EFFECTS OF ALCOHOL ON THE HUMAN BODY AND MIND HAVE BEEN WELL KNOWN SINCE ANCIENT TIMES. PREHISTORIC MAN ACCIDENTALLY DISCOVERED ALCOHOL BY FERMENTING WATER AND FRUIT IN SUNLIGHT. ARCHEOLOGICAL FINDINGS FROM THE NEOLITHIC PERIOD (10,000 B.C.) GIVE EVIDENCE OF INTENTIONALLY FERMENTED BEVERAGES EXISTING IN THE FORM OF BEER JUGS, EXCAVATED IN SOUTH WEST ASIA AND NORTH AFRICA.[1] IN THE CHINESE CULTURE, YELLOW WINE WAS PRODUCED AS EARLY AS 4000 YEARS AGO. WHILE EUROPE WAS KNOWN TO HAVE MONASTERIES WHICH OWED THE BEST VINEYARDS, THE FRENCH MONKS WERE EXPERTS AT PRODUCING SPARKLING WINE. A DUTCH TRADER ACCIDENTALLY BOILED WINE TO DISCOVER BRANDY (“BRANDEWIJN” MEANS “BURNT WINE” IN DUTCH). THUS, IT IS PROBABLY NOT WRONG TO SAY THAT ALCOHOL HAS FORMED AN INTEGRAL PART OF A LOT OF CULTURES WORLDWIDE – USED AS A SOURCE OF NUTRITION IN MEALS DURING FESTIVE OCCASIONS, RELIGIOUS CEREMONIES, BIRTHS, AND DEATHS. ATTITUDES REGARDING ALCOHOL CONSUMPTION HAVE VARIED OVER TIME IN DIFFERENT COUNTRIES. NATIONS HAVE MADE EFFORTS TO CURB THE DELETERIOUS EFFECTS OF ALCOHOL, BY LIMITING THE HOURS OF CONSUMPTION AND EVEN BANNING ALCOHOL ALTOGETHER (E.G. AMERICA HAD “PROHIBITION” BETWEEN 1920 AND 1933), BUT THESE HAVE PROVED TO BE UNSUCCESSFUL IN THE LONG RUN.[1]

CUSTOMIZED INDIVIDUAL TREATMENT CAN BE OFFERED FOR THE PATIENT IF ALL THE FACTORS FOR ALCOHOL DEPENDENCE ARE TAKEN INTO CONSIDERATION. THIS ENSURES THAT THE PHYSICIAN CAN PREDICT THE LIKELY FACTORS FOR RELAPSE AND THEREFORE OFFER EFFECTIVE PREVENTATIVE TREATMENT. CLINICIANS SHOULD NOT JUST AIM AT TREATING THE PRESENTING COMPLAINTS OF THE PATIENTS BUT SHOULD ALSO MONITOR THE IMPACT OF THE ALCOHOL USE ON THE PATIENT'S QUALITY OF LIFE AND DISABILITY.

Aim: The aim is to study the quality of life (QoL) and disability in persons with alcohol dependence syndrome (ADS).

Materials and Methods: This cross-sectional, analytical, case–control study in a tertiary hospital in a suburb of Maharashtra included 100 cases of ADS and equal number of age- and sex-matched healthy controls fulfilling the various inclusion and exclusion criteria.

Results: The study revealed that individuals commonly initiate drinking alcohol between 20 and 30 years and first present to the hospital for seeking medical attention in the age group of 30–40 years after 10–12 years of drinking when they are moderately or severely dependent on alcohol. Alcohol dependence is associated with lower educational levels and lower levels of employment. Many have problems in their marital and intimate relations, making it difficult for them to stay in long-term relationships. As a consequence of their frequent aggressive and violent behaviors, they are more commonly involved in legal matters. Having a positive family history of alcohol dependence and familial psychiatric disorders makes them have a higher chance of developing alcohol dependence. As the number of years of drinking increases, so does the dependency level.

Conclusion: Alcohol dependence is associated with lower QoL and higher levels of disability levels. The severity of alcohol dependence is inversely proportional to the QoL experienced by them and directly proportional to their disabilities.

