ORIGINAL ARTICLE

Effects of Alcohol and Its Relationship with Deranged Liver Function Tests and Withdrawal Symptoms

Remitha Joseph Thangarajan[1], Kailash Sureshkumar[*2], Shabeeba Z. Kailash[3], Aravindh Manogaran[4]

Department of Psychiatry, Chettinad Hospital and Research Institute, Chettinad Academy of Research and Education, Kelambakkam - 603103, Tamil Nadu, India

ABSTRACT: Alcohol consumption is an important risk factor for illness, disability, and mortality. Alcohol withdrawal symptoms have a significant health concern for individuals with alcohol dependence. This study aims to investigate the prevalence of withdrawal symptoms and liver function test abnormalities in this population and also to identify the factors associated with the severity of withdrawal symptoms. This cross-sectional study was conducted at a tertiary care facility involving 100 patients seeking treatment for alcohol dependence. Data collection included structured interviews and assessments using standardized scales and biochemical tests. Descriptive statistics, t-tests, and chi-square tests were employed to analyse the data. Individuals exhibiting mild/moderate alcohol withdrawal symptoms in this study displayed several distinctive features. They were more likely to have attained at least a high school education, their average alcohol consumption was notably lower, Importantly, their blood parameters, including RBC count, platelet count, total bilirubin levels, and liver enzyme levels (AST and ALT), generally exhibited fewer deviations from normal ranges. Family history of alcohol dependence and nicotine dependence was common among the participants. This research highlights the need for a holistic approach to address alcohol dependence, taking into consideration sociodemographic factors, clinical markers, and the diverse nature of this condition. The findings provide important insights for healthcare professionals to identify individuals at higher risk and guide treatment decisions.

INTRODUCTION

Alcoholic beverages are consumed widely throughout the world, and the health effect of alcohol use can have substantial public health implications [1]. Alcohol contributes substantially to the overall global burden of diseases, including 4% of all deaths and 4–5% of all disability-adjusted life-years (DALYs) (2). Alcohol consumption has been identified as a potent risk factor for illness, disability and mortality. Alcohol consumers also experience a range of social harms because of their own drinking, including family disruption, problems at the workplace (including unemployment), criminal convictions, and financial problems [3]. Understanding

the manifestations of withdrawal is critical for the welfare of individuals dependent on alcohol. Roughly 8% of inpatients with alcohol use disorder (AUD) experience alcohol withdrawal, a recognized condition that arises when heavy or habitual drinking is suddenly ceased, either intentionally or unintentionally [4]. Symptoms of alcohol withdrawal may emerge within a span of six to twenty-four hours after a rapid decrease in alcohol consumption, ranging from restlessness and heightened autonomic activity to delirium tremens [5]. Alcohol withdrawal (AW) is a prevalent feature of alcohol dependence, with its most severe form being

complicated alcohol withdrawal, which involves delirium and seizures. The incidence of severe AW varies widely, ranging from 0.5% to 20%. Typically, alcohol withdrawal becomes evident 48 to 72 hours after excessive drinking discontinues. Tremors typically appear about six hours after the last drink, followed by heart palpitations, and occasionally, hallucinations at twelve to twenty-four hours.

A basic history, physical examination, and biochemical parameters can detect patients prone to develop complicated withdrawal during periods of abstinence (6). The study conducted in Kolkata found lower education, unemployment, history of delirium tremens, higher units of alcohol consumed per day, tachycardia, higher respiratory rate, lower platelet count and higher erythrocyte sedimentation rate as significant predictors of complicated withdrawal(7).In another study conducted in Maharashtra ,complicated AWS was more prevalent among patients with history of delirium tremens, history of convulsions, pattern of drinking throughout the day, and a CIWA-AR score of $\geq 16(8)$.

Alcohol abuse exerts a substantial toll on mental health, marital life, healthcare expenses and societal consequences. The aims include the early identification and diagnosis of withdrawal symptoms and liver function abnormalities in alcohol-dependent individuals for timely intervention and treatment. This study also aims to elucidate the factors contributing to liver dysfunction and alcohol withdrawal symptoms, providing medical professionals with predictive insights for withdrawal symptoms and abnormal liver function. The need for study becomes evident when we consider that the majority of studies have concentrated on severe withdrawal symptoms in individuals with alcohol dependence. There is a noticeable scarcity of research focused on mild and moderate alcohol withdrawal.

