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Alcohol, Gender, and Psychiatric Co-Morbidity: A Study from India

Anil Kumar Buruganahalli Nagendrappa,[1,*] Shalini Mallanna,[2] and Sanjay Raj G[1]

[1]Department of Psychiatry, Shridevi Institute of Medical Sciences and Research Hospital, Tumkur, India
[2]Department of General Medicine, Shridevi Institute of Medical Sciences and Research Hospital, Tumkur, India

[*]*Corresponding author*: Anil Kumar Buruganahalli Nagendrappa, Assistant Professor, Department of Psychiatry, Shridevi Institute of Medical Sciences and Research Hospital, Sira Road, NH 4, Tumkur, India. Tel/Fax: +91-9731915464, E-mail: anilkbn23@gmail.com

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Abstract

Background: In the recent decades, increasing number of females have been seeking de-addiction services yet data in this regard is very limited from across the globe as well as from India.
Objectives: The aim of this research was to study the gender differences in demographic and clinical profile and psychiatric co-morbidity among patients with alcohol dependence syndrome (ADS).
Methods: This cross sectional study was conducted at Shridevi Institute of Medical Sciences and Research Hospital, a tertiary care center located in Tumkur, India, during year 2015 to 2016. Seventy male and 50 female subjects (aged 18 to 50 years) meeting the criteria for ADS, were assessed using socio-demographic and clinical proforma, severity of alcohol dependence questionnaire (SADQ), and mini international neuropsychiatric interview (MINI).
Results: For females, mean age at presentation was 41.38 years (standard deviation, SD = ± 6.43), the majority belonged to a nuclear family (72%) (Parents and their children living together), had low socio-economic class (68%), and studied up to Seventh standard (86%) compared to males, whose mean age at presentation was 39.65 years (SD = ± 7.76), majority belonged to a joint family (54.28%) (three generation living together), middle socio-economic class (55.71%), studied to the eighth standard and above (52.85%). Females compared to males started alcohol use at a later age, drunk for shorter duration and lesser quantity per day. Stress was the foremost reason cited for initiation of drinking and physical sickness to seek medical treatment by both. Females have more co-morbid psychiatric problems compared to males.
Conclusions: A number of important gender differences with regards to alcoholism have been found, which have implications for planning gender sensitive, multi-dimensional treatment, and preventive programmers.

Keywords: Alcoholism, Gender, Methanol, Psychiatric Co-Morbidity

1. Background

Though alcohol consumption has existed all over the world for many centuries, its pattern of use, socio-economic, and health consequences have undergone significant changes over decades. Alcohol use, until recently, has largely been perceived as a male problem, thus research has been largely focused on males and not on females (1). Gender differences in substance use have been consistently observed among studies done on the general population as well as in treatment seeking samples, indicating that males exhibit significantly higher rates of substance use, abuse, and dependence (2, 3). Female's role in the society is changing in terms education, life style, and economic independence resulting in increased alcohol consumption, and there by dependence. Compared to surveys conducted in the 1990s that reported 5:1 male/female ratio of alcohol use disorders (4), in a 2007 survey (5), the ratio was reduced to approximately 3:1.

Among alcohol dependent patients, 37% had other psychiatric conditions (6). Results of an epidemiological catchment area study (7) and national co-morbidity survey study (2) showed that alcohol dependence, anxiety disorders, and affective disorders commonly coexist. A study by Mann et al. (8) showed that 65% of female patients yet only 28% of the male patients had a lifetime history of additional psychiatric disorders. Compared to males, a significantly greater number of alcohol dependent female patients have anxiety and mood disorders. Underestimating of co-morbidity is an important problem during treatment of such patients.

As the number of female alcohol users continues to rise, there is a need to understand gender-specific demographic, clinical, and psychological factors contributing to the problem. Better understanding of how male's and female's drinking patterns differ is thus an important key to develop more appropriate gender-sensitive preventive and treatment programs. Although some data related to alco-

hol use and abuse among females exists, research specifically studying alcohol dependence remains scare across the globe as well as from developing countries, such as India.

2. Objectives

The aim of this research was to study the gender differences in socio-demographic characteristics, clinical profile, and psychiatric co-morbidity among patients with alcohol dependence syndrome (ADS) seeking treatment at a tertiary care centre in southern part of India.

