Alcohol use is the major health problem worldwide, and India ranks second in alcohol consumption, with around 33% of the Indian population consuming alcohol.[1,2] Chronic use of alcohol affects almost every organ of the body, including male sexual functions. Alcohol use is known to affect almost every aspect of the human sexual cycle. Alcohol-induced sexual dysfunction could be multifactorial in nature and hormonal, neurologic and psychological factors may contribute to it.[3] Both clinical and experimental types of research have reported that sexual dysfunction correlates with quantity, frequency, and duration of alcohol consumption.[4,5] This study showed that participants with AD were more likely to have sexual dysfunction and lower level of marital satisfaction in their spouses. This effect was not because of acute intoxication of alcohol or withdrawal symptoms. We need further research to ascertain whether sexual dysfunction and marital dissatisfaction is a result of alcohol dependence or its reinforcer or both.

**Keywords:** Alcohol dependence, marital satisfaction, sexual dysfunction

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**ABSTRACT**

**Background:** Chronic use of alcohol affects almost every organ system of the body, including male sexual functions. There are only a few Indian studies, which have assessed sexual functions in alcohol-dependent (AD) men and many of them have limitations. This study was aimed to assess sexual functions and marital satisfaction among AD individuals compared to matched controls.

**Subjects and Methods:** A cross-sectional descriptive study was carried out on 70 AD men (study group) and an equal number of matched controls and their spouses in the Department of psychiatry of Jawahar Lal Nehru Medical College, Ajmer. Clinical Institute Withdrawal Assessment of Alcohol Scale, Revised, and Severity of Alcohol Dependence Questionnaire (SADQ) were used to assess withdrawal state and severity of alcohol dependence in the AD group. Marital Adjustment Test (MAT) and Arizona Sexual Experience Scale (ASEX) were used in both study and control groups to assess marital satisfaction and various aspects of sexual functioning.

**Results:** More than half of the men (58.6%) with alcohol dependence were found to have sexual dysfunction compared to only one-fifth in the control group (18.5%). The most commonly affected sexual functions were the ability to get and keep erection (70%) and arousal (62.8%). There was a large negative correlation of MAT scores in the AD group with the SADQ, rho ($\rho$) = −0.68, and sexual dysfunction (ASEX), rho ($\rho$) = −0.57. However, the duration of alcohol use did not have any significant association with marital satisfaction.

**Conclusions:** This study showed that participants with AD were more likely to have sexual dysfunction and lower level of marital satisfaction in their spouses. This effect was not because of acute intoxication of alcohol or withdrawal symptoms. We need further research to ascertain whether sexual dysfunction and marital dissatisfaction is a result of alcohol dependence or its reinforcer or both.

**Keywords:** Alcohol dependence, marital satisfaction, sexual dysfunction
Follow-up studies of 1-year duration (3-month treatment followed by 9-month observation) have reported that sexual dysfunctions persisted after the treatment of alcohol dependence in both abstinent and relapsed patients, but improved in those who received additional behavioral treatment program (sex therapy).[6]

A recent review of literature through electronic search of the existing database to explore sexual dysfunction in patients with alcohol and opioid dependence has found that long-term use of alcohol is associated with dysfunction in almost all domains of sexual functioning. The rate of sexual dysfunction among alcohol-dependent (AD) individuals varied from 40% to 95.2%, with the most common being erectile dysfunction (ED) followed by premature ejaculation (PME), retarded ejaculation, and decreased sexual desire.[7] A recent study by Pendharkar et al. reported that more than half of patients in AD group had sexual dysfunction, while arousal and desire were most commonly affected least was orgasm.[8]

Contrary to the above, a meta-analysis of population-based cross-sectional studies in 2007 yields a protective association of alcohol consumption and ED. Some studies deny any link between sexual dysfunction and alcohol.[9-11]

Studies conducted so far to explore sexual function in AD individuals have yielded inconsistent results. Most of the studies have limitations such as absence of control population, not assessing the effect on spouse or marriage, lack of standard instruments to assess sexual functions and/or marital satisfaction, not accounting for intoxication and/or withdrawal state of alcohol use, etc., The present study was tried to assess sexual functions in AD men and marital satisfaction in their spouses and compared it with their matched controls using the standard tools for the severity of alcohol dependence, sexual functioning, and marital relationship.

