Original Article

A Cross-sectional Study to Assess Disability and Its Correlates among Treatment Seeking Individuals with Alcohol Use Disorders

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ABSTRACT

Background and Objectives: Alcohol use is a major risk factor for global disease burden, and excessive use leads to disability in the individual. This study aimed to assess the disability and its correlates among individuals with alcohol use disorders (AUDs). In addition, it assessed the quality of life measures in this population group. **Methodology:** A cross-sectional study on a sample ($N = 62$) from among treatment seekers for alcohol dependence. Diagnostic and Statistical Manual, Fifth Edition (DSM-5) criteria were used to assess disorder severity. The WHO Disability Assessment Schedule (WHODAS) 2.0 and World Health Organization Quality of Life-BREF were used to assess disability and quality of life, respectively. Descriptive statistics, correlation analysis, and linear regression analysis were used for comparative assessments. The level of statistical significance was kept at $P < 0.05$ for all the tests. **Results:** DSM-5 diagnosis of the individuals suggested a high severity of substance use disorder as an average of 8.8 (± 1.8) criteria were fulfilled. WHODAS 2.0 revealed maximum disability in the domains of "participation in the society," "household and work-related activities" and "cognitive functioning." The quality of life measures indicate poor physical health, reduced work capacity, and cognitive dysfunction. A negative correlation was seen between the social dimensions of disability (getting along) and quality of life measures of psychological health ($P = 0.026$) and social relationships ($P = 0.046$), work domain of disability schedule and physical health score on quality of life evaluation ($P = 0.001$). Older age had greater impairment in the work domain ($P = 0.040$), and unemployment was associated with higher disability ($P = 0.001$). Unemployment and duration of alcohol use were the independent predictors of greater disability. **Conclusions:** Disability assessment using WHODAS 2.0 shows significant impairment in individuals with AUDs that is negatively correlated with quality of life measures.

Key words: *Alcohol dependence syndrome, disability, quality of life*

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INTRODUCTION

Excessive use of alcohol has been identified as a major contributor to global burden of disease. It causes 5.9% of all deaths globally. In addition, it is responsible for 5.1% of the disability-adjusted life years.[1] It remains a major public health problem in South Asian region including India.[2] Alcohol consumption in India has been steadily rising over the past 5 decades. The per capita alcohol consumption by the 15 years and older population in the year 2010 was around 4.3 L of pure alcohol. The National Survey report published in 2004 estimated that nearly 62.5 million people were current users of alcohol, which is roughly 21% of the Indian adult population (16 years and older).[3] Dependence on alcohol was found in 16.8% of the current users and alcohol users constituted the largest proportion of treatment seekers (44%) among those with substance use disorders. Alcohol contributes to the largest burden of noncommunicable disease in the country.[4] Recent assessments of the socioeconomic burden of alcohol use in India have reported higher than normal incidence of workplace absenteeism, unemployment and strain on physical health, financial state, personal relationships, and psychological state among alcohol users.[5]

While alcohol use has been widely acknowledged to be detrimental to the personal and professional functioning of a person, alcohol use disorders (AUDs) associated disability remains understudied in the country. Moreover, it is not recognized as a ground for disability certification and benefits. On the other hand, disability certification for people with mental illness is provided to those with specific mental disorders such as schizophrenia, obsessive-compulsive disorder (OCD), bipolar disorder, and dementia. In addition, the National Trust Act recognizes disability associated with autism and mental retardation as well.

Prior international and Indian studies have found an association between alcohol use severity and disability. In a nation-wide survey of the US adult population, alcohol dependence was found to be associated with significant disability, with most impairment seen in social functioning and mental health. Disability caused due to alcohol dependence was comparable to that due to mood and anxiety disorders.[6] A community-based cross-sectional survey in India conducted by Kumar *et al.*[7] indicated a 1-year disability prevalence of 2.3% across various psychiatric diagnoses including AUDs. Assessment of disability in outpatient and community samples of alcohol-dependent individuals have recorded moderate to severe levels of disability.[8] Chaudhury *et al.*[9] found that disability associated with AUD and anxiety disorders was comparable to disability due to OCD. Furthermore, a significant correlation between disability and the severity of AUD was seen. In addition, the quality of life of substance users is known to be severely impaired and alcohol users are no different.[10]

The Indian literature on disability among individuals with AUD is limited to the aforementioned studies. There is a paucity of Indian literature on quality of life among individuals with AUD. Hence, it is imperative to assess the disability associated with AUD systematically in Indian settings. Moreover, it is important to study its correlates as well in this population group. The current study was aimed at assessment of disability and its correlates among individuals with AUDs. In addition, it aimed at assessment of the quality of life among those diagnosed with AUD.

