

Research Article

Study of Psychiatric Comorbidities in Patients Diagnosed with Alcohol Dependence Syndrome in Kathmandu Medical College

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Abstract

Background: There has been a considerable increase in number of people who are diagnosed with Alcohol Dependence Syndrome (ADS). Psychiatric comorbidities are found in high proportion in association with ADS. Depressive disorders, anxiety and other psychiatric disorders are diagnosed in patients with ADS with bidirectional relationship and a high proportion of relapses are attributable to these comorbidities. **Methods:** A descriptive cross-sectional study was conducted over one year in the psychiatric inpatient department of Kathmandu Medical College Teaching Hospital. Sixty-one patients diagnosed with ADS based on ICD-10 DCR criteria were enrolled. Psychiatric comorbidities were assessed using the ICD -10 guidelines. Beck Depression Inventory (BDI) and Beck Anxiety Inventory (BAI) scores were used to assess depressive and anxiety disorders with their severity. **Results:** Out of 61 patients with ADS, 78.7% had psychiatric comorbidities. Depressive disorders in (35.4%), anxiety disorders in (27.1%), psychotic disorders in (18.8%), bipolar affective disorder (10.4%), and personality disorder (8.3%) were common diagnoses made. Moderate to severe depression and anxiety were most common psychiatric comorbidities. **Conclusion:** Psychiatric comorbidities are highly prevalent among ADS patients. Integrated management approaches addressing both mental and physical health, along with caregiver support, are essential to improve health outcomes and reduce relapse in ADS.

Keywords

Alcohol Dependence Syndrome, Psychiatric Comorbidities, BAI, BDI, ICD-DCR

1. Introduction

A distinct clinical entity existing or occurring during the clinical course of patient having index disease is termed as comorbidity [1]. The term has been also used for diseases and disorders which occur together [2]. Many psychiatric co-morbidities are associated with excessive and prolonged use of alcohol leading to poorer health and functioning [3, 4].

Comorbidities in alcohol use are underestimated diagnostically and therapeutically affecting overall outcome. Alcohol dependence syndrome (ADS) and, more generally, alcohol use disorders (AUDs) predispose individuals to adverse consequences that extend beyond the expected damage from alcohol related direct toxicity to various organs and systems of

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the body [5, 6].

Alcohol containing beverages are commonly available around the world. At least 90% of the people consume alcohol at some point of their lives and 30% or more of those who consume alcohol develops alcohol related problems. Approximately 10% of males and 5% of females develop ADS [7].

Alcohol use is a problem that is expanding in number throughout the world. The World Development Report found that alcohol related disorders affect 5-10% of population each year and accounts for 2% of the global burden of disease [8]. According to the ICD-10, the dependence syndrome is a “cluster of behavioral, cognitive, and physiological phenomena that develop after repeated use of substance” [9]. Alcohol dependence has been put under mental and behavioral disorders due to alcohol use in ICD-10 classification by WHO.

The diagnostic criteria for research guidelines by WHO states that 3 or more of the 6 symptoms should have occurred for at least 1 month or if persisting for periods less than 1 month, should have occurred together repeatedly within 12 months to diagnose ADS [10]. The symptoms are a strong desire or sense of compulsion to take alcohol, impaired capacity to control its intake, a physiological withdrawal state, evidence of tolerance to the effects, preoccupation with its use manifested by alternate pleasures being given up and persistent use despite knowing the harmful effects. Use of alcohol is associated with wide range of physical, mental and social harms [11].

It has been estimated that people who consume alcohol are three times more likely to have another psychiatric disorder [12]. Comorbid psychiatric illnesses lead to chronic alcohol use, resistance to treatment, high suicide rates and disability [13]. Prevalence of psychiatric comorbidities have been also reported to be as high as 57%-84% in many studies [14, 15]. Both clinical and community samples show that ADS is often associated with affective, personality, anxiety and psychotic disorders [16]. Severe psychiatric disorders comorbid in ADS lead to higher rates of aggressiveness, frequent relapses, longer hospital stay, economic burden. Patients with comorbidities have bad impacts on social relationships, family dynamics and even on health of caretakers [17-19]. Impulsivity, antisocial behaviors, conduct disorders and attention deficit hyperactivity disorders are the predictors for alcohol use and dependence. High rates of personality disorders are associated with ADS [20, 21].

