

A Case Control Study to find out Whether there is Any Sexual Dysfunction in Male Patients with Alcoholism

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Received: 09-04-2021 / Revised: 10-05-2021 / Accepted: 25-06-2021

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Conflict of interest: Nil

Abstract

Aim: The aim of this study to determine the sexual dysfunction in male patients with alcohol dependence syndrome. **Methods:** This cross-sectional case-control study was conducted in the Department of Psychiatry, Jan Nayak Karpoori Thakur Medical College and Hospital (JNKTMC), Madhepura, Bihar, India. Married men (currently having a stable heterosexual sexual partner) were included in this study. The socio- demographic and clinical variables were recorded in a specific form prepared for the clinical study. They were further administered the ICD-10-AM (International Statistical Classification of Diseases and Related Health Problems, Tenth Revision, Australian Modification (ICD-10-AM) Symptom Checklist for mental disorders screened by a trained clinician. **Results:** In this study 77.5% of the patients in the case group initiated drinking alcohol before 25 years of age, with 30% of them started before 18 years of age. However, only 7.5% developed dependence before 25 years of age. The duration of dependence exceeded five years in 40% of patients by the time of de-addiction. The quantity of alcohol consumed per day was 15.2 (\pm 6.97) standard drinks. The predominant brand used was whisky (80%). More than half (57.5%) of the patients had alcoholic liver disease. 70% of patients were having nicotine use compared to 24% in controls with significant difference ($p=0.00$). 3/4th of the patients in the case group had a family history of alcohol use, with half of them amounting to dependence. This finding was also significantly different from controls ($p<0.04$). 40% of men with alcohol dependence had SD, whether situational or global. On ignoring temporary or situational complaints, 28% had SD. 12% of controls had global SD. **Conclusion:** Sexual dysfunction is common in male patients with alcohol dependence.

Key Words: Sexual Dysfunction, Alcohol, Dependence.

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Introduction

Alcohol and sexuality have been paired throughout history, poetry, prose, and brief. Although alcohol may foster the

initiation of sexual activity by relieving anxiety and inhibitions[1], persistent and chronic use of alcohol is known to induce

sexual dysfunction[2]. In spite of evidence to the contrary, people often continue to believe that alcohol improves their quality of sexual function. Proper sexual functioning provides a sense of psychological, physical, and social well-being and is one of the most important elements of quality of life[3]. Dissatisfaction in sexual life is often associated with anger, increased rates of marital violence, less warmth, and unity in relationships, breakups-all of which may in turn worsen the alcohol consumption. Of the various mechanisms postulated to explain alcohol-induced sexual dysfunction, some of them are inhibition of hypothalamic gonadotropin-releasing hormone and/ or pituitary luteinizing hormone[4,5] thereby altering the hypothalamo-pituitary-adrenal and the hypothalamo-pituitary-gonadal axis, reduction in plasma testosterone levels[6] increasing the inhibitory activity of gamma-amino butyric acid receptor and decreasing the excitatory activity of glutamate receptor in central nervous system(CNS)[7], psychological factors such as lack of arousability and disinterest in sex in partners – due to aversion, rejection, retaliation for her husband's undesirable drinking behaviour, and psychiatric comorbidities such as anxiety and depression as well as those induced by psychotropic medications.

Sexual dysfunction disorder has an impact on quality of life and well-being of both males and females. The aetiology of sexual dysfunction is mainly multifactorial some factors such as chronic diseases, unhealthy lifestyle, ageing, and medical treatments may increase the severity of the problem. Among unhealthy lifestyle habits, alcohol consumption and smoking are thought to be related with sexual dysfunction[8]. Alcohol abuse is the leading cause of impotence and other disturbances in sexual dysfunction[9]. Dissatisfaction in sexual life is often associated with anger, increased rates of marital violence, less warmth, and unity in relationships,

breakups – all of which may in turn worsen the alcohol consumption[10] of the various mechanisms postulated to explain alcohol induced sexual dysfunction, some of them are inhibition of hypothalamic gonadotropin-releasing hormone and/ or pituitary luteinizing hormone[10,11], thereby altering the hypothalamo-pituitary-adrenal and the hypothalamo-pituitary-gonadal axis, reduction in plasma testosterone levels[12], increasing the inhibitory activity of gamma-amino butyric acid receptor and decreasing the excitatory activity of glutamate receptor in central nervous system (CNS)[13]. Psychological factors such as lack of arousability and disinterest in sex in partners - due to aversion, rejection, retaliation for her husband's undesirable drinking behaviour, and psychiatric comorbidities such as anxiety and depression as well as those induced by psychotropic medications. Because of under reporting by individuals consuming alcohol, the prevalence of alcohol induced sexual dysfunctions is unclear. Specially in the men who have chronic alcohol use, it has been reported that sexual dysfunction ranges from 8%-95.2% [14].

