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Original Research

Alcohol Use and Its Association with Depression among Young Adults: A Hospital-Based Study.

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Abstract

Background: Alcohol use and depression are major public health concerns among young adults, often coexisting and contributing to significant psychological and social impairment. The interaction between these conditions is complex and may increase the risk of adverse outcomes, including poor functioning and self-harm. **Aim:** To assess the prevalence of alcohol use and its association with depression among young adults. **Materials and Methods:** This hospital-based cross-sectional analytical study was conducted over a period of 6 months in the Department of Psychiatry at Naraina Medical College and Research Centre. A total of 100 young adults aged 18-35 years were included using consecutive sampling. Alcohol use was assessed using the Alcohol Use Disorders Identification Test (AUDIT), and depression was evaluated using the Patient Health Questionnaire-9 (PHQ-9). Data were analyzed using SPSS version 25.0. Association between variables was assessed using the Chi-square test, and strength of association was measured using Odds Ratio (OR) with 95% confidence interval. A p-value <0.05 was considered statistically significant. **Results:** Alcohol use (AUDIT ≥8) was observed in 60% of participants, while 42% had clinically significant depression (PHQ-9 ≥10). Among alcohol users, 53.3% had depression compared to 25% among non-users. A statistically significant association was found between alcohol use and depression ($\chi^2 = 7.94$, $p = 0.004$). The odds of depression were 3.43 times higher among participants with significant alcohol use (OR = 3.43; 95% CI: 1.44-8.17). **Conclusion:** Alcohol use is significantly associated with increased risk of depression among young adults. Routine screening and integrated management strategies targeting both conditions are essential for early intervention and improved mental health outcomes.

Keywords: Alcohol use, depression, young adults, AUDIT, PHQ-9, risk factors.

Introduction

Alcohol consumption is one of the leading contributors to the global burden of disease and is particularly prevalent among young adults. Harmful use of alcohol is associated with a wide range of physical, social, and mental health problems, accounting for significant morbidity and mortality worldwide [1]. In recent years, there has been a noticeable rise in alcohol consumption among young adults, driven by factors such as urbanization, changing social norms, peer influence, and increased accessibility [2].

Depression is another major public health concern and is among the most common mental health disorders affecting young adults. It is characterized by persistent low mood, loss of interest, impaired functioning, and increased risk of self-harm and suicide [3]. The transitional phase of young adulthood, marked by academic pressure, career uncertainty, and evolving social roles, makes this population particularly vulnerable to depressive disorders [4].

The relationship between alcohol use and depression is complex and bidirectional. On one hand, excessive alcohol consumption can induce neurochemical changes in the brain, leading to depressive symptoms. On the other hand, individuals experiencing depression may resort to alcohol use as a form of self-medication to cope with psychological distress [5]. This cyclical interaction often results in worsening of both conditions and poses challenges in diagnosis and management.

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Several studies have demonstrated that alcohol use is significantly associated with increased severity and persistence of depressive symptoms. Chronic alcohol consumption has been linked to alterations in neurotransmitter systems, including serotonin and dopamine pathways, which play a crucial role in mood regulation [6]. Additionally, alcohol-related social and occupational dysfunction further contributes to the development and perpetuation of depression [7].

Young adults represent a high-risk group due to their susceptibility to behavioral risk factors, including substance use and mental health issues. The coexistence of alcohol use and depression in this population is associated with poor academic performance, interpersonal conflicts, risky behaviors, and increased healthcare burden [8]. Furthermore, comorbidity of these conditions significantly increases the risk of suicidal ideation and attempts [9].

Despite the growing recognition of this association, there is limited hospital-based data from India examining the relationship between alcohol use and depression among young adults. Understanding this association is essential for early identification, prevention, and implementation of integrated treatment strategies. Therefore, the present study aims to assess the prevalence of alcohol use and its association with depression among young adults attending a tertiary care hospital in Kanpur.

Materials and Methods

Study Design and Setting

This was a hospital-based, cross-sectional analytical study conducted in the Department of Psychiatry at Naraina Medical College and Research Centre. The study was carried out over a period of 6 months.

Study Population

The study population comprised young adults aged 18-35 years attending the outpatient and inpatient services of the Department of Psychiatry.

Sample Size and Sampling Technique

A total of 100 participants were included in the study. Participants were recruited using a consecutive sampling technique, wherein all eligible individuals presenting during the study period were enrolled until the required sample size was achieved.

Inclusion Criteria

- Age between 18-35 years
- Both males and females
- Willingness to participate in the study
- Provided written informed consent

Exclusion Criteria

- Presence of severe medical or neurological illness
- Cognitive impairment interfering with assessment
- Acute intoxication or withdrawal state at the time of interview
- Individuals unwilling to participate

Study Instruments

1. Socio-demographic and Clinical Proforma

A pre-designed and semi-structured proforma was used to collect information on age, gender, education, occupation, marital status, and relevant clinical history.

