

Validation of the Brazilian version of the World Health Organization Disability Assessment Schedule 2.0 for individuals with HIV/AIDS

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Abstract *The WHODAS 2.0 (World Health Organization Disability Assessment Schedule) is an instrument developed by the WHO (World Health Organization) for functioning and disability assessment based on the biopsychosocial framework, fully supported by the theoretical-conceptual framework of the ICF (International Classification of Functioning, Disability and Health). To validate the Brazilian version of the WHODAS 2.0 for individuals with HIV/AIDS. 100 individuals with diagnosis of HIV/AIDS participated in the study. Two assessment instruments were used: the 36-item version of WHODAS 2.0 and the WHO-QOL-HIV-BREF (World Health Organization Quality of Life assessment in persons infected with HIV, shorter version). The psychometric properties tested were internal consistency and criterion validity. Internal consistency was adequate for all domains, with the exception of Life Activities ($\alpha = 0.69$) and Self-care ($\alpha = 0.32$). Criterion validity was adequate, with moderate correlations between the WHODAS 2.0 and the WHOQOL-HIV-BREF domains. The results indicated the WHODAS 2.0 instrument as a valid tool for assessing functioning of individuals with HIV/AIDS. The use of data from the Self-care domain should be carefully considered.*

Key words *Validation Studies, Disability Evaluation, Acquired Immunodeficiency Syndrome*

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Introduction

The assessment of disability provides a detailed picture of the impact of health conditions on individuals' daily life¹. This is particularly relevant, as various existing chronic conditions have different impacts on functioning, therefore requiring a more detailed investigation to assess how chronic diseases are affecting people's activities of daily living².

The International Classification of Functioning, Disability and Health (ICF), which follows the biopsychosocial model proposed by the World Health Organization (WHO), defines disability as an umbrella term covering impairments, activity limitations and participation restrictions. This model indicates the negative aspects of the interaction between individuals (with a health condition) and their contextual factors (environmental and personal factors)³.

Grounded in the theoretical-conceptual framework of the ICF, the WHO developed the World Health Organization Disability Assessment Schedule (WHODAS 2.0): an easy-to-apply instrument which provides a standardized method for measuring health and disability across cultures, and assesses perceived disability associated with health status within 30 days prior to its implementation⁴. The WHODAS 2.0 also makes it possible to identify and monitor the impacts of health or health-related interventions⁵.

Among the numerous chronic diseases that cause disability and subsequent alterations in functioning are Human Immunodeficiency Virus (HIV) infection and Acquired Immunodeficiency Syndrome (HIV/AIDS)⁶. HIV infection appears to be an experience with a profound biopsychosocial impact, which causes many changes in the individuals' daily life⁷. This virus infection will bring psychosocial and behavioral consequences at the moment the individual receives the diagnosis, due to the socially constructed stigmas related to HIV infection. This often leads to depression, social isolation, decreased self-esteem, self-perception, as well as changes in individuals' occupational activities and social integration⁸. In the biological aspect, HIV infection may cause physiological disturbances and affect individuals' locomotion and dexterity, leading to changes in the level of independence and ability to work^{7,9}.

HIV/AIDS has a direct impact on functioning of the infected population. Thus, it is important to validate and use an instrument to measure functioning in this population. The validation of

the WHODAS 2.0 will provide an overview of functioning from a biopsychosocial perspective, allowing researchers and clinicians to quantify, assess and compare functioning in individuals with HIV/AIDS. Therefore, the objective of this study was to validate the Brazilian version of the WHODAS 2.0 to be used in individuals with HIV/AIDS.

Methods

This is a validation study approved by the Research Ethics Committee. All participants of the research signed an Informed Consent Document. The study sample was selected using convenience sampling, and all participants were invited to collaborate in the research while waiting for attendance at the Clinic of Infectious Diseases at the Federal University of Triângulo Mineiro – UFTM.

To be included in the research, the participants needed to have a diagnosis of HIV/AIDS and to perform their medical follow-up at the Outpatient Clinic of Infectious Diseases. Individuals with coexisting diseases or illnesses associated with HIV/AIDS with potential to interfere in their functioning, as well as individuals with difficulty understanding the applied instruments, were excluded from the sample.

A total of 100 individuals with HIV/AIDS were assessed, which allowed a confidence interval of 95% and a standard deviation of ± 0.34 ¹⁰.

Instruments

WHODAS 2.0

The WHODAS 2.0 is a generic assessment instrument developed by the WHO to provide a standardized method for measuring health and disability across cultures¹¹. It has already been translated and validated to be used in numerous languages and in different health conditions. It has seven different versions, which differ in the number of items (12; 36, or a hybrid version, called 12 + 24) and in the application modality (self-administration, interviews, or proxy reports). This instrument addresses functioning according to the following domains: Cognition, Mobility, Self-care, Getting Along, Life Activities and Participation¹¹.

In the present study, the most complete version with 36 items was administered by interviews. This instrument enables assignment of scores for the six domains of functioning and cal-

culates the total score for functioning, which will range from 0 to 100. The higher the score is, the worse functioning will be. To carry out this study, the interviewer underwent a specific training as recommended by the WHO¹¹.

