American Journal of Psychiatric Rehabilitation | Expert Opinion Article

Parasomnias in Patients With Alcohol Dependence: A Cross-Sectional Study

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Abstract

Background: Alcohol dependence is associated with alterations in sleep architecture and may be accompanied by parasomnias. Although alcohol has been proposed as a precipitating factor for certain parasomnias, evidence regarding this association remains limited and inconsistent. This study aimed to assess the prevalence and pattern of parasomnias among patients with alcohol dependence and to examine their association with selected clinical characteristics.

Methods: A cross-sectional study was conducted over a period of 1.5 years in the Department of Psychiatry, Victoria Hospital, Bangalore Medical College and Research Institute, Bengaluru. Patients aged 18–65 years diagnosed with alcohol dependence syndrome according to ICD-10 and actively using alcohol were included. Patients with other substance use disorders except nicotine dependence, psychiatric or medical conditions likely to affect sleep, neurological disorders, delirium, complicated withdrawal, or recent prolonged withdrawal symptoms were excluded. The severity of alcohol dependence was assessed using the Severity of Alcohol Dependence Questionnaire (SADQ). Sleep quality and insomnia were assessed using the Pittsburgh Sleep Quality Index (PSQI) and Insomnia Severity Index (ISI), respectively. Parasomnias were assessed using a structured history obtained from participants and their attendants.

Results: A total of 62 patients with alcohol dependence were included. Parasomnia was identified in 14.52% of participants, with nightmare disorder being the only parasomnia observed. No participants reported sleepwalking or night terrors. The study did not establish a significant association between alcohol dependence and nightmare disorder. The findings suggested that parasomnias were relatively uncommon compared with the high prevalence of poor sleep quality and insomnia observed in the study population.

Conclusion: Parasomnias were present in a minority of patients with alcohol dependence, with nightmare disorder being the only parasomnia identified in this sample. No cases of sleepwalking or night terrors were observed. The findings highlight the need for careful assessment of parasomnia symptoms in patients with alcohol dependence while recognizing that the relationship between alcohol use and specific parasomnias remains uncertain.

Keywords: Alcohol dependence; parasomnia; nightmare disorder; sleepwalking; night terrors; sleep disorders.

INTRODUCTION

Alcohol use is an important public health concern because of its associated medical, social and psychological consequences. Repeated alcohol use may lead to alcohol dependence, which is characterized by behavioural, cognitive and physiological changes associated with persistent alcohol consumption.[1,2]

Alcohol use has significant effects on sleep. Although alcohol may initially reduce sleep latency, chronic alcohol use is associated with alterations in sleep architecture, including changes in rapid eye movement (REM) sleep and slow-wave sleep, increased sleep fragmentation and more frequent awakenings.[3,4] These changes in sleep regulation may contribute to various sleep disturbances among individuals with alcohol dependence.

Among the sleep disturbances associated with alcohol use are parasomnias, which are undesirable physical events or experiences occurring during sleep. Parasomnias may arise during non-rapid eye movement (NREM) or REM sleep. NREM parasomnias include confusional arousals, sleepwalking, sleep terrors and sleep-related eating disorder, whereas REM-related parasomnias include nightmare disorder and other REM-associated phenomena.[5]

The relationship between alcohol use and parasomnias, particularly NREM parasomnias, remains uncertain. Alcohol has traditionally been considered a possible precipitating or modifying

factor for sleepwalking and other NREM parasomnias. A large population-based study reported alcohol as a potential precipitant or modifier of NREM parasomnias.[6] Other studies have also reported alcohol use as a possible triggering factor for sleepwalking and sleep-terror episodes.[7,8]

However, evidence supporting a direct causal relationship is limited. A review of the scientific literature found that much of the evidence linking alcohol with sleepwalking was based on clinical and forensic case reports, while experimental studies examining the direct effects of alcohol on sleep in clinically diagnosed sleepwalkers were lacking.[9] Furthermore, chronic heavy alcohol use is associated with reduced slow-wave sleep and increased sleep fragmentation, changes that are not necessarily consistent with the physiological conditions associated with NREM parasomnias.[10]

The relationship between alcohol use and nightmare disorder is also unclear. In a general population study, alcohol use was not found to be associated with nightmares.[11] Similarly, a study among chronic alcohol users reported a higher frequency of self-reported nightmares, but the difference did not reach statistical significance.[12] Thus, although nightmares are commonly reported by individuals with alcohol dependence, the extent to which alcohol itself contributes to nightmare disorder remains uncertain.

There is limited literature from India specifically examining parasomnias among patients with alcohol dependence. Most available studies have been conducted in Western populations, and the reported association between alcohol use and parasomnias has been inconsistent. In addition, many studies have examined sleep disturbance broadly rather than systematically assessing individual parasomnia subtypes.

