A comparative study of quality of life among male patients of alcohol dependence syndrome with and without co-occurring depressive disorder in India

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Abstract

Introduction

Alcohol dependence Syndrome (ADS) frequently co-occurs with depressive disorder. Studies on quality of life among patients of ADS with and without co-occurring depressive disorder are limited. The current study aimed to compare quality of life among the two groups and to assess the correlation of severity of alcohol dependence and severity of depression with QOL.

Methods

It was a cross-sectional study with purposive sampling conducted among 60 (30 in each group) inpatient treatment-seeking male patients at a tertiary-level hospital in India. Instruments used included a semi-structured questionnaire, Revised Clinical Institute Withdrawal Assessment for Alcohol scale, Mini-International Neuropsychiatric Interview, Severity of Alcohol Dependence Questionnaire, WHO Quality of Life BREF scale, and Patient Health Questionaire-9. Descriptive statistics, group comparisons, and Pearson's correlation were done.

Results

QOL was significantly poorer in treatment-seeking male patients with ADS with depressive disorder in physical (36.54, 95% CI: 3.95-21.46), psychological (28.55, 95%CI: 16.93-33.34), social (35.64, 95%CI: 0.59-26.46) and environmental (53.85, 95%CI: 4.91-18.96) domains than those without depressive disorder (49.25, 95% CI:3.95-21.46),(53.69, 95% CI:16.93-33.34), (49.16, 95%CI: 0.59-26.46),(65.78 95%CI: 4.91-18.96) respectively. Severity of alcohol dependence was significantly negatively correlated to physical domain of QOL in both the groups (p= 0.001), but it did not differ between two groups. Severity of depression was significantly negatively correlated to physical (p=0.01) & psychological (p=0.04) domains of QOL in patients with ADS with depressive disorder.

Conclusion

Prevention and treatment of alcohol dependence and national alcohol policy in India in the future should focus on early diagnosis and treatment of both depressive disorder and alcohol dependence to improve their quality of life.

Keywords

Alcohol dependence; Depression; Quality of life; WHO-QOL-BREF, Alcohol use disorder

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INTRODUCTION

Alcohol is a major public health problem with 5.1 % of all DALYs globally.[1] Current prevalence of alcohol use disorder(AUD) is 4.6% in India.[2] Among people with AUD, depressive disorders are the most common psychiatric disorders. [3]

Depressive disorder among persons with AUD is associated with greater severity and worse prognosis than either disorder alone,[4-5] including a higher risk for aggression and suicidal behavior.[6] Thus, patients with AUD and depressive disorder have been found to have poorer QOL than the general population[7-8]. However, there is a dearth of literature when comparing QOL among AUD with and without depressive disorder, [9-10] with no similar studies in the Indian context.

Thus, this study aimed to compare the QOL among patients with AUD with and without co-occurring depressive disorder. It assessed the correlations between 1) Severity of alcohol dependence (SAD) and QOL in the two groups, 2)severity of depression (SOD) and QOL in patients of ADS with depressive disorder.

METHODS

Study Design and Setting

It was a cross-sectional, observational study conducted in the inpatient setting of the National Drug Dependence Treatment Centre (NDDTC), All India Institute of Medical Sciences (AIIMS), New Delhi. The data were collected over a period of 6 months between July and December 2015.

Sample Size and Sampling Procedure

A review of previous records at NDDTC showed that around 125 patients of ADS could be expected over six months of data collection period in the centre. The prevalence of depressive disorder in alcohol-dependent individuals was 26-40% based on the previous Indian studies.[11-12] Hence, it was expected to have between 32-50 ADS patients with depressive disorder during the data collection period. Thereby, the sample size of a minimum of 30 patients with ADS with co-occurring depressive disorder and a minimum of 30 patients with ADS without co-occurring depressive disorder was calculated based on feasibility and logistic issues. A purposive sampling method was used.

A total of 60 male patients with ADS including 30 patients without depressive disorder (Group1) and 30 patients with depressive disorder (Group2) were selected. The sample size was calculated based on feasibility and logistic issues using the prevalence data and review of previous records at NDDTC over six months of data collection in the centre. The prevalence of depressive disorder in persons with ADS was 26-40%, based on previous Indian studies. [11-12] A purposive sampling method was used.