Keywords: Alcohol dependence, disability, psychiatric disorders, quality of life
person’s quality of life (QoL) along with the disabilities faced by him in day-to-day life. Beyond just the health issues, harmful alcohol intake is an important contributing factor in the nation’s social and economic loss. In spite of this, alcohol use disorders still continue to be factors which are ignored when health and disability issues are to be addressed and are still persisting as hindrances to the global well-being of the country. Given the prevalence and the burden it causes on the society, it is very surprising that not a lot of research has been done in India which takes into account the QoL and the disability factor. Thus, more systematic qualitative and quantitative research is needed for assessment of QoL and disability in India related to the alcohol use and abuse disorders. Data and results from such research will definitely help increasing the knowledge and in better understanding the effect that these alcohol disorders have on public life at large. In view of the ever-growing population worldwide with special emphasis on India, alcohol use and the attributable burdens are predicted to grow in future. Studying these aspects can help in creating a framework which can focus on not just treating the individuals for their addiction disorders but will also help in creating supportive environments that promote the health and resiliency of these patients, in order to take preventive measures in the problematic use of alcohol, and reducing the overall harms associated with alcohol. QoL following treatment and recovery from alcohol dependence depends on a host of factors. These help in further improving the incorporation of the person back into society with a near-normal life. Keeping this in view, the present study was undertaken to find the QoL and the disablement if any due to chronic abuse of alcohol resulting in dependence.

MATERIALS AND METHODS

This cross-sectional, analytical, hospital-based study was carried out in a tertiary care hospital and research center attached to a medical college during the period of January 2016 to September 2018. The proposal for the study was submitted to the institutional ethics committee, and permission was obtained before starting the study.

Sample

One hundred consecutive male patients of alcohol dependence syndrome (ADS) diagnosed using ICD-10 DCR criteria by two psychiatrists who were blind to each other and equal number of nonalcoholic males were included in the study after obtaining written informed consent.

Inclusion criteria

1. Male patients of ADS along with age- and sex-matched nonalcoholic individuals
2. Individuals between 18 and 60 years of age.

Exclusion criteria

1. Comorbid psychiatric disorders
2. Major physical illnesses
3. Organic brain syndrome or mental retardation
4. Multiple substance abuse/dependence other than alcohol.

Tools used to conduct the study

- Sociodemographic and clinical datasheet: This was used to record demographic and clinical details of the participants with particular emphasis about their alcohol habit
- Alcohol Use Disorders Identification Test (AUDIT)[3,4,5]
- The Severity of Alcohol Dependence Questionnaire (SADQ)[6,7]
- World Health Organization Disability Assessment Schedule 2.0. (WHODAS 2.0)[8]
- World Health Organization Quality of Life Brief Scale (WHOQOL-BREF).[9]

Methodology

Written informed consent for participation in the study was obtained from all participants after explaining the aim and objectives of the study. They were not selected if they had any of the exclusion criteria. The sociodemographic and clinical variables were recorded as per the pro forma prepared for the study. They were then assessed with AUDIT, SADD, WHODAS 2.0, and WHOQOL-BREF. The scales were scored as per the scale manuals.

Statistical analysis

Final qualitative and quantitative analysis was carried out as per the test manuals, and data were computed and statistically analyzed using SPSS 21 (IBM, Chicago, USA). Descriptive statistics in terms of percentage was used for categorical variables. Statistical tests used in the study to compute the data included the Student’s unpaired t-test, Chi-square test, and Spearman correlation coefficient.

RESULTS

The demographic characteristics of the patients and controls are given in Table 1. There was no significant difference between the groups with respect to mean age, distribution of age, and religion. The association between the educational status and employment of the cases and controls status is statistically significant. A comparison of employment status according to the age group revealed that in the age group of 30–44 years, there were more number of unemployed persons in the case group than in the control group.
Table 1: Demographic and clinical characteristics of patients with alcohol dependence syndrome (n=100) and control participants (n=100)