A primary psychiatric disorder leads to increased risk of alcohol consumption and likewise ADS can be a risk factor to develop another psychiatric disorder. ADS and another psychiatric condition can develop independently. More frequent use of alcohol that is prolonged and uncontrolled leads to another mental disorder. Brain damage that occurs from either alcohol use or mental illnesses leads to appearance of either disorder. If mental illness appears first, the associated changes and activity in brain that occurs due to mental illness make individual vulnerable for abusing substance and enhance their

positive effects. Multiple researches show that the outcome in ADS is predicted by these disorders [22, 23]. Psychiatric comorbidity like personality disorder can be a cause for patients having earlier age of onset of drinking associated with psychosocial problems. Personality disorders are approximately four times more prevalent in psychiatric and addicted patients than in the general population [24].

Alcohol related disorders are attributed to self-medicating to relieve the distress from underlying psychiatric disorder. Depressed people are more prone to consume alcohol due to its temporary euphoric effects. Treatment seeking individuals have high proportion of anxiety and depression [25]. Relationship between anxiety and drinking behavior are also reflected in various studies. Higher level of anxiety reflects higher frequencies and intensity of alcohol consumption. Alcohol dependence can be a factor to cope with severe anxiety as it has been mistaken to produce feelings of relaxation. The ‘tension reduction hypotheses also explain consumption of alcohol as behavior that leads to feeling of calmness and reduces the stress [26-28]. Short term relief of anxiety from alcohol consumption can reinforce the behavior leading to ADS. Alcohol use and dependence in the past increases the risk of depressive episode in the future by four times even though abstinence is achieved [29]. Two large studies Epidemiological Catchment Study (ECA) in Europe and National Comorbidity Survey in U.S have shown that alcohol dependence syndrome, depressive disorder, anxiety disorder co-occurs frequently. Even schizophrenia in ADS has been found in the prevalence up to 24% [30, 31].

People with comorbid schizophrenia report using alcohol to alleviate boredom, limited opportunities, distressing psychotic symptoms and feel that alcohol use facilitates the development of an identity and creates social network [32]. High rates of disruptive behavior, victimization, psychiatric admissions and other substance dependence are pronounced in patients with ADS and schizophrenia [33]. Even comorbid bipolar affective disorders can be a cause of use of alcohol to prolong pleasurable state or to lower the agitation of a manic state. Relationship between mood disorders is complex and bidirectional [34].

Medical comorbidities like alcoholic liver disease, pancreatic disease, disease of the airways, neurological and circulatory disease, disease of upper gastrointestinal tract, peripheral vascular disease and deficiencies of micronutrients are commonly associated with ADS [35]. Cirrhosis of liver, pancreatitis, peptic ulcer, worsening of diabetes are common examples. Global status report on alcohol and health, WHO report (2014) states that harmful use of alcohol causes approximately 3.3 million deaths every year (or 5.9% of all deaths), and 5.1% of the global burden of disease is attributable to alcohol consumption [36].

Liver is the major organ of the body vulnerable to direct toxic effects of alcohol. Evidence of fatty liver are found in 90-100% of the heavy drinkers and 10-35% of them develop cirrhosis [37]. Alcoholic pancreatitis is also common in heavy

drinkers. Effect of alcohol to heart is not known. Alcoholic cardiomyopathy depends to the lifetime dose of alcohol. Higher morbidity and mortality are associated if manifested with alcohol induced cardiomyopathy [38]. Alcohol also affects cognitive functioning of the individuals. Alcohol related brain damage is also common manifesting in the form of Wernicke's and Korsakoff's disease. Estimated 10% of population with dementia in the United States is attributable to the use of alcohol [39]. Failure of reproductive health function is also related to use of alcohol. Cancers of mouth, larynx and esophagus are commonly found in chronic alcoholics [40].

Every organ of the body is affected by prolonged and excessive use of alcohol. Adaptive immune and altered inflammatory cell responses after alcohol consumption result in increased incidence and poor outcome of infections and other organ-specific immune-mediated effect [41].

Individuals with psychiatric and medical comorbidities are more prone to psychosocial problems, relapse and suicide. Chronicity and poor treatment outcome are related to these comorbidities. Individuals with alcohol use disorders are often hesitant to seek treatment, leading to continuation of medical problems and exacerbation of the physical complications [42]. Patients with comorbidity has comparatively a slower treatment outcome. Multidisciplinary staff team along with psychiatrist is essential for a sequential, parallel and integrated management of ADS with comorbidities. Many patients don't accept the complete abstinence of alcohol as a goal of therapeutic approach and continue with disorders [43]. A proper therapeutic planning is required.