Male patients aged 18-60 diagnosed with ADS based on ICD 10 criteria admitted in the NDDTC ward who provided written consent were selected for group 1. For group 2, additionally, the depressive disorder was diagnosed using MINI-6 (ICD-10). Those with dependence on other psycho-active substances except tobacco, with a diagnosis of any other comorbid Axis I psychiatric disorder (current as well as lifetime), and with severe comorbid physical illness that may hamper participation in the study were excluded. MINI was also used to rule out any other comorbid diagnosis.

Once recruited, the participants were assessed during 24-48 hours of inpatient stay with the revised clinical institute withdrawal assessment for alcohol scale (CIWA-Ar). If the CIWA score was less than 10, which denoted absent or minimal withdrawal, the subjects were recruited, written consent was taken, and the procedure was continued. For those with a CIWA score of 10 or more, the assessment was repeated after an hour and those with a score was less than 10 were only included. Ethical clearance was obtained from the ethics committee of the institute (AIIMS, New Delhi) (Ref No: IESC/T-31.21.01.2015).

Measures

We used a semi-structured questionnaire to assess socio-demographic characteristics and clinical details. The CIWA-Ar was used to evaluate alcohol withdrawal symptoms for enrolling participants. The inter-rater reliability of the scale is >0.8.[13] The modified Kuppuswamy scale was used to assess the socioeconomic status of the urban Indian population. The advantages of this instrument are that it is easy to administer, requires a short amount of time, and is well-validated.[14] Mini-International Neuro-psychiatric Interview (MINI) is a short, structured diagnostic instrument designed to diagnose 16 psychiatric disorders based on DSM-IV-TR and ICD-10. Its sensitivity is 0.70, and specificity and negative predictive value are above 0.80 across all diagnoses.[15] Severity of Alcohol Dependence Questionnaire (SADQ) was used to measure the severity of alcohol dependence. It has 20 items with a total score range from 0-60, where 0-3 indicates no dependence, 4-19 mild dependence, 20-30 moderate dependence, 31-44 severe dependence, and 45 very severe dependence. It has high test-retest reliability 0.55-0.82 and good evidence of construct validity.[16] The validated Hindi version of Patient Health Questionaire-9 (PHQ-9), a self-rated scale with nine items, was used to grade depressive symptom severity.[17] The total score range is from 0-27, where 1-4 indicate no depression, 5-9 indicate mild depression, 10-14 moderate depression, 15-19 moderately severe, and 20-27 severe depression. It has a sensitivity of 84% and a specificity of 72% .[18] World Health Organization-Quality of Life - Brief Version - Hindi (WHOQOL- BREF Hindi) was developed by Saxena et al. (1998).[19] This international, generic, self-administered questionnaire has 26 items and measures four domains of QOL, i.e., physical, psychological, social, and environmental. The raw scores from 26 items are converted to 0–100, with higher scores indicating better QOL. Permission was taken to use all the above scales.

Statistical Analysis

Data analysis was carried out using SPSS version 21. Shapiro Wilk W test was used to check the normal distribution of the data. The two study groups were compared using the chi-square test or Fisher's test (categorical variables), independent sample t-test, and Mann-Whitney U test (continuous variables). Analysis of covariance was used to assess the difference between the two groups on QOL after

adjusting for education, duration of dependence, and physical comorbidity. The correlations were computed using Pearson's correlation coefficient. The level of statistical significance was kept at p< .05 for all the tests.

RESULTS

To meet the estimated sample size, out of 166 screened patients, 65 were ineligible for the study. Among 101 eligible patients, to fulfil the sample size, 30 ADS with depression and 30 ADS without depression were included. Hence, 41 patients with ADS without depression were not included. The participation rate was 60/164= 36.6%.

Socio-demographic and Clinical Characteristics

The mean age of the patients with ADS without depressive disorder (group 1) was 37.6 ±7.6 years, and that of patients with ADS with depressive disorder (group 2) was 40.1 ± 8.7 years. The two groups did not differ in terms of age (p=0.24), marital status (p=0.52), occupational status (p=0.53), religion (p=0.99), residence (p=0.35), type of family (p=0.13), employment status (p=0.39) and social status (0.91) except in education (p=0.02) (Table1). Further, there was no significant difference between the two groups in the family history of psychiatric illness in first-degree relatives (p=0.99), family history of alcohol dependence in first-degree relatives (p=0.99), and type of alcohol (p=0.68) (Table 1). However, 36.7% of those without depressive disorder reported physical comorbidities like diabetes mellitus, hypertension, tuberculosis, and seizures, significantly more than 10% of those with co-occurring depressive disorder (p=0.03).