| Characteristics                              | Alcohol dependence patients | Normal controls | t-test/Chi-square test | P       |
|----------------------------------------------|----------------------------|-----------------|------------------------|---------|
| Age, mean (SD)                               | 34.92 (8.13)               | 35.57 (8.51)    | 0.581 (NS)             |         |
| Age group (years)                            |                            |                 |                        |         |
| 18-29                                        | 35                         | 33              | 0.402 (NS)             | 0.818   |
| 30-44                                        | 53                         | 52              |                        |         |
| 45-59                                        | 12                         | 15              |                        |         |
| Religion                                     |                            |                 |                        |         |
| Hindu                                        | 55                         | 61              | 2.032                  | 0.362   |
| Muslim                                       | 39                         | 30              |                        |         |
| Christian                                    | 6                          | 9               |                        |         |
| Education                                    |                            |                 |                        |         |
| Uneducated                                    | 35                         | 15              | 16.46                  | 0.001   |
| Up to 10th                                    | 24                         | 19              |                        |         |
| 11th-12th                                    | 24                         | 29              |                        |         |
| >12th-graduate                               | 17                         | 37              |                        |         |
| Occupation                                   |                            |                 |                        |         |
| Unemployed                                    | 18                         | 8               | 10.15                  | 0.006   |
| Daily wager                                  | 47                         | 36              |                        |         |
| Monthly job                                  | 35                         | 56              |                        |         |
| Employment status and age group              |                            |                 |                        |         |
| 18-29                                        |                            |                 |                        |         |
| Unemployed                                    | 5 (28)                     | 2 (25)          | 5.37                   | 0.068   |
| Daily wage                                   | 22 (47)                    | 13 (36)         |                        |         |
| Monthly job                                  | 8 (23)                     | 15 (27)         |                        |         |
| 30-44                                        |                            |                 |                        |         |
| Unemployed                                    | 8 (44)                     | 1 (12)          | 6.77                   | 0.033   |
| Daily wage                                   | 21 (45)                    | 11 (30)         |                        |         |
| Monthly job                                  | 24 (70)                    | 27 (48)         |                        |         |
| 45-59                                        |                            |                 |                        |         |
| Unemployed                                    | 5 (28)                     | 5 (63)          | 3.38                   | 0.184   |
| Daily wage                                   | 4 (8)                      | 12 (34)         |                        |         |
| Monthly job                                  | 3 (7)                      | 14 (25)         |                        |         |
| Marital status                               |                            |                 |                        |         |
| Married                                       | 48                         | 79              | 28.96                  | <0.001  |
| Unmarried                                     | 23                         | 17              |                        |         |
| Separated                                     | 29                         | 4               |                        |         |
| Family type                                  |                            |                 |                        |         |
| Joint                                        | 35                         | 57              | 9.72                   | 0.002   |
| Nuclear                                       | 65                         | 43              |                        |         |
| Number of family members                     |                            |                 |                        |         |
| Up to 4                                       | 51                         | 36              | 5.260                  | 0.072   |
| 5-6                                          | 30                         | 44              |                        |         |
| More than 6                                   | 19                         | 20              |                        |         |
| Family history of alcoholism                 |                            |                 |                        |         |
| Present                                       | 54                         | 20              | 26.42                  | <0.001  |
| Absent                                        | 46                         | 80              |                        |         |
| Family history of psychiatric disorders      |                            |                 |                        |         |
| Present                                       | 21                         | 4               | 13.211                 | <0.001  |
| Absent                                        | 79                         | 96              |                        |         |
| Facing legal issues                          |                            |                 |                        |         |
| Yes                                           | 43                         | 25              | 7.219                  | 0.007   |
| No                                            | 57                         | 75              |                        |         |

SD – Standard deviation; S – Significant; NS – Nonsignificant

The average age of initiation of drinking alcohol in the ADS group was 23.13 ± 5.69 years (range: 25–41 years). The mean years of alcohol drinking was 11.79 ± 5.83 years (range: 3–25 years). On the SADQ,
58% were in the moderate group, 31% were in the severe group, and 11% were in the mild severity of dependence subgroup. The association of SADQ and age of onset of ADS was not statistically significant ($P = 0.12$).

The alcohol dependence patients were divided on the basis of years of drinking into ≤10 and >10 years. The number of participants in both the subgroups was 53 and 47, respectively [Table 2]. The association duration of drinking with SADQ scores is statistically significant ($P < 0.001$). The correlation of years of drinking to SADQ scores was statistically significant (Spearman’s rho = 0.446; $P < 0.05$). The WHOQOL-BREF scores of ADS patients was significantly lower than the control group [Table 3]. The WHODAS scores were significantly higher in the patient group as compared to the control group [Table 3].