The present study therefore aimed to assess the prevalence and pattern of parasomnias among patients with alcohol dependence and to examine their association with selected sociodemographic and clinical characteristics, including severity of alcohol dependence.

Objectives

1. To assess the prevalence of parasomnias in patients with alcohol dependence syndrome.
2. To assess the pattern of parasomnias among patients with alcohol dependence syndrome.
3. To assess the association between severity of alcohol dependence and parasomnias.
4. To evaluate selected sociodemographic and clinical factors associated with parasomnias.

Materials and Methods

Study design and setting

This was a cross-sectional study conducted over a period of 1.5 years in the Department of Psychiatry, Victoria Hospital, Bangalore Medical College and Research Institute (BMCRI), Bengaluru.

Study population

The study included patients attending the Psychiatry outpatient department and patients admitted to the Psychiatry ward of Victoria Hospital, BMCRI, with a diagnosis of alcohol dependence syndrome according to ICD-10 criteria.

Inclusion criteria

Patients fulfilling the following criteria were included:

1. Age between 18 and 65 years.
2. Diagnosis of alcohol dependence syndrome according to ICD-10 criteria.
3. Active use of alcohol at the time of assessment.
4. Willingness to participate and provision of written informed consent.

Exclusion criteria

Patients were excluded if they:

1. Were unwilling to provide informed consent.
2. Had substance use other than alcohol dependence syndrome, except nicotine dependence.
3. Had psychiatric disorders causing sleep disturbance.
4. Had medical comorbidities likely to cause sleep disturbance.
5. Had neurological disorders such as Parkinson's disease, other neurodegenerative disorders, multiple sclerosis, stroke, epilepsy or CNS tumours.
6. Had major organic illnesses such as congestive heart failure, chronic renal failure, liver failure or malignancy.
7. Had primary central nervous system hypersomnia such as narcolepsy or Kleine–Levin syndrome.
8. Were receiving psychotropic medications likely to affect sleep, including sedatives, antidepressants, antipsychotics or antiepileptic medications.
9. Were currently experiencing delirium.
10. Had experienced alcohol-withdrawal features lasting more than 2 days during the preceding month.

Sample size

The calculated sample size according to the study protocol was 75 participants. However, because of difficulties in recruitment during the COVID-19 pandemic, 62 participants were ultimately recruited.

Study procedure

After obtaining approval and clearance from the Institutional Ethics Committee, Bangalore Medical College & Research Institute, participants fulfilling the inclusion criteria were recruited after obtaining written informed consent.

Sociodemographic and relevant clinical information was collected using a semi-structured proforma. Psychiatric assessment was performed using the Mini

International Neuropsychiatric Interview (MINI) for screening of psychiatric diagnoses.[13]
The severity of alcohol dependence was assessed using the Severity of Alcohol Dependence Questionnaire (SADQ).[14] Nicotine dependence was assessed using the Fagerström Test for Nicotine Dependence (FTND).[15] Sleep quality was assessed using the Pittsburgh Sleep Quality Index (PSQI)[16] and insomnia severity using the Insomnia Severity Index (ISI).[17]

Assessment of parasomnias
Parasomnias were assessed according to the diagnostic criteria of the International Classification of Diseases, 10th Revision (ICD-10).[18] The assessment was based on clinical history and the relevant ICD-10 diagnostic criteria.
The study assessed the presence of sleepwalking, night terrors and nightmare disorder. Participants were categorized according to the presence or absence of parasomnia.

Ethical considerations
The study was approved by the Institutional Ethics Committee, Bangalore Medical College & Research Institute (BMCRI), under approval number BMCRI/PG/352/2019-20, dated 19 November 2019. Written informed consent was obtained from all participants.

Statistical analysis
Data were entered and analyzed using SPSS version 20.
Descriptive statistics were used to summarize sociodemographic and clinical variables. Continuous variables were expressed as mean and standard deviation, while categorical variables were expressed as frequencies and percentages.
The association between the presence of parasomnias and selected sociodemographic and clinical variables was assessed using the Chi-square test or Fisher's exact test, as appropriate. The association between severity of alcohol dependence and parasomnias was also assessed using appropriate statistical tests.
A p value <0.05 was considered statistically significant.

RESULTS
Study population
A total of 62 patients with alcohol dependence syndrome were included in the study. Participants were between 18 and 65 years of age and were actively using alcohol at the time of assessment.
Prevalence of parasomnias
Among the 62 participants, 9 (14.52%) had a parasomnia, while 53 (85.48%) did not report any parasomnia

Table 1. Prevalence of parasomnias in the study population.