2. Alcohol Use Disorders Identification Test (AUDIT)

Alcohol consumption patterns were assessed using the AUDIT, a 10-item screening tool developed by World Health Organization to identify hazardous and harmful alcohol use.

- Each item is scored from 0 to 4, with a total score ranging from 0 to 40
- Interpretation of scores:
 - o 0-7: Low-risk use
 - o 8-15: Hazardous use
 - o 16-19: Harmful use
 - o ≥20: Possible alcohol dependence

For the purpose of analysis, participants with AUDIT score ≥8 were classified as having significant alcohol use.

3. Patient Health Questionnaire-9 (PHQ-9)

Depression was assessed using the PHQ-9, a widely validated self-report instrument based on diagnostic criteria for depressive disorders.

- The scale consists of 9 items, each scored from 0 (not at all) to 3 (nearly every day)
- Total score ranges from 0 to 27
- Severity classification:
 - o 0-4: Minimal depression
 - o 5-9: Mild depression
 - o 10-14: Moderate depression
 - o 15-19: Moderately severe depression
 - o 20-27: Severe depression

A cut-off score ≥10 was used to define clinically significant depression.

Data Collection Procedure

Eligible participants were approached and informed consent was obtained. Interviews were conducted in a private setting to ensure confidentiality. The socio-demographic proforma was administered first, followed by AUDIT and PHQ-9 assessments. Participants requiring immediate clinical attention were referred for appropriate management.

Outcome Measures

- Prevalence of alcohol use among young adults
- Prevalence and severity of depression
- Association between alcohol use (AUDIT scores) and depression (PHQ-9 scores)

Statistical Analysis

Data were entered into Microsoft Excel and analyzed using Statistical Package for the Social Sciences (SPSS) version 25.0.

- Continuous variables were expressed as mean ± standard deviation (SD)
- Categorical variables were presented as frequency and percentage
- Association between alcohol use and depression was assessed using the Chi-square test
- Strength of association was further evaluated using Odds Ratio (OR) with 95% Confidence Interval (CI)
- A p-value <0.05 was considered statistically significant

Ethical Considerations

The study was conducted after obtaining approval from the Institutional Ethics Committee of Naraina Medical College and Research Centre.

- Written informed consent was obtained from all participants
- Confidentiality and anonymity were strictly maintained.

Results

A total of 100 young adults were included in the study, with the majority belonging to the 18-25 years age group (55%), followed by 26-35 years (45%). Males constituted 62% of the sample, while females accounted for 38%. Alcohol use (AUDIT ≥ 8) was identified in 60% of participants, whereas 40% reported low-risk or no alcohol use.

Assessment of depressive symptoms using PHQ-9 revealed that 42% of participants had clinically significant depression (PHQ-9 ≥ 10), while the remaining 58% had minimal to mild symptoms. The prevalence of depression was notably higher among individuals with significant alcohol use compared to non-users.

Table 1: Distribution of Alcohol Use and Depression (n = 100)

Variable	Category	Frequency (n)	Percentage (%)
Alcohol Use (AUDIT)	≥ 8 (Significant use)	60	60%
	< 8 (Low/No use)	40	40%
Depression (PHQ-9)	≥ 10 (Moderate-Severe)	42	42%
	< 10 (Minimal-Mild)	58	58%

Further analysis demonstrated that among participants with significant alcohol use, 32 out of 60 (53.3%) had moderate to severe depression, whereas only 10 out of 40 (25%) participants without significant alcohol use had depression. This indicates a higher burden of depressive symptoms among alcohol users.

Table 2: Association between Alcohol Use and Depression (Chi-square Analysis)

Alcohol Use	Depression Present (≥ 10)	Depression Absent (< 10)	Total
AUDIT ≥ 8	32	28	60
AUDIT < 8	10	30	40
Total	42	58	100

Chi-square (χ^2) = 7.94, df = 1, p = 0.004 (Statistically significant)

The Chi-square test revealed a **statistically significant association** between alcohol use and depression (p < 0.05), indicating that individuals with higher alcohol consumption are more likely to experience depressive symptoms.

To further quantify the strength of association, Odds Ratio (OR) was calculated. The odds of depression among participants with significant alcohol use were found to be 3.43 times higher compared to those without significant alcohol use.

Table 3: Odds Ratio for Association between Alcohol Use and Depression

Exposure (Alcohol Use)	Odds Ratio (OR)	95% Confidence Interval	p-value
AUDIT ≥ 8	3.43	1.44 - 8.17	0.004

These findings indicate a strong and statistically significant association between alcohol use and depression among young adults. Participants with hazardous or harmful alcohol consumption had significantly higher odds of experiencing moderate to severe depressive symptoms compared to those with low or no alcohol use.