**SUBJECTS AND METHODS**

A cross-sectional descriptive study was carried out on AD men and their spouse and matched controls in the Department of Psychiatry in Jawahar Lal Nehru Medical, Ajmer, from January 2017 to December 2018. The study was approved by the research board and the ethical committee of the institution. Written informed consent was obtained from all the participants before participation in the study.

**Inclusion criteria**

1. Male participants aged 21 years or above and diagnosed with alcohol dependence (study group)/without alcohol dependence (control group)
2. Participants married for at least 1 year and age of spouse >18 years
3. Participants who were able to give written informed consent
4. Ability to read and understand Hindi (Devanagari script) and English.

**Exclusion criteria**

1. Unwilling and uncooperative participant
2. Participants who had acute intoxication or were in an acute withdrawal state
3. Participants with a chronic co-morbid medical illness which can cause sexual dysfunction (hypertension, diabetes mellitus, thyroid dysfunction, cardiovascular disorders like angina and myocardial infarction), renal dysfunctions, and neurological disorders (evidence of stroke, spinal cord lesions, and peripheral neuropathy)
4. Participants regularly using any medication which could improve/decrease the desire or the level of sexual functioning (e.g., phosphodiesterase inhibitors) were also excluded from the study.

**Instruments of the study**

Consent form – This form was formatted in Hindi language and was given to all participants of this study. Written consent was taken from each participant before the screening procedure.

Screening pro forma – The pro forma included all inclusion and exclusion criteria with the yes/no option before each question.

Sociodemographic profile – It included age, education, occupation, annual income, and locality (Rural or Urban). Clinical Institute Withdrawal Assessment for Alcohol–Revised (CIWA-Ar)[12] – It was used to quantify the severity of the alcohol withdrawal syndrome, to ensure that no participant was in active alcohol withdrawal state at the time of participation in the study. Arizona Sexual Experience Scale (ASEX)[13] is a five-item self-report inventory using a six-point Likert scale method. It was used to measures the quality of sexual functioning by five questions, each representing one domain (drive, arousal, penile erection, ability to reach orgasm, and satisfaction for orgasm). ASEX is interpreted by total score/or score on individual items (lower score indicates better sexual functioning). A total score >19 on ASEX or a score >5 on any one item or a score >4 on any three items is associated with clinical sexual dysfunction. Reliability coefficients for internal consistency and test–retest forms are excellent. The sensitivity of ASEX was found to be 80.8% and specificity as 88.1%.
The severity of AD Questionnaire (SADQ)[14] – It was used to measure the severity of AD. In SADQ, there are five subscales, which assess physical withdrawal, affective withdrawal, withdrawal relief drinking, alcohol consumption, and rapidity of reinstatement. Each subscale had four items. The test–retest reliability is 0.85, and content, criterion, and constructs validity are well established.

Marital adjustment test (MAT)[15] – A 15-item scale that measures marital satisfaction. It was initially used to differentiate well-adjusted couples from distressed (unsatisfied) couples. The maximum score is 158. Score 130–158 is for unusually satisfied, 110–130 for satisfied, 90–110 average, 70–90 dissatisfied, and 2–70 very dissatisfied.

Statistical analysis
Statistical analysis was performed with the help of Software SPSS 20 (IBM Corp. Released 2011. IBM SPSS Statistics for Windows, Version 20.0. Armonk, NY: IBM Corp.) Group comparison was made with the help of “independent t-test” and Chi-square test and ANOVA test. Correlation between MAT severity of alcohol dependence and marital adjustment was drawn using Spearman correlation (rho).

For the study group, every participant with alcohol dependence was approached to participate in the study. Control group participants were from caregivers/visitors to patient availing service from the Department of Psychiatry.

RESULTS

The study group consisted of 70 men with alcohol dependence and their spouses. Control group had 70 men without the history of any substance abuse and their spouses. There were only six females with alcohol dependence who received treatment from our center during the study duration. They were not included in the study as they did not meet the inclusion criterion because of the following reasons: not sexually active currently, not having consistent sexual partners, marriage duration <1 year, not willing to participate in the study, and partner not available for assessment. Nine male participants with alcohol dependence were also excluded from the study because of similar reasons.