Material and methods

This cross-sectional case-control study was conducted in the Department of Psychiatry, Jan Nayak Karpoori Thakur Medical College and Hospital (JNKTMCH), Madhepura, Bihar, India for one year. After taking the approval of the protocol review committee and institutional ethics committee. The study sample consisted of two groups, recruited through convenience sampling: 80 in-patients with an ICD-10 diagnosis of alcohol dependence and 50 controls enrolled from medical wards admitted for management of transient febrile illness.

Inclusion criteria

- Married men (currently having a stable heterosexual sexual partner.)
- Age: 18 - 60 years.

Exclusion criteria

- A history of primary sexual dysfunction.
- Co-morbid physical or psychiatric disorder/s or on medications that can potentially cause SD.
- Dependence on substance/s other than alcohol except for tobacco

Methodology

Tools were used in this study, such ICD 10 for the diagnosis of ADS¹⁵, ICD 10 AM Symptom Checklist and Modules[16], A specific proforma designed for the study to evaluate socio-demographic, and alcohol-related variables the checklist is used to find out the presence and the type of sexual dysfunction. It contains items corresponding to 12 areas of sexual dysfunction described in the Diagnostic Criteria for Research, ICD-10 Classification of Mental and Behavioural Disorders[17].

Procedure

The socio-demographic and clinical variables were recorded in a specific form prepared for the clinical study. All the patients and controls were asked for a complete treatment history. They underwent a thorough clinical examination and blood investigations to rule out any medical disorders that can impair sexual functioning. They were further administered the ICD-10-AM (International Statistical Classification of Diseases and Related Health Problems, Tenth Revision, Australian Modification (ICD-10-AM) Symptom Checklist for mental disorders screener by a trained clinician. Those who required further examinations were administered the appropriate modules of the ICD-10-AM to rule out psychiatric disorders that can impair sexual functioning. If any control found to have alcohol dependence while assessment, he was enrolled as a case to avoid selection bias. Sexual dysfunction checklist was administered on the patients, during the 3rd week of admission when their withdrawal symptoms got completely

subsided. The controls were assessed for the same during their discharge.

Statistical analysis

The results were analysed using SPSS version 21. Data were analysed in the form of mean and standard deviation for the continuous variables and frequency and percentage for the categorical variables. Pearson's chi-square test or Fisher's exact test were used to comparing categorical variables between cases and controls. Cochran-Mantel-Haenszel test was used for controlling confounding (unmatched) variables. Unconditional logistic regression analysis was done to assess the predictors of sexual dysfunction among socio-demographic and alcohol-related variables. Statistical significance was assumed at a p-value <0.05.

Results

Men with alcohol dependence were different from controls with regard to socio-demographic data of age, domicile, religion, and family type. They were older than controls. The majority of the controls were from rural, joint, Islamic families compared to cases. There were no differences between them in education, occupation, and socio-economic status (SES). (Table 1). 77.5% of the patients in the case group initiated drinking alcohol before 25 years of age, with 30% of them started before 18 years of age. However, only 7.5% developed dependence before 25 years of age. The duration of dependence exceeded five years in 40% of patients by the time of de-addiction. The quantity of alcohol consumed per day was 15.2 (\pm 6.97) standard drinks (5-50 drinks per day). The predominant brand used was whisky (80%). More than half 57.5% of the patients had alcoholic liver disease. Ultrasound was done in 20 patients who can afford it. Most of them (16) had fatty hepatomegaly. 4 had chronic liver disease (including cirrhosis). 70% of patients were having nicotine use compared to 24% in controls with significant difference (p=0.00). 3/4th of the patients in the case

group had a family history of alcohol use, with half of them amounting to dependence. This finding was also significantly different from controls ($p < 0.04$). (Tables 2 & 3) 40% of men with alcohol dependence had SD, whether situational or global. On ignoring temporary or situational complaints, 28% had SD. 12% of controls had global SD. The difference was statistically significant, with an odds ratio of 3.21 (95% CI of 1.18 – 8.94). Common odds ratio estimates using the Cochran-Mantel-Haenszel (CMH) test adjusted for age and nicotine use were estimated. The OR adjusted for age was 3.74 (95% CI of 1.05-8.02; Cochran's statistic = 0.029; Mantel-Haenszel statistic = 0.07) and that adjusted for nicotine use was 5.45 (95% CI of 1.68 – 15.22; Mantel- Haenszel statistic = 0.003). (Table 4)