Alcohol use and related disorders are also increasing in Nepal. Easy availability, cultural and ethnic aspects are the causes leading to increase in use of alcohol. In developing countries like Nepal young and productive population is involved in consuming alcohol. High proportions of young population start consuming alcohol before adolescence and develop ADS on long run [44]. There are few health care facilities for managing alcohol related problems and even if addressed little emphasis is given to manage the related comorbidities. Patients with alcohol dependence are managed with medications to reduce the withdrawal symptoms when they present in abstinence. Comorbidities can lead to relapse and maintain the alcohol consuming behavior. Disability, morbidity and mortality are associated with associated comorbidities. There are fewer studies in patients with ADS that particularly address anxiety, depression and medical comorbidities in Nepal. The study will address medical and psychiatry comorbidities in relation to ADS so that effective treatment can be done and overall health status can be improved.

2. Objectives of the Study

To comprehensively assess psychiatric and medical comorbidities in individuals with Alcohol Dependence Syndrome (ADS), including the severity of anxiety and depression, and to examine the prevalence of anxiety among their

primary caregivers.

3. Materials and Methods

The study was a hospital-based descriptive cross-sectional study conducted over a period of one year at Kathmandu Medical College Teaching Hospital (KMCTH). The study population comprised patients who were admitted to the psychiatric inpatient department with a clinical diagnosis of Alcohol Dependence Syndrome (ADS) according to the ICD-10 Diagnostic Criteria for Research, along with their primary caregivers. The study was carried out at KMCTH, a tertiary-level hospital located in the capital city of Nepal, which had appropriate facilities for the evaluation and management of psychiatric illnesses, including ADS and its associated comorbidities. Sample size was calculated to be 61, with formula $n = (Z^2 \times P(1 - P))/e^2$ where $Z=1.96$ for CI of 95%, P was expected true proportion and e was desired precision that is half of desired CI width. Estimated proportion=80% in sample size of 60, CI=95%, Desired precision=10%. Based on a previous study conducted by Shakya et al. in a tertiary hospital in Eastern Nepal, the prevalence of psychiatric comorbidities among patients with ADS was reported to be 80%, and 85% of the patients were found to have physical comorbidities [45, 46]. Taking the expected prevalence as 80%, the calculated sample size for the present study was 61. Data obtained were analyzed using the computer software program SPSS version 20. Appropriate statistical tests were used for analyzing the data obtained. Ethical consideration was taken from the ethical review committee of KMCTH. Written informed consent will be taken from the participants. All the patients and their primary caregivers were informed about the purpose of the study. Information obtained from the patients was kept confidential. Those who refused to give consent were excluded from the study.

4. Tools and Measures

A semi-structured proforma was filled with adequate information of both patient and primary caregiver. Semi-structured proforma was simplified for proper statistical analysis. Diagnosis was made on the basis of diagnostic guidelines as mentioned. BDI and BAI scales were used to analyze presence of depression and anxiety. Severity was classified in accordance to the scores. Both scales were self-reported and gave the subjective results. Investigations were evaluated for any underlying medical comorbidities. History, clinical evaluation and investigations were all considered for presence of any comorbid medical conditions and other psychiatric comorbidities [47-50].

5. Procedure

A representative sample of 61 individuals admitted in inpatient department of psychiatry of Kathmandu Medical

College Teaching Hospital with diagnosis of alcohol dependence syndrome in accordance to ICD-10 diagnostic criteria for research were taken into consideration. The duration of the study was 1 year. Ethical consideration was maintained

throughout the study and consent was taken from the patient and the primary caregiver. Inclusion and exclusion criteria were used to select the patients.

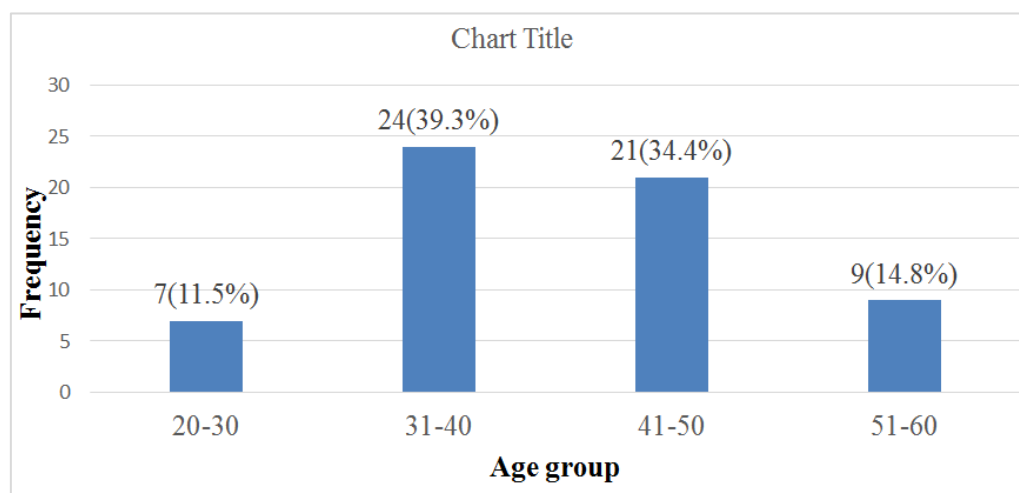


Figure 1. Distribution of patients according to age (N=61).