MATERIALS AND METHODS

Over a period of six months, a cross-sectional study was conducted at a tertiary care facility, involving a total of 100 patients. The study's protocol received approval from the institutional human ethics committee at the tertiary health care centre. The sample size was calculated to be 100 for the study. Convenient sampling was employed, and the study focused on patients aged 18 to 59 years

who were seeking treatment for alcohol dependence at the psychiatric outpatient department. Diagnosis was carried out by a senior psychiatrist using the criteria outlined in ICD-11 [9].

Exclusions from the study encompassed patients with conditions such as psychiatric disorders, as well as other unspecified mental and behavioural disorders related to alcohol use at the time of presentation. Additionally, individuals who were unable to provide consent or participate in the study were excluded. Those with concurrent psychiatric issues, organic brain syndrome, and mental retardation was also excluded.

Patients were informed about the study's particulars, had their questions addressed, and provided their consent. Building rapport and ensuring patient confidentiality and privacy were given substantial attention during interviews to minimize inaccuracies. Information was also gathered from family members with the patients' consent. The assessment tools utilized included the Severity of Alcohol Dependence Questionnaire (SADQ) [10], Clinical Institute Withdrawal Assessment of Alcohol Scale, Revised (CIWA-Ar) [11], and a semi-structured proforma. Factors such as Alcohol Consumption Patterns Frequency of alcohol use, Age of onset of alcohol use and dependence, Quantity of alcohol consumed per episode, Patterns of binge drinking, Duration of alcohol use, Withdrawal Symptoms, Severity of Dependence, Liver function tests to assess the impact of alcohol on the liver, including liver enzymes like Aspartate Aminotransferase (AST) and Alanine Aminotransferase (ALT). Family history of alcohol use was assessed in the study.

Statistical analysis

Descriptive statistics was employed to examine the socio-demographic and clinical traits of individuals dealing with alcohol dependence. Continuous variables will be assessed using a T test, while categorical variables will undergo analysis via the Chi-square test. All statistical analyses will be conducted utilizing SPSS software [version 21].

RESULTS

Table 1 presents the sociodemographic characteristics of

a study population based on a modified Kuppusamy classification [12]. In terms of education, the majority of the population holds at least a high school certificate (49%), while a significant portion has completed intermediate or post-high school diplomas (14%) and graduate or postgraduate degrees (22%). A small percentage of the population is illiterate (1%). Regarding residence, the majority reside in semi-urban areas (86%), with a smaller proportion in rural (10%) and urban (4%) areas. In regard to family structure, the majority of families are nuclear (82%), while the remaining are joint families (18%). Occupation-wise, the largest proportions of individuals fall into the categories of skilled workers and shop & market sales workers (29%) and skilled agricultural & fishery workers (29%), followed by craft & related trade workers (15%). Monthly family income is divided into several categories, with the highest percentage falling in the range of 18,497 to 30,830 (36%) and 6175 to 18,496 (32%). This suggests a significant portion of the population falls within middle-income group. As to marital status, a large majority of the population is married (87%), while a smaller proportion has never been married (9%), and a few are divorced (4%). Finally, the socioeconomic status of the study population is categorized as upper middle (11%), lower middle (72%), and upper lower (17%). This distribution suggests that the majority of the population falls within the lower and middle socioeconomic strata.

The mean age at the onset of alcohol use is 21.94 years, indicating that individuals typically start using alcohol in their early twenties. However, the mean age at the onset of alcohol dependence is slightly higher at 26.14 years. On average, it takes 4.38 years from the onset of alcohol use for dependence to develop. The mean duration of alcohol dependence is notably high at 17.53 years, indicating that individuals who develop alcohol dependence tend to struggle with it for an extended period. Over half of the individuals (53%) have a family history of alcohol dependence, suggesting a potential genetic or familial predisposition to this condition. Additionally, a significant majority (71%) have a history of nicotine dependence, highlighting the common co-occurrence of these substance use disorders. The maximum units of alcohol consumed per day, with an average of 22.21 units. (Table 2)

The (Table 3) presents the severity of alcohol withdrawal symptoms assessed using the Clinical Institute Withdrawal Assessment for Alcohol (CIWA) scale, with corresponding percentages. Notably, a significant portion of individuals undergoing alcohol withdrawal displayed moderate symptoms, accounting for 46% of the assessed cases. Additionally, 32% of the individuals exhibited severe withdrawal symptoms, associated risks of severe alcohol withdrawal. Meanwhile, 22% experienced only mild withdrawal symptoms.

