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ABSTRACT The aim of this cross-sectional study was to validate the first Persian version of the WHOQOL-HIV BREF questionnaire. The study sample comprised 61 patients regularly attending the outpatient infectious disease clinic consultation centre for patients with behavioural disorders in 2013–2014. The internal consistency, content related validity and reliability of WHOQOL-HIV BREF were evaluated. Content validity was quantified using the

content validity ratio (CVR) according the to Lawshe formula. CVR > 0.51 and mean judgment > 2 were significant at P = 0.05. The Cronbach alpha score was > 0.7 for each domain and = 0.87 for the whole scale, indicating good reliability. Item-to-total correlation coefficient between each item and its respective domain was 0.39–0.87. The correlation between each domain and overall QOL was excellent. This study demonstrates that the Persian version of WHOQOL-HIV BREF is a valid and reliable tool for evaluation of QOL in HIV-infected patients.

Validation de la version en langue perse du questionnaire WHOQOL-HIV BREF en République islamique d'Iran

RÉSUMÉ La présente étude transversale avait pour objectif de valider la première version en langue perse du questionnaire Qualité de vie et VIH – WHOQOL-HIV BREF. L'échantillon de l'étude comprenait 61 patients qui consultaient régulièrement au centre de consultations externes spécialisé dans le traitement des maladies infectieuses pour les patients ayant des troubles comportementaux en 2013-2014. La cohérence interne, la validité de contenu et la fiabilité du questionnaire WHOQOL-HIV BREF ont été évaluées. La validité de contenu a été quantifiée au moyen du ratio de validité de contenu à partir de la formule de Lawshe. Un ratio de validité de contenu supérieur à 0,51 et un jugement moyen supérieur à 2 étaient significatifs à p = 0,05. L'α de Cronbach pour tous les domaines était supérieur à 0,7 et égal à 0,87 pour l'ensemble de l'échelle, ce qui indique une bonne fiabilité. Le coefficient de corrélation de l'item avec le score total entre chaque item et son domaine respectif était compris entre 0,39 et 0,87. La corrélation entre chaque domaine et la qualité de vie globale était excellente. La présente étude montre que la version en langue perse du questionnaire WHOQOL-HIV BREF est valable et constitue un outil fiable pour l'évaluation de la qualité de vie chez les patients infectés par le VIH.

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Introduction

Currently, UNAIDS estimates that > 35 million people are infected with HIV around the world (1). In 2011, an estimated 2.5 million people worldwide were newly infected with HIV (2). The World Health Organization (WHO) reported that the prevalence rate of HIV infection was 129 per 100 000 population in 2011 (2). Healthy People 2000, 2010 and 2020 identified quality of life (QOL) improvement as a central public health goal. Nowadays, it is important to assess health-related QOL for chronic conditions like cancer, diabetes, multiple sclerosis and other life-long diseases (3).

QOL is a broad multidimensional concept that usually includes subjective evaluation of positive and negative aspects of life. QOL consists of domains such as overall health, occupation, housing, schooling, neighbourhood, culture, moral values and spirituality. Nevertheless, researchers have developed a useful questionnaire that helps to measure these multiple domains (4).

With effective highly active antiretroviral treatment (HAART) and increased life expectancy, people living with HIV/AIDS are facing more comorbidity. There is no curative treatment for HIV/AIDS, therefore, people will continue to bear the burden of this disease, and measurement of QOL will remain a key factor in these patients.

The relationship between HIV infection and QOL has been studied between 2011 and 2013 in the Islamic Republic of Iran and other countries (5–9). Measurement of QOL is complex and a reliable and valid instrument is necessary. The WHO developed a specific questionnaire (WHOQOL-HIV BREF) to assess QOL in HIV-infected patients. The WHO QOL-HIV questionnaire has been translated into Persian and other languages and assessed for its reliability and validity (10-14). However, WHOQOL-HIV BREF has not been translated into Persian and validated in the Iranian population. The aims of this study were to validate the Persian version of WHOQOL-HIV BREF in Mashhad, Iran, and to use it to determine QOL in patients with HIV/AIDS.

Methods

Subjects and settings

This was a cross-sectional study of 61 patients living with HIV/AIDS who regularly attended the outpatient infectious disease clinic consultation centre for patients with behavioural disorders in 2013–2014 in the North East of the Islamic Republic of Iran. The patients gave signed informed

consent after the aims of the study were explained. The study was approved by the Mashhad University of Medical Science Ethics Committee.