A semi-structured proforma was filled with adequate information of both patient and primary caregiver. Semi-structured proforma was simplified for proper statistical analysis. Diagnosis was made on the basis of diagnostic guidelines as mentioned. BDI and BAI scales were used to analyze presence of depression and anxiety. Severity was classified in accordance to the scores. Both scales were self-reported and gave the subjective results. Investigations were evaluated for any underlying medical comorbidities. History, clinical evaluation and investigations were all considered for presence of any comorbid medical conditions and other psychiatric comorbidities.

age of 41.23 ± 7.936 years (mean $\pm$ standard deviation).

In this study population of 61 patients; 58 (95%) were males and 3 (5%) were females.

Table 1. Distribution of Patients according to address (N=61).

Address	Frequency	Percent
From inside Kathmandu valley	26	42.7%
From Outside of Kathmandu Valley	35	57.3%

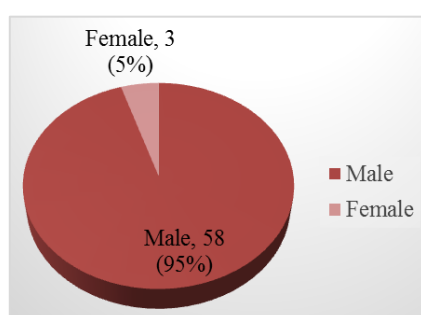


Figure 2. Distribution of patients according to sex (N=61).

In this study population of 61 patients; 24 (39.3%) were in age group (30-40) followed by 21 (34.4%) in age group (40-50), 9 (14.8%) in (50-60) age group and 7 (11.5%) in (20-30) age group. Among the study population the minimum age was 26 years with the maximum being 60 years with mean

There were 35 (57.3%) patients from outside the valley and 26 (42.7%) patients from inside the valley.

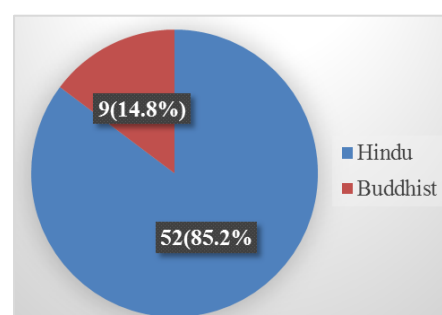


Figure 3. Distribution of patients according to the religion (N=61).

There were total of 52 (85.2%) people who followed Hindu religion and 9 (14.8%) people who followed Buddhism.

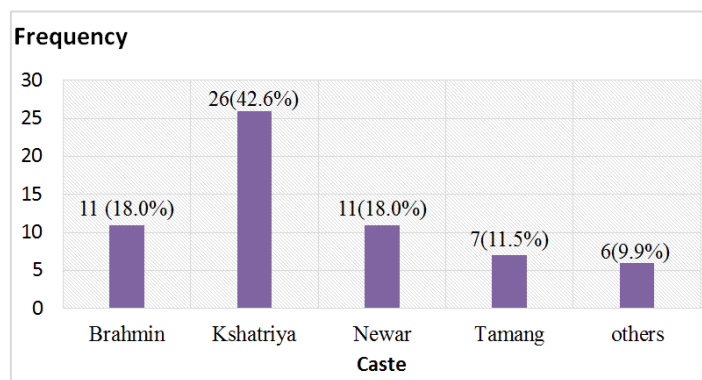


Figure 4. Distribution of patients according to the Caste (N=61).

There was total 26 (42.6%) people from Kshatriya caste, 11 (18.0%) from Brahmin and Newar caste each, 7 (11.5%) from Tamang caste.

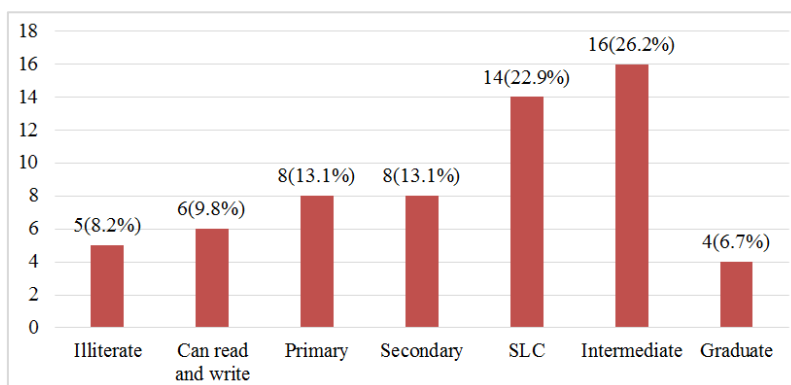


Figure 5. Distribution according to the Education (N=61).