The majority of the patients in both groups used Indian-made foreign liquor. The mean age of onset of alcohol use was similar for both groups, i.e., for those without depressive disorder, it was 21.5± 6.7 and 21.9± 5.3 for those with depressive disorder. For those without depressive disorder, the median duration of dependence was 7.8 years, which was significantly higher than those of group 2, i.e., 5.3 years (p=0.04). The groups did not differ in other variables, including onset of drinking alcohol (p=0.78), total duration of alcohol intake (p=0.47), significant abstinent attempts (p=0.51), number of past hospitalizations (p=0.11), age of onset of tobacco intake (p=0.59), type of tobacco (p=0.48) and ever use, past 1-year use and past three months use of either of the substances which were tobacco (p=0.99), cannabis (p=0.99) and benzodiazepine (p=0.41; 0.23; 0.53 respectively).

Table 1: In between group comparison on sociodemographic profile and clinical profile, including substance use profile of the patients in ADS with (n=30) and without depressive disorder (n=30) groups

Variable	ADS without depressive disorder (n=30)	ADS with depressive disorder (n=30)	χ^2/Fisher's (df);p-value
Age (in years)	37.6 ±7.6	40.1 ±8.7	-1.19(58); 0.24
Education			
Illiterate/Primary/Middle	12(40.0)	5(16.7)	
Higher/Intermediate	6(20.0)	16(53.3)	7.86(2); 0.02*
Graduate/postgraduate	12(40.0)	9(30.0)	
Marital status			
Married	26 (86.6)	22 (73.3)	
Unmarried	2 (6.7)	3 (10.0)	1.82(2); 0.52a
Divorced or separated	2 (6.7)	5 (16.7)	
Occupational status			
Professionals/Semi-professionals	9 (30.0)	5 (16.7)	
Clerical/ Shop owner	6 (20.0)	10 (33.3)	
Semi-skilled/Skilled worker	7 (23.3)	8 (26.7)	2.28(3); 0.53
Unskilled worker/ Unemployed	8 (26.7)	7 (23.3)	
Religion			
Hindu	28(93.3)	29(96.7)	
Muslim/ Sikhism	2(6.7)	1(3.3)	0.35(1), 0.99a
Residence			
Urban	26 (86.7)	29 (96.7)	
Rural	4 (13.3)	1 (3.3)	1.96(1), 0.35
Type of family			
Alone	2 (6.7)	4 (13.3)	
Nuclear	9 (30.0)	16 (53.3)	
Extended	4 (13.3)	1 (3.3)	1.96(1), 0.35
Joint	15 (50.0)	9 (30.0)	
Employment Status			
Employed (full time)	19 (63.3)	16 (53.3)	
Employed (part time)	5 (16.7)	3 (10.0)	2.23(8); 0.39
Unemployed	6 (20.0)	11 (36.7)	
Socioeconomic status			
UMSES	4 (13.3)	3 (10.0)	
LMSES	13 (43.3)	14 (46.7)	0.18(2); 0.91
ULSES/LSES	13 (43.3)	13 (43.3)	
Family history of dependence in first-degree relative			
Yes	13 (43.3)	13 (43.3)	
No	17 (56.7)	17 (56.7)	0.0(1);0.99
Physical comorbidity			
No	19 (63.3)	27 (90.0)	
Yes	11 (36.7)	3 (10.0)	5.96 (1); 0.03*
Family history of psychiatric illness in first -degree relative			
Yes	1 (3.3)	1 (3.3)	
No	29 (96.7)	29 (96.7)	0.99a
Type of alcohol			
CML	13 (43.3)	11 (36.7)	
IMFL	16 (53.3)	16 (53.3)	0.68a
Beer	1 (3.3)	1 (3.3)	
Age of onset of drinking alcohol (years)	21.5 (6.7)	21.9 (5.3)	-0.29(58); 0.78
Total duration of alcohol use (years)	16.8 (8.4)	18.2 (7.8)	-0.73(58); 0.47
Duration of Dependence (years)	5.3(3.4-8.5)	7.8 (5-14.3)	314.50; 0.04*

