

Reliability, Validity and Reproducibility of the WHOQOL-BREF in Six Countries

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BACKGROUND & OBJECTIVES

Six countries (Melbourne, Australia; Porto Alegre, Brazil; Be'er Sheva, Israel; St. Petersburg, Russian Federation; Barcelona, Spain; and Seattle, Washington, USA) have recently been involved in a large international study, **Longitudinal Investigation of Depression Outcomes (LIDO)**, that assesses quality of life and economic aspects of undiagnosed depression among primary care patients.

The WHOQOL-Bref was used as one of the assessment instruments. The WHOQOL-BREF is a generic quality of life measure, which has been developed simultaneously in many cultures and languages. It is a 26 item self-report instrument, developed from a longer instrument, the WHOQOL-100, and measures quality of life on four broad domains:

- Physical
- Psychological
- Social
- Environmental

This report aims at evaluating the validity, reliability and reproducibility of the WHOQOL-BREF in six countries in the LIDO Study:

- Be'er Sheva, Israel (n=382)
- Barcelona, Spain (n=474)
- Melbourne, Australia (n=437)
- Porto Alegre, Brazil (n=390)
- Seattle, Washington, USA (n=366)
- St. Petersburg, Russian Federation (n=309)

METHODS

Instruments:

- The WHOQOL-Bref (The WHOQOL Group, 1998).
- SF-12 (Ware et al., 1996).
- Center for Epidemiologic Studies – Depression Scale (CES-D) (Radloff, 1977).
- Quality of Life Depression Scale (QLDS) (Hunt & McKenna, 1992).
- Hopkins Symptom Scale (Derogatis, Rickles, Uhlenhuth & Covi, 1974).
- Composite International Diagnostic Interview (CIDI) (Waller, Lecrubier, Maier & Ustun, 1994).

Data Collection:

Patients coming for care at participating primary care facilities were invited to complete the screening assessment. Using a cut-point of 16 or above on the CES-D, those who met eligibility criteria (i.e., age 18-75, able and willing to participate in all scheduled visits, provide adequate locator information, willing to sign consent), were enrolled and invited to a baseline visit. At baseline, a depression diagnostic instrument (CIDI) to determine if the patient was clinically depressed, and other measures were administered.

Features of analysis:

- The specific features of the analysis included:
 - Descriptive statistics
 - Internal consistency – assessed by Cronbach's alpha
 - Test-retest reliability – obtained by applying the instrument to a group of respondents on two occasions and correlating the scores obtained
 - Convergent validity – measured by comparing the WHOQOL-Bref Total Score and its four domains to logically related measures or with those on a proven measure of the same construct
 - Discriminant validity – assessed by comparing the Bref scores of people between "known groups"

Population:

Table 1. Baseline demographic characteristics by country and total

	Mean age in years ^a	Female (%)	Married or living as a couple (%) ^b	Years of schooling ^c
Australia N = 437	39.38	65.0	26	12.42
Brazil N = 391	39.94	75.1	53	9.30
Israel N = 382	41.29	61.8	67	11.92
Russia N = 309	47.04	72.2	45	13.65
Spain N = 474	41.51	71.1	56	10.39
USA N = 366	41.82	66.9	48	13.29
Total	41.59	68.8	49	11.71

^aMean significantly different from all other countries, p < .001
^bPercentage between countries significantly different, p < .005, p < .001
^cDifference between countries significant, p < .001, p < .001

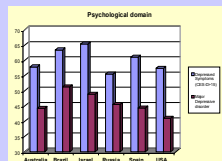
RESULTS

Reliability

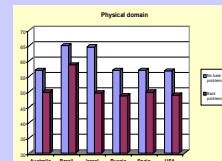
Table 2: Internal consistency for the four domain scores and for the total score

	Physical (7 items)	Psychological (6 items)	Social (3 items)	Environment (8 items)	Total
Australia	.84	.79	.60	.77	.91
Brazil	.83	.74	.60	.64	.88
Israel	.82	.77	.63	.74	.90
Russia	.80	.70	.55	.64	.86
Spain	.73	.80	.62	.71	.88
USA	.80	.83	.66	.78	.90

Discriminant Validity



WHOQOL-Bref Psychological domain scores of people who have major depressive disorder (MDD, according to the CIDI) compared with people without MDD, but with a high level of depressive symptoms (as measured by the CES-D). Scores were significantly different (P<0.001) between the two groups in all countries.



WHOQOL-Bref Physical domain scores of people suffering from chronic back pain with respondents not known to be suffering from such disease. Scores were significantly different (P<0.001) between the two groups in all countries.

Reproducibility

Table 3. Test-retest reliability: Intra-class correlation coefficient for the four domains in the six countries in a healthy (non-depressed sample) primary care sample

	Physical (7 items)	Psychological (6 items)	Social (3 items)	Environment (8 items)	Overall rating of QoL	Satisfaction with health
Australia N = 157	.87	.87	.83	.86	.77	.72
Brazil N = 60	.78	.82	.71	.81	.77	.78
Israel N = 131	.82	.73	.78	.78	.47	.68
Spain N = 161	.88	.86	.83	.87	.72	.72
USA N = 154	.87	.90	.84	.88	.65	.79
Total N = 663	.86	.86	.82	.87	.71	.74

Convergent Validity

As expected, the physical domain correlated highly with PCS-12 (0.43 to 0.63 across countries, median 0.57) and less with MCS-12 (0.21 to 0.50, median 0.39) and MHI-5 (0.30 to 0.50, median 0.43). The psychological domain correlated less with the PCS-12 (0.02 to 0.27, median 0.14) than with the MCS-12 (0.51 to 0.70, median 0.62) and the MHI-5 (0.57 to 0.71, median 0.68). As expected the psychological domain correlated highly with all the mental health measures, CES-D (-0.59 to -0.74, median -0.70), QLDS (-0.47 to -0.61, median -0.56).

CONCLUSION

The evaluation of the WHOQOL-Bref psychometric properties demonstrated good internal consistency and reproducibility. As hypothesized, the WHOQOL-Bref physical domain scores were more strongly related to the SF-12 physical scores and psychological domain scores were more strongly correlated to all mental health measures. The psychological and physical domains were able to discriminate between levels of depression and back pain, respectively. Given both the strength and significance of the relationships demonstrated, it was concluded that the WHOQOL-BREF is a reliable and valid measure in a primary care population in the six countries.



The Longitudinal Investigation of Depression Outcomes (LIDO) is a 2002-2004 international study of depression outcomes in six countries. The study was funded by the National Institute of Mental Health (NIMH) and the National Institute on Aging (NIA). The study was led by Marianne Amir, MD, MPH, and Donald Patrick, MD, MPH. The study was a collaboration between the University of Washington, the University of Melbourne, the University of Porto Alegre, the University of St. Petersburg, the University of Barcelona, and the University of Be'er Sheva. The study was a collaboration between the University of Washington, the University of Melbourne, the University of Porto Alegre, the University of St. Petersburg, the University of Barcelona, and the University of Be'er Sheva. The study was a collaboration between the University of Washington, the University of Melbourne, the University of Porto Alegre, the University of St. Petersburg, the University of Barcelona, and the University of Be'er Sheva.