There were total of 16 (26.2%) patients who have studied intermediate level, 14 (22.9%) of them had studied SLC, 8 (13.1%) had studied primary or secondary education, 6 (9.8%) could read and write, 5 (9.8%) were illiterate and 4 (6.7%) had studied graduate level.

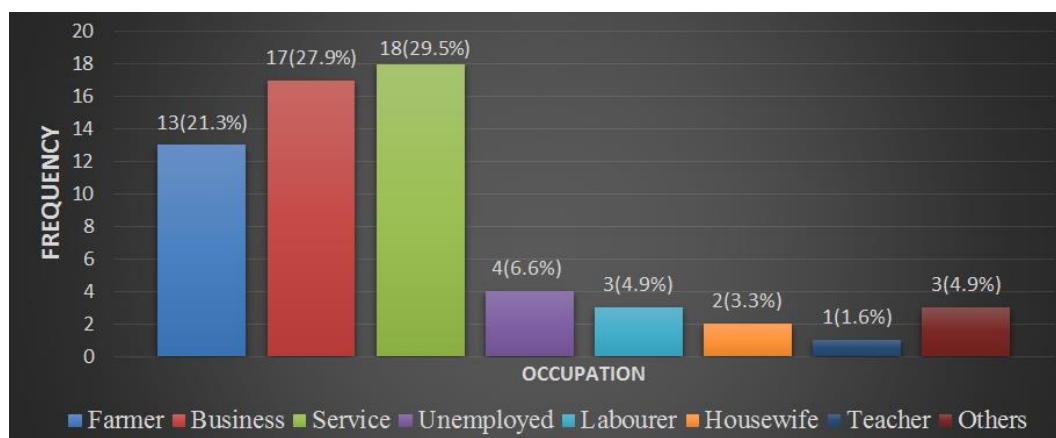


Figure 6. Distribution of patients according to Occupation (N=61).

There were 18 (29.5%) patients who were involved in service, 17 (27.9%) were involved in business, 13 (21.8%) were involved in agriculture, 4 (6.6%) were unemployed, 3 (4.9%) were laborer and 1 (1.6%) was involved in teaching.

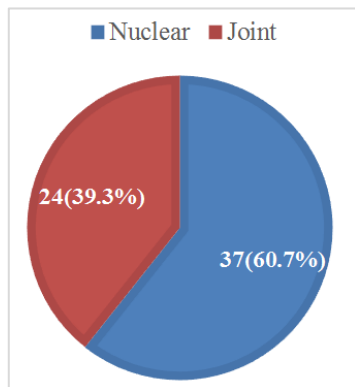


Figure 7. Distribution of patients according to type of Family (N=61).

There were total 37 (60.7%) patients from nuclear family and 24 (39.3%) were from joint family.

Table 2. Distribution of patients according to diagnosis (N=61).

Diagnosis	Frequency	Valid Percent
ADS in Uncomplicated Withdrawal	28	45.9%

Diagnosis	Frequency	Valid Percent
ADS in Complicated Withdrawal	33	54.1%

In this study there were 33 (54.1%) patients who presented in complicated withdrawal (convulsions and delirium) and 28 (45.9%) patients who presented in uncomplicated withdrawal.

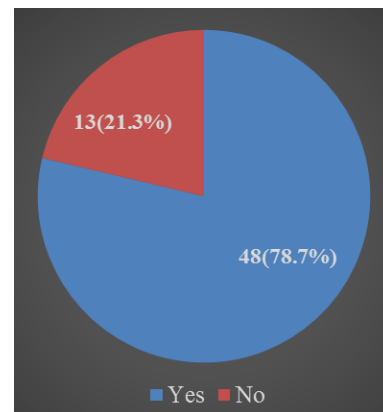


Figure 8. Distribution of patients according to the presence of Psychiatric comorbidities (N=61).

This study showed that 48 (78.7%) patients had some psychiatric comorbidities and 13 (21.3%) had no psychiatric comorbidities.