Parasomnia status	n	Percentage
Present	9	14.52%
Absent	53	85.48%
Total	62	100%

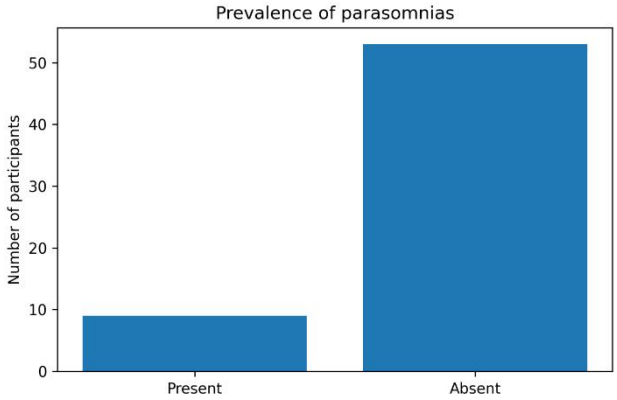

Figure 1. Prevalence of parasomnias in the study population.

Pattern of parasomnias
Of the three parasomnias assessed—nightmare disorder, sleepwalking and night terrors—only nightmare disorder was identified. All 9 participants classified as having a parasomnia had nightmare disorder. No cases of sleepwalking or night terrors were identified.

Table 2. Pattern of parasomnias identified in the study population.

Parasomnia	n	Percentage
Nightmare disorder	9	14.52%
Sleepwalking	0	0%
Night terrors	0	0%

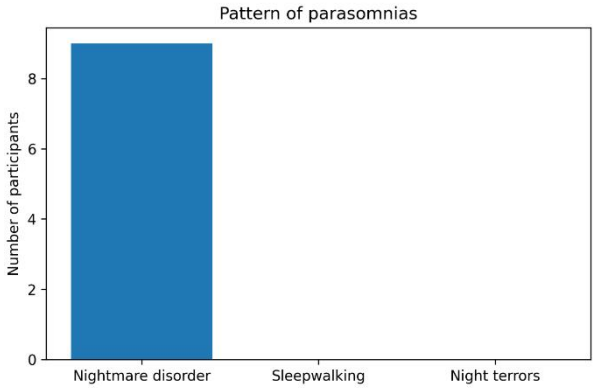

Figure 2. Distribution of individual parasomnias.

Sleep-related findings

The mean global Pittsburgh Sleep Quality Index (PSQI) score was 5.97±3.55, with 36 (58.06%) participants having poor sleep quality. The mean Insomnia Severity Index (ISI) score was 10.005±6.139, with 59.68% having clinically significant insomnia. These findings provide the broader sleep context in which parasomnias were assessed.

Association with severity of alcohol dependence

SADQ score showed a significant positive correlation with global PSQI score (Spearman's rho=0.394, p=0.002) and ISI score (rho=0.426, p=0.001). The available thesis results do not report a separate inferential analysis of SADQ score or category against parasomnia status. Therefore, no statistical association between severity of alcohol dependence and parasomnia is reported here.

Discussion

The present study assessed parasomnias among patients with alcohol dependence syndrome and found that 14.52% of participants had a parasomnia. Among the parasomnias assessed, only nightmare disorder was identified, while no cases of sleepwalking or night terrors were observed.

Prevalence and pattern of parasomnias

In the present study, 9 of 62 participants (14.52%) had a parasomnia. All nine participants had nightmare disorder, while sleepwalking and night terrors were not observed. This finding suggests that although parasomnias may occur among patients with alcohol dependence, they were relatively uncommon in this study population.

The absence of sleepwalking and night terrors should be interpreted cautiously. Previous literature has suggested that alcohol may act as a precipitating or modifying factor for NREM parasomnias. A large population-based study by Ohayon et al. identified alcohol as a potential precipitant or modifier of NREM parasomnias.[19] Similarly, alcohol was reported as a triggering factor in a proportion of sleepwalking cases in a case-control study by Lopez et al.[20] A case series by Oudiette et al. also reported alcohol as a trigger in some NREM parasomnia episodes.[21]

However, the evidence for a direct causal relationship between alcohol and NREM parasomnias remains inconsistent. Pressman et al., in a review of alcohol-induced sleepwalking, noted the absence of experimental studies directly examining the effects of alcohol on sleep in clinically diagnosed sleepwalkers.[22] The authors also highlighted that some reported cases of alcohol-related sleepwalking may represent complex behaviour occurring during severe intoxication rather than true sleepwalking.[22]

The absence of sleepwalking in our sample is therefore compatible with the literature questioning alcohol as a direct proximal trigger of NREM parasomnias. A review of alcohol and sleep literature found little support for alcohol as a proximal trigger for NREM parasomnias and noted that heavy alcohol use is associated with reduced slow-wave sleep and increased sleep fragmentation, which are not necessarily consistent with the occurrence of sleepwalking.[23]

Nightmare disorder

Nightmare disorder was the only parasomnia identified in our study and was present in 14.52% of participants. The present study, however, did not establish an association between alcohol dependence and nightmare disorder.