Data on alcohol-related variables were compared between those with and without SD for comparison. 25% of those with SD exceeded ten years of dependence compared to 15% in those without SD. Two-thirds of those with SD had the complication of liver disease, while only half of those without SD had it. And 7 of 8 patients with chronic liver disease (including cirrhosis) had global SD (the

remaining one had situational SD). Nicotine use was more common among those without SD than with SD. Differences were noted with regards to age (45.13 ± 8.74 vs. 42.72 ± 8.48 years) and duration of alcohol dependence (8.36 ± 8.77 vs. 6.63 ± 5.87 years) between those with and without nicotine use. (Table 2)

The prominent SD among men with alcohol dependence was low desire followed by premature ejaculation. Low sexual desire was reported by 15% and premature ejaculation by 12.5%. Every aspect of sexual functioning was disturbed in men with alcohol dependence. 12.5% reported more than one sexual dysfunction. Premature ejaculation was a prominent type of dysfunction among controls. On the comparison between the patient and control groups, there was a significant difference with regards to low desire ($p = 0.03$; OR- 8.32; 95% CI: 1.12-61.69) Frequency of intercourse dissatisfaction approached marginally outside the level of significance ($p = 0.08$). (Table 5) Unconditional logistic regression analysis was done to assess the predictors of sexual dysfunction among socio-demographic and clinical variables. None of the variables added significantly to the prediction.

Table 1: Comparison of Socio-demographic data between cases and controls

Socio-demographic variables		Cases (N=80)	Controls (N=50)	Chi-Square test
Age	Below 30 years	7	10	P<0.03
	30 – 40	30	22	
	40 – 50	31	12	
	Above 50 years	16	6	
Religion	Hindu	70	32	P<0.00
	Muslim	3	10	
	Christian	17	8	
Education	Illiterate	3	4	NS
	Up to 10 th grade	73	40	
	Above 10 th grade	14	6	

Occupation	Unemployed	2	0	NS
	Unskilled	35	27	
	Skilled	20	15	
	Farm owners	22	8	
	Professional	1	0	
Income (per month)	<7,500	30	20	NS
	7,500-15,000	35	10	
	>15,000	15	20	
Domicile	Urban	25	6	P<0.005
	Rural	65	44	
Family	Nuclear	50	21	P<0.05
	Joint	30	29	
Socioeconomic Status (SES)	Upper	15	10	NS
	Middle	35	19	
	Lower	30	21	

Table 2: Clinical variables of men with alcohol dependence

Clinical variables		With Sexual Dysfunction (N= 20)	Without Sexual Dysfunction (N=60)	Total
Age of initiation of alcohol use	< 18 years	5 (25%)	19 (31.67%)	24
	18 - 24 years	10 (50%)	28 (46.67%)	38
	≥25 years	5 (25%)	13 (21.66%)	18
Age of onset of regular use	< 18 years	2 (10%)	3 (5%)	5
	18 - 24 years	4(20%)	11 (18.33%)	15
	25 - 34 years	12 (60%)	33 (55%)	45
	≥ 35 years	2 (10%)	13 (21.67%)	15
Age of onset of dependence	< 25 years	2 (10%)	4 (6.67%)	6
	> 25 years	18 (90%)	56 (93.33%)	74
Duration of dependence	≤ 1 year	4 (20%)	4 (6.67%)	8
	1 - 5 years	8 (40%)	32 (53.33%)	40
	6 - 10 years	3 (15%)	15(25%)	18
	>10years	5 (25%)	9 (15%)	14
Quantity (SD)	6 - 10	7 (35%)	19 (31.67%)	26
	11 - 15	5 (25%)	15 (25%)	20
	16 – 20	5(25%)	18 (30%)	23
	>20	3(15%)	8 (13.33%)	11
Drink type	Hard drinks (Brandy, Whisky, Rum, Vodka)	20(100%)	59 (98.33%)	79
	Beer	0	1 (1.67%)	1
Nicotine use	Use	8 (40%)	48 (80%)	56
	Absent	12 (60%)	12 (20%)	24
Complications of alcohol	Liver Disease	14 (70%)	2 (53.33%)	46
	Others	4 (20%)	12 (20%)	16
	None	2 (10%)	16 (26.67%)	18