METHODOLOGY

The study was carried out at the National Drug Dependence Treatment Centre, AIIMS, New Delhi. Ethical clearance was obtained from the Institutional Ethics Committee for the current study. The study subjects were recruited by purposive sampling from the inpatient and outpatient settings of the center over a period of 3 months. Male subjects aged between 18 and 60 years and diagnosed with AUD as per the Diagnostic and Statistical Manual, Fifth Edition (DSM-5), meeting criteria for dependence over the past 12 months and accompanied by a caregiver were approached for participation in the study (APA, 2013). Those with comorbid chronic physical and mental illness, moderate to severe withdrawals at the time of assessment and presence of substance use disorder for any other psychoactive substance other than nicotine in the past 12 months were excluded from the study. In addition, those who were not willing to provide written informed consent were excluded. The study was carried out using a cross-sectional observational design. The instrument used for the current study included semi-structured pro forma, DSM-5 criteria for AUD, World Health Organization Disability Assessment Schedule (WHODAS) 2.0, and World Health Organization Quality of Life (WHOQoL) BREF-Hindi version. The quantitative score of AUD as per DSM-5 criteria was recorded to assess the severity of AUD.

Disability measurement

WHODAS version 2.0 (12 + 24 item version) was used to assess the disability among the study subjects (WHO, 2014). Based on the positive response to the initial 12 questions, up to 24 additional questions were asked to assess functioning in the domains of "cognition" (understanding and communicating), "mobility" (getting around), "self-care," "getting along with people," "life activities," and "participation in society." In addition, a set of core questions were asked

to reach the general disability score. Simple scoring technique was used to summate the scores in the core questions section, as well as in the six domains, since it sufficiently described the degree of functional limitation in each domain.

Assessment of quality of life

The WHOQoL BREF-Hindi version 24-item questionnaire was used in the interviewer assessment format to record quality of life measures. The Hindi version by Saxena *et al.* has been widely used and has a mean reliability estimate of 0.89.[11] The questionnaire assesses the quality of life in four domains, namely physical health, psychological health, social relationships, and environment. The 0–100 domain scores are computed from the raw scores recorded for each question using the provided equations.

The questions for disability and quality of life measurement were asked to the caregiver–patient dyad for a more holistic assessment of the disability and quality of life.

Statistical analysis

Data were analyzed using the SPSS version 21.0 (Armonk, NY: IBM Corp.) for descriptive and inferential statistics. Correlation analysis was carried out using Pearson's correlation coefficient for the scores on WHODAS 2.0 and WHOQoL-BREF. Linear regression analysis was carried out to find independent predictors of disability from among the demographic and illness variables. The level of statistical significance was kept at $P < 0.05$ for all the tests.

RESULTS

A total of 62 patients with AUD were included in the present study. The demographic and clinical characteristics of the patients are shown in Table 1.

All the participants were males, majority of whom were married and educated up to 10th grade. About half of the participants were currently employed. A majority of the participants belonged to joint or extended nuclear families and belonged to an urban background. The average number of DSM-5 substance use disorder criteria fulfilled were 8.8 suggesting high severity of substance use disorder. Almost all the subjects (97.8%) met the criteria for severe AUD. All except one participant were currently using alcohol, and a considerable majority were using tobacco.

The disability scores (individual domains and total) and WHOQoL-BREF domain scores are mentioned in Table 2.

Table 1: Demographic and clinical characteristics of the study subjects

Variable	Mean±SD or *n* (percentage)
Age (in years)	32.8±7.4
Gender	
Male	62 (100%)
Marital status	
Currently married	49 (79.0%)
Currently not married	13 (21.0%)
Education	
Up to 10th grade	43 (69.4%)
Above 10th grade	19 (30.6%)
Occupation	
Currently employed	31 (50.0%)
Currently not employed	31 (50.0%)
Family type	
Nuclear	23 (37.1%)
Joint/extended	39 (62.9%)
Residence	
Rural	23 (37.1%)
Urban	39 (62.9%)
Age of onset of alcohol use (in years)	20.5±4.5
Duration of use (in years)	11.9±6.1
Number of DSM-5 substance use disorder criteria met	8.8±1.8
Current alcohol use	61 (98.4%)
Current tobacco use	54 (87.1%)

