



Psychometric Properties of the Persian Version of the Health-Related Quality of Life for Drug Abusers (HRQoLDA) Test

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Abstract

Introduction: The Health-Related Quality of Life for Drug Abusers (HRQoLDA) test was specifically developed to assess the quality of life of people who use psychoactive substances. This study aimed to translate and culturally adapt the HRQoLDA into Persian and to evaluate its psychometric properties.

Methods: In 2022, a cross-sectional study was conducted on 200 individuals who used psychoactive substances and were receiving treatment at centers in Gilan Province, Iran. Participants completed a demographic questionnaire and the Persian HRQoLDA questionnaire. Face validity, content validity, and construct validity were assessed. Reliability was assessed using internal consistency (Cronbach's alpha), intraclass correlation coefficient (ICC), and test-retest reliability. Statistical analyses were performed using SPSS version 23 and Lisrel 8.80.

Results: Subjects had an average age of 36.24 years, and their mean HRQoLDA score was 70.84. All items showed adequate face validity, achieving impact scores exceeding 1.5. The Content Validity Ratio (CVR) and CVI (Content Validity Index) values were above 0.8 for all items. Confirmatory factor analysis yielded acceptable fit indices: $\chi^2/df=1.992$, CFI=0.94, NFI=0.89, RMSEA=0.07, and GFI=0.87. The reliability was outstanding, supported by a Cronbach's alpha of 0.881, an intraclass correlation coefficient of 0.982, and a test-retest reliability of 0.978 ($P<0.0001$).

Conclusion: The Persian version of HRQoLDA demonstrates high validity and reliability, making it an effective tool for assessing the well-being of substance users in Iran. This culturally adapted instrument is suitable for both clinical use and research.

Keywords: Quality of life, Psychometrics, Substance-related disorders, Iran

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Introduction

The widespread use of illicit substances continues to pose one of the greatest threats to public health and social stability worldwide.¹ Approximately 5% of the world's population aged 16-64 years consumed illicit drugs in 2014. Cannabis, cocaine, amphetamines, and other stimulants were the most frequently reported categories. This alarming prevalence was accompanied by approximately 207,400 drug-related deaths in the same year, highlighting the high mortality rate associated with substance use disorders.² The epidemiological situation regarding the use of psychoactive substances in Iran has changed significantly over the past decade. While traditional substances such as opium remain prevalent, there has been a marked increase in the use of highly potent synthetic compounds in recent years. Methamphetamine, particularly its crystalline form commonly known as "glass," is among the substances

most frequently encountered in hospitals and outpatient settings.³ Four million people use psychoactive substances regularly or occasionally.⁴ This underscores the scale of the challenge facing the country's health and social care systems.

Substance dependence is a chronic and relapsing illness with profound consequences that extend far beyond the individual affected. Its progression negatively affects many aspects of life, including physical health, mental state, relationships, work, and finances.⁵ In this context, quality of life (QoL) is now considered a key assessment parameter in addiction research and clinical practice.⁶⁻⁸

Quality of life is intended to address the daily experiences of individuals with drug dependency, beyond merely their symptoms or treatment responses.⁹ A fundamental distinction is made between instruments for measuring general quality of life and those specific to a particular



condition. Generic instruments such as the SF-36 (36-Item Short Form Health Survey), the World Health Organization Quality-of-Life Scale (WHOQOL-BREF), and the Nottingham Health Profile (NHP) are frequently used in epidemiological studies on psychoactive substance use.¹⁰ However, these instruments may lack the necessary sensitivity to detect subtle but clinically relevant changes in populations affected by drug addiction. To address this limitation, researchers have developed several targeted scales. These include the Injection Drug User Quality of Life (IDUQOL) scale;¹¹ the Quality of Life for Individuals with Drug Addiction/Dependence (QOL-DA);¹ and the Health-Related Quality of Life for Drug Abusers (HRQoLDA) test.⁹

