

Study of Association of Severity of Alcohol Dependence with Quality of Sleep and Severity of Insomnia in Alcohol Dependence Syndrome Patients

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Abstract: *Background:* Severity of alcohol dependence may be associated with the prevalence and severity of sleep disturbances. Symptoms of insomnia have been observed in alcohol-dependent patients at rates as high as 91%. However, in alcohol dependent samples, the prevalence of sleep problems has been reported to be as high as 72%. *Aim:* To Study the association of severity of alcohol dependence with quality of sleep and severity of insomnia in alcohol dependence syndrome patients *Methods:* This cross sectional observational study was conducted on 46 subjects of alcohol dependence syndrome having age group between 20 to 50 years from outpatient and inpatient Department of Psychiatry. *Results:* In the present study, 4.35% patients had mild alcohol dependence, 56.52% had moderate and 39.13% had severe alcohol dependence. All 46 patients had clinically significant insomnia. 50% showed mild insomnia and other 50% showed moderate insomnia. Among the patients 100% had poorer sleep quality. *Conclusion:* This study concluded that severity of alcohol dependence was associated with the severity of insomnia and quality of sleep in alcohol dependence syndrome patients.

Keywords: severity of alcohol dependence syndrome, sleep quality, insomnia, insomnia severity index, pittsburgh sleep quality index

1. Introduction

Edwards (1986) has described an 'alcohol dependence syndrome', which is characterised by tolerance and physical dependence towards alcohol, as well as alcohol-seeking behaviour and awareness of a compulsion to drink alcohol.¹

Alcohol intake has increased in recent decades at global level. Among the population aged between 15–49 years, alcohol intake was the leading risk factor and attributed 12.2% of male mortality in the year 2016. According to WHO, 43% of the world population reportedly drinks alcohol regularly. In India also prevalence is high among males with recent National Family Health Survey (NFHS) - 4 (2014–15), reported alcohol consumption prevalence as 29.2% among adult men.²

Alcohol dependence may causes psychiatric disorders, neurological disorders, cardiovascular diseases, liver disease, and malignant neoplasms. Psychiatric illnesses associated with alcohol dependence include major depression, dysthymia, mania, hypomania, panic disorder, phobias, generalized anxiety disorder, any drug use disorder, schizophrenia and suicide.³

The relationship between alcohol consumption and sleep disturbance is complex. Alcohol acts as a sedative and reduces sleep onset latency, and may be used to relieve insomnia. However, there is evidence that alcohol intake also affects sleep, particularly the period of rapid eye movement (REM) sleep. So the association of alcohol dependence with insomnia may be bidirectional in nature.⁴

Insomnia often co-occurs with alcohol use disorder (AUD). The prevalence of insomnia symptoms in individuals with alcohol use disorder ranges from 31% up to 91%, depending on the definition of insomnia and sample characteristics.⁵

A 'provisional description' of the alcohol dependence syndrome was first given in 1976. An outline is provided of the historical background to the syndrome formulation. Ideas emanating from the Maudsley campus were important but so was the international input from a WHO Scientific Group. Since its original delineation the syndrome idea has attracted discussion and has become a focus for research.⁶

Alcohol dependence is a disorder of regulation of alcohol use arising from repeated or continuous use of alcohol characterised by strong internal drive to use alcohol and often accompanied by a subjective sensation of urge or craving to use alcohol. Physiological features of dependence may also be present, including tolerance to the effects of alcohol, withdrawal symptoms following cessation or reduction in use of alcohol. The features of dependence are usually evident over a period of at least 12 months but the diagnosis may be made if alcohol use is continuous (daily or almost daily) for at least 1 month.⁷

Sleep is defined as a reversible engagement with unresponsiveness to the external environment, regularly alternating in a circadian manner with engagement and responsiveness. Sleep quality is one of the domains of sleep. Having adequate quality sleep is defined as one's "feeling fresh" after waking-up.⁸ Insomnia suggests inadequate sleep quality or quantity when one has an adequate opportunity to

sleep. When defined as a sleep disorder, insomnia is characterised by a difficulty in falling asleep or remaining asleep, which may represent problems with sleep maintenance or early morning awakening despite attempts to sleep.⁹

The relationship between sleep problems and alcohol use is well documented (Stein and Friedmann, 2006)¹⁰. Alcohol use can affect sleep quality, especially when taken in relatively large quantities or over long period (Colrain et al., 2014)¹¹.

