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BRIEF COMMUNICATION

The WHO quality of life (WHOQOL) questionnaire: Spanish development and validation studies

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Abstract
Background In the 1990s, the World Health Organization (WHO) undertook a project to develop an instrument (the WHOQOL) for measuring quality of life (QoL). The WHOQOL was developed in the framework of a collaborative project involving numerous centers in different cultural settings. This paper describes the psychometric properties of the Spanish WHOQOL during its development.
Methods One thousand and eighty-two patients with physical health conditions, persons without any health condition, patients with schizophrenia, and family caregivers of patients with schizophrenia participated on the WHOQOL-100 and WHOQOL-BREF field trials. QoL self-assessment was completed, together with sociodemographic and health status questions. Analysis was performed using classical psychometric methods. Results: Both versions of the WHOQOL showed satisfactory psychometric properties as follows: acceptability, internal consistency, and evidence of convergent and discriminant validity.
Conclusions The WHOQOL-100 and WHOQOL-BREF are suitable to use in patients with different health conditions, including schizophrenia, and in different populations, including caregivers. Spanish field trials are the first to report on use of the WHOQOL in persons with schizophrenia and caregivers. These results indicate that both versions are useful tools in assessing these groups, as the WHOQOL includes important dimensions commonly omitted from other generic QoL measures.

Keywords Spanish WHOQOL · Validity · Reliability · Development · Schizophrenia · Caregivers

Introduction

In 1991, the World Health Organization (WHO) started a project to develop an instrument (the World Health Organization Quality of Life –WHOQOL-) for measuring quality of life (QoL) internationally. QoL was defined as an *individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards, and concerns*. It is a broad-ranging concept, incorporating in a complex way the person's physical health, psychological state, level of independence, social relationships, personal beliefs, and their relationship to their environment. The definition highlighted the view that QoL referred to a subjective evaluation, including both positive and negative dimensions, and which was embedded in a cultural, social, and environmental context.

The WHOQOL was developed in the framework of a collaborative project initially involving fifteen centers in different cultural settings [1]. The steps for the development of the WHOQOL followed the WHOQOL methodology, which consisted of focus groups work in collaborating centers, item generation, pilot testing, refinement and item reduction, and then field trial testing of the instrument [1–5]. The *field test* aimed at establishing the instrument reliability and validity. The first WHOQOL field trial form

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(WHOQOL-100) contained 100 questions covering six domains and 24 facets [6, 7]. Next, the short version WHOQOL-BREF was developed for use in situations where time is limited and where respondent burden must be minimized [8]. The WHOQOL-BREF contained 24 questions covering 4 domains plus two questions related to overall QoL and satisfaction with health.

Data collection methods were similar to internationally agreed protocols designed during the development of the WHOQOL [1]. Data were collected using a cross-sectional design. Participants were recruited from a variety of inpatient and outpatient health care facilities and from the general population. Quota sampling was used to structure the sample so that equal numbers of each gender and the two age groups (split at 45 years) were targeted. In Spain, persons with physical health conditions, persons without health problems (*well*), and patients with schizophrenia participated in both field trials. Caregivers of patients with schizophrenia also participated on the WHOQOL-100 field trial. Spain was the only WHOQOL Center including patients with schizophrenia and their family caregivers. Detailed development of the Spanish version of the WHOQOL has been previously published in Spanish [9].

The aim of this paper is to briefly present the psychometric properties of the WHOQOL-100 and WHOQOL-BREF field trials from Spain, specifically acceptability, internal consistency reliability, and evidences of validity.

Method

Procedure

In Spain, Primary Care Centers (PCC), outpatient clinics, one psychiatric hospital, several community rehabilitation services, and the Catalan Association for the Families of the mentally ill were invited to participate. Field trial for the WHOQOL-100 was carried out from December 1995 to June 1996 and field trial for the WHOQOL-BREF from January to July 1997. Participants self-completed the questionnaire at each of the participating centers they were recruited. One researcher was present in case participants requested any assistance. All participants provided written informed consent prior to their inclusion in the study.

Participants

A total of 558 subjects participated on the WHOQOL-100 field trial: 194 patients with physical health conditions; 228 patients with schizophrenia (146 from outpatient clinics and day hospitals and 82 residents living in psychiatric institutions); 75 families of patients with schizophrenia; and 61 persons without health problems. 524 subjects participated on the WHOQOL-BREF field trial: 207 patients with physical health conditions; 216 patients with schizophrenia; and 101 persons without health problems. Patients with schizophrenia were not psychotically active when they completed the WHOQOL field trials.

Measures

WHOQOL-100 Field trial—*WHOQOL-100* [6]. The WHOQOL-100 included 100 items covering six domains (physical, psychological, levels of independence, social relationships, environment, and spirituality/religion/personal beliefs—SRPB-) and two global facets about overall QoL and satisfaction with health.

WHOQOL-BREF Field trial—*WHOQOL-BREF* [8]. The WHOQOL-BREF is comprised of 24 items covering four domains (physical, psychological, social relationships, and environment) plus two unscored questions about overall QOL and satisfaction with health.

Items are answered on a five-point scale, domain scores ranged from 4 to 20, with high scores representing higher QOL. Time frame for the assessment was the past 2 weeks. The Spanish version was used [9].

In addition, participants provided *sociodemographic* data, information related to their *subjective perception of health*, and they completed a list of chronic health conditions (yes/no). All information was self-reported.

Statistical analysis

Data analyses were carried out using SPSS.V7. Acceptability, reliability, and validity were assessed using standard psychometric methods [6, 8]. Internal consistency reliability was assessed using Cronbach's alpha ($\geq$0.70). Discriminant validity was determined using ANOVA and post hoc Scheffe test to distinguish differences among groups of participants. A p value < 0.05 was regarded as statistically significant.

Confirmatory factor analysis of the items included in the WHOQOL-BREF was carried out using the EQS package Version 5.0 [10].

Results

Acceptability

In general, time to complete the WHOQOL-100 was 15–20 min and less than 10 min to complete the WHOQOL-BREF; patients with schizophrenia and aged participants mainly those with eye problems took longer. Missing data for both trials were low (0.2–2%). There were no floor/ceiling

Table 1 Reliability. Internal consistency shown by Cronbach's alpha for WHOQOL-100 and WHOQOL-BREF domains

WHOQOL-100 domains				Total, $n = 558$
1. Physical				0.69
2. Psychological				0.81
3. Independence levels				0.76
4. Social relationships				0.73
5. Environment				0.82
6. SRPB				0.90
WHOQOL- BREF domains	Total, $n = 524$	Patients with schizophrenia	Patients with physical conditions	Healthy people
1. Physical	0.80	0.76	0.80	0.74
2. Psychological	0.78	0.78	0.73	0.69
3. Social relationships	0.75	0.70	0.71	0.75
4. Environment	0.78	0.80	0.73	0.77

Table 2 WHOQOL-100: gender, age, and WHOQOL-100 domain mean scores among different groups

	Patients with schizophrenia $n = 228$	Families of patients with schizophrenia $n = 75$	Patients with physical conditions $n = 194$	*Healthy* people $n = 61$
Gender: % male	64	20	40.2	37.7
Age: years mean ± SD	37.0	59.5	42.4	37.7
Domain				
1. Physical	11.97	13.07	12.82	14.57
2. Psychological	11.89	13.09	13.48	14.47
3. Independence	12.36	14.72	14.63	17.00
4. Social relations	11.59	13.46	14.40	14.93
5. