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Prevalence and Correlates of Sexual Dysfunction in Male Patients with Alcohol Dependence Syndrome: A Cross-Sectional Study

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Abstract: ***Background: Sexual dysfunctions have been reported in alcohol-dependent men. There is a lack of studies focusing on the sexual dysfunction of alcohol dependent men in India. Aim: The aim is to estimate the prevalence and correlates of sexual dysfunction in alcohol dependent patients and to explore the association between sexual dysfunction and various alcohol related variables. Materials and Methods: The study employed a cross-sectional descriptive design and recruited 110 male patients admitted for de-addiction in a tertiary care center. The evaluation was conducted using a specially designed intake Performa and tools such as Severity of Alcohol Dependence Questionnaire, Arizona Sexual Experience Scale, International Classification of Disease, 10th revision, diagnostic criteria for research and revised clinical institute withdrawal assessment for alcohol scale to ensure that no participant was in active alcohol withdrawal state. Results: Overall, 48.18 percent of patients had sexual dysfunction among the domains, the highest frequency was seen for dysfunction in getting and keeping erection (32.73%), followed by dysfunction in satisfying orgasm (30%), dysfunction in sex drive (21.82%), dysfunction is sexual arousal (16.26%) and dysfunction in reaching orgasm was least affected. Sexual dysfunction was significantly associated with the duration of alcohol dependence, amount of alcohol consumed per day, and severity of alcohol dependence. Conclusions: Sexual dysfunction is common in male patients with alcohol dependence. The study highlights the detrimental effects of alcohol on sexual function and this information can be utilized in motivational interviewing of patients with alcohol dependence syndrome.***

Keywords: Arizona sexual experiences scale, severity of alcohol dependence questionnaire, sexual dysfunction in alcohol dependence syndrome, sexual dysfunction in tobacco dependence, Motivation for de-addiction

1. Introduction

Alcohol dependence individuals are at increased risk of sexual dysfunction which resulting in marked distress and interpersonal difficulty which in turn increases the incidence of alcohol abuse. The depressant effect of alcohol is responsible for sexual dysfunction; other causes are alcohol related disease or due to multitude of psychological forces related to alcohol use[1].

Sexual dysfunction (SD) is quite common in the community population[2]. People may use alcohol and other substances to tackle sexual performance anxiety, enhance sexual performance, or overcome SD. A World Health Organization cross-cultural study for alcohol and high-risk sexual behavior across eight countries reported that 12% males in the general population consumed alcohol prior to first sexual intercourse due to perceived positive effect of alcohol to improve sexual pleasure[3].

The data of alcohol-induced sexual dysfunction is unclear, may be due to underreporting. It has been reported in range of 8% to 95.2% men who have chronic alcohol use. Lack of sexual desire, premature ejaculation, and erectile dysfunction were reported as most common sexual dysfunctions. Some of the predictors of sexual dysfunction noted were advancing age, low educational level, unemployment, early age of onset of alcohol use, greater duration of alcohol dependence, concurrent tobacco use, greater quantity and frequency of drinking, and presence of liver disease [4-14].

The aim of this study is to assess the prevalence of sexual dysfunction in male in-patients with alcohol dependence syndrome and to explore the relationship between amount of alcohol consumed as well as severity of alcohol dependence and sexual dysfunction. We also aimed to find the correlates of sexual dysfunction in patients with alcohol dependence syndrome.

2. Materials and Methods

This cross-sectional study was conducted in the Department of Psychiatry, Dr. Ulhas Patil medical college jalgaon. A total of 110 consecutive male patients admitted for de-addiction with a diagnosis of alcohol dependence syndrome according to The International Classification of Diseases 10th revision diagnostic criteria for research (ICD-10 DCR) were included in the study. All consecutive patients who fulfilled the inclusion and exclusion criteria were assigned as subjects. All patients were subjected to routine clinical examination and biochemical investigations including blood glucose and liver enzymes. Appropriate interventions and referrals were provided for those with altered clinical findings and impaired biochemical parameters

Inclusion Criteria

a) Male patients between 20 and 50 years of age.
b) Married or having a regular sexual partner.

Exclusion Criteria

a) Clinically elicited history of primary sexual dysfunction.
b) Comorbid systemic illnesses – hypertension, diabetes mellitus, signs and symptoms or investigation findings suggestive of hepatic cirrhosis, other systemic illnesses in terminal stages, clinical diagnosis of endocrine disorders, history of genitourinary surgery, neurological disorders, and spinal cord lesions.
c) Comorbid psychiatric disorders – dementia, delirium and other organic disorders, intellectual disability, psychotic disorders such as schizophrenia, delusional disorder and others, mood disorders, and anxiety disorders (those with transient or subthreshold symptoms were included).
d) Substance use other than alcohol and tobacco**.**
e) Those on medications which may affect sexual function (antidepressants, antipsychotics, disulfiram, antihypertensives, steroids, etc.).

Tools for Assessment

1) Proforma for sociodemographic and clinical course variables – to collect details regarding various study variables.
   - Sociodemographic variables – Age, education, occupation, religion, monthly income, domicile, duration of marriage, and age at marriage.
   - Alcohol-related variables – Age at first drink, age of onset of dependence, duration of alcohol dependence, drinking pattern, type of alcohol, quantity consumed per day, family history of alcohol dependence and severity of alcohol dependence questionnaire (SADQ) score.
   - Tobacco-related variables – History of tobacco use, duration of tobacco use/ dependence.
   - Sexual dysfunction-related variables – history of sexual dysfunction, subtypes of sexual dysfunction, and Arizona Sexual Experiences Scale (ASEX) score.
2) SADQ to assess the severity of alcohol dependence[15]. A score of ≥31 indicates severe alcohol dependence, 16 to 30 – moderate dependence, and <16 indicates mild physical dependence.
3) ASEX to assess sexual dysfunction[16]. A user-friendly rating scale that quantifies sex drive, arousal, vaginal lubrication/penile erection, ability to reach orgasm, and satisfaction from orgasm. The score ranges from 5 to 30. Sexual dysfunction is defined as: Total score ≥19, or a score of ≥5 on any item, or ≥4 on three items.
4) ICD-10-DCR[17, 18]. For diagnosing alcohol dependence syndrome (F10.2) and sexual dysfunction, not caused by organic disorder or disease (F52).

3. Statistical Analysis

Data were analyzed using descriptive statistics such as frequency and percentage for categorical variables and mean ± standard deviation for continuous variables. Chi-square test and Pearson's correlation coefficient were used to evaluate the statistical significance of bivariate associations. Multiple linear regression analysis was employed after adjusting for age of subjects. For all the tests, the statistical significance was fixed at 5% level ($P < 0.05$). Statistical analysis was performed using the Statistical Package for Social Sciences (SPSS for Windows, Version 20, SPSS Inc., Chicago, IL, USA)

4. Results

Sociodemographic Variables:
The mean age of the patients was 37.06 ± 7.27 years (range: 22–50 years). Out of the 110 patients in our study sample, majority had education up to 12th standard (86.36%). All of them were employed, of which 48.18% were skilled laborers. About 42.73% of the patients got married between 26 and 35 years of age [Table 1].

Alcohol-Related Variables:
About 76.36% of the patients had started consuming alcohol during adolescence. Nearly 63.64% of the patients had begun alcohol consumption in dependence pattern by the age of 31–40 years. The mean quantity of alcohol consumed per day was 444.90 ± 160.50ml (range: 180-900ml). About 70% had family history of alcohol dependence. About 66.36% had severe alcohol dependence as per the SADQ scores [Table 1].

Tobacco-Related Variables:
About 70% of the patients in the study reported the history of tobacco dependence also, out of which, 63.64% had duration of dependence of 1–10 years [Table 1].

Table 1: Sociodemographic profile and psychoactive substance-related variables (n=110)

Sociodemographic variables	Freq	%
Age		
(20-30)	18	16.36
(31-40)	59	53.64
(41-50)	33	30.00
Education upto 12th	95	86.36
Occupation (skilled)	53	48.18
Monthly income (>10000)	57	51.82
Domecile (rural)	70	63.64
Duration of marriage (11-20years)	47	42.73
Alcohol realated variables		
Age at first drink <20 years	84	76.36
Age of onset of dependence (31-40 years)	70	63.64
Duration of alcohol dependence (1-10 years)	77	70.00
Alcohol consumption per day (500-1000 ml)	49	44.55
Family history of alcohol dependence	77	70.00
SADQ scores		
Severe	73	66.36
Moderate	33	30.00
Mild	4	13.33
History of tobacco dependence	77	70.00
Duration of tobacco dependence (years)		
(1-10 years)	70	63.64
(11-20 years)	7	6.36

SADQ (Severity of alcohol dependence questionnaire)

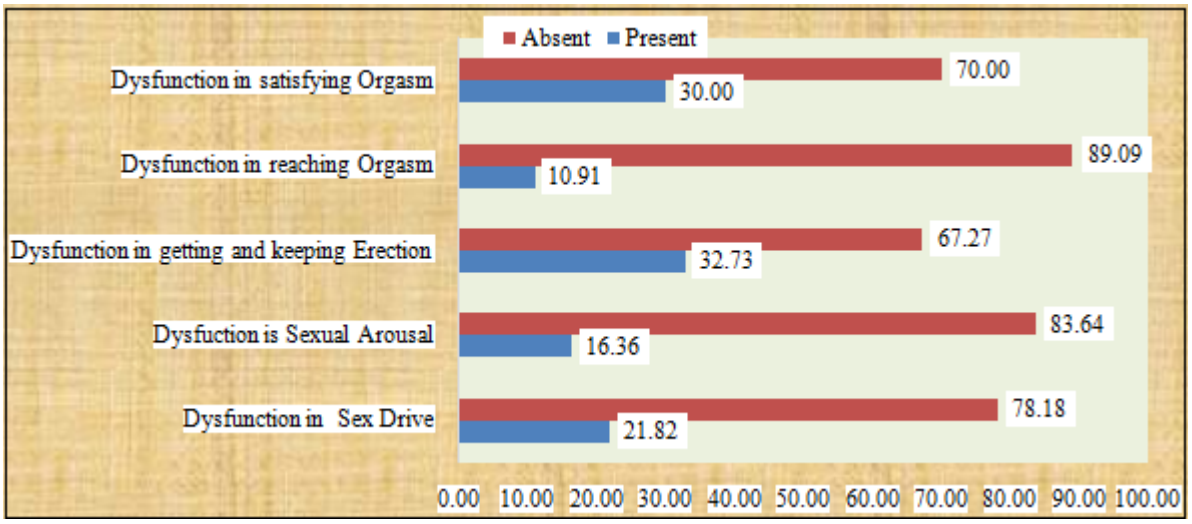
Sexual Dysfunction-Related Variables:
ASEX defined sexual dysfunction was seen in 48.18 percent patients. With a cut-off score of four used to define sexual dysfunction, among the domains, the highest frequency was seen for dysfunction in getting and keeping erection (32.73%), followed by dysfunction in satisfying orgasm

(30%), dysfunction in sex drive (21.82%), dysfunction is sexual arousal (16.26%) and dysfunction in reaching orgasm was least affected (10.91%). [Table 2] [Figure 1].

Table 2: Sexual dysfunction in study (n=110)

Sexual dysfunction	Variable	Freq	%
1	ASEX-global score (>19)	10	9.09
2	ASEX score 4 on 3 domains but global score of <19	23	20.91
3	ASEX score 5 on 1 domain but globe score of <19	20	18.18
4	Total number of patients with sexual dysfunctions	53	48.18

Variable	Present		Absent	
	Freq	%	Freq	%
Dysfunction in Sex Drive	24	21.82	86	78.18
Dysfunction is Sexual Arousal	18	16.36	92	83.64
Dysfunction in getting and keeping Erection	36	32.73	74	67.27
Dysfunction in reaching Orgasm	12	10.91	98	89.09
Dysfunction in satisfying Orgasm	33	30.00	77	70.00



Association of sexual dysfunction with study variables: Significant association was found with education (p=0.008) and age at first drink (p=0.016). None of the occupation related variable, family history of alcohol dependence and duration of alcohol as well tobacco dependence showed any statistically significant association with sexual dysfunction [Table 3].

Table 3: Association of sexual dysfunction with sociodemographic, alcohol, and tobacco-related variables

Variable	Groups	Sexual Dysfunction		Chi Square	p value
		Present	Absent		
Education	No formal education	0	0	7.04	0.008
	up to 12th	41	54		
	Graduate	12	3		
Occupation	Unskilled	24	18	4.51	0.11
	Skilled	20	33		
	Professionals	9	6		
Age at first drink	Below 20 years	41	43	8.22	0.016
	21-30 years	12	7		
	31-40years	0	7		
Duration of alcohol dependence	1-10 years	36	41	0.21	0.65
	11-20years	17	16		
Family history of alcohol dependence	Yes	35	42	0.76	0.38
	No	18	15		

Duration of tobacco dependence	Nil	18	15	1.18	0.55
	1-10 years	31	39		
	11-20years	4	3		

Correlates of sexual dysfunction:
A significant positive correlation was obtained between variables like severity of alcohol dependence, amount of alcohol consumption as well as the age and sexual dysfunction. [Table 4].