3. Materials and Methods

3.1. Design and Settings

This was a cross sectional comparative study conducted at Shridevi institute of Medical Sciences and research hospital, a tertiary care centre located in Tumkur, India during the year 2015 to 2016.

3.2. Participants

Seventy male and 50 female patients aged between 18 and 50 years and fulfilling the criteria for alcohol dependence syndrome, according to DSM-IV (9), were enrolled in the study. Patients with concurrent presence of other substance dependence other than Nicotine, according to DSM-IV, were excluded.

3.3. Measures

Socio-demographic details, history, general physical examination, and mental status examination were recorded on a semi-structured proforma designed for the study. Severity of alcohol dependence was assessed using the SADQ (10). The MINI (11) was used for diagnosis of psychiatric disorders in DSM IV and ICD- 10. A psychiatrist filled the questionnaires.

3.4. Statistical Analysis

Data were analyzed by using the SPSS 14 software. Frequency and percentages were calculated for categorical variables and mean and standard deviation were determined for continuous variables.

3.5. Ethical Consideration

The study was conducted after obtaining permission from the institutional ethics review board and informed written consent from the study participants.

3.6. Study Procedure

All male and female subjects presenting alcohol-related problems to the institution were assessed. Patients with clinical diagnosis of ADS as per DSM- IV and meeting the inclusion and exclusion criteria were approached for participation in the study. Socio-demographic details, severity of alcohol dependence, and co-morbid psychiatric disorders were assessed using designated questionnaires after obtaining a written informed consent.

4. Results

4.1. Socio-Demographic Profile

The analysis indicated that mean age at presentation was 39.65 years (SD = $\pm$ 7.76) for males and 41.38 years (SD = $\pm$ 6.43) for females. The majority of the females belonged to nuclear families (72%), while males belonged to joint families (54.28%). The majority of females had low socio economic status (68%) and studied up to middle school (86%), while males had middle socio-economic status (39%) and studied high school and above (37%). Further details are given in Table 1.

4.2. Clinical Profile

As indicated by Table 2, mean age of onset of alcohol use for females was 30.02 years (SD = $\pm$ 4.51) and for males, this was 24.64 years (SD = $\pm$ 4.15). Time taken to develop dependence and total duration of dependence for females was 3.68 years (SD = $\pm$ 2.10) and 7.88 years (SD = $\pm$ 4.18) and for males this was 6 years (SD = $\pm$ 3.16) and 9.05 years (SD = $\pm$ 6.87), respectively. Average quantity of alcohol consumption per day was more among males compared to females. Overall, 42.85% of alcohol-dependent females had alcohol using spouses. Greater number of females used chewable tobacco while males smoked.

The foremost reason given by both males and females to start and continue alcohol use was stress either due to marital discord, domestic violence, interpersonal conflicts with others, and poverty. Use for pleasure seeking was seen exclusively among males. Further details are given in Table 2. The foremost reason given by both males and females to seek treatment was substance-induced health problems, such as gastritis and alcoholic liver disease. Greater number of females sought treatment due to ongoing family conflicts, while males had psychological reasons like guilt, low self esteem, and depression. Further details are given in Table 2.

Table 1. Socio-Demographic Details of Patients With Alcohol Dependence Syndrome Seeking Treatment at a Tertiary Care Centre in Southern Part of India[a]

Socio- Demographic Variable	Male	Female	P Value
Mean age at presentation (SD)	39.65 years (± 7.76)	41.38 years (± 6.43)	0.2
Education			
Illiterate	07 (10)	10 (20)	0.00[b]
Primary (6th)	13 (18.57)	20 (40)	
Middle (8th)	13 (18.57)	13 (26)	
High school (10th)	19 (27.14)	3 (6)	
College and above	18 (25.71)	4 (8)	
Current occupational status			
Employed	59 (84.28)	32 (64)	0.12
Unemployed/Home maker	11 (15.71)	18 (36)	
Family type			
Joint	38 (54.28)	14 (28)	0.004[b]
Nuclear	32 (45.71)	36 (72)	
Location			
Rural	52 (74.28)	31 (62)	0.51
Urban	18 (25.71)	19 (38)	
Religion			
Hindu	69 (98.57)	46 (92)	0.09
Muslim	01 (1.42)	4 (8)	
Marital status			
Unmarried	12 (17.14)	3 (6)	0.3
Married	53 (75.710	38 (76)	
Widowed	01 (1.42)	4 (8)	
Separated/Divorced	04 (5.71)	5 (10)	
Socio-economic status (Kuppuswamy, modified 2007)			
Low (Class V)	24 (34.28)	34 (68)	0.001[b]
Middle (Class II, III, IV)	39 (55.71)	12 (24)	
Upper (Class I)	07 (10)	4 (8)	