All patients with a confirmed diagnosis of HIV/AIDS and aged ≥ 18 years entered the study. Exclusion criteria included evidence of another major medical disease; cognitive or any severe mental or psychotic disorders; or evidence of AIDS-related dementia. Illiterate patients completed the questionnaire with the assistance of an experienced physician who was cooperating with the study. The other patients completed the questionnaires by themselves under the supervision of a clinician.

Instruments

The WHOQOL-HIV BREF questionnaire consisted of 6 domains with a total 29 items: physical (4 items), psychological (5 items), level of independence (4 items), social relationship (4 items), environmental (8 items) and spiritual (4 items), and 2 general items that measured overall QOL and general health. Each item was rated on a 5-point Likert scale, where 1 denoted very poor and negative impression and 5 denoted very good and positive impression. For negative perception items, the scores were reversed [recode Q3, Q4, Q5, Q8, Q9, Q10 and Q31 (1 = 5) (2 = 4) (3 = 3) (4 = 2) (5 = 1)] higher score. Domain scores were calculated as means of their items scores multiplied by 4, so that each domain was reported on a scale of 4–20, with higher scores demonstrating better QOL. Thus, Domain 1 was calculated as:

$$Q3 + Q4 + Q14 + Q21 / 4 \times 4$$

According to the original version, sociodemographic information such as sex and age, education, marital status and HIV-related information, including mode of transmission, HIV status and year of being infected and diagnosis was obtained.

Data analysis

A descriptive analysis was performed for the sociodemographic and HIV-related information and ceiling and floor effects that could have threatened the internal validity of the instrument. Measurement instruments do not always have the same level of precision. Ceiling and floor effects occur when the highest and lowest scores are unable to assess a patient’s level of ability. According to statistical references, when ≥15% of patients respond with a highest or lowest score, the ceiling and floor effects occur (15).

To assess the translation validity of the questionnaire, we used a backward–forward translation method, which was done in 5 steps (16). To translate the WHOQOL-HIV BREF instrument into Persian, permission was acquired from the WHO by e-mail. In the first stage, the initial WHOQOL-HIV BREF questionnaire was translated from English into Persian by 2 independent bilingual qualified translators; one of whom had a medical background, and the native language of both was Persian. In the second stage, the 2 translated Persian versions were reviewed by 5 community medicine specialists to resolve any conflict by consensus, check that they were easily understandable, and confirm face validity. At the end of this step, a reconciled Persian version on the basis of the 2 forward translations was produced. In the third step, 2 professional translators, who were native English speakers and fluent in Persian, who did not have any knowledge of the original instrument, back translated the questionnaire into English. In the fourth step, these two original language documents were reviewed by another expert panel and a reconciled back-translation version was produced. In the final step, for pilot testing and assessing the face validity, the Persian translated version was evaluated among 10 random samples of patients and healthy individuals.

Content validity was quantified using the content validity ratio (CVR), which is one of the earliest and most widely used methods. To calculate CVR, 14 subject experts independently judged the item as assessing content that was essential (E), helpful (H) or unnecessary (U). Lawshe suggested the following formula for determining CVR: CVR =

where ne is the number of panellists indicating “essential” about a specific item, and N is the total number of panellists (17). The minimum CVR to be significant with 14 panellists was 0.51 per defined item. When CVR was equal or larger than the minimum acceptable value, an item was accepted unconditionally, and if CVR was 2 were accepted.

The structural validity was measured using item/total correlation coefficients to determine the strength of the relationship between each item and its domain total score, and Pearson’s correlation coefficients between the domains and overall QOL were calculated for WHOQOL-HIV BREF. The reliability was assessed using Cronbach’s α for internal consistency. Data analysis was done by SPSS version 11.5 and the statistical significance level was fixed at P = 0.05.

Results

All 61 enrolled patients were in the AIDS stage of their disease and used HAART. Their demographic characteristics are summarized in Table 1 .

Content validity

Content validity was evaluated by a panel of 14 experts to review WHOQOL-HIV BREF. The minimum acceptable CVR to be significant with 14 panellists was 0.51 per item. CVR in 24 of 31 items was ≥ 0.51. Seven items had a CVR of 0–0.51. In these items, the mean of judgments was considered. All theses items had a mean > 2 and were accepted (Table 2).

Reliability

Internal consistency of WHOQOL-HIV BREF was evaluated using Cronbach's α for the total questionnaire and for each domain separately. As shown in Table 3, Cronbach's α for the summary score was 0.87, indicating a high level of internal consistency. The psychological domain with Cronbach's α 0.83 had the highest internal consistency ,whereas the spiritual domain had the lowest (0.71). The other coefficients were acceptable for the remaining domains.