Tables 1 and 2 show sociodemographic characteristics of AD men and control group and their spouses. No significant difference was found between two groups in sociodemographic variables such as age, occupation, education, locality, and income of the family.

Clinical variables of the study group
Alcohol use
The mean age at onset of alcohol use in the study group was 20.30 ± 2.08 years. At the time of assessment, the mean duration of alcohol use and abstinence was 14.46 ± 6.22 years 8.24 ± 2 days, respectively. The mean score of CIWA-Ar mean score was 4.37 ± 1.14, with all the cases scoring <7. None of the patients included in the study met the criterion for alcohol withdrawal state. More than half of the participants (52.8%) had a severe degree of alcohol dependence, SADQ score >30 [Table 3].

Sexual functions
ASEX scores of both groups are shown in Table 4. More men with alcohol dependence were found to have sexual dysfunction (58.6%) than men in the control group (18.5%). Among different domains of sexual functions, the most commonly affected aspect was erection (70%) followed by arousal (62.8%) and desire (61.4%) in the study group. While in the control group desire and arousal, 20% each, were the most commonly affected sexual functions.

Comparison between two groups found that AD participants had significantly more sexual dysfunction, both overall and each domain, than matched controls without alcohol dependence, P ≤ 0.05.

Mean duration of alcohol was significantly more in participants with sexual dysfunction; 16.95 ± 5.74 years versus 5.63 ± 5.48 years (t = 18.63, P = 0.0001). Subject with the severe degree of alcohol dependence had a significantly higher score on ASEX (t = 210.65, P = 0.0001) [Table 3]. There was a large positive correlation (0.656) between SADQ and sexual dysfunction (ASEX) (mean SADQ = 29.7 mean ASEX = 19.78, rho (ρ) = 0.62 [Figure 1].

Marital adjustment
MAT score of both groups is given in Table 4. AD men had significantly lowered MAT scores than the control group (76.81 ± 21.96 vs. 101.97 ± 19.70). As shown in Figures 2 and 3, MAT scores of AD participants had a
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Table 1: Sociodemographic characteristics of alcohol-dependent men and control group

| Variables     | Alcohol-dependent (study) group (%) | Control group (%) | t, χ² | P     |
|---------------|-------------------------------------|-------------------|-------|-------|
| Age Range     | 21-62 years                         | 21-59 years       | t=0.214 | 0.830 |
| Mean±SD       | 34.7±6.2                            | 34.4±6.12         |       |       |
| Education     |                                     |                   |       |       |
| Middle        | 31 (44.3)                           | 31 (44.3)         | χ²=0.39 | 0.822 |
| Secondary     | 35 (50)                             | 34 (48.6)         |       |       |
| Graduate      | 4 (5.7)                             | 5 (7.1)           |       |       |
| Occupation    |                                     |                   |       |       |
| Unemployed    | 4 (5.7)                             | 3 (4.3)           | χ²=1.59 | 0.661 |
| Unskilled     | 52 (74.3)                           | 51 (72.8)         |       |       |
| Semiskilled   | 11 (15.7)                           | 11 (15.7)         |       |       |
| Skilled       | 4 (5.7)                             | 5 (7.1)           |       |       |
| Annual income |                                     |                   |       |       |
| <16,000 INR   | 49 (70)                             | 48 (68.6)         | χ²=0.25 | 0.88  |
| 16,000-30,000 | 16 (22.9)                           | 17 (24.3)         |       |       |
| >30000        | 5 (7.1)                             | 5 (7.1)           |       |       |
| Locality      |                                     |                   |       |       |
| Rural         | 43 (61.4)                           | 42 (60)           | χ²=0.02 | 0.877 |
| Urban         | 27 (38.6)                           | 28 (40)           |       |       |

Table 2: Sociodemographic characteristics of spouses of the study and control group

| Variables     | Study group (%) | Control group (%) | t, χ² | P     |
|---------------|-----------------|-------------------|-------|-------|
| Age Range     | 18-56 years     | 18-53 years       | t=1.03 | 0.305 |
| Mean±SD       | 32.14±6.01      | 32.6±6.11         |       |       |
| Education     |                 |                   |       |       |
| Middle        | 36 (51.4)       | 35 (50)           | χ²=0.56 | 0.755 |
| Secondary     | 28 (40)         | 29 (41.4)         |       |       |
| Graduate      | 6 (8.6)         | 6 (8.6)           |       |       |
| Occupation    |                 |                   |       |       |
| Unemployed    | 21 (30)         | 22 (31.5)         | χ²=0.98 | 0.806 |
| Unskilled     | 41 (58.6)       | 40 (57.1)         |       |       |
| Semiskilled   | 5 (7.1)         | 6 (8.6)           |       |       |
| Skilled       | 3 (4.3)         | 2 (2.8)           |       |       |

Table 3: Severity of Alcohol Dependence Questionnaire and Arizona Sexual Experience Scale

| Severity of alcohol dependence (SADQ Score) | n (%) | Mean ASEX Score | SD    | P      |
|--------------------------------------------|-------|-----------------|-------|--------|
| Mild or none (below 16)                    | 8 (11.4) | 18.769         | 1.921 | 0.001  |
| Moderate (16–30)                           | 25 (35.7) | 22.76          | 2.328 | 0.05   |
| Severe (>30)                               | 37 (52.8) | 25.16          | 1.491 | 0.0001 |
| Range, mean (SD)                           | 0-60, 29.7 (30.28) |             |       |        |

P value: At a significance level of <0.05; SD – Standard deviation; SADQ – Severity of Alcohol Dependence Questionnaire; ASEX – Arizona Sexual Experience Scale

DISCUSSION

The present study was aimed to find out the prevalence of sexual dysfunction in alcoholic male and marital satisfaction in their spouses. Inclusion and exclusion criteria used in this study tried to ensure that the reported sexual dysfunctions are the result of chronic alcohol use, not due to the transient effect of alcohol (intoxication or withdrawal state), not due to co-morbid medical conditions. The sociodemographic variables such as age, education, income, and residence (urban or rural) of the study group matched with controls and were similar to previous Indian studies.[8,16,17] This ensured that the difference in the presence of sexual dysfunction and marital satisfaction in the two groups was not due to the sociodemographic variables.

In this study, the mean age at onset of alcohol use was 20.30 ± 2.08 years, and the mean duration of alcohol use was 14.46 ± 6.22 years. This indicates a longer duration of alcohol use in the study group. The CIWA-Ar score of <7 and self and family reported mean duration of abstinence from the alcohol of 8.24 ± 2 days confirmed that none of the patients was in active alcohol withdrawal at the time of assessment.

Our study has confirmed the findings of previous Indian studies that more than half of AD men had sexual dysfunction (ASEX), ρ (p) = −0.57. However, marital dissatisfaction in the spouses has not found an association with the duration of alcohol use.

large negative correlation with the severity of alcohol dependence (SADQ), ρ (p) = −0.68, and sexual
dysfunction. India is the third-largest market for alcoholic beverages in the world. Unlike previous studies which found low desire and PME as the most common sexual problem, our study has found ED was the most common sexual dysfunction among AD men followed by low desire. In 2005, 62.5 million people in India were using alcohol and 17.4% (10.6 million) of them was found to have alcohol use disorder.

Considering the above, we can see that a large number of Indian men have sexual problems associated with alcohol use.

Although alcohol use disorders are conceptualized as individual-level phenomena, a good deal of research has shown associations with variations in quality and outcomes of the marital relationship. Recent reviews have noted lower levels of marital satisfaction among alcoholic couples (defined as couples where the husband and/or the wife meet criteria for alcohol use disorder, i.e., alcohol abuse or dependence) compared to nonalcoholic couples.

In this study, marital satisfaction of the spouses (wives) of AD men was significantly lower in the study group when compared to matched control and it negatively correlated with the severity of alcohol dependence and sexual dysfunction in men. Similar findings were seen in other studies, which also reported a high level of marital distress and its relation to alcohol dependence.

### Table 4: Clinical Parameters of Study and control group

| Clinical parameters                        | Study group | Control group | \( \chi^2 \) | \( P \) |
|-------------------------------------------|-------------|---------------|-------------|--------|
| Sexual dysfunction (ASEX)                 | 41 (58.6)   | 13 (18.5)     | 109.7       | 0.001  |
| Total 19 or more                          | 38 (54.3)   | 10 (14.3)     |             |        |
| 5 or more on any item                     | 1 (1.4)     | 1 (1.4)       |             |        |
| 4 or more on three items                  | 2 (2.9)     | 2 (2.8)       |             |        |
| Problem in different domains of sexual functioning |
| Desire                                    | 43 (61.4)   | 14 (20)       | 54.58       | 0.01   |
| Erection                                  | 49 (70)     | 9 (12.8)      | 99.34       | 0.001  |
| Arousal                                   | 44 (62.8)   | 14 (20)       | 57.14       | 0.001  |
| Ability to reach orgasm                   | 35 (50)     | 4 (5.7)       | 99.09       | 0.01   |
| Satisfaction with orgasm                  | 38 (54.8)   | 8 (11.4)      | 72.66       | 0.05   |
| Marital satisfaction (MAT Score)          | 76.81 (21.96)| 101.97 (19.70)| 0.0001     |        |
| Very dissatisfaction (2-70)               | 31 (44.3)   | 2 (2.8)       | 164.43      | 0.0121 |
| Dissatisfied (71-90)                      | 15 (21.4)   | 21 (30.0)     | 6.29        | 0.0598 |
| Average (91-110)                          | 19 (27.1)   | 24 (34.3)     | 3.54        | 0.0001 |
| Satisfied (111-130)                       | 15 (21.4)   | 20 (28.6)     | 55.13       | 0.0001 |
| Unusually satisfied (131-158)             | 0 (0)       | 3 (4.3)       | 19.15       | 0.0001 |

\( \chi^2 \): Chi-square test, \( P \) value: At a significance level of <0.05. ASEX – Arizona Sexual Experience Scale; MAT – Marital Adjustment Test

Figure 2: Correlation between marital adjustment test and the severity of alcohol dependence questionnaire

Figure 3: Correlation between marital adjustment test and Arizona Sexual Experience Scale
effects of which are dampened by subsequent alcohol use, thereby serving as a negative reinforce.[25]

There are some limitations to our study that it was a cross-sectional hospital-based study. Therefore, the results of the study may not be extrapolated to AD individuals in the community. In our study, more than half of the participants had a severe degree of alcohol dependence, which may not be true for AD participants not approaching the hospital for treatment. They may have a less severe degree of alcohol dependence and, therefore, lower prevalence of sexual dysfunction and a lesser degree of problem in marital life. Only a large sample community-based study can answer the above question. Moreover, follow-up and longitudinal studies can further explore the relationship between sexual dysfunctions, marital satisfaction, and alcohol dependence and help us to understand if they are the result of alcohol dependence or its reinforcer or both.

**CONCLUSIONS**

This cross-sectional hospital-based study showed that alcohol dependence adversely affects all aspects of the sexual functioning of men, particularly erection and arousal. The severity of sexual dysfunction is proportional to the degree of dependence and duration of alcohol consumption. Low level of marital adjustment is seen among their spouse and it was negatively associated with the severity of dependence but not with duration of alcohol use. Sexual dysfunction and marital disharmony can act as reinforcers to perpetuate the problem of alcohol dependence, which in turn can further worsen both aspects. Therefore, it is important to recognize and address these problems to break this vicious cycle for the successful treatment of alcohol use disorders.

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**Conflicts of interest**

There are no conflicts of interest.

