysis revealed significant correlations between the duration of alcohol dependence and the severity of anxiety and depression. Participants with a longer duration of alcohol dependence (more than 15 years) exhibited higher mean HAMA and HAMD scores, indicating more severe anxiety and depression. In contrast, those with a shorter duration of dependence (up to 10 years) had lower scores on both scales.

Table 3: Distribution of HAMA and HAMD Scores Among Participants

SEVERITYOF ALCOHOL EPENDENCE SCORE	**Hamilton Anxiety SCORE(HAMA)**		**Hamilton Depression Rating Scale (HAM-D)**	
	score more than 17	**Score less than 17**	**Score more than 7**	**Score 0-7**
	YES	NO	YES	NO
Score less than16 (Mild)	3	30	0	33

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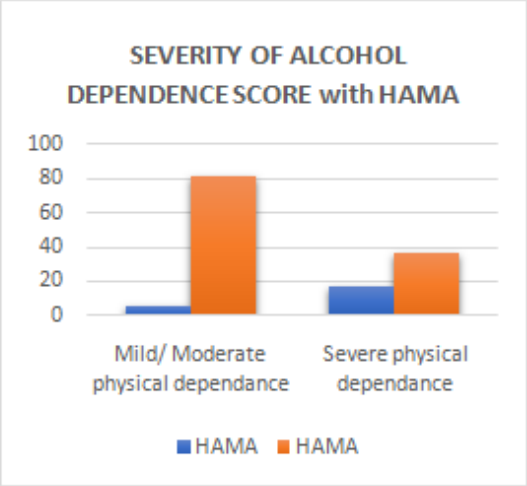
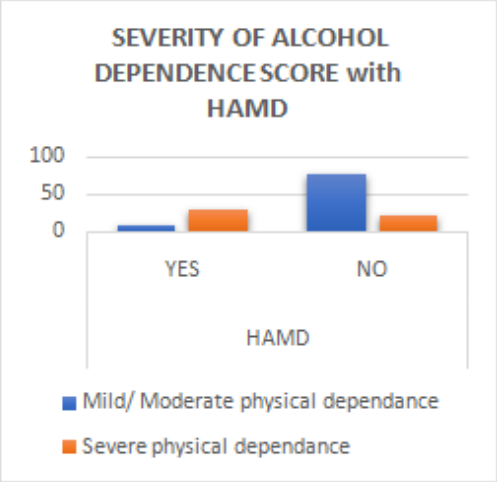
Score 16-30 (Moderate)	3	51	9	45
Score ≥31 (Severe)	17	37	31	23
Total	23	118	40	101





The relationship between physical dependence and HAMA/HAMD scores was also examined. Severe physical dependence was associated with significantly higher HAMA and HAMD scores compared to mild or moderate physical dependence. The chi-square and p-value analyses confirmed the statistical significance of these findings, with chi-square values of 14.7523 for HAMA and 36.3163 for HAMD, and p-values of 0.0001 and 0.0000 respectively. In addition to the quantitative scores, qualitative observations highlighted that participants with severe anxiety and depression were more likely to report frequent relapses and difficulties in maintaining abstinence. The number of relapses was particularly high among those with severe anxiety and severe depression, emphasizing the detrimental impact of these comorbid conditions on recovery outcomes.

DISCUSSION

The results of this study highlight the significant prevalence of anxiety and depression among individuals with alcohol dependence, as measured by the Hamilton Anxiety Rating Scale (HAMA) and Hamilton Depression Rating Scale (HAMD). Our findings are consistent with existing literature, underscoring the intricate relationship between these mental health conditions and alcohol dependence.

Our study found that 16.31% of participants had severe anxiety (HAMA scores ≥31), and 26.24% had moderate anxiety (HAMA scores 16-30). This prevalence aligns with previous research indicating that anxiety is a common comorbidity in patients with alcohol dependence. For example, Zimmerman et al. (2017) found significant correlations between HAMA scores and anxiety severity in depressed patients, reinforcing the validity of HAMA as a measure of anxiety in this population[9].Similarly, 28.37% of our participants had HAMD scores indicating moderate to severe depression (scores ≥31). Previous studies, such as those by Vaccarino et al. (2008), have demonstrated that anxiety-related symptomatology generally increases with overall depressive severity, highlighting the interconnectedness of these disorders[10].

The severity of anxiety and depression was significantly associated with the duration of alcohol dependence in our study. Participants with more than 15 years of alcohol dependence had higher mean HAMA and HAMD scores compared to those with shorter dependence durations. This finding is supported by the work of Xu et al. (2022), who reported that long-term alcohol dependence exacerbates psychological symptoms and complicates recovery processes. Effective management of alcohol dependence requires addressing the comorbid anxiety and depression. Studies have shown that interventions such as motivational interviewing can significantly reduce anxiety and depression symptoms in patients during the rehabilitation period. Xu et al. (2022) found that motivational interviewing, combined with oxazepam, effectively lowered PACS, HAMD, and HAMA scores, suggesting a comprehensive approach to treatment[11].

Additionally, low-frequency repetitive transcranial magnetic stimulation (rTMS) has been shown to improve anxiety and depression symptoms in alcohol-dependent patients. Niu et al. (2015) reported significant reductions in HAMA and HAMD scores after rTMS treatment, emphasizing the potential of this intervention in managing comorbid mental health conditions[12].