The HRQoLDA test specifically focuses on the health consequences of substance use and was developed in Spanish by Lozano et al. (2009).¹² The 20 items evaluate the physical, psychological, and social impacts of drug use. The scale was subsequently translated into English and psychometrically validated by Zubarán et al. (2012) in a treatment-seeking sample, demonstrating robust internal consistency (Cronbach's $\alpha = 0.905$) and sound construct validity.⁹ Given its explicit focus on health outcomes rather than general life satisfaction, the HRQoLDA is particularly suited for use in rehabilitation and clinical monitoring contexts where tracking health status changes is paramount.

Despite its proven usefulness in other cultural and linguistic contexts, the HRQoLDA has not yet undergone comprehensive psychometric evaluation in the Iranian context. The growing demand for culturally appropriate and empirically validated tools to measure well-being in Iranian addicts. The present study aimed to translate the HRQoLDA into Persian, adapt it for use with individuals with substance use disorders in Iran, and systematically examine its validity and reliability.

Methods

Study Design

In this cross-sectional study, participants were selected from individuals referred to substance abuse treatment centers, addiction treatment centers under the supervision of the Welfare Organization, and medium-term residential addiction treatment centers in Guilan Province, Iran, in 2022. The sampling method was convenience sampling, and due to the hidden nature of the drug users, snowball sampling was also used to complete the sample size. The inclusion criteria included individuals who were using various drugs such as opium, methadone (including illegal methadone users), heroin, methamphetamine, cannabis, or multiple substances simultaneously and had a substance use disorder according to DSM 5. The exclusion criteria for the study included participants with serious psychiatric disorders, cognitive impairments (e.g., dementia, delirium), mental disabilities, and incomplete questionnaires.

Given that the questionnaire has 20 questions, the sample size was considered to be 200 people.¹³

Instruments

In this study, a researcher-made questionnaire (including demographic data and information about participants' substance use) and the HRQoLDA test were used. The scores of this instrument vary between 20 and 100, whereby a higher score denotes an improved quality of life.¹² Cronbach's alpha coefficient of 0.905 was demonstrated by the original version of the HRQoLDA.⁹

Preparation

Preparation of the Persian version of the questionnaire comprised two principal phases: Translation and validation. We translated the original version in accordance with the standard "forward-backward translation" procedure.¹⁴ This method includes the following stages: Translation, backward translation, peer review, and pilot study.

Translation

The questionnaire underwent a translation process from English to Persian and back to English by two bilingual experts, and was reviewed at each stage by a panel of seven individuals. Then, two other English-language experts compared the two versions and gave each question a score from 1 to 5 based on its similarity to the original questionnaire, and the third version was prepared.

Statistical Analysis

To analyze data, IBM SPSS Statistics 23 and Lisrel 8.80 software were used. Frequency (percentage) or mean $\pm$ standard deviation was employed for descriptive statistics. We used t-tests and analysis of variance (ANOVA), and *P* values less than 0.05 were considered significant.

Evaluation of Psychometric Properties

Validity for this investigation was assessed using face, content, and construct validity. Reliability was assessed using internal consistency, the intraclass correlation coefficient (ICC), and test-retest reliability.

Face Validity

The relevance of each item to the target construct was evaluated through face validity assessment. Face validity was assessed through a survey administered to 20 consumers. Participants utilized a 5-point Likert scale (ranging from 'not important' to 'very important') to indicate the perceived significance of each item based on their experiences. For each question, the impact score is obtained from the sum of the scores obtained from (Importance $\times$ Frequency Percentage). Items with a value ≥ 1.5 were retained.¹⁵

Content Validity

An expert panel of 10 specialists determined the Content Validity Ratio (CVR) and Content Validity Index (CVI). Experts assign items to categories of 'not essential' to 'essential' for CVR calculation. Expert agreement is measured on a scale from -1 to +1, with higher scores

showing stronger agreement. Items with a CVR above 0.62 (based on 10 experts) are considered acceptable based on the Lawshe table.¹⁶ CVI is evaluated by assigning scores to the relevance, clarity, and simplicity of each item on a four-point scale. A value ≥ 0.78 is considered acceptable.¹⁶

Construct Validity

To ascertain construct validity, confirmatory factor analysis (CFA) was done by Lisrel 8.80 software.