Variable	ADS without depressive disorder (n=30)	ADS with depressive disorder (n=30)	χ2/Fisher's (df);p-value
Significant abstinent attempts	1 (1-3)	1(0-2)	406.50; 0.51
Tobacco ever use/ past 1-year use/past 3 months use			
Yes	28 (93.3)	27 (90)	0.99ᵃ
No	2 (6.7)	3 (10)	
Type of tobacco			
Smoking	11(39.3)	15(55.6)	1.68(2);0.48
Smokeless	10(35.7)	6(22.2)	
Both	7(25.0)	6(22.2)	
Age of onset of tobacco intake	(n=28)	(n=27)	0.54(53);0.59
	19.3(7.2)	20.3(6.9)	
Cannabis ever use/ past 1-year use/past 3 months use			
Yes	28 (93.3)	27 (90)	0.99ᵃ
No	2 (6.7)	3 (10)	
Benzodiazepine past 3months use			
Yes	8(26.7)	12(40.0)	0.88(1); 0.53
No	22(73.3)	18(60.0)	
Benzodiazepine past 1-year use			
Yes	5(16.7)	Yes	5(16.7)
No	25(83.3)	No	25(83.3)
Benzodiazepine ever use			
Yes	5(16.7)	Yes	5(16.7)
No	25(83.3)	No	25(83.3)

*Note: a Fisher's test; * p<0.05; UMSES: Upper middle socioeconomic status, LMES: Lower middle socio-economic status; ULSES: upper lower socioeconomic status; LSES: Lower socioeconomic status, IQR: Interquartile range; S.D.: Standard Deviation; IMFL: Indian made foreign liquor; CML: Country made liquor; * p<0.05*

In group 2, most patients had a single depressive episode (83.3%). The median value of the duration of the current depressive episode was ten weeks. Half of them had moderate depression(Table 2).

Table 2: Profile of patients of ADS with depressive disorder group (n=30)

Variable	Minimum	Maximum	Frequency (%), Median (IQR)
Duration of the current depressive episode (weeks)	2	104	10(4-22)
Number of depressive episodes	1	5	1(1.0-1.0)
Number of depressive episodes			
1	-	-	25(83.3)
Equal to or more than 2	-	-	5(16.6)
PHQ-9 Score			
Severity of current depressive episode:			
Mild			2(6.7)
Moderate			15(50.0)
Moderately severe			9(30.0)
Severe			4(13.3)
Total PHQ-9 Score	9	27	15(4.5)

Note: IQR: Interquartile range, PHQ: Patient Health Questionnaire

Comparison of quality of life (QOL) and severity of alcohol dependence (SAD) between the two groups

Most of the patients with ADS without depressive disorder (group 1) had a moderate level of alcohol dependence (30.0%), and those with alcohol dependence syndrome without depressive disorder (group 2) had a severe level of alcohol dependence (40.0%). However, there was no significant difference in SAD between the two groups (p=0.57), even on being adjusted for the variables. When education, duration of dependence, and physical comorbidity, which differed significantly between the two groups, were introduced in the model as covariates, QOL remained poor in group 2 when compared with group 1 in all the domains, i.e., physical (p=0.005), psychological (p=0.001), social(p=0.041) and environmental(p=0.001) domains, and the psychological domain was the most affected, and environment domain scored the least (Table 3, Figure 1).

Table 3: Analysis of covariance of SADQ scores and WHOQOL BREF scores between patients in ADS with (n=30) and without depressive disorder group (n=30) using education, duration of dependence and physical comorbidity as covariates

Variable	ADS without depressive disorder Mean ±S.D	ADS without depressive disorder Mean ±S.D	Mean difference (95% CI lower, upper)	p-value
SADQ Score1	31.64 (2.23)	29.76 (2.29)	1.88 (-4.66,8.41)	0.57
SADQ score range				
Mild	7(23.3)	6(20.0)		
Moderate	9(30.0)	8(26.7)		
Severe	7(23.3)	12(40.0)		
Very severe	7(23.3)	4(13.3)		
SADQ Score1				
Physical Domain	49.25 (2.98)	36.54(2.98)	12.71 (3.95, 21.46)	0.005**
Psychological Domain	53.69 (2.79)	28.55(2.79)	25.14 (16.93, 33.34)	<0.001***
Social Domain	49.16 (4.41)	35.64 (4.41)	13.53 (0.59, 26.46)	0.041*
Environmental Domain	65.78 (2.39)	53.85 (2.39)	11.93 (4.91, 18.96)	0.001**