[a] Values are expressed as No. (%).
[b] P value < 0.01.

4.3. Psychiatric Co-Morbidity

It can be seen from the Table 3 that 68% of females and 34.28% of males had at least one co-morbid psychiatric disorder. Depression and anxiety disorders were the most common co morbid disorders among both males and females but more number of females suffer compared to male. Anti-social personality disorder (ASPD) seen exclusively among males.

5. Discussion

Several studies have shown that number of females seeking treatment for substance use disorders in the recent years is on the rise (12-14). In the two years of the current study period, 50 female patients, fulfilling the study criteria and seeking treatment, is quite a large number considering stigma associated with females using alcohol in the Indian culture.

Mean age at presentation in various studies have ranged between 35 and 46 years (15-18). Two earlier studies (19, 20) have reported that females seek help for alcoholism usually in their fourth decade of life and later compared to males. In the current study, females entered the treatment network in their 40s (41.38 ± 6.43 years), which was not significantly late compared to male alcoholics. Stigma, lack of awareness about substance use and availability of treatment options are some of the factors that have been suggested to explain the delay in treatment seeking among females in India (21, 22).

Studies on drinking patterns among females have gen-

Table 2. Clinical Profile of Patients With Alcohol Dependence Syndrome Seeking Treatment at a Tertiary Care Centre in Southern Part of India[a]

Clinical Variable	Male	Female	P Value
Mean age of onset of use in years	24.64 years (SD = ± 4.15)	30.02 years (SD = ± 4.51)	0.00[b]
Duration of use before seeking treatment	15 years (SD = ± 7.61)	11.52 years (SD = ± 4.68)	0.0049[b]
Duration of dependence	9.05 years (SD = ± 6.87)	7.88 years (SD = ± 4.18)	0.28
Time taken to develop dependence	6 years (SD = ± 3.16)	3.68 years (SD = ± 2.10)	0.00[b]
Average alcohol intake/ day (Whiskey/ IMFL), mL	366.28	208.8	0.00[b]
Quantity of alcohol intake/ day			0.00[b]
90 to 359 mL	20 (28.57)	38 (76)	
359 and above	50 (71.42)	12 (24)	
SADQ score > 30	42 (60)	22 (44)	0.004[b]
Alcohol using partners/spouses	2 (2.85)	30 (60)	0.000[b]
Alcoholic liver disease	20 (28.57)	15 (30)	0.865
Tobacco dependence			
Smoking	40 (57.14)	1 (2)	0.000[b]
Chewable	15 (21.42)	23 (46)	0.004[b]
HIV positive	3 (4.28)	5 (10)	0.028
HBV positive	1 (1.42)	0 (0)	0.39
Family history of alcohol dependence	20 (28.57)	6 (12)	0.09
Foremost reason to start/continue using alcohol			0.031
Peer pressure	7 (10)	7 (14)	
Pleasure seeking	13 (18.57)	0 (0)	
No definite reason	18 (25.71)	12 (24)	
Fatigue	11 (15.71)	12 (24)	
Stress	21 (30)	19 (38)	
Foremost reason for seeking treatment			0.023
Family conflicts	7 (10)	11(22)	
Physical health	20 (28.57)	15 (30)	
Withdrawal symptoms	16 (22.85)	10 (20)	
Financial constraints	6 (8.57)	6 (12)	
Social pressure	7 (10)	7 (14)	
Psychological reasons	14 (20)	1 (2)	

[a]Values are expressed as No. (%).
[b]P value < 0.01.

erally shown that females drink less than males (23). According to a study by Stokkeland et al. (24), females drink 5.8 standard drinks per drinking day (equivalents to 257.29 mL of IMFL). The current study also showed that males drink significantly more compared to females.