Reliability

Internal consistency was assessed using Cronbach's alpha, where values ≥ 0.70 were regarded as appropriate. The Intraclass Correlation Coefficient (ICC) was also used to assess reliability, measuring the consistency or agreement of measurements across raters or repeated tests. It ranges from 0.0 to 1.0. Reliability is considered good to excellent when the ICC value reaches at least 0.75.¹⁷ The scale was performed on 40 subjects at 2-week intervals to assess ICC. For test-retest reliability, the correlation of scores obtained from the questionnaire at two time points was performed on 40 subjects using Pearson's correlation coefficient.

Results

This study included 200 substance-using participants. The mean age among the study group was 36.24 ± 10.81 years (range 17-79 years). The participants achieved an average score of 70.84 ± 10.90 on the HRQoLDA. Table 1 presents the participants' demographic characteristics along with the HRQoLDA test scores corresponding to these features. The data show that participants in this study had an average substance use duration of 10.81 ± 8.02 years, with the shortest period being 6 months and the longest extending to 40 years. The most frequently used substances among the drug users studied were methamphetamine and heroin, each representing 27.5% of cases (Figure 1).

Evaluation of Validity

Face Validity

Using a 5-point Likert scale, 20 consumers assessed the importance of each item according to their own experiences. Face validity was established for every questionnaire item, with impact scores from 4.2 to 4.7, all above the required minimum of 1.5.

Content Validity

The results show that every item in the Persian version of the HRQoLDA assessment attained CVR and CVI values above 0.8, thus gaining approval (Table 2).

To measure inter-rater agreement, Kendall's coefficient of concordance (W) was applied. The expert panel was assigned to evaluate the importance of items on a scale from 1 to 5. Inter-rater agreement analysis showed a Kendall's W of 0.049, which was not significant ($P=0.455$), reflecting consensus among the experts.

Table 1. Demographic Characteristics and HRQoLDA Scores for Participants

Variable	N (%)	Mean $\pm$ SD
Gender		
Female	23 (11.5)	64.00 $\pm$ 14.65
Male	177 (88.5)	71.72 $\pm$ 10.02
Age		
<30 years	66 (33)	70.80 $\pm$ 11.78
31-40 years	69 (34.5)	71.49 $\pm$ 9.04
41-50 years	43 (21.5)	71.37 $\pm$ 12.10
>50 years	22 (11)	67.81 $\pm$ 11.24
Education level		
Under diploma	105 (52.5)	70.58 $\pm$ 11.59
Diploma	71 (35.5)	71.07 $\pm$ 8.75
Upper diploma	24 (12)	71.25 $\pm$ 13.66
Marital status		
Single	103 (51.5)	70.63 $\pm$ 11.36
Married	62 (31)	70.48 $\pm$ 10.45
Divorced	33 (16.5)	72.06 $\pm$ 10.45
Widowed	2 (1)	72.00 $\pm$ 15.55
Place of residence		
Urban	151 (75.5)	70.81 $\pm$ 11.08
Suburb	32 (16)	71.15 $\pm$ 12.27
Rural	17 (8.5)	70.41 $\pm$ 5.85
Employment status		
Self-employed	122 (61)	71.21 $\pm$ 10.85
Employed	10 (5)	73.10 $\pm$ 11.03
Homemaker	9 (4.5)	68.00 $\pm$ 14.66
Unemployed	59 (29.5)	70.10 $\pm$ 10.51
Duration of substance use		
<5 years	57 (28.5)	72.40 $\pm$ 8.74
5-10 years	76 (38)	68.86 $\pm$ 9.46
10-15	23 (11.5)	67.34 $\pm$ 12.44
>15	44 (22)	74.02 $\pm$ 13.71
Number of drugs used		
One	50 (25)	74.18 $\pm$ 8.38
Two	81 (40.5)	69.09 $\pm$ 9.97
Three	49 (24.5)	70.24 $\pm$ 12.66
Four	13 (6.5)	68.31 $\pm$ 11.83
Five	5 (2.5)	82.60 $\pm$ 12.22
Six	2 (1)	59.00 $\pm$ 19.80
Medical drugs		
Yes	78 (39)	68.01 $\pm$ 10.67
No	122 (61)	72.63 $\pm$ 10.69

Construct Validity

The instrument was modeled as a single-factor scale, and CFA was conducted accordingly. Initially, item-total correlations were evaluated. Items that had a correlation coefficient less than 0.30 were omitted. Items 1, 2, 4, 11, 14, 16, and 19 showed correlations above 0.30, indicating they were adequately associated with the total score and fit for factor analysis.

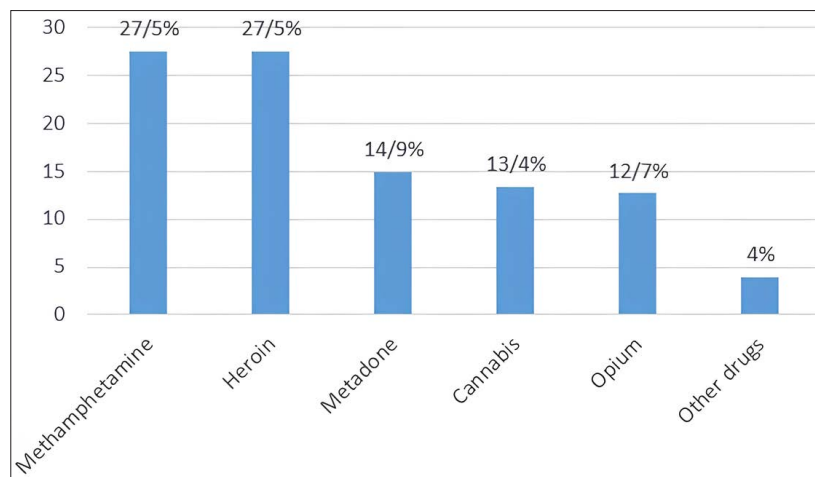


Figure1. Frequency of Substance Consumption in Participants

Table 2. Content Validity Evaluation of the Persian Version of the HRQoLDA Test Items

Items	CVR*	CVI** (Relevance)	CVI (Clarity)	CVI (Simplicity)
Question 1	1	1	1	1
Question 2	1	1	0.9	1
Question 3	0.8	1	1	1
Question 4	1	1	0.9	0.9
Question 5	1	0.9	0.8	0.8
Question 6	1	1	1	1
Question 7	1	1	1	1
Question 8	0.8	1	0.9	1
Question 9	0.8	1	0.9	1
Question 10	1	1	1	0.9
Question 11	0.8	1	1	1
Question 12	1	1	0.8	0.8
Question 13	1	1	0.8	0.8
Question 14	0.8	1	1	1
Question 15	0.8	1	1	1
Question 16	1	1	1	1
Question 17	0.8	1	0.9	0.9
Question 18	1	1	1	1
Question 19	1	1	1	1
Question 20	1	1	1	1

* Content Validity Ratio. ** Content Validity Index.

To assess construct validity, factor loadings were reviewed. Values equal to or exceeding 0.30 were classified as acceptable, ranging from 0.30 to 0.60 as adequate, and greater than 0.60 as highly desirable. During the CFA, items 12, 13, 17, 18, 19, and 20 had loadings less than 0.30 and were therefore classified as weak (Figure 2).