Family history of Alcohol Use	Dependence	8 (40%)	24 (40%)	32
	Use	5 (25%)	25 (41.67%)	30
	Absent	7 (35%)	11 (18.33%)	18
Family history of Psychiatric disorders		2 (10%)	2 (3.33%)	4
Family history of medical illness		12 (60%)	33 (55%)	45

Table 3: Comparison of clinical variables between cases and controls

Clinical Variables		Cases (N=80)	Controls (N=50)	Significance on Chi-Square/Fisher's Exact test
Nicotine use	Use	56	12 (24%)	22.5, p=0.000
	Absent	24	38 (76%)	
Family history of Alcohol Use	Dependence	32	14 (28%)	6.84, P<0.04
	Use	30	11 (22%)	
	Absent	18	25 (50%)	
Family history of Psychiatric disorders		5	0	P<0.08
Family history of medical illness		45	20 (40%)	3.42 P<0.06

Table 4: Comparison of sexual dysfunction between cases and controls

Sexual Dysfunction		Chi Square test	Odds Ratio	95% Confidence Interval	
Cases (N=80)	Controls (N=50)			Lower	Upper
20	4	5.45, p=0.019	3.21	1.18	8.94
CMH test adjusted for age		3.74, p=0.07	3.36	1.059	8.02
CMH test adjusted for nicotine use		8.97, p=0.003	5.78	1.68	15.22

Table 5: Comparison of domains of sexual dysfunction checklist between cases and controls

Sexual Dysfunction Checklist	Global		Significance Chi-Square/Fisher's Exact test (p value)	Odds Ratio	95% Confidence Interval	
	Cases (N= 80)	Controls (N=50)			Lower	Upper
Aversion of sex	0	0	-	-	-	-
Low sexual desire	12	1	0.03	8.32	1.12	61.69
Difficulty achieving erection	2	1	1.2	1.74	0.19	15.12
Difficulty maintaining erection	4	1	0.59	2.91	0.32	23.67
Premature ejaculation	10	2	0.42	1.88	0.56	7.88
Delayed/ Inhibited ejaculation	4	0	0.21	-	-	-
Orgasm with flaccid penis	0	0	-	-	-	-
Anorgasmia	1	1	1.2	0.55	0.02	7.91
Pain coitus	0	0	-	-	-	-
Dissatisfaction with frequency of intercourse	5	0	0.088	-	-	-
Dissatisfaction of	2	0	0.63	-	-	-

sexual relation with partner						
Dissatisfaction with own sexual function	4	0	0.22	-	-	-

Table 6: Predictors of sexual dysfunction among socio-demographic and clinical variables

Socio-demographic and Clinical variables	Logistic regression analysis	
	Exp (B) value	P-value
Age in years	1.02	0.58
Duration of dependence	1.06	0.44
Amount of drinks	0.87	0.88
Alcoholic liver disease	1.69	0.32

Discussion

In this study, the exclusive focus on males with alcoholism is entailed by the fact that the frequency of alcohol use by females in India, and concurrent alcohol dependence is extremely low[17]. Co-morbid nicotine use is not excluded in the present study as it is widely prevalent in most of the patients with alcohol dependence[18]. The socio-demographic profile of the sample is similar to previous studies done in the same region[19,20]. Controls are drawn from the hospital population; however, they are not matched with regard to the number or characteristics of the cases. There is a significant difference between the two groups with regards to age, domicile, religion, and family type. The majority of the men in the case group belong to the 4th and 5th decades (mean 45.13 ±8.74), while most of the controls are in their 4th decade. 81.25% of patients with alcohol dependence belong to the rural area. Therefore, drug abuse in India as an exclusively urban phenomenon is a myth as told by a National survey on the extent, pattern, and trends of drug abuse in India[21]. Muslims are predominant in the control group rather than the case group, maybe because of religious restrictions in substance use[22] 77.5% of the patients in the case group initiated drinking alcohol before 25 years of age, with 30% of them started before 18 years of age. Thus, the majority has Cloninger type 1 (milieu

limited) alcohol dependence, which means the addiction is less hereditary and more influenced by the environment[23] These findings are similar to study in Bangalore, which showed the mean age of onset of initiation was 21.39±5.34 years, and the mean age of onset of dependence was 27.8±5.7 years[20]. The mean quantity of alcohol consumption per day is 15.2 (± 6.97) standard units of drinks per day and preferred drink being whisky. The amount is smaller compared to other studies from the same region (20.6 ± 9.07 units in Bangalore's study and 21.23 ± 10.10 units in Kerala's study)[17,24]. Also the majority of patients in our study are referred for de-addiction in early years of dependence compared to other studies[17,25].