Structural validity

To assess the structural validity of WHOQOL-HIV BREF, we calculated the total correlation coefficients between each domain and its corresponding item (Table 3). Item/total correlation had a lower limit of 0.55 for all items except for the association between pain and discomfort item with physical domain, and also spiritually item with its domain. Association between all domains, including overall QOL and general health was estimated using Pearson's correlation coefficients. The correlation coefficients of all domains were > 0.8 except for the physical and spiritual domains. Analysis of the score distribution in our patients demonstrated that there was no ceiling and floor effect for any of the domains of WHOQOL-HIV BREF. The frequency of patients with highest and lowest score for all domains were nearly achieved less than 4.9% and 6.6% respectively.

Discussion

The present study aimed to assess the psychometric validation of the Persian version of a short form of WHOQOL-HIV (31 items) in a sample of patients who developed HIV/AIDS. Similar to the results reported in Portugal, Taiwan and Malaysia, our study shows that the WHOQOL-HIV BREF has good psychometric properties (18–20). The long form of this instrument, WHOQOL-HIV 120, was originally standardized by Razavi et al. in the Islamic Republic of Iran in 2012 (9). To translate and validate WHOQOL-HIV BREF in the Iranian population, permission was obtained from the WHO, which was the original developer of the questionnaire. The translation process of the questionnaire showed that all forward and backward translations were consistent with each other and with the original version.

The CVRs for individual items of WHOQOL-HIV BREF were in the acceptable range, which indicates that each item measures the QOL in HIV/AIDS patients as intended. Also, the experts judged that the instrument had good face validity and that all the items were relevant. The final scale was prepared after making minor modifications in the wording and language according to the suggestions of the panellists.

The internal consistency was satisfactory for all domains and excellent for the total scale. The Cronbach's α scores for each domain was > 0.7 and = 0.87 for the summary scores. Traditionally, an acceptable level of internal consistency is Cronbach's α 0.70–0.95. (21,22) Our results are similar and to some extent better than the validation of this instrument in other languages. In one study, Cronbach's α ranged from 0.65 to 0.86 (18) and 0.67 to 0.80 in another (19).

Our results demonstrate that WHOQOL-HIV BREF reveals moderate to high structural validity. Item to total correlation coefficients between each item and its respective domain were in the range 0.39–0.87, with the exception of 2 items. A correlation coefficient > 0.3 is an acceptable result (23). Only pain and discomfort in the physical domain (–0.23) and life meaningful in the spiritual domain (0.25) demonstrated low validity. The present results were in accordance with those of Saddki et al., who found that many of the items were not best correlated with their domains (20). For example, they found that the item that was relevant to medication was loaded on to the psychological domain rather than its own domain.

The correlation between each domain and overall QOL was excellent, with all of the coefficients > 0.8. Only the physical (r = 0.44, P **Limitations and strengths**

Although the results from this investigation demonstrated the psychometric validity of the WHOQOL-HIV BREF questionnaire, there were several limitations. As a result of the low prevalence of HIV/AIDS and its stigma in our region, we had to select our patients from the outpatient HIV/AIDS clinic consultation center. These patients were under the supervised care of the clinic and were receiving HAART, so they had special therapeutic assistance for minor emotional disturbance and had better information about their condition. This could limit the degree to which our results can be generalize and are representative of the whole population of Iranian HIV/AIDS patients. All of the psychometric characteristics of a scale cannot be confirmed in a single study (25), as we did not evaluate clinical validity and factor analysis of WHOQOL-HIV BREF. A population-based study

on a variety of patients and in different stages of disease could assess the other psychometric

properties of the questionnaire. Nevertheless, our study provides an important instrument to make progress in improving the QOL of HIV/AIDS patients. WHOQOL-HIV BREF is a brief and multidimensional scale that can be used in practical and comprehensive assessment of QOL in clinical and research settings. Also, it can help policymakers who want to address health disparities. Thus, WHOQOL-HIV BREF is especially recommended for community-based studies that are interested in measuring QOL as an adjunct to well-being and functional and environmental status, and for evaluating policy impact and implications for these patients.

Conclusion

The WHOQOL-HIV BREF questionnaire has been translated into Persian and evaluated among Iranian patients. It provides a reliable and valid scale that can be implemented in future investigation to assess QOL in HIV/AIDS patients, as well as to measure the impact of HAART and other interventions.

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