Intention to use of alcohol is to relieve insomnia and mitigate sleep difficulties. This is a common reason for individuals to continue alcohol intake (Johnson et al., 1998)¹².

Patients entering treatment for alcohol have been shown to use alcohol significantly more frequently as a sleep aid if they have comorbid insomnia compared with patients who do not. As it has been observed that individuals having sleep problems have greater risk of relapse to alcohol (Brower et al., 2001).¹³

During recovery, sleep problems have been shown to predict relapse¹⁴, even when patients' quality of life and other psychiatric symptoms are improving¹⁵.

In India, over the years, alcohol production and consumption has shown an increasing trend. The National Family Health Survey (NFHS) of India showed that 32% of adult (15–54 years) men consume alcohol with 9.4% of them being alcohol dependent.¹⁶

The prevalence of sleep problems has been reported to be as high as 72% in alcohol dependence patients.¹⁷

In the general population, 29.9% report some symptoms of insomnia and the prevalence of clinical insomnia is ~9.5% based on the combination of DSM-IV and ICD diagnostic criteria¹⁸.

Rate of insomnia have been observed in alcohol-dependent patients is as high as 91%. Severity of alcohol dependence may be associated with the prevalence and severity of sleep disturbances¹⁹.

Conversely, Foster and Peters (1999) reported that Pittsburgh Sleep Quality Index (PSQI) scores were not correlated with the severity of alcohol dependence, measured by the Severity of Alcohol Dependence Questionnaire (SADQ), in a sample of alcohol-dependent patients.²⁰

Given the high comorbidity of sleep problems and alcohol dependence syndrome, the primary aim of this study is to test the association of severity of alcohol dependence with severity of insomnia and quality of sleep in rural Indian population

Aim

To Study the association of severity of alcohol dependence with quality of sleep and severity of insomnia in alcohol dependence syndrome patients

Objectives

- To Study the association of severity of alcohol dependence with quality of sleep in alcohol dependence syndrome patients.
- To Study the association of severity of alcohol dependence with severity of insomnia in alcohol dependence syndrome patients.

2. Materials and Methods

This cross sectional observational study was conducted on 46 subjects in age group between 20 to 50 years from outpatient and inpatient Department of Psychiatry in Dr. Ulhas Patil Medical College & Hospital, Jalgaon (Kh), Maharashtra, India.

Subjects included in study were diagnosed on ICD 11 criteria for psychiatric illness. Those who fulfilled the inclusion and exclusion criteria were selected for study.

Source of data: All OPD and IPD cases clinically diagnosed as alcohol dependence syndrome according to ICD-11 criteria.

Inclusion Criteria:

All OPD and IPD cases clinically diagnosed as alcohol dependence syndrome (ADS) according to ICD-11 criteria having age between 18-50 years.

Exclusion Criteria:

- 1) Patients with organic brain pathology.
- 2) Patients with psychiatric illness other than alcohol dependence syndrome.
- 3) Patients with substance use history other than alcohol.
- 4) Patients having age below 20 years and above 50 years.
- 5) Patients on any psychotropic or neurotropic medications known to influence sleep.

Tools

- 1) Severity of alcohol dependence questionnaire (SADQ-C) to assess severity of alcohol dependence.
- 2) Insomnia severity index (ISI) to assess severity of insomnia.
- 3) Pittsburgh sleep quality index (PSQI) to assess the quality of sleep.

3. Methodology

Written informed consent for study was obtained from all the subjects. The ethical committee of institute approved the study.