In (Table 4) Notably the RBC count is significantly lower in the severe alcohol withdrawal symptom group compared to the mild to moderate alcohol withdrawal symptom group (p = 0.004), indicating potential haematological abnormalities in severe AWS cases. While there is a slight decrease in haemoglobin levels for severe AW symptom patients, the difference is not statistically significant (p = 0.147). The difference in WBC count between the two groups is not statistically significant (p = 0.102). Chronic excessive alcohol ingestion reduces the number of blood cell precursors in the bone marrow and causes characteristic structural abnormalities in these cells, resulting in fewer-than-normal or nonfunctional mature blood cells, as a result alcoholics may suffer from moderate anaemia, characterized by enlarged, structurally abnormal RBC's; mildly reduced numbers of WBC's, especially of neutrophils (13). Platelet counts are significantly lower in patients with severe withdrawal symptoms (p = 0.027). Over 30% of patients admitted to hospitals with a history of recent heavy drinking show thrombocytopenia. When alcohol is withdrawn, the platelet count returns to normal or supernormal levels (rebound thrombocytosis) in 1–3 weeks [14].

Total bilirubin levels are significantly higher in the severe withdrawal symptom group (p = 0.001) A possible mechanism for the increase in total bilirubin is that alcohol competitively inhibits bilirubin conjugation, leading to hyperbilirubinemia [15]. Moreover, aspartate aminotransferase (AST) and alanine transaminase (ALT) levels are significantly elevated in the severe withdrawal symptom group (p = 0.001 and p = 0.016, respectively), Alcohol abuse is also a common cause of increased serum aminotransferase (ALT, AST) activities, most likely due to B6 depletion in the livers of alcoholics (16).

Pulse rate (PR) is slightly higher in the severe withdrawal symptom group, and this difference is statistically significant (p = 0.011), but there are no significant differences in systolic blood pressure (SBP) or diastolic blood pressure (DBP) The reason for a positive association between alcohol intake and heart rate is unclear but possibilities include an increase in sympathetic activity secondary to vasodilation or increased calcium entering into cardiac myocytes[17].Potassium levels are slightly lower in the severe withdrawal symptom group (p = 0.028), which could indicate electrolyte Imbalances .Hypokalaemia occurs in almost 50% of patients with chronic alcohol consumption disorder . Potassium deficiency results from an inadequate diet and loss of potassium through the gastrointestinal tract due to malnutrition, diarrhoea, vomiting, and increased loss of urine [18].

Table 5 Individuals aged 21-30 years had a lower representation in the severe withdrawal symptom group compared to other age groups. Average alcohol consumption was significantly associated with health condition severity (p-value = 0.001). Those who consumed fewer than 12 units of alcohol had a higher representation in the mild to moderate alcohol withdrawal symptom group, while those who consumed more were more likely to be in the severe withdrawal symptom group. The interval from alcohol cessation to hospital visit showed a strong correlation with health condition severity (p-value = 0.001). A possible explanation for the association may be that the number of days since the last drink represents a surrogate marker for the degree of alcohol withdrawal on admission. That is, those with more days since their last drink were more likely to have progressed to a symptomatic stage of withdrawal than those who had just recently become sober or were still intoxicated on admission. (19) Different types of alcohol-related withdrawal symptoms (e.g., delirium tremens, seizures) were significantly associated with health condition severity (p-value = 0.001). A study by Palmstierna Five risk factors were significantly correlated with severe withdrawal: current infectious disease, tachycardia (p > 120) at admission, alcohol withdrawal signs in the presence of a blood alcohol level greater than 1 gm per liter of body fluid, a history of epileptic seizures, and a previous history of delirious episodes.(20)

The age at which individuals started using alcohol did not show a strong association with health condition severity (p-value = 0.102), Individuals who started using alcohol below the age of 20 years exhibited a higher representation in the severe withdrawal symptom group. This suggests that early onset of alcohol use may be associated with a greater likelihood of developing severe alcohol withdrawal ,Conversely, those who began using alcohol between the ages of 21 and 25 years were distributed somewhat evenly between the mild to moderate alcohol withdrawal symptom and severe alcohol withdrawal symptom groups, Individuals who initiated alcohol use above the age of 25 years were more evenly distributed between the two withdrawal symptom groups, but they had a slightly higher representation in the mild to moderate alcohol withdrawal symptom group. This could suggest that starting alcohol use later in life may be associated with a lower risk of developing severe withdrawal symptoms. The time it took to develop alcohol dependence was significantly associated with withdrawal symptom (p-value = 0.006). Those who developed dependence within five years were more likely to be in the severe withdrawal symptoms group.