*Note: S.D.: Standard Deviation; SADQ: Severity of alcohol dependence; WHO-QOL-BREF: WHO-Quality of Life- Brief Version * p<0.05; ** p<0.01; ***; p<0.001, 1 adjusted for education, duration of dependence and physical comorbidity*

Figure 1: Quality of life measures of the patients of ADS with depressive disorder (N=30) and without depressive disorder groups (N=30)
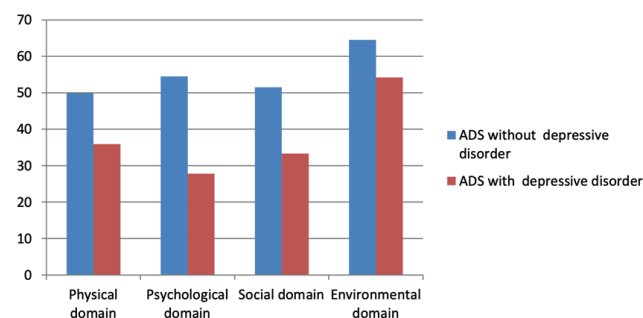
CORRELATIONS

SAD was significantly negatively correlated to the physical domain of QOL in both groups (r=-0.58, p= 0.001). The severity of depression (SOD) was significantly negatively correlated to the physical (r=-0.57, p=0.01) & psychological (r=-0.38, p=0.04) domain of QOL and positively correlated with SAD (r=0.39, p=0.04) in group 2 (Table 4).

Table 4: Pearson's correlation analysis between severity of alcohol dependence, severity of depression and domains of quality of life of patients in ADS with (n=30) and without depressive disorder (n=30) groups

Variable	ADS without depressive disorder	ADS with depressive disorde	
	SADQ	SADQ	PHQ-9
Physical Domain	-0.58 (0.001)**	-0.58(0.001)**	-0.57 (0.01)*
Psychological Domain	-0.35 (0.05)	-0.18 (0.33)	-0.38 (0.04)*
Social Domain	-0.35 (0.06)	0.06 (0.74)	-0.03 (0.89)
Environmental Domain	-0.07 (0.72)	-0.12 (0.54)	0.004 (0.98)
SADQ	-	-	0.39 (0.04)*

Note: *** p<0.001; ** p<0.01; * p<0.0; SADQ: Severity of alcohol dependence; PHQ: Patient Health Questionnaire; WHO-QOL-BREF: WHO-Quality of Life- Brief Version

DISCUSSION

To the best of our knowledge, the present study is the first study designed to assess and compare QOL among patients with ADS with and without depressive disorder in an Indian setting. The QOL was significantly poorer in treatment-seeking male patients with ADS with depressive disorder in all domains of the WHOQOL-BREF scale compared to those without depressive disorder after adjusting the covariates. SADQ score was significantly negatively correlated to the physical domain of QOL in both groups. PHQ-9 score was significantly negatively correlated to the physical and psychological domains of QOL in patients with ADS with depressive disorder.

The differences in the scores of QOL between the two groups was in congruence with previous studies done by Saatcioglu et al. (2008) in the Turkish population and by Huang et al. (2021) in China, where they used WHO-QOL-BREF scale and Medical Outcome Study 36-Item Short Form Health Survey (SF-36) respectively.[9-10] In our study, patients with depressive disorder had poorer QOL than those without, suggesting a possible role of depression for poor QOL in ADS. Further, when we compare our WHO-QOL-BREF scores with that of a study carried out by Saatcio-

glu et al.(2008), their QOL scores in all four domains were much lower compared to ours.[9] Similarly, our scores are higher than that of other Indian studies conducted among alcohol users and ADS.[20-22] Dayal and Kaloiya (2024) conducted a study among AUD in our hospital and also reported that QOL scores in psychological, social, and environmental domains were lower than ours, except physical domain, which was higher.[23] The discrepancies in the results can be explained by differences in methodologies, such as study setting i.e., community study, and time frame of the assessment.[20-22] Similarly, the study groups are heterogeneous, unlike our study, and withdrawal state have not been considered.[20-23] Information on alcohol use profile and severity of alcohol dependence are not available.[22-23] So, we cannot compare the results of our study with theirs. Similarly, Dayal and Kaloiya (2024) had more stable participants than ours i.e. those with CIWA score <7, which could have resulted in a better physical domain of QOL than ours.[23]

In our study, the psychological domain was the most affected. This finding was similar to a previous study.[8] However, this is contrary to the results from a similar study done by Saatcioglu et al. (2008) who reported that the social domain was the most affected followed by psychological.[9] Majority of the divorced and singles, those unemployed and living alone were included in their ADS with depression group unlike in our study. Also, patients were assessed after 2 weeks of detoxification in inpatient settings, which could have led to poor social domain.