The correlation between each item and the underlying construct was analyzed for statistical significance using the t-test statistic. All items exhibited t-values beyond the -1.96 to 1.96 interval, indicating statistically significant associations. Therefore, despite certain low loadings ($P < 0.05$), no items were discarded from the model (Figure 3).

To evaluate the model fit, the Chi-square to degrees of freedom ratio (χ^2/df), Comparative Fit Index (CFI), Normed Fit Index (NFI), Goodness of Fit Index (GFI), Root Mean Square Error of Approximation (RMSEA), and Standardized Root Mean Square Residual (SRMR) were used.

The analysis indicated a χ^2/df ratio of less than 2 (Table 3). Values from 2 to 5 can imply an acceptable fit, with lower values signifying a better fit,¹⁸ which resulted in a good fit of the model. With a CFI of 0.94 and an NFI of 0.89, the fit indices indicated a favorable model.¹⁸ Evidence of acceptable model fit was found, with the RMSEA value falling under 0.08.¹⁸ which produced a good fit for the model. A CFI of 0.94 and an NFI of 0.89 in the fit indices indicated that the model fit well.¹⁸ It is slightly below the conventional 0.90 cutoff, but it still signifies an acceptable fit.

Reliability

A Cronbach's alpha of 0.881 indicated that the HRQoLDA test has high internal consistency. Moreover, reliability was measured using ICC, which was 0.982 ($P < 0.0001$); it indicates the strong reliability of the HRQoLDA test. To assess test-retest reliability, the HRQoLDA was administered twice to 40 participants. A positive relationship was found between the initial scores and those recorded two weeks later ($r = 0.978$).

Discussion

The psychometric properties of the Persian adaptation of the HRQoLDA questionnaire were evaluated in a sample of Iranian drug users. The results showed acceptable levels of validity and reliability.

The face validity assessment indicated that the target group found every question in the questionnaire relevant and comprehensible, with effect values significantly exceeding the predefined limit of 1.5. This result demonstrates that the Persian translation retained the original questions' clarity and usability, without causing cultural ambiguities. A panel of experts conducted content validity testing and confirmed the instrument's relevance.

