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Original Article

Comparative Analysis of Quality of Life in Non-Alcoholic Controls Versus Individuals With Alcohol Use Disorder

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Abstract

Background and aims: Alcohol addiction affects various aspects of life, including physical health, mental well-being, and social relationships. This study aimed to identify which domains of the quality of life (QOL) are mostly influenced in individuals with alcohol addiction compared to non-alcoholics. Understanding these effects is crucial for developing effective public health strategies to improve the well-being of those affected by alcohol addiction.

Methods: This case-control observational study included 30 male alcoholics and 30 non-alcoholics. After obtaining ethical approval and participant consent, general socio-demographic data were collected from Jaipur in 2020. Then, addiction was assessed using the Alcohol Use Disorders Identification Test, and QOL was measured with the World Health Organization QOL-BREF. Finally, the data were analyzed using MS Excel and Primer 7, with unpaired t-tests for continuous variables and chi-square tests for categorical variables ($P<0.05$).

Results: Alcoholics were often uncertain about their QOL, while non-alcoholics generally rated it as good. The mean QOL score was 75.8 and 65.29 for the control and alcoholics. No significant difference in general health was found between the groups. However, there were considerable differences ($P<0.001$) in psychological health and environmental domains.

Conclusion: Overall, psychological and social aspects of QOL are more significantly affected by moderate alcohol addiction than physical health. Accordingly, policymakers should focus on enhancing the mental and social well-being of alcoholics.

Keywords: Alcoholics, Mental health, Psychological well-being, Public health, Quality of life

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Introduction

Alcohol addiction is a prevalent and multifaceted issue that significantly impacts individuals' lives, especially their physical health and the overall quality of life (QOL). According to evidence, the overall prevalence of alcohol use disorders (AUDs) is 12.5% in the Indian setting (1). QOL is a complex and subjective concept encompassing various domains, such as physical health, mental well-being, social relationships, and environmental factors (2). Assessing QOL in the context of alcohol addiction is crucial, as the consequences of chronic alcohol consumption extend beyond medical implications, affecting one's daily functioning and overall life satisfaction.

Heavy alcohol consumption is linked to health issues, including liver disease, cardiovascular problems, and weakened immune function (3). Those with AUD frequently grapple with mental health issues, such as depression and anxiety, diminishing their QOL. Co-existing mental health disorders can worsen the negative effects on overall well-being (4). Alcohol dependence is associated with impaired social functioning, strained relationships, and diminished social support, thereby impacting overall well-being (5). Economic hardships and job instability are common among individuals with AUD, further reducing their QOL through financial strain and decreased life satisfaction (6).

Numerous studies have investigated the impact of alcohol on health and well-being, emphasizing its role in the development of physical and mental health disorders (7-9). Nonetheless, a comparative analysis is crucial to understand the nuanced challenges individuals with alcohol addiction face compared to non-alcoholic controls. Tailored interventions, treatment plans, and public health initiatives can be developed by identifying specific domains of diminished QOL. This approach aims to provide valuable insights to address the unique struggles of individuals with alcohol addiction, ultimately enhancing their overall well-being.

Materials and Methods

A case-control observational study was conducted, involving 30 male alcoholics and 30 age- and gender-

matched healthy controls. Ethical clearance (352/MC/EC/2020) and informed written consent were obtained from the institution and all participants, respectively. The inclusion criteria for the case group consisted of male participants aged between 25 years and 50 years who were identified as alcoholics, with an AUD Identification Test (AUDIT) score greater than seven (10). For the control group, healthy non-alcoholic males within the same age range (25–50 years) were selected. On the other hand, the exclusion criteria for both cases and controls included the presence of any addiction other than alcohol, neurological and psychotic illnesses, and current use of any drugs or treatment.

Sample Size

The sample size was calculated at a 95% confidence level with an α error of 0.05, assuming a standard deviation (SD) of 18.7 and a minimum difference of means of 24 in theta wave absolute power in AUD (11). For 90% power, the required sample size was 24 per group, but 30 participants were included in each group (case and control) for this study.

Study Tools

A pre-designed proforma was utilized for data collection, which was introduced to and completed by the patients. In cases where patients could not read or write Hindi with understanding, their companion or investigator assisted in filling out the proforma in accordance with the patient's information and in their presence. The proforma consisted of three parts:

Part I: This section contained introductory data on all participants, including detailed history and examinations (i.e., name, age, address, any neurological or psychological illness, history of head injury, and history of addiction other than alcohol).

Part II. The AUDIT was administered to alcoholic subjects to assess addiction with high internal validity and reliability (Cronbach's alpha index of 0.85 and 0.78, respectively) (12). Scores above seven indicated AUD. AUDIT, developed by the World Health Organization (WHO), is a screening tool used to identify hazardous, harmful, and high-risk alcohol consumption patterns. It consists of 10 questions, with responses scored from 0 to 4 (some have a score range of 0, 2, 4). The total score, ranging from 0 to 40, represents the level of alcohol-related risk, with higher scores suggesting greater risk.

AUDIT scores are categorized as follows:

- Hazardous level (8–15): 22 subjects
- Harmful level (16–19): 8 subjects
- High-risk level (more than 20): no subjects

Part III. This section included a questionnaire assessing the QOL, completed by both cases and controls. The Hindi version of the proforma was used for the investigation.

QOL was measured using the WHOQOL-BREF (2), a validated self-assessment questionnaire with 26 items across four domains (Figure 1): physical health (7 items), psychological health (6 items), social relationships (3 items), and environment (8 items), along with a general evaluative aspect (overall QOL and general health: 2 items). Each questionnaire item was rated on a five-point Likert-type scale, and the total scores were calculated, with higher scores indicating better QOL. Raw scores in each domain were transformed into a 0–100 scale, comparable with WHOQOL-100. It shows acceptable construct and content validity, having been developed cross-culturally,

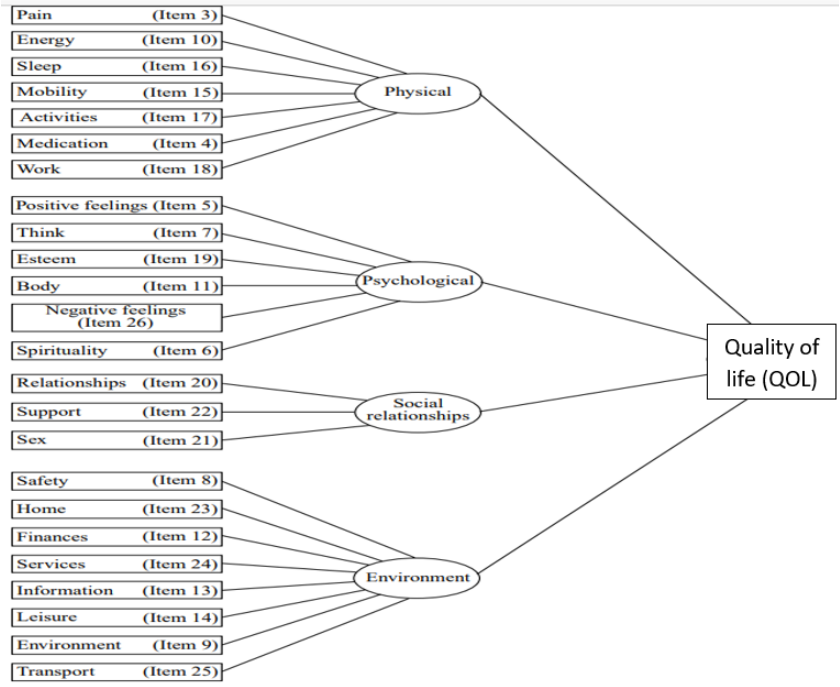

Figure 1. Four-Domain Confirmatory Factor Analysis Model of the WHO
Note. WHO: World Health Organization

and demonstrates strong internal consistency (Cronbach's alpha typically between 0.70 and 0.90) and test-retest reliability (intraclass correlation coefficient > 0.75), making it suitable for diverse populations and research settings.

Outcome Analysis

The obtained data were entered into an MS Excel sheet, and all statistical analyses were conducted using Primer statistical software (version 7). Categorical variables were presented as percentages and proportions and analyzed using the chi-square test. Continuous variables were expressed as means and SD and analyzed with an independent t-test. A *P*-value of ≤ 0.05 was considered statistically significant.

Results

The sample population age ranged from 25 years to 50 years for both non-alcoholic controls and alcoholic cases. All study participants were male and belonged to an urban locality. In this study, the scores of 21 and 9 subjects on AUDIT were at the hazardous and harmful levels, respectively, while none of them obtained a high-risk score on the test. When the perception of QOL was asked from participants, the majority of controls felt good, while the cases (alcoholics) were unable to assess their QOL, as they mentioned neither good nor bad. On the other hand, both cases and controls felt good about their quality of health, as the majority (≈ 60%) of participants belonged to the good health group. The difference in QOL and health was non-statistically significant (Table 1, Figures 2 and 3).

The different domains of quality-of-life study participants were distributed according to modified scores (scale from 0 to 100) of the domains from the quality-of-life questionnaire (WHOQOL-BREF) with 26 items. In all domains, the control showed good QOL scores compared to the cases (alcoholic), but a noticeable difference was found only in the psychological health and environment domains. Based on the mean scores, the overall QOL was also significantly affected in alcoholics ($P = 0.006$, Table 2).

Test of Significance: Independent t-Tests

Table 3 elucidates the association of QOL with different domains, particularly for those categorized as having fair and good QOL. The variation in scores across domains highlights the multidimensional nature of QOL and the importance of considering various factors, including physical, psychological, and social well-being, in assessing overall QOL among individuals with AUDs.

There was no statistically significant difference between the hazardous and harmful groups across all four QOL domains ($P > 0.05$ for all). Figure 4 depicts the correlation between the AUDIT score and various QOL domains as follows:

- Domain 1 (Physical Health): $r = -0.16$, $P = 0.405$, denoting a slight negative correlation, not statistically significant.
- Domain 2 (Psychological Health): $r = -0.55$, $P < 0.001$, indicating a statistically significant, moderate negative correlation.
- Domain 3 (Social Health): $r = -0.23$, $P = 0.231$, demonstrating a weak negative correlation, not statistically significant.
- Domain 4 (Environmental Health): $r = -0.50$, $P = 0.005$, showing a statistically meaningful, moderate negative correlation.

It is noteworthy that higher AUDIT scores (i.e., more alcohol-related problems) are generally associated with lower QOL scores, particularly in Domain 2 (psychological health) and Domain 4 (environment).

Discussion

The findings of this study shed light on the intricate relationship between alcohol consumption and QOL among male urban dwellers aged between 25 years and 50 years. Our study revealed notable differences in the perception of QOL between non-alcoholic controls and alcoholic cases, particularly in terms of psychological health and environment domains. While the majority of controls reported feeling good about their QOL, alcoholic cases struggled to categorize their QOL, often expressing ambiguity by stating it as neither good nor bad. This suggests that alcohol consumption may have a considerable impact on one's perception of their overall well-being, especially in subjective domains, such as psychological health.

This result aligns with the findings of previous studies, indicating that alcohol consumption can negatively affect well-being, particularly in psychological health and environmental satisfaction (2, 13). Luk et al analyzed data

Table 1. Comparison of Perception of QOL and Health Among Cases and Controls

Grading	QOL Number (%)		Quality of Health Number (%)	
	Controls (n = 30)	Cases (n = 30)	Controls (n = 30)	Cases (n = 30)
Poor	0 (0)	3 (10)	0 (0)	1 (3.3)
Neither good nor bad	12 (40)	18 (60)	3 (10)	5 (16.6)
Good	14 (46.6)	8 (26.6)	20 (66.6)	18 (60)
Very good	4 (13.3)	1 (3.3)	7 (23.3)	6 (20)
Chi-square test	7.636 (df = 3) $P = 0.070$		1.682 (df = 3) $P = 0.878$	

Note. QOL: Quality of life; Test of significance: Chi-square test; df: Degree of freedom.

Figure 2. Comparison of QOL in Cases (Alcoholic) and Controls
Note. QOL: Quality of life

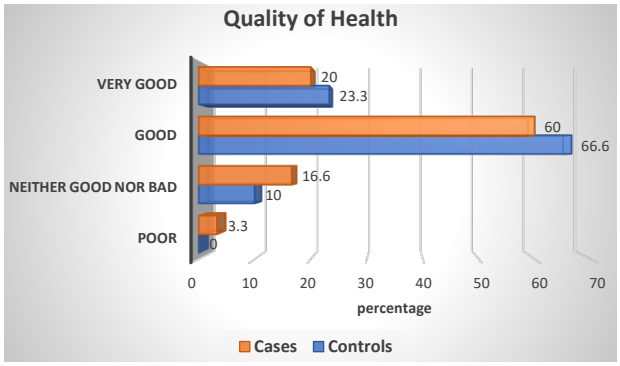

Figure 3. Comparison of Quality of Health in Cases (Alcoholic) and Controls

Table 2. Comparison of Different Domains of Quality of Life in the Case and Control Groups

Domains of QOL	Control (n = 30) (Mean ± SD)	Cases (n = 30) (Mean ± SD)	*P*-Value
Domain 1 (physical health)	78.23 ± 12.97	75.7 ± 7.85	$P = 0.264$
Domain 2 (psychological health)	75.5 ± 11.37	65.3 ± 10.84	$P < 0.001$
Domain 3 (social relationship)	78.6 ± 16.877	73.13 ± 11.96	$P = 0.153$
Domain 4 (environment)	67.8 ± 13.27	47.4 ± 13.08	$P < 0.001$
Average scores	75.807	65.29	
QOL	3.73 ± 0.68	3.23 ± 0.67	$P = 0.006$
General health	4.1 ± 0.56	3.97 ± 0.71	$P = 0.434$

Note. QOL: Quality of life; SD: Standard deviation.

Table 3. Comparison of QOL Domain Scores Between Hazardous and Harmful Alcohol Use Groups Based on AUDIT Categorization

Domains of QOL	AUDIT Score Categories				*P*-Value
	Hazardous Level (n = 22)		Harmful Level (n = 8)		
	Mean	SD	Mean	SD	
Domain 1 (physical health)	76.45	8.14	73.5	6.54	0.366
Domain 2 (psychological health)	67.45	9.20	59.38	12.66	0.065
Domain 3 (social relationship)	72.73	10.63	74.25	14.99	0.759
Domain 4 (environment)	49.00	12.13	43	14.53	0.265

Note. QOL: Quality of life; AUDIT: Alcohol Use Disorders Identification Test; SD: Standard deviation. Test of significance: Independent t-tests.

from 1,095 adults, finding an inverse association between AUD and QOL, notably in physical, psychological, and environmental domains (13). Similarly, Saatcioglu et al observed lower scores in alcohol-dependent patients with depression across various subscales (14). These findings highlight the detrimental impact of alcohol on well-being, underscoring the need for intervention.

Interestingly, despite the disparities in perceived QOL, both cases and controls exhibited similar perceptions regarding their overall health, with approximately 60% of participants reporting good health. This demonstrates that while alcohol consumption may affect one's subjective perception of well-being, it may not necessarily correlate with their objective health status. This finding is in line with the results of previous research, indicating that individuals with AUDs may underestimate the negative impact of alcohol on their health due to denial or lack of insight (15).

Notably, the psychological and social domains exhibited the highest variation among alcoholic subjects, underlining the complex interplay between alcohol use and psychosocial well-being. Conversely, other research reported that exposure to various forms of stress is correlated with subsequent alcohol consumption. This indicates the significance of the psychological and psychiatric repercussions of stress, serving as pivotal mechanisms contributing to individual disparities across all realms of mental health (16).