The SADQ scores were negatively correlated with all the domains of WHOQOL-BREF [Table 4 and Figures 1-4]. On the other hand, a positive correlation was observed with the disability scores of WHODAS [Table 4 and Figure 5]. The age of initiation of alcohol dependence was not significantly correlated with WHOQOL-BREF domain and WHODAS scores [Table 5].

**DISCUSSION**

A cross-sectional analytical study of 100 alcohol-dependent cases was carried out in a tertiary care hospital in the suburban area of a large city from July 2016 to September 2018. A control group consisting of 100 age- and sex-matched individuals without any psychiatric or medical comorbidity was also evaluated.

**Discussion on sociodemographic variables**

**Age**

The study included individuals in the age group of 18–60 years. The upper limit of 60 years was kept to avoid including persons with other age-related issues which may affect the perceived QoL. The mean age of the case and control groups was 34.95 ± 8.13 years and 37.69 ± 10.01 years, respectively [Table 1]. Similarly, in four earlier Indian studies on alcohol dependence, the mean age of the subjects was 39.7 ± 8.66, 38.05 ± 7.36, 37.51 ± 9.7, and 36.63 years, and the majority of the patients belonged to the 35–44 years, 26–45 years, and 30–39 years’ age group, respectively. An Outpatient Department (OPD)-based study from South Africa reported that the mean age of alcohol dependence patients was 36.1 ± 11.6 years. Thus, multiple studies indicate that alcohol-dependent patients report to the hospital in the 30–40 years’ age group.

![Figure 1: World Health Organization Quality of Life domain 1 with Severity of Alcohol Dependence Questionnaire-negative correlation](image)

**Table 2: Association of the severity of alcohol dependence with the number of years of alcohol consumption**

| Years of drinking | Number of alcohol-dependent participants | SADQ scores | $P$ |
|-------------------|-----------------------------------------|-------------|-----|
|                   |                                         | <16 mild    | 16–30 moderate | ≥31 severe |     |
| ≤10               | 53                                      | 8 (15.09)   | 24 (45.28)     | 21 (39.62) | <0.001 |
| >10               | 47                                      | 3 (6.38)    | 7 (14.89)      | 37 (78.72) |     |
| Total             | 100                                     | 11          | 31            | 58         |     |

SADQ – Severity of Alcohol Dependence Questionnaire

**Table 3: Comparison of the World Health Organization Quality of Life Brief and World Health Organization Disability Assessment Schedule scores in both the test and control groups**

|                      | Mean (SD) | Mann-Whitney U-test | $P$  |
|----------------------|-----------|---------------------|------|
|                      | Cases     | Controls            |      |
| WHOQOL               |           |                     |      |
| Domain 1 (physical)  | 37.32 (26.24) | 88.84 (7.21) | −11.34 | <0.001 |
| Domain 2 (psychological) | 38 (27.06)        | 88.62 (6.33)     | −10.99 | <0.001 |
| Domain 3 (social)    | 33.98 (22.51) | 94.06 (8.53) | −12.10 | <0.001 |
| Domain 4 (environmental) | 37.08 (24.02)      | 88.67 (6.76)    | −11.84 | <0.001 |
| WHODAS               | 79.75 (12.86) | 18.39 (5.69) |     | <0.001 |

WHODAS – World Health Organization Disability Assessment Schedule; WHOQOL – World Health Organization Quality of Life; SD – Standard deviation
Religious background
The majority of the participants in both the case and control groups were Hindu by religion, followed by Muslims and then Christians. The difference between both the groups was not statistically significant [Table 1]. A similar trend of higher incidence of alcohol dependence in Hindus was corroborated by earlier studies in India.[11,16-18]

Educational status
Ignorance and indifference of the possible health hazards of alcohol and its addiction potential are higher in the illiterates. Lower educational qualification also proves as a hindrance in obtaining and maintaining a stable job profile, which for some can become a life stressor and add to their addiction potential. In the present study, there were more number of uneducated people in the ADS group, whereas the control group consisted of significantly more individuals who were in the more than 12th-grade category [Table 1]. Previous Indian studies also reported similar results.[10,17,19,20] Research in Brazil in alcoholic males also found that 61% of patients had finished middle school and just 3% had finished college.[21] It can thus be stated that no matter the region, educational status has a significant influence on the development of alcohol dependence. Illiteracy or lower educational levels are associated with higher prevalence of ADS. Steps taken to reduce alcohol use disorders should definitely include concentrating on increasing the educational levels.

