

## RESEARCH Paper

# Validation of the Electronic Form of the Persian Version of Health-related Quality of Life Questionnaire for Iranian Patients With COVID-19



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**Citation** Mirzazadeh R, Amirfakhraei A, Haji Alizadeh K, Zarei E. [Validation of the Electronic Form of the Persian Version of Health-related Quality of Life Questionnaire for Iranian Patients With COVID-19 (Persian)]. *Qom Univ Med Sci J.* 2023; 16(12):1004-1017. <https://doi.org/10.32598/qums.16.12.2450.2>

**doi** <https://doi.org/10.32598/qums.16.12.2450.2>



Received: 16 Apr 2022  
Accepted: 28 Jan 2023  
Available Online: 01 Mar 2023

**Keywords:**  
Quality of Life,  
COVID-19, Factor  
analysis, Validation  
Studies as Topic

## ABSTRACT

**Background and Objectives** Validation of the tools used for assessing the quality of life (QoL) can help address the problems of patients with COVID-19 in Iran. Therefore, this study aims to validate the electronic form of the Persian version of health-related quality of life (HRQoL) questionnaire for Iranian patients with COVID-19.

**Methods** This is a psychometric study. The study population included all patients with COVID-19 in Tehran, Iran. Samples were selected by a cluster sampling method. In this regard, 100 patients were selected for determining the criterion validity and 330 were selected for assessing the convergence validity. The research data were collected electronically by using Hlubocky et al.'s HRQoL questionnaire and the World Health Organization quality of life-BREF (WHOQoL-BREF) questionnaire. Content validity, convergence validity, and factor analysis methods were used to evaluate the psychometric properties of the Persian HRQoL. The reliability was assessed by internal consistency and split-half methods.

**Results** The results of exploratory factor analysis showed that the questionnaire had two factors. It had also good validity and reliability. The second-order confirmatory factor analysis confirmed its two-factor structure. Its score had good relationship with the score of WHOQoL-BREF.

**Conclusion** The electronic form of the Persian HRQoL can be used to assess the QoL of patients with COVID-19 in Iran.

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## Extended Abstract

### Introduction

**C**oronavirus disease 2019 (COVID-19) have affected the quality of life (QoL) of patients and their families. Since patients are not immune from future infection, it may have a more negative impact on their QoL [1-4]. QoL reflects people's perceptions of their physical and mental health, social relationships, and overall well-being [5-7]. The QoL of patients with COVID-19 has been examined in several studies. They have used the World Health Organization quality of life questionnaire-BREF (WHOQoL-BREF). This tool has been validated for the normal population [3, 4, 7-11]. However, it does not have a total score to evaluate the overall QoL [12]. Considering the negative consequences of low quality of life in patients with COVID-19, it is necessary to determine their overall QoL [13, 14]. Therefore, this tool cannot accurately determine the QoL of infected patients and there is a need to use another tool to measure it [15]. In this regard, a reliable tool has been introduced by Hlubocky et al. to measure the health-related quality of life (HRQoL) [16]. Due to the non-validation of the electronic form of this questionnaire, and the many advantages of electronic forms during pandemic, this research aims to evaluate the factor structure and validate the electronic form of Persian version of HRQoL questionnaire of Hlubocky et al.

### Methods

This is a psychometric study. The study population includes all patients with COVID-19 in Tehran, Iran in 2020. The HRQoL and WHOQoL-BREF questionnaires were used. The HRQoL has 15 items (Rated on a 5-point Likert scale) and 2 subscales: disease-related symptoms (items 1-10) and emotional and social functions (items 11-15). It has acceptable validity and reliability [17]. The WHOQoL-BREF is a 26-item questionnaire with 4 subscales (physical health, psychological health, social relationships, and environmental health). Its validity and reliability in Iran have been confirmed in different studies [19-22].

The cluster sampling method was used for sampling. In this method, 4 regions were randomly selected from 22 districts of Tehran (regions 4, 11, 7 and 18). Of 430 selected participants, 100 were used for determining the convergence validity based on the criteria of Senjari et al. [23] and 330 were used for exploratory factor analysis. The questionnaire link was sent to the samples via email, or on WhatsApp, and Instagram. To check the content validity, the content validity ratio (CVR) and content

validity index (CVI) was calculated. To determine the convergent validity, Pearson's correlation test was used to assess the relationship between the scores of HRQoL and WHOQoL-BREF questionnaires. To examine the construct validity and determine the factor structure of Persian HRQoL questionnaire, exploratory factor analysis (principal component analysis with varimax rotation) was performed. In this analysis, factors with eigenvalues greater than 1 were considered as main factors [24]. Confirmatory factor analysis was also used to check the fit of the model. Data analysis was done in SPSS Software, version 22 and LISREL Software, version 8 applications.

### Results

The findings showed that the online Persian version of HRQoL questionnaire has acceptable content validity and convergent validity in relation to the WHOQoL-BREF questionnaire. The results of the exploratory factor analysis showed that the HRQoL questionnaire had a two-factor structure. The results of Cronbach's alpha for the whole scale and for each dimension showed that the HRQoL questionnaire had fair internal consistency,

### Discussion

The electronic Persian version of HRQoL questionnaire is a valid and reliable tool and can be used in for assessment of HRQoL in patients with COVID-19 in Iran. It is recommended this research should also be carried out in other cities and populations for greater generalizability.

### Ethical Considerations

#### Compliance with ethical guidelines

This study was approved by the ethics committee of **Islamic Azad University, Bandarabas Branch** (Code:IR. IAU.BA.REC.1401.00).

#### Funding

This study was extracted from the PhD thesis of the first author. It was not funded by any organization.

#### Authors contributions

The authors contributed equally to preparing this article.

#### Conflicts of interest

The authors declare no conflict of interest.

### Acknowledgements

The authors would like to thank the participants as well as Azizollah Mohammadi Soleimani, Hossein Azarshab, and Sana Lotfi for their cooperation and assistance.