Our findings also revealed a statistically significant difference in overall QOL between alcoholic cases and controls based on mean scores, further emphasizing the detrimental impact of alcohol consumption on overall well-being. Similarly, Costenbader et al noted that the QOL was significantly lower among alcoholics than in the normal population (17). The most important factors negatively influencing QOL were heavy ethanol drinking and methamphetamine use. Conversely, Foster et al found a non-robust association between the patient and physician evaluations of QOL; depression, anxiety, and sleep were important components of QOL in ethanol

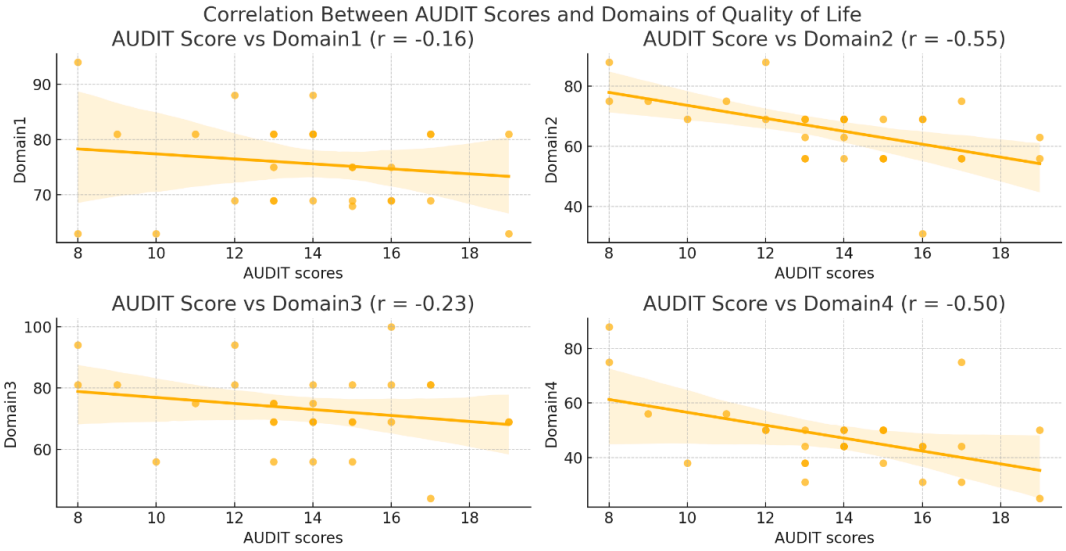

Figure 4. Correlation Between the AUDIT Score and QOL Domains
Note. QOL: Quality of life; AUDIT: Alcohol Use Disorders Identification Test

dependence (18).

Limitations of the Study

This study had several limitations. It included only subjects with hazardous (AUDIT scores of 8–15) and harmful (AUDIT scores of 16–19) levels of alcohol use, with no participants in the high-risk category (AUDIT scores ≥ 20). Additionally, the study was limited to 30 male subjects, with no female participants, and the overall sample size was small.

Conclusion

The present study underscores the need to approach alcohol consumption not only as a health issue but also from a broader quality-of-life perspective. Our findings revealed that alcoholics experience more significant impacts on psychological, environmental, and social aspects of their lives compared to their physical health. Although none of the participants were classified as high-risk, those with moderate addiction levels exhibited notable effects on mental and social well-being. Therefore, policymakers should focus on improving the mental and social health of individuals with AUDs. By appreciating the intricate relationship between alcohol use and various quality-of-life domains, healthcare providers, community organizations, and policymakers can devise strategies in order to enhance the overall well-being of those affected by alcohol addiction.

Authors' Contribution

Conceptualization: Anuradha Yadav.
Data curation: Mohammed Rashid Khan.
Formal analysis: Anuradha Yadav and Preeti Sharma.
Investigation: Anuradha Yadav, Mohammed Rashid Khan, Preeti Sharma.
Methodology: Anuradha Yadav, Mohammed Rashid Khan, Preeti Sharma.
Project administration: Anuradha Yadav.
Resources: Anuradha Yadav.
Software: Anuradha Yadav and Preeti Sharma
Supervision: Anuradha Yadav
Validation: Anuradha Yadav
Visualization: Anuradha Yadav
Writing-original draft: Anuradha Yadav, Mohammed Rashid Khan, and Preeti Sharma.
Writing-review & editing: Anuradha Yadav, Mohammed Rashid Khan, and Preeti Sharma.

Competing Interests

The authors declare they have no conflict of interests to disclose.

Ethical Approval

Ethical clearance (352/MC/EC/2020) was obtained from the institution, and all participants signed written informed consent.

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