**REFERENCES**

1. Gururaj G, Girish N, Benegal V. Burden and Socioeconomic Impact of Alcohol. The Bangalore Study. Alcohol Control Series 1. New Delhi: World Health Organisation, Regional Office for South East Asia; 2006.
2. Ray R. National Survey on Extent, Pattern and Trends of Drug Abuse in India. Ministry of Social Justice and Empowerment, New Delhi: Government of India and United Nations Office on Drugs and Crime; 2004.
3. Kandeel FR, Koussa VK, Swerdloff RS. Male sexual function and its disorders: physiology, pathophysiology, clinical investigation, and treatment. Endocr Rev 2001;22:342-88.
4. Greenfield TK, Karriker-Jaffe KJ, Wilsnack SC, Bloomfield K, Laslett A, Stoner J, et al. Multinational perspectives on harms to others, sources, and policy implications: New results from the gender and alcohol’s harms to others (GENAHTO) project. Alcohol Clin Exp Res 2019;43:280A-280A.
5. Rosen RC. Alcohol and drug effects on sexual response: Human experimental and clinical studies. Ann Rev Sex Res 1991;2:119-79.
6. Fahrner EM. Sexual dysfunction in male alcohol addicts: Prevalence and treatment. Arch Sex Behav 1987;16:247-67.
7. Grover S, Matteo SK, Pendharkar S, Kundapppan V. Sexual dysfunction in patients with alcohol and opioid dependence. Indian J Psychol Med 2014;36:355-65.
8. Pendharkar S, Matteo SK, Grover S. Sexual dysfunctions in alcohol-dependent men: A study from North India. Indian J Med Res 2016;144:393-9.
9. Okulate G, Olaiyinka O, Dogunro AS. Erectile dysfunction: Prevalence and relationship to depression, alcohol abuse and panic disorder. Gen Hosp Psychiatry 2003;25:209-13.
10. Asboe D, Catala J, Mandalia S, Dedes N, Florence E, Schrooten W, et al. Sexual dysfunction in HIV-positive men is multi-factorial: A study of prevalence and associated factors. AIDS Care 2007;19:955-65.
11. Chew KK, Bremner A, Stuckey B, Earle C, Jamrozik K. Alcohol consumption and male erectile dysfunction: An unfounded reputation for risk? J Sex Med 2009;6:1386-94.
12. Sullivan JT, Sykora K, Schneiderman J, Naranjo CA, Sellers EM. Assessment of alcohol withdrawal: The revised clinical institute withdrawal assessment for alcohol scale (CIWA-Ar). Br J Addict 1989:84:1357-7.
13. McGahuey CA, Gelenberg AJ, Lauerke CA, Moreno FA, Delgado PL, McKnight KM, et al. The Arizona Sexual Experience Scale (ASEX): Reliability and validity. J Sex Marital Ther 2000;26:25-40.
14. Stockwell T, Murphy D, Hodgson R. The Severity of Alcohol Dependence Questionnaire: Its use, reliability and validity. Br J Addict 1983;78:145-55.
15. Locke HJ, Wallace KM. Short marital-adjustment and prediction tests: Their reliability and validity. Marriage Fam Living 1959;21:251-255.
16. Arackal BS, Benegal V. Prevalence of sexual dysfunction in male subjects with alcohol dependence. Indian J Psychiatry 2007;49:109-12.
17. Mattoo SK, Basu D, Malhotra A, Malhotra R. Relapse precipitants, Life events and dysfunction in alcohol and opioid dependent men. Indian J Psychiatry 2003;45:39-44.
18. National Health Portal. Alcohol Use Disorder. Available from: https://www.nhp.gov.in/healthyliving/alcohol-use-disorder. [Last accessed on 2020 May 24].
19. Jacob T. Family studies of alcoholism. J Fam Psychol 1992;5:319-38.
20. Laumann EO, Paik A, Rosen RC. Sexual dysfunction in the United States: Prevalence and predictors. JAMA 1999;281:537-44.
21. Marshall MP. For better or for worse? The effects of alcohol use on marital functioning. Clin Psychol Rev 2003;23:959-71.
22. Leonard KE, Eiden RD. Marital and family processes in the context of alcohol use and alcohol disorders. Annu Rev Clin Psychol 2003;7:285-310.
23. Kishor M, Pandit LV, Raguram R. Psychiatric morbidity and marital satisfaction among spouses of men with alcohol dependence. Indian J Psychiatry 2013;55:360-5.
24. O’Farrell TJ, Rotunda RJ. Couples interventions and alcohol abuse. In: Hafod WK, Markman HJ, editors. Clinical Handbook of Marriage and Couple’s Interventions. New York: Wiley; 1997. p. 556-88.
25. Gottman JM, Levenson RW. What predicts change in marital interaction over time? A study of alternative models. Fam Process 1999;38:143-58.