More than half (57.5%) of the patients had alcoholic liver disease. These findings are similar to the WHO study in Bangalore. It states that the alcohol-users are found to be at approximately three times the risk of suffering from a health problem as compared to non-users[26]. Nicotine use is also prominent among men with alcohol dependence which is a consistent finding in other studies[17,25] 70% of patients were having nicotine use compared to 24% in controls with significant difference (p=0.00). This difference signifies nicotine use and family history of alcohol are widely prevalent in most of the men with alcohol dependence[24,25]. The deficiency of matching between cases and controls

had been overcome by statistical analysis using Cochran-Mantel-Haenszel test which controlled confounding variables like age and nicotine use. Thus, the difference in SD between cases and controls wasn't due to these factors.

40% of men with alcohol dependence had SD, whether situational or global. On ignoring temporary or situational complaints, 28% had SD. 12% of controls had global SD. The difference was statistically significant, with an odds ratio of 3.21 (95% CI of 1.18 – 8.94). This finding is similar to results reported in earlier studies. The rates of SD in these studies have ranged 8-95.2% [27]. SD was present in 37% of the study population (with a mean age of 39 years) in another study using the ASEX scale in South India. The difference may be due to an increased quantity of alcohol taken, i.e., about 21 standard units per day compared to 15 units in our study [24]. 72% of the sample reported dysfunction in multiple sexual domains in the previous study using the same scale of our research. The high prevalence of SD may be due to more quantity (20.6 SD per day) and longer duration of 8.6 years, though the mean age of the sample is less (37 years) compared to our study [17]. Another study from north India reported 58% sexual dysfunction in a population sample with a mean age of 37 years drinking 17 SD of alcohol per day for an average duration of 8.7 years [25].

The most common SD reported by men with alcohol dependence in our study is Low sexual desire was reported by 15% and premature ejaculation by 12.5%. Different types of SDs were reported as the commonest in men with alcohol dependence in the earlier studies. They include erectile dysfunction, premature ejaculation, delayed ejaculation, and decreased sexual desire. Studies each by Akhtar, Jensen, and Vijayaseenan reported low sexual desire as the most frequent problem similar to our study [28-30]. The finding is further confirmed in our research when men with alcohol

dependence having SD compared with healthy controls on each domain of sexual dysfunction. Low sexual desire is significantly prominent in men with alcohol dependence.

Various co-existing dysfunctions are seen in the case sample. Therefore, the number of SD complaints on the sexual dysfunction checklist is counted. The number of complaints is significantly higher than controls, indicating alcohol induces dysfunctions in multiple sexual domains. These findings are similar to previous studies [17,29,31]. Many previous studies assessed SD in correlation with age, age of onset of alcohol use, duration of alcohol dependence, presence of liver disease, nicotine use, level of education, and unemployment [27]. They showed conflicting results. A review published in 1991 concluded that in males with alcoholism, the higher quantity, frequency, and duration of drinking are associated with erectile dysfunction (ED), decreased libido, and delayed ejaculation [32]. However, recent studies refute the link between SD and alcohol [27]. A study by Okulate et al. in 2003 hadn't reported an increase in the risk of ED with alcohol abuse [33]. A meta-analysis by Cheng et al. said that cross-sectional studies yielded a protective association of alcohol on ED, but cohort studies did not demonstrate any significant findings [34]. None of the socio-demographic or alcohol-related variables added significantly to the prediction of sexual dysfunction in our study. In the study by Benegal and Arackal with the same scale of assessment used in our study, number of sexual dysfunction complaints was significantly associated with the amount of alcohol consumed per day, but not with number of years of alcohol dependence or on the age of the subject [17]. Sexual dysfunction was significantly associated with the amount of alcohol consumed per day, and the duration and severity of alcohol dependence in the Kerala's study [24]. The absence of association between SD and

assessed alcohol-related variables in our study may be the result of confounding variables that weren't assessed in the patients with alcohol dependence.

Conclusion

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.

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