WHOQOL-HIV-BREF

It consists of an instrument for assessing Quality of Life (QoL) in persons infected with HIV/AIDS developed by the WHO¹², which is already validated for use in Brazil¹³. The WHOQOL-HIV-BREF is composed of the same domains as the WHOQOL-100: Physical Health, Psychological Health, Level of Independence, Social Relationships, Environment and Spirituality/Religion. In order to find a less time-consuming but equally valid form of QoL evaluation, the WHO Quality of Life Group developed a reduced version of the WHOQOL-HIV: the WHOQOL-HIV-BREF. This instrument consists of 31 items, two of which with a more general scope (assessment of Overall Quality of Life and General Health Perception) and 29 items representing specific facets. The scores are assigned using a five-point Likert scale, and the results of the specific and general domains are transformed into a range from 0 to 100, according to the original recommendations. Higher results will indicate better QoL¹².

Procedures

Two trained interviewers administered the above-mentioned questionnaires in a single moment and all the interviews were conducted in reserved rooms to maintain participants' privacy and confidentiality. The first procedure was the completion of the personal data sheet, followed by the application of the WHODAS 2.0 and the WHOQOL-HIV-BREF.

Statistical analysis

Cronbach's Alpha was used to determine the internal consistency of the WHODAS 2.0. The following Alpha parameters were considered: 0.70-0.90: suitable; and > 0.95 : item redundancy¹⁴. The Spearman's rank correlation coefficient (r) was used for criterion validity. For this study, r of 0.10 to 0.39 indicated weak/low association; r of 0.40 to 0.69, moderate association; and r from 0.70, strong/high association¹⁵.

The Spearman's rank correlation coefficient was used to evaluate the external validity (convergent and divergent). As an assumption, the

relational hypothesis (convergent/divergent) between the WHODAS 2.0 questionnaire and the WHOQOL-HIV-BREF domains was established, as shown in Table 1.

All the modalities involved in the present validation process imply a single administration of each instrument to be compared. A significance level of 5% was set for all statistical analyses and no missing values were found in the analyses performed.

Results

Sample characteristics

This study included 100 participants, with a mean age of 42.3 (± 12.04) years, 58% of whom were male. Most participants were single (48%), followed by currently married (16%), separated (20%), divorced (4%), in a stable union (5%), and widowed (7%). Concerning occupation, 32% of the participants were retired; 25% were in paid work; 16% were self-employed; 1% of them were students; and 26% were classified into the "other" group, which includes pensioners, housewives, among others. Regarding the classification of the HIV stages, 54% were classified as asymptomatic, 37% as symptomatic, and 9% as AIDS.

Table 2 shows the means and standard deviations for the domains and Total values for the WHODAS 2.0 and WHOQOL-HIV-BREF instruments.

Psychometric properties

The data of the 36 items were statistically verified in each of their respective domains and organized into tables.

Table 3 displays the outcomes for the internal consistency, which ranged from 0.32 to 0.87.

Table 4 presents data for criterion validity, where a correlation between the WHODAS 2.0 domains and the WHOQOL-HIV-BREF domains was performed, showing that, in general, moderate correlations were found between the questionnaires.

Discussion

Admittedly, the WHODAS 2.0 has adequate internal consistency for most research purposes and is consistent with published works with the same objectives in other countries¹⁶⁻¹⁹.

Table 1. Hypothesis for correlations between the WHODAS 2.0 domains and the WHOQOL-HIV-BREF domains.

WHODAS 2.0	WHOQOL-HIV- BREF	Expected correlation
Mobility	Level of Independence	Convergent
Getting Along	Social Relationships	Divergent
Mobility	Physical	Convergent
Self-care	Psychological	Convergent
Self-care	Environment	Divergent
Participation	Physical	Convergent
Participation	Social	Convergent
Total	Total	Convergent

Table 2. Distribution of means and standard deviations according to the domains of the WHODAS 2.0 and the WHOQOL- HIV-BREF.

Instruments/Domains	Mean	Standard Deviation
WHODAS 2.0		
Cognition	22.85	19.94
Mobility	14.06	17.68
Self-care	3.4	7.94
Getting Along	13.33	18.34
Life Activities	4.47	6.27
Participation	29.20	23.07
Total	16.61	11.81
WHOQOL-HIV-BREF		
Physical	11.3	2.13
Psychological	14.58	3.09
Level of Independence	14.66	2.65
Social Relationships	14.46	3.53
Environment	13.38	2.41
Spirituality/Religion	10.74	3.64
Overall Quality of Life	14.86	3.14
Total	13.19	1.50

Table 3. Cronbach's α according to the WHODAS 2.0 domains.

WHODAS 2.0 domains	Cronbach's α
Cognition	0.74
Mobility	0.74
Self-care	0.32
Getting Along	0.76
Life Activities	0.69
Participation	0.81
Total	0.87

The Self-care domain showed Alpha coefficient lower than expected, indicating low internal consistency. Therefore, the information obtained from this domain should be used in a careful manner, as it may not present reliability when measuring the construct.