Table 2: Disability and quality of life scores of the study subjects

	Mean±SD	Median (Range)
WHODAS domains		
Domain 1 – Cognition	6.7±4.0	4 (4-7)
Domain 2 – Mobility	3.1±0.3	3 (3-4)
Domain 3 – Self-care	2.1±0.5	2 (2-6)
Domain 4 – Getting along	4.4±3.3	3 (3-15)
Domain 5A – Household	6.1±4.5	3 (3-15)
Domain 5B – Work	10.7±6.4	8 (5-19)
Domain 6 – Participation	19.6±6.9	21 (6-38)
WHODAS total score	52.8±18.6	48 (26-94)
WHOQoL - BREF domains		
Domain 1 – Physical	49.6±21.5	56 (6-88)
Domain 2 – Psychological	50.6±25.5	56 (0-100)
Domain 3 – Social	53.4±34.6	56 (0-100)
Domain 4 – Environmental	59.0±26.0	63 (0-100)

WHODAS – WHO Disability Assessment Schedule 2.0; WHOQoL-BREF – WHO Quality of Life BREF

Table 3 shows the correlation between the WHODAS domain scores and age, duration of substance use and WHOQOL domains. Duration of substance use had a weak positive correlation with the total disability score and disability domains of cognition and ability to do household work. WHOQOL domains of physical health, social and environment had a negative relationship with the total WHODAS disability scores. Domain wise, WHOQOL physical quality of life correlated

Table 3: Correlation of disability domains with age, duration of use and quality of life domains

	Age	Duration of use	WHOQoL – Physical	WHOQoL – Psychological	WHOQoL – Social	WHOQoL – Environmental
WHODAS Domain 1 – Cognition	0.261 (0.041)	0.319 (0.011)*	−0.201 (0.116)	−0.242 (0.058)	−0.138 (0.284)	−0.258 (0.043)*
WHODAS Domain 2 – Mobility	0.253 (0.047)	0.215 (0.094)	−0.064 (0.622)	−0.192 (0.135)	−0.360 (0.004)*	−0.166 (0.197)
WHODAS Domain 3 – Self-care	-0.152 (0.239)	−0.014 (0.913)	−0.072 (0.579)	0.057 (0.659)	−0.026 (0.840)	−0.164 (0.203)
WHODAS Domain 4 – Getting along	0.063 (0.625)	0.106 (0.410)	−0.248 (0.052)	−0.283 (0.026)*	−0.255 (0.046)*	−0.237 (0.064)
WHODAS Domain 5A – Household	0.150 (0.245)	0.311 (0.014)*	−0.395 (0.001)*	−0.058 (0.657)	−0.104 (0.421)	−0.250 (0.050)
WHODAS Domain 5B – Work	0.261 (0.040)*	0.238 (0.062)	−0.331 (0.009)*	−0.200 (0.119)	−0.238 (0.062)	−0.353 (0.005)*
WHODAS Domain 6 – Participation	0.006 (0.961)	0.075 (0.564)	−0.109 (0.398)	−0.115 (0.374)	−0.188 (0.143)	−0.394 (0.002)*
WHODAS total score	0.226 (0.077)	0.283 (0.026)*	−0.316 (0.012)*	−0.217 (0.090)	−0.251 (0.049)*	−0.410 (0.001)*

*$P<0.05$ WHODAS – WHO Disability Assessment Schedule 2.0; WHOQoL – WHO Quality of Life BREF

negatively with "household" and "work" disability and the WHOQOL psychological domain correlated with "getting along" domain of WHODAS. The social quality of life scores were correlated inversely with mobility scores in disability assessment and environmental quality of life scores were inversely correlated with "cognition," "work," and "participation" disability.

The relationship of WHODAS total scores with other demographic and clinical variables is shown in Table 4. Being not employed currently was related to greater disability.

Linear regression analysis was carried out to find independent predictors of disability. It was seen that being unemployed and greater duration of alcohol use were the independent predictors of greater disability. The model explained 24.8% of the variance [Table 5].

DISCUSSION

The current study measured disability and quality of life of individuals with AUD using standardized instruments. Similar assessments have recorded disability in those with AUDs in a previous study from India.[8] The WHODAS 2.0 measures reveal most impairment in the domains of participation in the society, household, and work-related activities. A high level of disability in the social functioning, which encompasses these aspects, has been demonstrated in past research as well.[9,12,13] Moderate disability in the domains of cognitive functioning has been seen and could be due to cognitive decline associated with long-term alcohol use. Some of the possible reasons for this include severe nutritional deficiency and central nervous system insults due to chronic alcohol use. Difficulty in getting along as reported in the study could be due to experienced stigmatization and social isolation. The domains of mobility and self-care recorded minimal disability as would be expected from a disorder that is not a physical impairment. Self-care has been found to be the least impaired domain among individuals with AUD in a study by Chaudhury *et al.*[9]

as well. The WHO survey on global assessment of disability in various disorders indicated that those with AUDs have a significantly worse outcome in participation and work-related domains when compared with other disorders and the least impairment in self-care and mobility domains.[14]