In contrast to most of the studies done on male alcoholics, which have shown that most of them had education of less than high school (16, 18, 25), in the current study, most cases had education level of high school (eighth standard) and above. However, the majority of the females studied only up to middle school (seventh standard). In one of the Indian studies (26), it was reported that substance use is confined to tribal females, those of lower socio-economic status. Other studies too have reported their patient population as belonging to lower middle and lower class and being employed (17, 18). The majority of female patients in the current study belonged to the lower socio-economic class (68%), rural background (62%), and

Table 3. Twelve Months Prevalence of Psychiatric Disorders as per MINI Among Patients With Alcohol Dependence Syndrome Seeking Treatment at a Tertiary care Centre in Southern Part of India[a]

Psychiatric Co-Morbidity	Male	Female
Major depressive episode	4 (5.71)	7 (14)
Recurrent depressive disorder	2 (2.85)	4 (8)
MDE with melancholic features	2 (2.85)	3 (6)
Dysthymia	3 (4.28)	5 (10)
Suicidality	3 (4.28)	2 (4)
Manic episode	3 (4.28)	3 (6)
Panic disorder	1 (1.42)	4 (8)
Agoraphobia	0 (0)	2 (4)
Social phobia	3 (4.28)	5 (10)
Obsessive compulsive disorder	0 (0)	1 (2)
Post traumatic stress disorder	0 (0)	0 (0)
Psychotic disorders	1 (1.42)	2 (4)
Anorexia Nervosa	0 (0)	0 (0)
Bulimia nervosa	0 (0)	0 (0)
Generalized anxiety disorder	4 (5.71)	8 (16)
Anti-social personality disorder	6 (8.57)	0 (0)
Depression in total[b]	9 (12.8)	16 (32)
Anxiety disorders in total	7 (10)	16 (32)
Total number having one psychiatric problem	24 (34.28)	34 (68)
Total number having two or more psychiatric problem	10 (14.28)	8 (16)

[a] Values are expressed as No. (%).
[b] Various forms of depression-major depressive disorder, recurrent depressive disorder, dysthymia, depression with melancholic features.

worked as daily wage laborers (64%) either in factories or agricultural fields.

The collaborative study of the genetics alcoholism (COGA) group found that the mean age at onset of alcoholism was 25 years (27). Benegal et al. (28) found in their study that there was no significant difference in age at onset of use between male and female users (20.7 years and 20.3 years, respectively). Females in the current study group started alcohol use at a significantly later age compared to males. This is because females alcohol use is socioculturally less acceptable compared to males and there is stigma associated with alcohol use.

Selvaraj et al. (29), studied 18 female alcoholics, who sought treatment over a 1-year period and reported that females that had a shorter drinking history (8.1 ± 6.28 years), became dependent on alcohol more rapidly than males. Similar results were in the current study, and females had significantly shorter drinking history before seeking treatment (11.52 ± 4.68 years) and rapid development of dependence (3.68 ± 2.10 years) compared to males. Unlike males, females generally progress faster between landmarks associated with the developmental course of alcohol use, abuse and dependence, and tend to experience more alcohol-related problems, known as telescoping (30). The current results show that 44% of females had severe alcohol dependence (SADQ score > 30) and 30% had alcoholic liver disease, which is not significantly different from males. Overall, 42.85% of females have alcoholic partners, where only 4% of alcoholic males have drinking partners. The notion of a stronger influence of husbands on their wife's drinking than vice versa as suggested by Haavio- Mannilas et al. (31) is proved by the current study, indicating that females may imitate the drinking behavior of male.

A study by Selvaraj et al. (29) showed about three-fourths of the female patients reported psychological stressors as being the single most important reason for their continued drinking. A study on drinking habits among females conducted in Bangalore city (32) showed boredom and lack of work at home among the high-income group and fatigue and spousal violence among

low-income group as triggers for drinking (32). Two other studies reported difficult life circumstances, such as economic hardship or domestic violence, to be frequent among female alcohol users (21, 33). In the current study too, many females cited stress either due to marital discord, domestic violence, interpersonal conflicts with others or poverty as the foremost reason to start or continue alcohol use. Use for pleasure-seeking was seen exclusively in males.