The internal consistency of the Life Activities domain may have been low due to the profile of the studied population and the non-applicability of some items in domain 5 ("school or work activities"), as most participants were retired. Therefore, the items related to "work" had their information negatively affected. Thus, we suggest the use of the 32-item version, which was used in 6 studies found in the literature¹⁹⁻²⁴.

In the present study, negative correlation coefficients were found in most associations. This happened because the WHODAS 2.0 and the WHOQOL-HIV-BREF produce inverse scores. Regarding the intensity of the coefficients ratio, there were no strong correlations between the instruments, showing mostly moderate correlations between the domains. Notably, the results show that the instruments correlate with each other, are complementary, and are used for different purposes: the WHODAS 2.0 assesses functioning measures, whereas the WHOQOL-HIV-BREF assesses subjective measures of well-being. Also, the domains of each instrument are similar, but not identical.

In connection with convergent validity, we can observe that the Cognition domain of the WHODAS 2.0 showed a moderate significant correlation with the Psychological, Environmental and Total domains of the WHOQOL-HIV-BREF. Similarly, the Mobility domain had a moderate and significant correlation with the Level of Independence domain. The General Disability Score of the WHODAS showed correlation with

Table 4. Correlations between the WHODAS 2.0 and the WHOQOL- HIV-BREF.

Instrument/ Domains	WHODAS 2.0 domains						
	Cognition	Mobility	Self-care	Getting Along	Life Activities	Participation	Total
WHOQOL-HIV- BREF Domains							
Physical	-0.0170	0.1711	0.1096	-0.0615	0.0567	0.0741	0.0309
Psychological	-0.5482*	-0.2896*	-0.3338*	-0.2174*	-0.2288*	-0.2482*	-0.5574*
Level of Independence	-0.3851*	-0.4027*	-0.1765	-0.2581*	-0.3036*	-0.3591*	-0.4740*
Social Relationships	-0.3119*	-0.3079*	-0.1947	-0.3072*	-0.1196	-0.1750	-0.4884*
Environment	-0.4773*	-0.2942*	-0.2021*	-0.1926	-0.2201*	-0.2580*	-0.5247*
Spirituality/Religion	0.2835*	0.4209*	0.0825	0.2327*	0.2959*	0.3341*	0.4118*
Overall quality of life	-0.3724*	-0.3274*	-0.2186*	-0.2375*	-0.2017*	-0.2290*	-0.5361*
Total	-0.4729*	-0.2852*	-0.2375*	-0.2369*	-0.1880	-0.2253*	-0.5522*

* $p < 0.05$ (Spearman's correlation test); bold type (moderate/significant correlation).

the Total domain of the WHOQOL-HIV-BREF. Thus, the results described above support the convergent validity of the WHODAS.

In order to verify the divergent validity, some unrelated domains were chosen to illustrate this psychometric property. There were no significant correlations between the Cognitive and Mobility domains of the WHODAS 2.0 and the Physical domain of the WHOQOL-HIV-BREF; between the WHODAS 2.0 Self-care domain and the WHOQOL-HIV-BREF Social Relationships and Spirituality/Religion domains; and between the WHODAS 2.0 Getting Along domain and the WHOQOL-HIV-BREF Physical and Environmental domains.

Similar to other studies found in the literature that used the 36-item version, the validation of the Brazilian version of the WHODAS 2.0 showed overall satisfactory psychometric properties, allowing its use to assess functioning in individuals with HIV/AIDS^{16,18,20,25,26}.

Among the positive points is the great contribution of this study to the scientific literature, as this is the first instrument translated into Brazilian Portuguese that evaluates functioning in the HIV/AIDS population in a comprehensive manner and in accordance with the guidelines of the WHO. More importantly, this study enables the use of functioning as a health indicator for this

population. So far, this construct could not have been measured, as there were no instruments that would approach the biopsychosocial model. The two most typical health indicators – mortality and morbidity – associated with functioning would be more adequate for the development of health intervention strategies²⁷. Knowing how people live is more important than knowing why they die. Using functioning as one of the main health indicators will improve service planning²⁸ as well as care and health policies for individuals with HIV/AIDS. The progressive increase in the survival of individuals with HIV/AIDS supports this statement⁸. Thus, when presenting the psychometric properties of the WHODAS 2.0 administered to individuals with this health condition, this instrument will enable functioning to be used as an indicator for health management.

In conclusion, the Brazilian version of the WHODAS 2.0 with 36 items showed that psychometric properties, internal consistency, convergent validity and divergent validity are reliable and valid for the assessment of functioning in individuals with HIV/AIDS. It is important to emphasize the possibility of using a shorter version, with 32 items, due to the inapplicability of some items, as well as the careful use the items in the Self-care domain.

Collaborations

KSS Barbosa and FR Nacci participated in the interpretation and writing of the article. SS Castro, CF Leite, MF Accioly participated in the conception, planning, analysis, interpretation and writing of the article.

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