Association with employment status
The ADS group had significantly more number of unemployed people, whereas the control group had more people with stable monthly jobs. This maybe because their alcohol abuse prevents them to maintain a steady job as intoxicated states prevent them to be regular at work or they get fired for creating a nuisance at the workplace.

**Table 4: Correlation of severity of alcohol dependence with all the domains of the World Health Organization Quality of Life Brief and the World Health Organization Disability Assessment Schedule (Spearman’s rho)**

|                  | SADQ | Domain 1 | Domain 2 | Domain 3 | Domain 4 | WHODAS |
|------------------|------|----------|----------|----------|----------|---------|
| Correlation coeff | 1.00 | -0.738** | -0.621** | -0.673** | -0.736** | 0.755** |
| Significant      |      | 0.000    | 0.000    | 0.000    | 0.000    | 0.000   |

**Domain 1**
| Correlation coeff | -0.738** | 1.00 | 0.820** | 0.576** | 0.929** | 0.928** |
| Significant       | 0.000    |     | 0.000   | 0.000   | 0.000   | 0.000   |

**Domain 2**
| Correlation coeff | -0.621** | 0.820** | 1.00 | 0.454** | 0.849** | -0.813** |
| Significant       | 0.000    | 0.000   |     | 0.000   | 0.000   | 0.000   |

**Domain 3**
| Correlation coeff | -0.673** | 0.576** | 0.454** | 1.00 | 0.560** | -0.572** |
| Significant       | 0.000    | 0.000   | 0.000   |     | 0.000   | 0.000   |

**Domain 4**
| Correlation coeff | -0.736** | 0.929** | 0.849** | 0.560** | 1.00 | -0.964** |
| Significant       | 0.000    | 0.000   | 0.000   | 0.000   |     | 0.000   |

**WHODAS**
| Correlation coeff | 0.755** | -0.928** | -0.813** | -0.572** | -0.964** | 1.00 |
| Significant       | 0.000    | 0.000   | 0.000   | 0.000   | 0.000   |     |

*Correlation is significant at the 0.01 level (two-tailed). WHODAS – World Health Organization Disability Assessment Schedule; SADQ – Severity of Alcohol Dependence Questionnaire scores.
Another hypothesis could be that unemployment leads individuals to resort to alcohol dependence in order to cope with the stress.

The employment status of the ADS and the control groups was compared with respect to the different age groups. In the age group of 30–44 years, a significant number of ADS patients were unemployed as compared to the control group. Similarly, a study in Finland concluded that ADS patients had lower work probabilities for all age groups except for the ages over 60 years.[22] An American study found that in the 20–29 years’ age group, ADS individuals have a better chance of having full-time work than the control group. For the 30–60 years old, alcohol dependents had a lower probability of being employed in full-time work than the control group. In the 60–64 years’ age group, ADS individuals again had again a higher probability of being full-time employees.[21]

### Marital status

Apart from physical and mental health, ADS also takes a significant toll on the participants’ personal life. Alcohol dependence can be a cause as well as a consequence of unsuccessful relationships. The addiction itself can make the individuals incapable of initiating, handling, or maintaining stable relations with a significant other. ADS also leads to domestic violence and financial instability leading to lower economic security. The presence of all such factors creates a constantly unhappy or stressed out relationship. One or both partners may even resort to infidelity. All such factors can lead to unsuccessful relationships and marital discord. Alcohol use, on the other hand, can also start as a stress buster in persons unable to maintain marital or romantic relationships. Poor coping skills may further accentuate the alcohol use to abuse. Such marital and relationship issues due to or arising out of alcohol abuse may in multiple ways affect their perceived QoL.

The present study found that most of the participants from the control group were either married or were in a stable relationship with their spouses, unlike the alcohol-dependent group. On the other hand, significantly more number of the ADS group were separated from their partners as compared with the control group [Table 1]. Two earlier Indian studies also showed similar findings; in one study, 77.55% were married, 12.24% were separated, 2.04% were unmarried, and 8.16% were widower.[10] The other study showed that among ADS males, 86.1% were married, 10.6% were single, and 3.3% were divorced.[12] A study of alcohol use disorders in a rural area of southern India concluded that a higher proportion of alcohol users was observed among widowed/separated men (50%) as compared to the unmarried (25%) and married men (40%), but it was not statistically significant.[23] Thus, findings from all these studies concluded similarly but did not take into account the comparison with a control group which was the advantage of this study showing that alcohol use disorders do have a significant effect on the marital life of the individual. As the support from a spouse can make or break a man, an alcohol-dependent individual’s prognosis can be greatly affected by his or her marital or relationship status and hence should be one of the important factors focused on improving the overall condition.

### Type of family and number of family members

An epidemiological survey conducted in Bangalore reported a definite higher proportion of adverse events occurring in the lives of the persons having contact with...
alcohol drinkers as a family member as compared to the persons without such exposure.\textsuperscript{[24]} The people living with patients of alcohol use disorders can face multiple problems ranging from physical and emotional violence to financial instability. The alcohol dependent persons can also pose a great amount of social embarrassment to their family and friends. All such reasons may make it extremely difficult for nondrinkers to live or be in contact with them. In the present study, it was observed that significantly more alcohol-dependent persons (65\%) were living in a nuclear family setup, whereas majority (57\%) of the control group belonged to a joint family. This may be due to the estranged relationship of the alcohol-dependent persons with their family members. Probably that is also the reason why the alcohol dependents had significantly lesser number of members in their family [Table 1]. Our findings are in accordance with previous other studies which suggest that patients of alcohol use disorders have strained relations with spouses and family members which can precipitate existing or introduce alcohol dependence. These individuals also seem to have higher rates of relapses.\textsuperscript{[25]}

**Family history of alcohol dependence**

Many studies suggest that alcohol intake has genetic influences, whereas few others postulate that the presence of alcohol intake in families can contribute to the environmental factors leading to alcohol dependence. Seeing the elders being dependent on alcohol and not contributing to the family can also act as a stressor to quite a lot of individuals that can make them vulnerable to imitate them or to use alcohol as a stress buster. A significant proportion of alcohol-dependent persons had family history of the same as compared to the control group in this study. An Indian study found that 67.1\% of their patients had a positive family history of ADS.\textsuperscript{[12]} A French study showed a positive association of alcohol dependence in parents with the increased incidence of the same in their offspring.\textsuperscript{[22]} Similar results were observed in other studies done in India and abroad.\textsuperscript{[26–28]} Thus, alcohol dependence is more commonly associated with family history of the same.

**Association with family history of psychiatric illnesses**

Psychiatric illnesses take a toll not just on the mental health of the patient, but it also puts a significant burden on the caretakers or the family members. This too can act as a stressor in which the individuals can resort to drinking and can become alcohol dependent. The family histories of psychiatric illness in both the alcohol-dependent and the control groups were evaluated, and it was found that there were significantly more number of people with family history of psychiatric illnesses in the alcohol-dependent group than in the control group. Studies which discuss this particular aspect have not been done before.

**Association with legal issues**

Patients with ADS are prone to have altercations and even violent behavior with people at home, neighborhood as well as at the workplace. Chronic alcohol dependence may have cognitive effects on the person which may alter their capability of resolving minute matters in a nonviolent way. Their behaviors, many a times, go out of proportion which frequently gets them in legal proceedings. Alcohol abusers are often involved in incidents of driving in an inebriated state. The WHO report observed that 45\% of patients with injuries reporting to hospital casualty departments had consumed alcohol before the injury.\textsuperscript{[20]} The prevalence of alcohol use disorders is significantly higher among violent offenders as compared to nonviolent offenders.\textsuperscript{[10–32]} Owing to such behaviors, they may face legal issues.\textsuperscript{[13,30–32]} Another probability is that people having preexisting legal issues might be facing chronically stressful situations. As a method to cope with the stress and feel momentarily better, they may resort to initially start using and gradually abusing alcohol, making them dependent. In this study, there were significantly more number of patients in the alcohol-dependent group who had ongoing legal problems than that seen in the control group. Studies suggest that alcohol impairs the individual’s judgment of risk assessment and causing decreased avoidance.\textsuperscript{[33]} The early age of onset of ADS is associated with aggressive behavior, legal problems, maladaptive social role, loss of behavioral control when drinking, and childhood criminality.\textsuperscript{[34,35]} A Swedish study concluded that alcohol strongly triggered criminal violence and made individuals prone to have criminal proceedings against them.\textsuperscript{[36]} Thus, there is a strong association between alcohol dependence and legal issues faced by them.

**Parameters of alcohol intake**

The mean age of initiation of drinking in our study was 23.13 years. Earlier Indian studies reported the age of onset between 20 and 25 years.\textsuperscript{[10,12,13,17]} On the other hand, one study each from Canada and the USA estimated the mean age of initiation as 15.24 years and 15–16 years, respectively.\textsuperscript{[37,38]} Researchers from India have found that the age of onset is reducing alarmingly and is in the early 20s.\textsuperscript{[39,40]} Findings from the present study, along with many others from our country show that the mean age of initiation of drinking alcohol is generally in the 20s and 30s.\textsuperscript{[17,27,29,41]}

**Severity of alcohol dependence (Severity of Alcohol Dependence Questionnaire scores)**

In the alcohol-dependent group, all the participants were assessed as per the SADQ, i.e., the SADQ. Most of the individuals belonged in the moderate severity of drinking, i.e., 58\%, followed by 31\% in the severe subgroup, whereas only 11\% belonged to the mild subgroup. The mean SADQ
score was 35.7±. Two hospital-based studies from Ireland also found maximum patients with moderate severity of alcohol dependence and a mean SADQ score of 25.20 and 23.1 ± 13.7, respectively.[42,43] These findings are also in agreement with few other studies.[44,45]

**Association of severity of alcohol dependence with the total number of years of drinking**

To find the association of severity of alcohol dependence with the number of years, the patients were consuming alcohol and we divided the patients into two groups of ≤10 years and more than 10 years of alcohol intake. In the subgroup of <10 years, maximum patients (45%) were in the moderate category, whereas minimum (15%) were in the mild category. Among the subgroup of more than 10 years of alcohol intake, around 78% of individuals were in the severe category of alcohol dependence, whereas only 21% have their scores in the mild and moderate groups of dependence. The association was statistically significant. A direct correlation was also performed between years of drinking and SADQ scores which showed a positive correlation between the two (Spearman’s rho = 0.44; P < 0.001). By the above, analysis could be concluded that the more the years a person spends drinking, the more the chance of them being severely dependent on alcohol.

**Quality of life–World Health Organization Quality of Life Brief scores**

It was thus observed that the WHOQOL-BREF values in the control group were significantly higher than that of the alcohol-dependent group, indicating that alcohol dependence has a detrimental effect on the QoL. All the four domains, namely physical, social, psychological, and environmental factors, show that alcohol globally takes a toll on various aspects of the individual’s life [Table 5]. This finding is in agreement with earlier Indian studies.[20,21] Although they did not consider any control group, it showed significantly poor QoL in the alcohol-dependent patients. However, another Indian study using the WHOQOL-BREF found significantly higher values in the control group as compared to alcohol-dependent patients.[47] Two studies from Brazil also reported similar findings.[20,21] Similar conclusions were drawn when South Korean alcohol-dependent patients were assessed for quality of lives and compared with healthy controls, although they were assessed using different tools.[44] A group of Spanish researchers in their cross-sectional study found that in comparison to nondrinkers, alcohol users had poorer QoL.[45] A review of literature involving 36 studies conducted worldwide agreed with the fact that alcohol-dependent individuals experience poorer QoL as compared to the general population or other persons with chronic health conditions.[48] The findings of the present study thus are in agreement with multiple studies done worldwide.