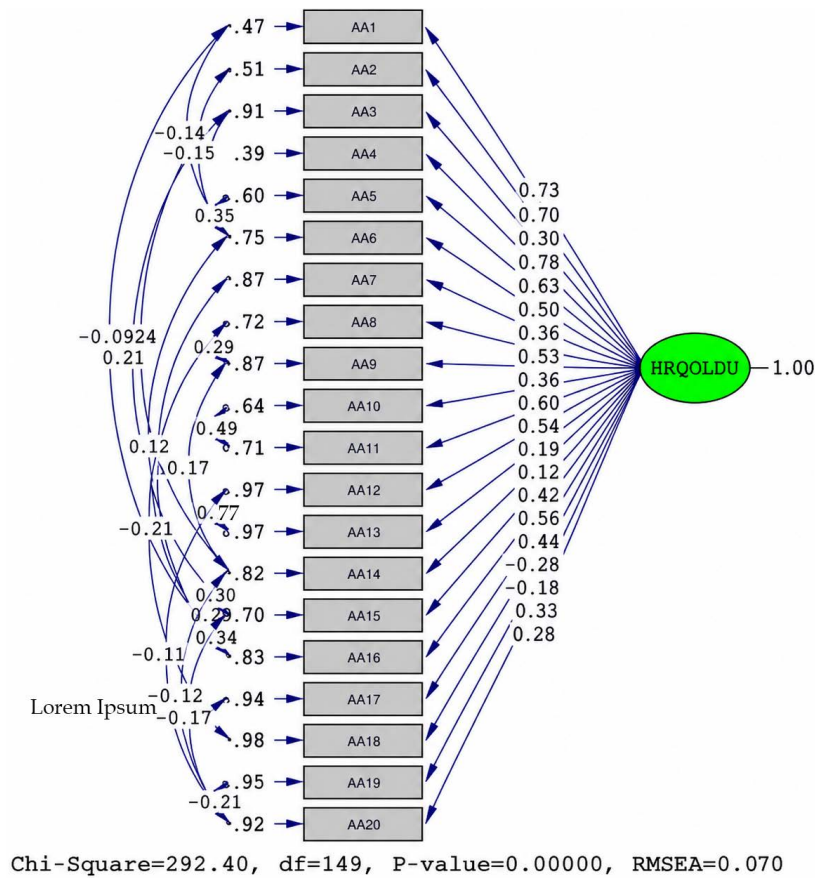


Figure 2. Factor Loadings of Items in the Confirmatory Factor Analysis

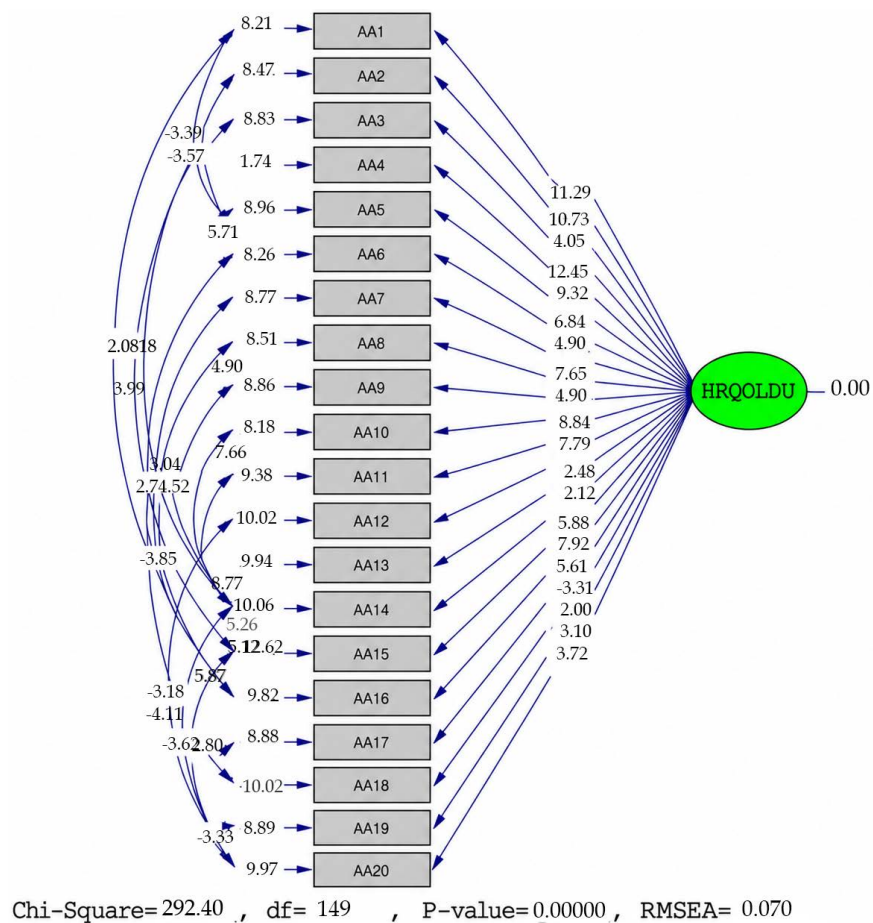


Figure 3. T-Values of Items Assessing Statistical Significance in the HRQoLDA Test

Table 3. Fit Indices of the Confirmatory Factor Model of the HRQoLDA Test

Index	χ^2	df	P value	χ^2/df	RMSEA	SRMR	CFI	NFI	GFI
Value	296.88	149	0.004	1.992	0.070	0.099	0.94	0.89	0.87

All items attained CVR and CVI values above 0.8, reflecting a significant level of expert consensus. According to the Kendall concordance coefficient, the inter-rater agreement met statistical acceptability.