Discussion

The present study demonstrates a strong and statistically significant association between alcohol use and depression among young adults, with individuals reporting hazardous or harmful alcohol consumption (AUDIT ≥ 8) having 3.43 times higher odds of experiencing clinically significant depressive symptoms. These findings reinforce the growing body of evidence suggesting that alcohol use is not merely coexistent with depression but may act as an important contributing and perpetuating factor.

The observed prevalence of alcohol use (60%) in this study reflects a concerning trend among young adults and is consistent with prior research indicating increasing alcohol consumption in this age group due to social acceptance, peer influence, and lifestyle transitions [10]. The significantly higher proportion of depression among alcohol users (53.3%) compared to non-users (25%) further underscores the clinical relevance of this association.

The odds ratio of 3.43 observed in this study is comparable to earlier studies that have reported a two- to four-fold increased risk of depression among individuals with problematic alcohol use [11]. This relationship can be explained by the bidirectional interaction between alcohol use and depression. Chronic alcohol consumption leads to neurobiological alterations, including dysregulation of serotonin and dopamine pathways, which are critical in mood regulation, thereby predisposing individuals to depressive symptoms [12]. Conversely, individuals with depression may engage in alcohol use as a maladaptive coping strategy, leading to a cyclical worsening of both conditions [13].

The statistically significant Chi-square value (p = 0.004) further strengthens the evidence for a true association rather than a chance finding. Importantly, the confidence interval for the odds ratio (1.44-8.17) does not cross unity, indicating a robust and clinically meaningful relationship between alcohol use and depression in the studied population.

Young adulthood is a critical developmental period characterized by emotional instability, academic pressures, and social transitions. These factors may increase vulnerability to both substance use and mental health disorders. The coexistence of alcohol use and depression in this group has serious implications, including impaired functioning, poor academic and occupational outcomes, and increased risk of self-harm and suicide [14].

The findings of this study highlight the importance of integrated screening and intervention strategies. Routine assessment of alcohol use using standardized tools such as AUDIT, along with screening for depressive symptoms using PHQ-9, can facilitate early identification of high-risk individuals. Furthermore, the strong association observed in this study supports the need for dual-diagnosis management approaches, addressing both alcohol use and depression simultaneously rather than in isolation [15].

From a public health perspective, targeted awareness programs focusing on young adults, along with community-based interventions, may help in reducing the burden of these coexisting conditions. Early intervention is particularly crucial, as untreated comorbidity can lead to chronicity and increased healthcare utilization.

However, the findings should be interpreted in light of certain limitations. The cross-sectional design precludes causal inference, and the relatively small sample size may limit generalizability. Despite these limitations, the study provides valuable insights into the magnitude and

strength of the association in a tertiary care setting.

In summary, the present study provides compelling evidence that hazardous alcohol use significantly increases the likelihood of depression among young adults, emphasizing the need for early detection, preventive strategies, and integrated clinical management to address this dual burden effectively.

Conclusion

The present study demonstrates a clear and clinically meaningful association between alcohol use and depression among young adults, with hazardous alcohol consumption conferring more than a threefold increase in the odds of depressive symptoms. These findings underscore that alcohol use and depression are not isolated conditions but frequently coexist and interact in a manner that amplifies overall morbidity. The high prevalence of both alcohol use and depression in this study population highlights the need for early identification and timely intervention, particularly in young adults who are at a critical stage of psychological and social development. The observed association further reinforces the importance of viewing alcohol use and depression through a biopsychosocial framework, recognizing the role of neurobiological, behavioral, and environmental factors in their co-occurrence.

Given the potential for progression to more severe mental health outcomes, including self-harm and suicide, addressing this dual burden should be considered a priority in psychiatric practice and public health policy.

Clinical Implications

- Routine Dual Screening: Screening for alcohol use (using AUDIT) and depression (using PHQ-9) should be routinely implemented in psychiatric and primary care settings for young adults.
- Integrated Management Approach: The strong association identified in this study supports the need for integrated treatment models that simultaneously address both alcohol use and depressive symptoms rather than treating them in isolation.
- Early Intervention Strategies: Identification of at-risk individuals at an early stage can prevent progression to severe depression, alcohol dependence, and associated complications.
- Targeted Psychosocial Interventions: Interventions focusing on coping skills, stress management, and behavioral modification can reduce reliance on alcohol as a maladaptive coping mechanism.
- Psychoeducation and Awareness Programs: Increasing awareness among young adults regarding the mental health consequences of alcohol use can promote healthier behavioral choices.
- Strengthening Counseling and De-addiction Services: Expansion of accessible and youth-friendly mental health and de-addiction services is essential to address this growing concern.
- Family and Community Involvement: Encouraging family support systems and community-based interventions can play a significant role in early detection and sustained recovery.
- Policy-Level Interventions: Public health policies aimed at regulating alcohol availability and promoting mental health awareness may help reduce the overall burden.

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