Correlation of disability domains with sociodemographic and illness variables revealed some significant findings. Older individuals with AUDs have greater impairment in the work domain indicating poor employability and productivity. Moreover, unemployment is associated with higher disability indicating a self-perpetuating process. Longer duration of alcohol use resulted in greater disability, greater loss of cognitive ability, and working capacity highlighting the need for early interventions to mitigate the impact on mental functions and economic costs borne by the individual and his family. This is congruent with previous research from the West that has found higher disability in those with chronic heavy alcohol use.[15]

The quality of life scores as measured by WHOQOL-BREF showed all the four domains to have nearly equal scores with the highest score in the environmental domain. The findings suggested the least impairment in the facets of freedom, physical safety, accessibility to care, and opportunity for acquiring new skills. The least score was recorded in the physical and psychological health domains due to poor physical health, reduced work capacity, negative thought process, and cognitive dysfunction which is similar to the finding of WHODAS 2.0 measures in this sample. Similar to these findings, a survey among alcohol users in a community sample from Karnataka showed that the overall health status was poor among alcohol users.[16] The risk of medical conditions and medical emergencies has been found to be twice as common in alcohol users when compared to the general population.[16] Suicidal ideations and suicide attempts are twice as common when compared to the general population reaffirming the findings of psychological strain. The domain of social relationships had moderate

Table 4: Comparison of WHODAS scores across various domains

Variable	WHODAS score	*t* test (*P* value)
Marital status		
Currently married	51.3 (16.8)	0.999 (0.338)
Currently not married	58.4 (24.2)	
Education		
Up to 10th grade	51.1 (17.9)	1.090 (0.280)
Above 10th grade	56.7 (20.0)	
Occupation		
Currently employed	44.9 (12.1)	3.669 (0.001)*
Currently not employed	60.7 (20.7)	
Family type		
Nuclear	52.9 (18.0)	0.043 (0.966)
Joint/extended	52.7 (20.0)	
Residence		
Rural	49.8 (17.9)	0.975 (0.333)
Urban	54.6 (18.9)	
Tobacco use		
Yes	51.9 (19.0)	1.050 (0.298)
No	59.3 (14.8)	

*$P<0.05$ WHODAS – WHO Disability Assessment Schedule 2.0

Table 5: Linear regression equation for predictors of disability

Variable	Unstandardized β	Standardized β	Significance	Confidence interval of β
Not employed	15.526	0.421	<0.001	7.197-23.855
Duration of alcohol use	0.770	0.254	0.028	0.085-1.456

Model $R^2=0.248$

score suggesting social impairment that correlated with high disability measured in the participation in society and getting along domains of the disability schedule. On the whole, quality of life score is lower among those with AUD than in the general population.[17] Poorer quality of life measures among individual with AUDs in comparison to the general population have been reported earlier in Western studies.[10,18] However, it remains largely unexplored in Indian settings. Johnson *et al.*[19] studied the functional impairment due to AUDs and found that alcohol dependent individuals have greater impairment when compared to other psychiatric disorders as well. On comparison of quality of life scores with disability scores, a modest negative correlation was seen in nearly all comparisons. Previous studies done to assess concurrent validity between the two scales have revealed similar results.[20,21] Significant negative correlation was seen between the work domain of disability schedule and physical health score on quality of life evaluation suggesting that a poor perception of health is associated with a decline in occupational functioning. Similarly, psychological health and social functioning of the person is correlated to getting along with others.

Previous research has shown that quality of life is inversely proportional to the severity of alcohol use.[22] However, this study reported no correlation between severity of AUD and disability measures. A possible explanation for this could be the different methods of assessment of severity used in these studies.

Limitations of the study and future direction
The current study reported findings from a single setting. The findings are reported among only male subjects. Only the treatment seeking population could be targeted in this study due to logistical issues. Moreover, the sampling was purposive due to the logistics. A more comprehensive research would need to target large community samples with varied severity of AUDs. Another limitation is that the responsiveness of WHODAS 2.0 and WHOQOL-BREF scores to treatment could not be measured owing to the cross-sectional nature of the study. The future studies can be planned to be multicentric and make a longitudinal assessment over time to assess the impact of treatment on the domains of disability and quality of life.

CONCLUSIONS

Disability assessment with WHODAS among those with AUD shows a significant impairment across various domains. Disability scores correlate with the quality of life scores as assessed using WHOQOL-BREF. Further research in disability assessment of alcohol users would help in formulating preventive early intervention strategies for specific disabilities. Alcohol control policies need to shift focus from economic issues to the social issues associated with alcohol use.

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Conflicts of interest
There are no conflicts of interest.

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