**Disability–World Health Organization Disability Assessment Schedule scores**

The second primary aim of this study was to assess the disability in both the groups individually and comparing them. The alcohol-dependent and the control groups were assessed by the WHODAS scale for disabilities. A Brazilian study assessing the consequences of alcohol abuse found that it increases the disability level in the individuals using and abusing alcohol.[49] A research group done in the US, which studied alcohol use disorders, reported that there was a positive association of alcohol dependence with the disabilities faced by those individuals. They also concluded that the disability scores are reduced once the individuals seek treatment for the same.[50] A systematic review of 47 articles assessed the disabilities associated with alcohol and also confirmed the association of the same.[51]

**Effects of severity of alcohol dependence on the quality of life and disability**

One of the secondary aims was to see the association of the severity of alcohol intake with its effects on the QoL and the disability. Thus, the SADQ scores were correlated with the WHOQOL-BREF scores and the WHODAS scores [Table 4]. What we observed was that the SADQ had a negative correlation with all the four domains of WHOQOL-BREF [Figures 1-4]. This indicated that the more severe the alcohol dependence, the more negatively affected in the QoL. Further, the SADQ scores had a positive correlation with the WHODAS scores. This showed that the more severe the dependence, the more is the disability in the patients [Figure 5]. Our findings are in agreement with a study conducted in Norway which observed that the scores of all the QoL domain scores decreased with increasing severity of drinking.[52]

These findings were also in agreement with multiple other studies comparing association between high levels of alcohol consumption and poor QoL.[44,53]

**Association of age of initiation of drinking with other factors**

The young age of onset or early initiation of drinking can be attributed to a variety of factors. This may be due to the increasing social acceptance of drinking or easier availability. Early financial independence, exposure to advertisements, or movies associating alcohol with enjoyment are also contributory factors. A previous study revealed that early age alcohol initiation was associated with greater adverse consequences.[24] Our study showed that the age of onset of drinking had negative correlations (not significant) with all the domains of the WHOQOL-BREF and WHODAS. This is in agreement with an Indian study which showed no significant correlation between the severity of alcohol use severity and the disability scores.[54] On the other
hand, few studies in the past have shown that the age of onset of alcohol drinking has an impact on the QoL. A cross-sectional study from India found weak negative correlations between the age of onset of drinking with the physical, psychological, and environmental domains of WHOQOL-BREF and a slight positive correlation with the social domain.[19] Another research showed an inverse relation between the severity of alcohol use and the QoL.[20]

**Limitations**

Our study was conducted in a hospital-based setting. It was hence inevitable that we missed out on a lot of alcohol dependence cases which were at that time not facing any or having mild physical complaints. Perhaps, for the same reason, we found that maximum of our patients belonged to the moderate and severe category of alcohol dependence. The QoL and disability scores thus are bound to come grossly affected which may not be the possibility with the mild cases. The admission to a hospital for whatsoever reason itself might affect the person’s perceived QoL and disability.

The type of alcohol consumed by individuals has a significant effect on how severe alcohol dependence can turn out. It can also have an effect on the severity of withdrawal symptoms with which they present to the doctor. The study also did not consider the type or the quantity of alcohol which was taken by these alcohol-dependent patients. Both these factors can in many ways affect the adverse effects on the individual’s body and thus, in turn, affect the QoL and the disabilities faced by them.

Following up on the alcohol-dependent cases after they remain abstinent from drinking might give an idea on how the abstinence has an effect on the QoL and disability. Alcohol abstinence can improve the perceived QoL, and the same has been studied in a few studies before. Follow-up in this study was not done.

**CONCLUSION**

Individuals commonly initiate drinking alcohol between 20 and 30 years and first present to the hospital for seeking medical attention in the age group of 30–40 years after 10–12 years of drinking when they are moderately or severely dependent on alcohol. Alcohol dependence is associated with lower educational levels, lower levels of employment, and problems in marital and intimate relations. As a consequence of their frequent aggressive and violent behaviors, they are more commonly involved in legal matters. A positive family history of alcohol dependence and psychiatric disorders makes them prone to develop alcohol dependence. As the number of years of drinking increases, so does the dependency level. Alcohol dependence is associated with lower QoL and higher levels of disability. The severity of alcohol dependence is inversely proportional to the QoL experienced by them and directly proportional to their disabilities.

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