Table 4: Correlates of sexual dysfunction

	Sample Size	r value	p value
Severity of alcohol dependence and sexual dysfunction	110	0.49	0.000
Amount of alcohol consumption and sexual dysfunction	110	0.65	0.000
Age and sexual dysfunction	110	0.48	0.000

Predictors of Sexual Dysfunction in Subjects with Alcohol Dependence:
On doing linear regression analysis with ASEX total score as the dependent variable and severity of alcohol dependence and amount of alcohol consumed per day as the independent variables. Only amount of alcohol consumed per day identified as significant predictor for sexual dysfunction. Even after adjusting for age of the patient's amount of alcohol consumed per day remained as significant predictor. [Table 5]

Table 5: Linear regression analysis of predictors of sexual dysfunction (adjusted to age of the patients)

Variable	Unstandardized coefficient (B)	SE	Standardized coefficients (β)	Test statistic (t)	p	95% CI for B		R^2
						Lower bound	Upper bound	
Duration of ADS	0.16	0.12	0.12	1.31	0.19	- 0.08	0.42	0.47
SADQ score	0.08	0.04	0.16	1.83	0.070	- 0.007	0.18	
Alcohol consumption per day (ml)	0.018	0.003	0.51	6.01	0.000	0.012	0.024	

**P=0.000. B – Unstandardized coefficients; β – Standardized coefficients; $R2$ – Nagelkerke $R2$; SADQ – Severity of Alcohol Dependence Questionnaire;
CI – Confidence interval; SE – Standard error; ADS – Alcohol dependence syndrome

5. Discussion

We have followed appropriate inclusion and exclusion criteria to ensure that the reported sexual dysfunctions were exclusively due to deleterious effects of alcohol on reproductive system.

Sexual dysfunction appears to be common among male subjects with alcohol dependence.

48.18 percent of the subjects with alcohol dependence complained of one or more problems with sexual functioning. This is similar to what has been reported in the previous studies[19, 20].

Multiple coexisting dysfunctions seemed to be the norm in the sample studied.

The most common condition reported in our study was dysfunction in getting and keeping erection followed by dysfunction in satisfying orgasm.

The number of symptoms reported appeared to be a function of the amount of alcoholic beverage consumed. Higher levels of alcohol intake may result in greater neurotoxic effects and significantly alter gonadal hormones[21, 22].

There is also a significant population, which has psychogenic sexual dysfunction, which is likely in situation of marietal conflicts[23]. One of the limitations of this study is that marietal functioning was not specifically assessed.

Tobacco use was not found to be a significant determinant of sexual dysfunction. This is contrary to all reported evidence[24].

The exclusive focus on male alcoholics was necessitated by the fact that the prevalence of alcohol use by females in India and consequent alcohol dependence is extremely low. Nevertheless, this study highlights the omnipresentness of sexual dysfunctions in the heavy drinking population.

It highlights the need for addiction medicine specialist to note the possibility of sexual problems in their clients.
There is ample evidence that alcohol induced sexual dysfunction for the most part is reversible with cessation of alcohol use[25]. This information can be used in motivational counseling of heavy drinkers to provide inetus for change.

6. Conclusion

Sexual dysfunction appears to be common among male patients with alcohol dependence syndrome –Overall, 48.18 percent of patients had sexual dysfunction among the domains, the highest frequency was seen for dysfunction in getting and keeping erection (32.73%), followed by dysfunction in satisfying orgasm (30%), dysfunction in sex drive (21.82%), dysfunction is sexual arousal (16.26%) and dysfunction in reaching orgasm was least affected. Our study highlights the deleterious effects of alcohol on sexual functioning, and this knowledge can be utilized while explaining the medical model during motivational interviewing and motivation enhancement therapy sessions of patients with alcohol dependence syndrome.

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Conflicts of Interest

There are no conflicts of interest.

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