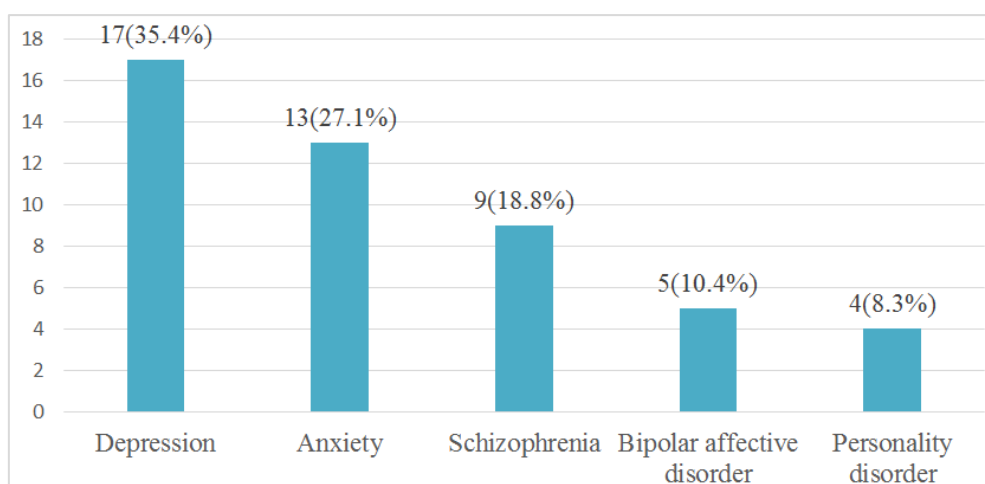


Figure 9. Distribution of Patients according to classification of Psychiatric comorbidities (N=48).

Among all the patients with psychiatric comorbidities (N=48), 17 (35.4%) had depression, 13 (27.1%) had anxiety, 9 (18.8%) had schizophrenia, 5 (10.4%) had bipolar affective disorder and 4 (8.3%) had personality disorder.

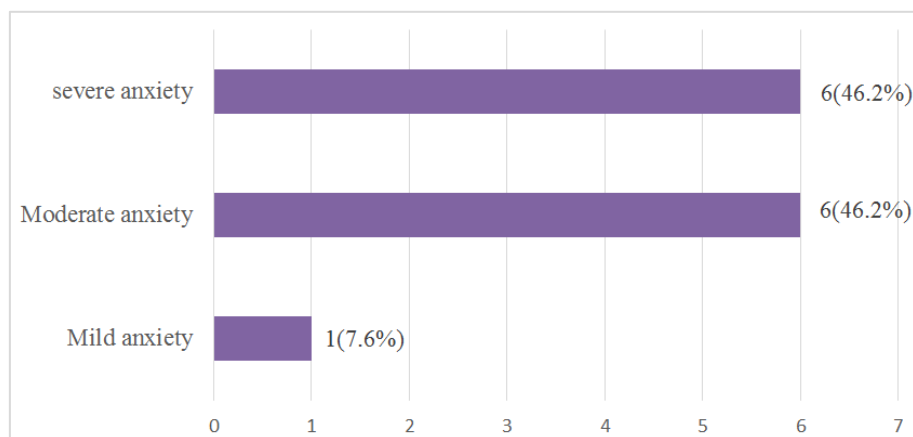


Figure 10. Distribution of patients according to the severity of anxiety (N=13).

Among patients diagnosed with anxiety 6 (46.2%) had moderate and severe anxiety each and 1 (7.6%) had mild anxiety.

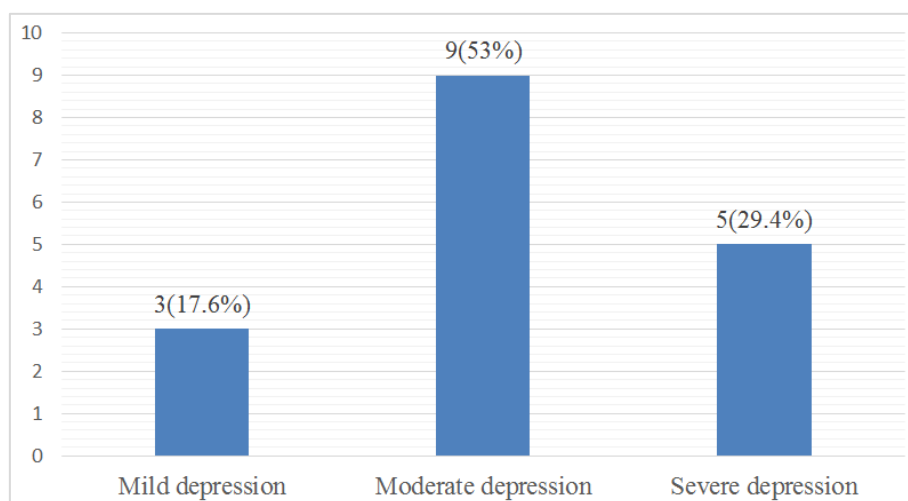


Figure 11. Distribution of patients according to severity of depression (N=17).