The item-total correlation analysis first highlighted seven items (1, 2, 4, 11, 14, 16, and 19) with coefficients exceeding 0.30, confirming their strong connection to the overall scale. Despite six items (12, 13, 17, 18, 19, and 20) showing factor loadings under 0.30, their t-values remained statistically significant (all beyond ± 1.96), suggesting they still make a meaningful contribution to the construct. Model fit indices supported the one-dimensional structure of the model. The χ^2/df ratio (1.992) fell within the acceptable limits, and both the CFI (0.94) and NFI (0.89) values met or surpassed the recommended criteria. The model fit was considered acceptable since the RMSEA value of 0.07 was under the 0.08 threshold. Even though the GFI value (0.87) falls just below the 0.90 threshold, it still suggests an acceptable fit, especially when considering the other indices.

We performed psychometric assessments of HRQoLDA. Lozano Rojas et al showed the unidimensionality of the scale in their original Spanish development study using Rasch analysis.¹² Zubaran et al later confirmed this finding in their English validation study.⁹ The slight differences in item loadings across studies might indicate cultural or sample-specific factors but do not compromise the scale's structural integrity.

Reliability testing showed highly encouraging results. A high Cronbach's alpha indicates that the items reliably assess one concept with little overlap. This value is similar to those of the original Spanish ($\alpha = 0.90$) and English ($\alpha = 0.905$) versions, confirming the continued presence of strong correlations between the items across various linguistic and cultural settings. Furthermore, both the ICC and the test-retest correlation demonstrate robust evidence of the instrument's consistency over time. These coefficients indicate that the Persian version of the HRQoLDA questionnaire yields consistent results over two weeks, making it appropriate for longitudinal studies focused on tracking changes over time.

The average HRQoLDA score was 70.84 ± 10.90 , indicating a moderate level. Literature indicated that individuals with substance use disorders suffer from a significantly reduced quality of life compared to the wider population. De Maeyer et al,¹⁹ Zubaran et al,⁹ and Ma et al²⁰ all reported psychological, social, and functional impairments in individuals with substance use disorders seeking treatment. The persistent patterns imply that the adverse consequences of chronic substance use extend beyond specific geographic or cultural boundaries. Instead, they seem to reflect universal difficulties that harm the living standards of diverse communities.

A number of limitations have to be acknowledged. First,

selection bias may exist. Second, by excluding individuals who have severe psychiatric or cognitive comorbidities, the relevance of our results to the general population with substance use disorders is limited, since these comorbidities are common in that group. Third, causal relationships cannot be established. Finally, participant responses may be influenced by recall bias and social desirability.

Further studies are advised to employ various approaches. Cohort studies are needed to assess the instrument's responsiveness and identify predictors of quality-of-life improvement during therapy. Additionally, applying the scale to broader and more heterogeneous populations (such as those with comorbid mental conditions, diverse substance use behaviours, and varied treatment backgrounds) would increase the applicability of the findings. The HRQoLDA test is a potential outcome parameter to identify strategies that successfully improve the quality of life for drug users.

Conclusion

Overall, the findings indicate that the Persian adaptation of the HRQoLDA test is a valid and consistently reliable tool for evaluating the quality of life of Iranian psychoactive substance users. The effective cultural adaptation and favourable participant feedback indicate that the scale is both practical and appropriate for use in clinical practice and addiction research.

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Authors' Contribution

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Competing Interests

The authors declare that they have no conflict of interest.

Ethical Approval

This study was approved by the Ethics Committee of Guilan University of Medical Sciences (Ethical Code: IR.GUMS.REC.1400.437). Necessary explanations were provided to the authorities and participants, and informed consent was obtained from the patients. Participants were assured that the information collected would remain confidential.

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