Alcohol dependence syndrome patients (n=46) from psychiatry department of Dr. Ulhas Patil medical college, Jalgaon, Maharashtra, India were recruited for this study. Patients diagnosed with Alcohol dependence syndrome according to ICD-11 criteria were taken as sample.

Detailed history taken, thorough clinical examination and MSE was done.

Any associated organic pathology ruled out.

Severity of alcohol dependence questionnaire (SADQ-C) was applied and score was noted. SADQ score less than 16 was considered as mild dependence. SADQ score between 16-30 was considered as moderate dependence and SADQ score more than 30 was considered as severe dependence.

Insomnia severity index (ISI) scale was applied and score was noted. ISI score between 0-7 was considered as clinically insignificant insomnia, ISI score 8-14 was considered as mild insomnia, ISI score of 15-21 was considered as moderate insomnia, ISI score of 22-28 was considered as severe insomnia.

Then Pittsburgh sleep quality index (PSQI) scale was applied and score was noted. PSQI score less than 5 was considered as good sleep and score equal to or more than 5 was considered as poor quality sleep. For sake of simplicity to apply chi square test we divided poor quality sleep into mild (5-7), moderate (8-14) and severe (>14).

For statistical analysis, $P < 0.05$ was considered to be statistically significant.

In the study, statistical tests were conducted at 5% level of significance. The data was analysed using MS-Excel and minitab statistical software.

Descriptive statistics like mean and standard deviation (SD) were calculated.

To test the association, chi-square test was used.

4. Results

Table 1

Variable	Groups		Frequency	Percentage
	Mild	Severe		
Severity of Alcohol dependence	< 16	> 30	2	4.35
	16-30		26	56.52
			18	39.13
Insomnia	No	0-7	0	0.00
	Mild	8-14	23	50.00
	Moderate	15-21	23	50.00
	Severe	22-28	0	0.00
PSQI	Good sleep	< 5	0	0.00
	Poor Sleep	≥ 5	46	100.00