Table 1. Sociodemographic characteristics of the Study Population (modified kuppusamy classification).

Sociodemographic variables	Percentage (%) (mean = 100)	Sociodemographicvariables	Percentage (%) (mean = 100)
Education		**Clerks**	5
Illiterate	1	**Skilled workers and Shop & market sales workers**	29
Primary school certificate	7	**Skilled agricultural & fishery workers**	29
Middle school certificate	5	**Craft & related trade workers**	15
High school certificate	49	**Plant & machine operators and assemblers**	4
Intermediate or post high school diploma	14	**Monthly family income**	
Graduate or postgraduate	22	**6175-18,496**	32
Professional degree	2	**18,497-30,830**	36
Residence		**30,831-46,128**	29
Rural	10	**46,129-61,662**	1
Semi-urban	86	**61,663-123,321**	2
Urban	4	**Marital status**	
Type of family		**Married**	87
Nuclear family	82	**Never married**	9
Joint family	18	**Legally separated**	4
Occupation		**Socio economic status**	
Legislators, senior officials & managers	5	**Upper middle**	11
Professionals	6	**Lower middle**	72
Technicians and associate professional	7	**Upper lower**	17

Table 2. Descriptive Statistics of Clinical Variables in Alcohol Dependence Population.

Clinical variables	Minimum	Maximum	Mean ± SD/%
Age at presentation (years)	28	59	43.48±10.048
Age at onset of use (years) -	15	34	21.94± 4.525
Age at onset of dependence (years)	15	36	26.14 ± 4.856
Time to develop dependence (years)	1	9	4.38± 1.922
Duration of dependence (years)	4	40	17.53 ± 9.992
Maximum units of alcohol consumed per day	8	48	22.21 ± 9.74
Family history of alcohol dependence	-	-	53%
History of nicotine dependence	-	-	71%

Table 3. Clinical Institute Withdrawal Assessment for Alcohol (CIWA) Scores in the Study Population

CIWAR	Percent (%)
Mild withdrawal	22.%
Moderate withdrawal	46.%
Severe withdrawal	32.%

Table 4. Statistical Analysis of Clinical Variables in Alcohol Dependence Patients with Mild /Moderate withdrawal symptoms and Severe withdrawal Symptoms

Clinical variables	Mild/moderate (n= 68) Mean ±sd	Severe (n=32) Mean ± sd	Sig. (2-tailed)
Red blood cells	4.4472± 0.58238	4.0309±0.67218	0.004*
Hemoglobin	12.825± 1.5089	12.331±1.595	0.147
White blood cells	7257.5±2085.015	6209.38±3245.28	0.102
Mean corpuscular hemoglobin	35.435±2.603	35.55±2.5933	0.837
Mean corpuscular volume	101.9±8.8411	101.7±7.582	0.913
Mean corpuscular hemoglobin concentration	34.281±1.6372	34.316±1.8693	0.929
Platelets	2.4293±1.42019	1.9266±0.81059	0.027*
Total bilirubin	0.9678±0.4804	2.2141±1.47416	0.001*
Total protein	6.297±1.0648	6.393±1.1677	0.696
Albumin	4.084±1.313	3.755±0.9468	0.159
Globulin	4.359±0.8443	3.918±0.7296	0.009*
Aspartate aminotransfersae	158.32±70.275	223.75±84.079	0.001*
Alanine transaminase	99.96±46.791	128.59±56.442	0.016*
Aspartate transaminase	114.91±70.09	127.91±94.132	0.49
Gamma glutamyl transferase	153±166.885	191.22±256.696	0.446
Sodium	134.79±4.383	134.78±4.791	0.99
Potassium	3.713±0.2682	3.491±0.522	0.028*
Bicarbonate	25.76±2.604	24.81±2.741	0.105
Chloride	101.69±4.031	102.75±3.759	0.204
S. Creatinine	0.8416±0.42159	0.9263±0.25155	0.215
Blood urea nitrogen	8.79±2.012	9.34± 2.789	0.323
Random blood sugar	128.82±37.602	141.06±55.819	0.266
Pulse rate	98.34±7.837	103.19±8.884	0.011*
Systolic blood pressure	124±11.65	126±11.846	0.543
Diastolic blood pressure	84.26±7.788	87.19±6.832	0.061