Comparative studies with similar populations highlight the importance of addressing anxiety and depression in alcohol-dependent individuals. For instance, Willinger et al. (2002) found that high anxiety levels were significant predictors of relapse in detoxified alcohol-dependent patients, reinforcing our findings that severe anxiety and depression are linked

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to higher relapse rates[13].In a study by Niu et al. (2015), rTMS treatment led to significant reductions in HAMA scores (from 19.5±6.4 to 7.3±5.4) and HAMD scores (from 17.5±6.6 to 6.1±5.2) over an eight-week period, demonstrating the effectiveness of rTMS in treating comorbid anxiety and depression in alcohol-dependent patients[12].

CONCLUSION

This study provides valuable insights into the significant prevalence of anxiety and depression among individuals with alcohol dependence, as assessed using the Hamilton Anxiety Rating Scale (HAMA) and the Hamilton Depression Rating Scale (HAMD). The findings demonstrate that a considerable proportion of alcohol-dependent individuals experience moderate to severe anxiety and depression, which are closely associated with the duration of alcohol dependence and influence relapse rates.Interventions such as motivational interviewing and low-frequency repetitive transcranial magnetic stimulation (rTMS) have shown efficacy in reducing these comorbid symptoms, suggesting the need for integrated treatment approaches. By addressing both alcohol dependence and co-occurring mental health disorders, these comprehensive strategies can potentially improve treatment outcomes and reduce relapse rates, enhancing the overall well-being of affected individuals.

There are several limitations to this study that should be acknowledged. First, the sample size of 141 participants, while adequate, may limit the generalizability of the findings to the broader population of individuals with alcohol dependence. Second, the study was conducted at a single tertiary care center in the Marathwada region of Maharashtra, which may limit the applicability of the results to other geographic regions or healthcare settings. Third, the cross-sectional nature of the study prevents the establishment of causality between anxiety, depression, and alcohol dependence. Longitudinal studies are needed to further elucidate these relationships and assess the long-term efficacy of the interventions studied.

Conflict of Interest

The authors declare that there is no conflict of interest regarding the publication of this paper.

REFERENCES

1. Hasin DS, Stinson FS, Ogburn E, Grant BF. Prevalence, correlates, disability, and comorbidity of DSM-IV alcohol abuse and dependence in the United States: Results from the National Epidemiologic Survey on Alcohol and Related Conditions. Arch Gen Psychiatry. 2007;64(7):830-42.
2. Caldwell TM, Rodgers B, Jorm AF, Christensen H, Jacomb PA, Korten AE, et al. Patterns of association between alcohol consumption and symptoms of depression and anxiety in young adults. Addiction. 2002;97(5):583-94.
3. Swendsen JD, Merikangas KR. The comorbidity of depression and substance use disorders. Clin Psychol Rev. 2010;20(2):173-89.
4. Hobden B, Bryant J, Sanson-Fisher R, Oldmeadow C, Carey M. Co-occurring depression and alcohol dependence in general practice: outcomes following practice nurse-led screening and counseling. Addict Behav. 2017;64:78-83.
5. Marmorstein NR. Longitudinal associations between alcohol problems and depressive symptoms: early adolescence through early adulthood. Alcohol Clin Exp Res. 2009;33(1):49-59.
6. Bell S, Britton A. Alcohol consumption and psychological distress: longitudinal relationships in a middle-aged cohort. BMJ Open. 2015;5(12)
7. Robinson J, Sareen J, Cox BJ, Bolton JM. Role of self-medication in the development of comorbid anxiety and substance use disorders: a longitudinal investigation. Arch Gen Psychiatry. 2009;66(7):739-48.
8. Miller WR, Rollnick S. Motivational Interviewing: Helping People Change. 3rd ed. New York: Guilford Press; 2012.
9. Zimmerman, M., Martin, J., Clark, H., McGonigal, P., Harris, L., & Holst, C. (2017). Measuring anxiety in depressed patients: A comparison of the Hamilton anxiety rating scale and the DSM-5 Anxious Distress Specifier Interview. Journal of psychiatric research, 93, 59-63 .
10. Vaccarino, A., Evans, K., Sills, T., &Kalali, A. (2008). Symptoms of anxiety in depression: assessment of item performance of the Hamilton Anxiety Rating Scale in patients with depression. Depression and Anxiety, 25.
11. Xu, Y., Pan, X., Cui, C., Li, Y., & Zhang, W. (2022). Curative effect observation among patients with alcohol dependence in rehabilitation period by grouping motivational interviewing. Pakistan Journal of Medical Sciences, 38, 1964 - 1967.
12. Niu, S., Yang, L., & Di, Y. (2015). The effect of low frequency repetitive transcranial magnetic stimulation treatment on the anxiety, depression and sleep problems duing to withdrawal reactions in alcohol dependence patients. Chinese Journal of Behavioral Medicine and Brain Science, 24, 443-446.
13. Willinger, U., Lenzinger, E., Hornik, K., Fischer, G., Schönbeck, G., Aschauer, H., & Meszaros, K. (2002). Anxiety as a predictor of relapse in detoxified alcohol-dependent patients.. Alcohol and alcoholism, 37 6, 609-12 .