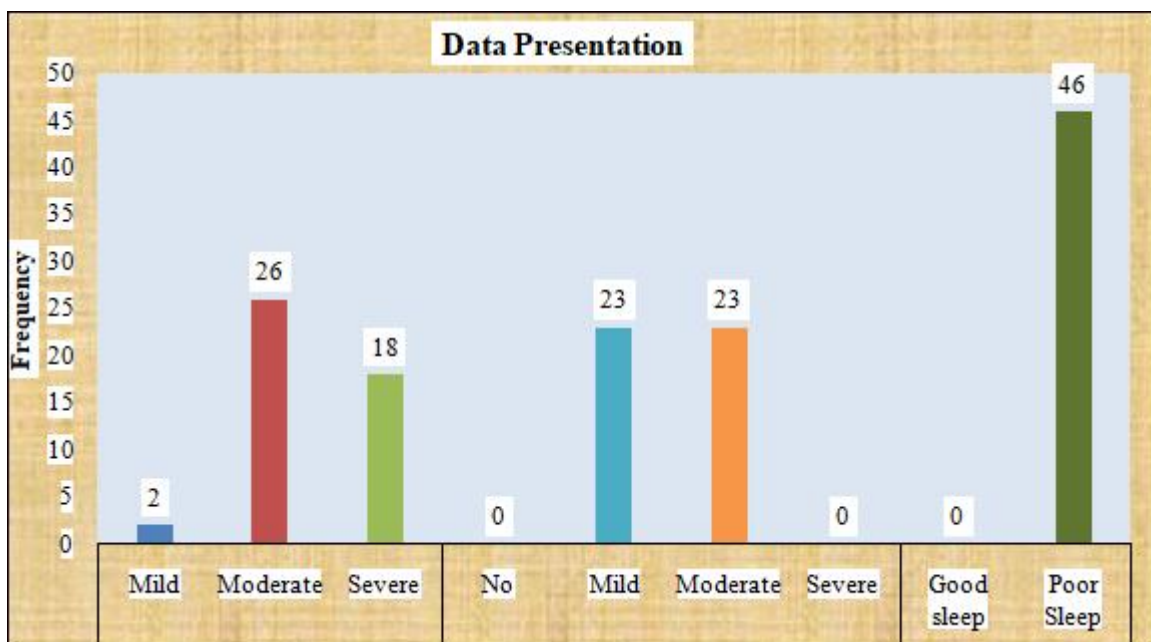
Table 2

Variable	Groups	Severity of Alcohol			Chi-square	p value	Significance
		Mild	Moderate	Severe			
Insomnia	No	0	0	0	13.84	0.001	Significant
	Mild	2	18	3			
	Moderate	0	8	15			
	Severe	0	0	0			

significant at 5% level of significance

Table 3

Variable	Groups	Severity of Alcohol			Chi-square	p value	Significance
		Mild	Moderate	Severe			
SQI	Good	0	0	0	15.79	0.000	Significant
	Poor	0	0	0			
	Moderate	2	24	7			
	Severe	0	2	11			



Average age of sample was 34 ± 5.53 (mean \pm SD) years.

In the past 30 days, participants reported an average of 27 drinking days.

As in table 1:

4.35% patients showed mild alcohol dependence, 56.52% showed moderate alcohol dependence., 39.13% had severe alcohol dependence.

Mean score of severity of alcohol dependence was 29.85 ± 5.53 .

All 46 patients had clinically significant insomnia. 50% showed mild insomnia and other 50% showed moderate insomnia. No patient had severe insomnia.

Mean score of insomnia severity index was 14.4 ± 5.53 . Among the patients 100% had poorer sleep quality. Mean score of PSQI was 13.2 ± 5.53

As shown in table 2:

According to this study there was significant association of severity of alcohol dependence with severity of insomnia (p value=0.001) at 5% level of significance.

And there was significant association of severity of alcohol dependence with quality of sleep (p value=0.000) at 5% level of significance.

5. Discussion

Insomnia and decreased sleep quality are the common symptoms in alcohol dependence syndrome patients. Symptoms of insomnia have been observed in alcohol-dependent patients at rates as high as 91% (Zhabenko et al., 2012). However, in alcohol dependent samples, the prevalence of sleep problems has been reported to be as high as 72% (Foster et al., 1998)¹⁷.

According to Zhabenko et al, insomnia was associated with greater severity of alcohol dependence, earlier age of onset of alcohol use and higher drinking frequency and quantity (Zhabenko et al., 2012)¹⁹.

Conversely, Foster and Peters (1999) reported that Pittsburgh Sleep Quality Index (PSQI) scores were not correlated with the severity of alcohol dependence, measured by the Severity of Alcohol Dependence Questionnaire (SADQ), in a sample of alcohol-dependent patients.²⁰

In the present study, patients of alcohol dependence syndrome was included and prevalence of clinically significant insomnia and sleep disturbance was 100%. There was significant association of severity of alcohol dependence with severity of insomnia (P=0.001) and quality of sleep (P=0.000) at 5% level of significance.

4.35% patients showed mild alcohol dependence. 56.52% showed moderate alcohol dependence, 39.13% had severe alcohol dependence. Mean score of severity of alcohol dependence was 29.85 ± 5.53 . All 46 patients had clinically significant insomnia. 50% showed mild insomnia and other 50% showed moderate insomnia. No patient had severe insomnia. Mean score of insomnia severity index was 14.4 ± 5.53 . Poorer sleep quality found in 100% of subjects. Mean score of PSQI was 13.2 ± 5.53 .

Present study has certain limitations, such as small sample size (n=46), cross sectional assessment. All the patients assessed only once. It is quite possible that some stressor factors could have influenced the sleep quality were not considered. So future research work is essential by eliminating these limitations.

6. Conclusion

This study concluded that severity of alcohol dependence was associated with the severity of insomnia and quality of sleep in alcohol dependence syndrome patients. But further work is needed to develop more understanding about the association between severity of alcohol dependence and sleep problems.

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Conflict of Interest

None

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