Standard Deviation (SD), Frequency (N), [*-p-value of < 0.05 is considered statistically significant]

Table 5. Comparison of Sociodemographic and Clinical Characteristics Between Mild/Moderate Alcohol withdrawal symptoms and Severe Alcohol withdrawal symptoms with Chi-Square Test

	Variables	Mild/moderate (n= 68) Mean	Severe (n=32) Mean	Chi- square test	P value
Education	Illiterate	1	0	3.5	0.744
	Primary school certificate	4	3		
	middle school certificate	3	2		
	high school certificate	34	15		
	intermediate or post high school diploma	11	3		
	graduate or post graduate	13	9		
Residence	Urban	1	3	4.032	0.133
	Semi-urban	61	25		
	Rural	6	4		
Occupation	Legislators, Senior Officials & Managers	5	0	10.809	0.147

	Professionals	3	3	
	Technicians and Associate Professionals	4	3	
	Clerks	1	4	
	Skilled Workers and Shop & Market Sales Workers	19	10	
	Skilled Agricultural & Fishery Workers	23	6	
	Craft & Related Trade Workers	10	5	
	Plant & Machine Operators and Assemblers	3	1	
Type of family	Nuclear	52	30	4.4	0.261
	Joint	16	2		
Income	6175-18496	24	8		
	18497-30830	25	11		
	30831-46128	16	13	4.36	0.859
	46129-61662	1	0		
	61663-123321	2	0		
Religion	Hindu	59	30		
	Christian	5	0	2.47	0.29
	Muslims	4	2		
Socioeconomic status	Lower middle class	48	24		
	Upper lower class	8	3	0.224	0.894
	Lower class	12	5		
Age at presentation grouped	21-30	12	3		
	31-40	19	10	44	0.004*
	41-50	21	10		
	51-60	16	9		
History of nicotine dependence	YES	46	25	1.16	0.281
	NO	22	7		
Average use of alcohol in units	<12 units	14	11		
	<18units	20	5	76.59	0.001*
	<24 units	24	9		
	>24nits	10	7		
Maximum units of alcohol consumed per day	<24units	58	25	13.47	0.096
	>24 units	10	7		
Interval from alcohol cessation to hospital visit (days)	1	18	0		
	2	38	14		
	3	10	16	21.63	0.001*
	4	1	2		
	6	1	0		
History of withdrawal	Delirium tremens	10	7		
	Seizures	0	3		
	Alcohol related complications	13	11	21.63	0.001*
	Head injury	0	2		
	None	45	9		
Age at onset of use	Below20 years	31	15		
	21- 25 years	29	14	25.88	0.102
	Above 25years	8	3		
Time to develop dependence	<5years	44	28	21.51	0.006*
	>5years	24	4		

Frequency (N), [*-p-value of < 0.05 is considered statistically significant]

DISCUSSION

Unlike many studies that primarily concentrate on severe alcohol withdrawal symptoms, our study aims to investigate and shed light on mild and moderate alcohol withdrawal symptoms. This focus on a broader spectrum of withdrawal experiences is relatively uncommon and can provide valuable insights into the full range of challenges individuals with alcohol dependence face. In addition to exploring withdrawal symptoms, the study incorporates the assessment of liver function in individuals with alcohol dependence. Liver-related complications are a significant concern for this population, and the inclusion of liver function markers provides a holistic view of their health status our study examines an array of predictors associated with withdrawal symptoms and alcohol dependence severity. These predictors encompass sociodemographic factors (e.g., age, education, income), alcohol consumption patterns (e.g., units consumed per day, duration of use), and clinical markers (e.g., liver enzymes, bilirubin levels). The study also highlights distinct clinical profiles between individuals with mild to moderate withdrawal symptoms and those experiencing severe manifestations of alcohol dependence. This provides valuable clinical insights that can guide treatment decisions and help healthcare professionals identify patients at greater risk.