Gender differences in motives for alcohol use have been observed in the previous study, with females being more likely than males to consume alcohol in response to stress and negative emotions. In contrast, males seem more likely than females to consume alcohol yielding to peer pressure or enhancement of positive emotions (34). Thus, prevention and treatment intervention efforts should incorporate these gender differences in motives to start and continue alcohol use.

In a study by Reddy et al. (18), most patients cited financial strain due to alcohol use as a reason for seeking current treatment. Other reasons were family conflicts and concern about physical health, social pressure, experiencing withdrawal symptoms, and psychological reasons like feelings of guilt, low mood, etc. In the current study, the foremost reason cited for seeking treatment by females was strained physical health followed by family conflicts and withdrawal symptoms. Among males, it was strained physical health followed by withdrawal symptoms and psychological reasons like stress, guilt, low self-esteem, and depression.

Studies have shown that female alcohol users experienced equivalent physical health consequences to males at lower quantities and frequencies (35-37). In the present study, almost the same proportion of females (30%) had alcoholic liver disease as males (28.57%) for lesser quantity and shorter duration of intake. This is entirely consistent with the telescoping phenomenon of alcohol-related health consequences, which has often been observed in females.

Among alcohol-dependent patients, 37% have a mental disorder (38). Results of ECA showed that alcohol dependence, anxiety disorders, and affective disorders commonly coexist (7). This coexistence was also found in a national comorbidity survey (NCS) study (2). In the Epidemiologic Catchment Area Study (ECA) of adults aged 18 years and above, Helzer et al. (4) observed that females with either alcohol abuse or alcohol dependence had higher rates of psychiatric comorbidity (65 %) than males with the same diagnosis (44%). In the current study, compared to males (34.28%), a significantly greater number of females (68%) had co-occurring psychiatric disorders. Depression and anxiety disorder are the most common co-morbid diagnoses among both groups yet a significantly greater number of females had depression and anxiety disorder compared to males in the current study. Similar results were observed in a study by Mann et al. (8).

Morgenstern et al. (39), studied the co-morbidity of alcoholism and personality disorder in 366 subjects and found that 22.7% had an ASPD. In this study, ASPD was seen exclusively among males.

The current study has implications for planning interventions for females with ADS. Generally, there is a lack of gender sensitive preventive and treatment facilities for females with alcohol dependence in India. However, there has been growing recognition of the need for specialized treatment services for females with SUDs (37). The present study high-lighted some of the risk factors such as low socio-economic and educational status, employment and work related fatigue, stress, and drinking of the husband, which make females vulnerable to alcohol use. The most important domains to screen while evaluating are risk factors that make cases continue alcohol use or lead to relapse, marital and interpersonal functioning, occupational and financial difficulties, and psychiatric and medical comorbidities. Based on these assessments, appropriate psycho-social interventions can be planned. The interventions should include components, such as psychoeducation, individual therapy, group therapy, family therapy as well as psycho-social services for patient's children, if indicated.

5.1. Limitations

The present study focused on a small number of alcohol dependent patients attending drug de- addiction and medical services at a tertiary care centre, hence results cannot be generalized to patients with alcohol dependence or use in the community. Future studies should focus on larger groups and community-based samples.

5.2. Conclusion

Alcohol use among females in India is increasing and this has had a significant impact on their health and well-being. Despite being a fast growing public health problem, alcohol-related problems among females have not been examined in detail in the Indian context. The present study is among the few that sheds light on the demographic and clinical profile as well as psychosocial factors associated with initiation, maintenance, and psychiatric co-morbidity among alcohol-dependent females. A number of important gender differences with regards to alcoholism has been found in this study. These factors indicate the importance for planning and implementing multi-dimensional gender sensitive interventions for this

population. The paucity of adequate data underscores the need for more research in this area.

Footnotes

Authors' Contribution: Anil Kumar Buruganahalli Nagendrappa developed the concept and protocol, and collected the data, abstracted and analyzed the data, wrote the manuscript, and was the guarantor. Shalini Mallanna and Sanjay Raj G contributed to the development of the protocol, helped in data collection, drafting and critical revision of manuscript. All authors read and approved the final manuscript.

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