Among the patients diagnosed with depression, 3 (17.6%) had mild depression, 9 (53%) had moderate depression and 4 (29.4%) had severe depression.

Table 3. Prevalence of medical comorbidities (N=61).

Medical comorbidities	Frequency	Percent
Present	49	80.3
Absent	12	19.7
Total	61	100.0

Among all the patients, medical comorbidities were present in total of 49 (80.3%) and those who did not have any comorbidities were 12 (19.7%).

Table 4. Distribution according to Presence of physical comorbidities (N=61).

Physical comorbidities	Frequency
Fatty liver	34 (55.74%)
Mild hepatomegaly	12 (19.67%)
Diabetes	8 (13.11%)
HTN	18 (29.50%)
Cholelithiasis	2 (3.28%)

There were total of 34 (55.74) patients who had fatty liver, 12 (19.67%) had mild hepatomegaly, 8 (19.67%) had diabetes, 18 (29.50%) had HTN and 2 (3.28%) had cholelithiasis. The

distribution was done on the basis of presence of comorbidities and two or three physical comorbidities also were present in a single patient too.

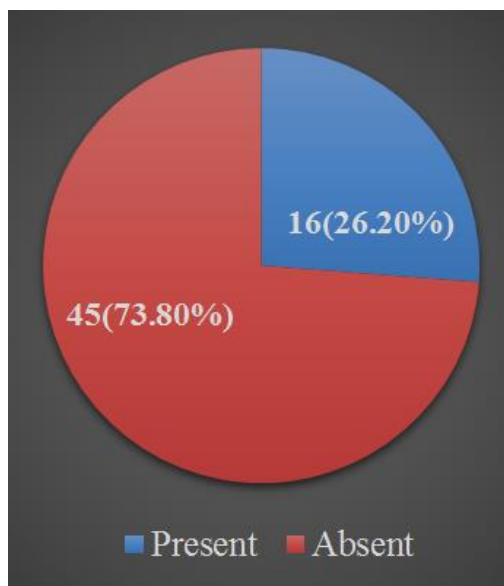


Figure 12. Distribution according to presence of anxiety in caretaker (N=61).

Out of total caretakers there were 16 (26.20%) of the total who had anxiety and 45 (73.80%) did not have any anxiety.

Table 5. Chi-square test: Relationship between presence of Psychiatric comorbidities and different variables.

Characteristics	Category	Prevalence of Psychiatric comorbidities		Total	P-value
		Present	Absent		
Sex	Male	45	13	58	0.481
	Female	3	0	3	
Address	From Kathmandu	19	7	26	0.271
	From Outside Kathmandu Valley	29	6	35	
Religion	Hindu	41	11	52	0.620
	Buddhist	7	2	9	
Education	Under SLC	23	4	27	0.216
	SLC and Above SLC	25	9	34	
Family Type*	Nuclear	26	11	37	0.043*
	Joint	22	2	24	
Diagnosis	Uncomplicated withdrawal	21	7	28	0.368
	ADS in complicated withdrawal	27	6	33	
Medical comorbidities*	Present	42	7	49	0.014*
	Absent	6	6	12	

*: Denotes p-value significant

Table 6. Chi-square test: Relation of Medical comorbidities with other variables.

Characteristics	Category	Prevalence of Medical comorbidities		Total	P-value
		Present	Absent		
Sex	Male	46	13	58	0.512
	Female	3	0	3	
Address	From Kathmandu	20	6	26	0.398
	From Outside Kathmandu Valley	29	6	35	
Religion	Hindu	40	12	52	0.118
	Buddhist	8	1	9	
Education	Under SLC	20	7	27	0.220
	SLC and Above SLC	29	5	34	
Family Type	Nuclear	29	8	37	0.448
	Joint	20	4	24	
Diagnosis	Uncomplicated withdrawal	22	6	28	0.500
	ADS in complicated withdrawal	27	6	33	
Presence of Anxiety	Present	12	1	13	0.209
	Absent	37	11	48	
Presence of Depression	Present	15	2	17	0.281
	Absent	34	10	44	

Table 7. Chi- square test: Relationship between Diagnoses with other variables.