The study (Table 1) reveals that a substantial proportion of individuals seeking treatment for alcohol dependence are well-educated, with 22% having graduated from college or postgraduate studies. This suggests that alcohol dependence can affect individuals across various educational backgrounds. The high marital rate of 87% emphasise the importance of addressing alcohol dependence within the context of family dynamics as it might have implications for the support system available to individuals struggling with alcohol dependence. There are strong connections between family functioning and drinking outcomes. Family behaviours can contribute to changes in drinking, and, conversely, changes in drinking can contribute to more positive family functioning [21]. There may be a correlation between education levels (as shown in Table 1) and the age at which individuals begin using alcohol and subsequently develop dependence (as shown in Table 2). It could be hypothesized that

individuals with higher education levels might delay the onset of alcohol use and dependence due to increased awareness of the risks associated with alcohol. Individuals who had dropped out of high school were 6.34 times more likely to develop alcohol abuse or dependence than were individuals with a college degree [22]. The data indicates that a significant proportion of individuals have a family history of alcohol dependence (53%) and a history of nicotine dependence (71%). Adoption studies show that alcoholism in adoptees correlates more strongly with their biological parents than their adoptive parents. Twin studies in the US and Europe suggest that approximately 45-65% of the liability is due to genetic factors [23].Alcohol-dependent individuals are three times more likely to smoke than the general population, and individuals who are dependent on tobacco are four times more likely to be alcohol dependent [24].

A detailed analysis of various clinical parameters in relation to the severity of alcohol dependence. Notably, individuals with severe alcohol dependence exhibited altered levels of red blood cells, haemoglobin, platelets, total bilirubin, globulin, aspartate aminotransferase (AST), and alanine transaminase (ALT). These findings suggest that severe alcohol dependence is associated with alterations in these physiological markers, potentially indicating the detrimental impact of chronic alcohol consumption on multiple organ systems, particularly the liver. On the other hand, mild to moderate alcohol withdrawal symptom cases had a significantly higher potassium level and a lower pulse rate, indicating potential differences in electrolyte balance and cardiovascular health between the two groups.

Average alcohol consumption is strongly associated with health condition severity. Those who consumed fewer than 12 units of alcohol were more likely to have mild to moderate alcohol withdrawal symptoms, while those who consumed more were more likely to be in the severe withdrawal symptom group. This highlights the dose-dependent relationship between alcohol consumption and its health consequences. Studies showed a strong and consistent association between alcohol consumption and epilepsy and unprovoked seizures as well as a dose-

response relationship between the level of alcohol consumption and the risk of epilepsy [25]. The interval from alcohol cessation to hospital visit also showed a strong correlation with health condition severity, indicating that the duration of abstinence before seeking medical attention is a critical factor. Individuals who delayed seeking help tended to have severe withdrawal symptoms. Those who initiated alcohol use below the age of 20 years had a higher representation in the severe health condition group, suggesting that early onset of alcohol use may be associated with a greater likelihood of developing severe health conditions [26].

Additionally, individuals who consume higher levels of alcohol and past history of withdrawal symptoms like delirium tremens or seizures tend to have more severe outcomes. Lastly, the time it took to develop alcohol dependence was significantly associated with severity of withdrawal symptoms. Those who developed dependence within five years were more likely to be in the severe group, highlighting the rapid progression of alcohol dependence in some individuals. The younger the age at which people started to drink, the greater their likelihood of developing alcohol dependence within 10 years of drinking onset and before age 25 years [27]. Future studies with larger and more diverse samples, longitudinal designs, and consideration of cultural and contextual factors can contribute to a more comprehensive understanding of this complex issue.

Limitations

While our study has provided valuable insights into alcohol withdrawal symptoms and dependence severity, it is essential to acknowledge the limitations, the study utilized a cross-sectional design, which means that data were collected at a single point in time. Participants were asked to recall details such as their age at onset of alcohol use, duration of abstinence, and past withdrawal symptoms. Recall bias could affect the accuracy of these recollections. Much of the data collected, such as alcohol consumption patterns and family history, relied on self-reported information from participants. Self-report data can be subject to recall bias and social desirability bias.

CONCLUSIONS

Our study has provided valuable insights into the spectrum of alcohol withdrawal symptoms and alcohol dependence severity, with a particular focus on mild and moderate cases, which are often overlooked. We have also highlighted the importance of assessing liver function in individuals with alcohol dependence, as liver-related complications are a significant concern. The study has shed light on several key predictors of alcohol dependence severity, including average alcohol consumption, the duration of abstinence before seeking help, the age at which individuals begin using alcohol, a family history of alcohol dependence, and a history of nicotine dependence. These factors collectively contribute to the complexity of alcohol dependence and its associated health consequences.

CONFLICTS OF INTEREST

There are no conflicts of interest

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