This finding is consistent with previous literature. Rek et al., in a general population study, examined potential factors associated with nightmares and did not identify alcohol use as a significant associated factor.[24] Cernovsky also examined nightmares among male alcoholics and did not demonstrate a clear association between alcohol use and nightmares.[25]

Thus, although nightmares were present in a proportion of participants in the present study, their occurrence cannot be attributed specifically to alcohol dependence on the basis of the present findings.

Alcohol and NREM parasomnias

The relationship between alcohol and NREM parasomnias is particularly complex. Alcohol has traditionally been described as a possible precipitating factor for sleepwalking and confusional arousals. However, the available evidence is largely derived from observational studies, case reports and clinical experience rather than controlled experimental studies.[22]

Alcohol-related changes in sleep architecture may also provide an alternative explanation. Chronic heavy alcohol use is associated with disruption of normal sleep architecture, reduced slow-wave sleep and increased sleep fragmentation.[23] These effects may not favour the sustained slow-wave sleep conditions in which NREM parasomnias typically occur.

Therefore, the absence of sleepwalking and night terrors in the present study does not necessarily indicate that alcohol can never precipitate these parasomnias. Rather, it adds to the limited clinical evidence suggesting that the relationship may not be direct or consistent across individuals.

Night terrors

No participant in the present study had night terrors. Consequently, the study could not establish any relationship between alcohol dependence and night terrors. The thesis also notes the lack of experimental evidence directly demonstrating an association between alcohol use and night terrors.

The absence of cases also limits any meaningful comparison with previous studies. Therefore, the finding should be interpreted as a description of this particular sample rather than evidence that alcohol dependence is unrelated to night terrors.

Clinical interpretation

The findings indicate that parasomnias may occur in patients with alcohol dependence but that their prevalence and pattern may differ from the commonly presumed association between alcohol and sleepwalking. In our sample, nightmare disorder was the only parasomnia identified.

The results also emphasize the importance of distinguishing general sleep disturbance from parasomnia. Patients with alcohol dependence may have substantial sleep problems without necessarily having a parasomnia. In the overall study population, poor sleep quality and insomnia were common, whereas parasomnia was identified in only 14.52% of participants.

Strengths

1. Use of standardized diagnostic criteria: Parasomnias were assessed according to ICD-10 criteria.
2. Defined inclusion and exclusion criteria: Psychiatric, neurological and medical conditions likely to influence sleep were excluded.
3. Assessment of specific parasomnia subtypes: Sleepwalking, night terrors and nightmare disorder were specifically assessed.
4. Assessment of alcohol-dependence severity: Severity was assessed using the standardized SADQ.
5. Single, clearly defined clinical population: The study included patients with alcohol dependence syndrome who were actively using alcohol.

Limitations

1. Small sample size: Only 62 participants were recruited compared with the planned sample size of 75.
2. Cross-sectional design: Causal relationships between alcohol use and parasomnias cannot be established.
3. Single-centre study: Findings may not be generalizable to other populations or clinical settings.
4. Low number of parasomnia cases: Only 9 participants had parasomnias, limiting statistical comparisons.
5. No cases of sleepwalking or night terrors: Their relationship with alcohol dependence could therefore not be statistically evaluated.
6. ICD-10 rather than ICSD-3: ICSD-3 could not be used because the required instrument was unavailable. DOC-20260810-WA0029.docx
7. No objective sleep assessment: Polysomnography or actigraphy was not performed. DOC-20260810-WA0029.docx
8. Potential recall bias: Assessment of parasomnia symptoms relied primarily on clinical history.
9. Limited assessment of alcohol-use characteristics: Detailed relationships between quantity, duration and timing of alcohol consumption and parasomnia could not be established.

Future Directions

1. Larger multicentre studies should be conducted to determine the prevalence of parasomnias in patients with alcohol dependence more reliably.
2. Longitudinal studies should evaluate changes in parasomnias with continued alcohol use, abstinence and relapse.
3. Objective sleep assessment using polysomnography should be incorporated to characterize sleep architecture and parasomnia episodes.
4. Future studies should use ICSD-3 diagnostic criteria and standardized parasomnia assessment tools.
5. Studies should examine the relationship between quantity, duration and timing of alcohol consumption and individual parasomnia subtypes.

6. Further research should investigate the neurobiological mechanisms underlying the relationship between alcohol dependence and parasomnias.
7. Studies with larger samples should specifically evaluate the relationship between alcohol dependence and NREM parasomnias such as sleepwalking and night terrors, which could not be assessed adequately in the present study because no cases were identified.

Ethical approval

The study was approved by the Institutional Ethics Committee, Bangalore Medical College & Research Institute (BMCRI) under approval number BMCRI/PG/352/2019-20, dated 19 November 2019. Written informed consent was obtained from all participants before their inclusion in the study.

Conflict of interest

The authors declare no conflict of interest

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