SOD was significantly negatively correlated to the physical and psychological domains of QOL in patients with ADS with depressive disorder. It is in line with previous studies done in Western countries among ADS patients with substances and psychiatric comorbidities, including depression, and in Asian countries.[8-9,24-25] Our findings of the negative correlation highlight the importance of identifying depressive disorder early among ADS patients and designing interventions to reduce the SOD so that we can uplift their QOL.

SAD was significantly negatively correlated with the physical domain of quality of life in both groups. Our result confirmed the findings of previous studies in alcohol-dependent individuals.[8,9,25,27] Similarly, SAD predicted physical, psychological, and environmental domains of QOL among the Indian population.[21] On the contrary, some studies did not find a significant correlation between SAD and QOL domains.[22,27] This may be because the drinking pattern and clinical profile of the participants differed from ours. There

is an utmost need to intervene in alcohol-dependent individuals' right at the initiation so that they do not progress to severe dependence and have poor QOL.[27]

The SOD positively correlated with SAD in the current study. This result was contrary to the previous study, which had a small sample size (n=14) and a different scale (Hamilton Depression Rating Scale) than ours.[28] Various mechanisms explain the bidirectional association of these two disorders, like self-medication to mitigate negative affect, shared genetic vulnerability, and extensive socio-occupational dysfunction.[4,5] In India, studies conducted in various states in hospital settings show that depression commonly occurs with AUD.[21,29] However, the treatment gap remains large for AUD (86.3%) and common mental disorders (83%).[2] These findings impart importance to focus on dual diagnosis, especially depression co-occurring with AUD in India. Moreover, QOL has not been addressed holistically in AUD guidelines nor in state policies in India yet. There is no comprehensive national policy on alcohol in India.[30] Hence, treatment and policies in India should cater to the needs of alcohol-dependent individuals to improve and promote their QOL by focusing on early diagnosis and treatment of both alcohol addiction and depressive disorder.
Limitations & strengths

Admitted male patients from urban areas studied in a tertiary hospital setting with purposive sampling limit the generalizability of the findings. We cannot determine the direction of causality because of the cross-sectional design. Medical comorbidity and other substance use disorders were excluded based on verbal reports without using investigations. The sample size is relatively small due to logistics and time constraints and the sample collection time frame was 2015. Further, sample size calculation could have been done in a better way. Similarly, we used PHQ-9 scale to classify the severity of depression. WHQOL-BREF captures the QOL of the past two weeks and the results should be interpreted with respect to past 2 weeks duration only. It may not be the ideal QOL measure for the ADS population. We did not study various confounding factors, such as the use of treatment, comorbid liver diseases, withdrawal state in the past, pattern of alcohol use, amount of alcohol use, level of cognition, or personality disorders except antisocial; neither did we exclude nicotine dependence. However, we believe that multiple strengths offset these limitations. We excluded other substance dependence except for nicotine dependence and all comorbid axis-1 psychiatric diagnoses other than depressive disorder. We assessed within 24-48 hours of inpatient stay so that hospital stay does not hamper their QOL, and we could capture their QOL in their natural setting. Patients were excluded if experiencing moderate to severe withdrawal symptoms as withdrawal state can hamper their self-report. Standardized and valid instruments, which were self-reported were used.

CONCLUSION

In conclusion, QOL was significantly poorer in treatment-seeking male patients with ADS with depressive disorder in all domains than those without co-occurring depressive disorder. SAD was significantly negatively correlated to the physical domain of quality of life in both groups. The SOD was significantly negatively correlated with the physical and psychological domains of QOL in patients with ADS with depressive disorder. Therefore, prevention and treatment of alcohol dependence and national alcohol policy in the future should focus on early diagnosis and treatment of both depressive disorder and alcohol dependence to improve their quality of life.

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