Characteristics	Category	Diagnosis of the patients (withdrawal state)		Total	P-value
		Uncomplicated	Complicated		
Sex	Male	27	31	58	0.562
	Female	1	2	3	
Address*	From Kathmandu	16	10	26	0.032*
	From Outside Kathmandu Valley	12	23	35	
Religion	Hindu	23	29	52	0.393
	Buddhist	5	4	9	
Education*	Under SLC	8	19	27	0.021*
	SLC and Above SLC	20	14	34	
Family Type	Nuclear	17	20	37	0.601
	Joint	11	13	24	
Presence of Anxiety*	Present	10	5	15	0.059*
	Absent	18	28	46	
Presence of Depression	Present	8	5	13	0.168
	Absent	20	28	48	

Characteristics	Category	Diagnosis of the patients (withdrawal state)		Total	P-value
		Uncomplicated	Complicated		
Medical comorbidities	Present	22	27	49	0.500
	Absent	6	6	12	
Psychiatric comorbidities	Present	21	27	48	0.368
	Absent	7	6	13	

*: Denotes p-value significant

6. Discussion

This study highlighted that the majority of ADS patients belonged to the 30-40-year age group (39.3%), with a mean age of 41.23 years, similar to studies conducted in Germany [51], Manipal [52], and by Shakya DR et al. [45]. It emphasizes that young, productive individuals are significantly affected, necessitating early intervention and targeted awareness. A significant gender disparity was evident, with 95% male participants, aligning with global data and WHO findings [6], and consistent with studies by Kumar Vivek [53], Shakya DR et al. [45], and Pradhan SN et al. [54]. However, the inclusion of females in our study is noteworthy and suggests underdiagnosis and underreporting in women due to social stigma.

Geographically, 57.3% were from outside the Kathmandu Valley, possibly due to limited psychiatric facilities in rural areas. Similarly, 85.2% were Hindus, which reflects national demographics [55], not a religious predisposition to ADS. Caste-wise, Kshatriyas (42.6%) formed the majority, consistent with national census data [55]. Educational data showed that most had at least SLC-level education, similar to findings by Chandini S et al. [56] and Sedhain CP [57], suggesting even educated populations are vulnerable to alcohol dependence. Professionally, a large portion was involved in service (29.5%) and business (27.9%), deviating from national data where agriculture is dominant. This may reflect the urban bias in our sample. Most patients (60.7%) came from nuclear families, consistent with Indian and Nepali studies [54, 58].

Regarding the clinical presentation, 54.1% had complicated withdrawal (seizures/delirium), which could be due to late hospital presentation or lack of early intervention, contrasting with earlier findings from Eastern Nepal [45]. This underlines the need for early screening and treatment of withdrawal symptoms. Psychiatric comorbidities were found in 78.7% of patients, closely matching studies by Vohra AK et al. [59], Kumar Vivek et al. [53], and Shakya DR [45]. Depression (35.4%) was the most common, followed by anxiety (27.1%), consistent with German and U.S. studies [61, 62]. These findings strongly support the bidirectional relationship between ADS and psychiatric disorders, where each worsens the other [30, 60]. Medical comorbidities were found in 80.3% of

patients, primarily related to hepatobiliary and cardiovascular systems, echoing Indian and Nepali studies [46, 52, 63]. This demonstrates alcohol's systemic impact and the need for routine medical screening in ADS management.

Importantly, 26.2% of caregivers had anxiety, affirming research that family members, especially spouses, bear a significant psychological burden [64-66]. This suggests that psychosocial support should extend to caregivers as well.

Statistically significant associations were observed between psychiatric and medical comorbidities and between family type and psychiatric disorders. Complicated withdrawal was more common in those with lower education and those from outside the valley, indicating a knowledge and access gap. All female patients had comorbid psychiatric conditions, reflecting gender-specific vulnerabilities.

7. Conclusion

This study highlights that most ADS patients were middle-aged males from nuclear families, with high rates of psychiatric (78.7%) and medical (80.3%) comorbidities especially depression, anxiety, and liver-related conditions. Significant associations were found between comorbidities, family type, and clinical presentation. The psychological burden extended to caregivers, with 26.2% reporting anxiety. Proper screening using tools like BDI and BAI, along with integrated management of both psychiatric and medical conditions, is essential to improve outcomes in ADS.

8. Limitations and Future Recommendations

8.1. Limitations

This was a hospital based cross sectional sample with small sample size, thus results don't represent community sample.

Scales were used only to assess the severity of anxiety and depression only. Patients on other substance dependence except nicotine were excluded which also limits the outcome.

Cross sectional studies are considered to add a little to the

existential knowledge.

8.2. Future Recommendations

Studies of patients with ADS should be undertaken including those attending OPD and admitted in other inpatient departments.

Community based studies should be encouraged so that all the comorbidities can be assessed and risks associated with ADS can be addressed.

Abbreviations

ADS	Alcohol Dependence Syndrome
BDI	Beck Depression Inventory
BAI	Beck Anxiety Inventory

Conflicts of Interest

The authors declare no conflicts of interest.

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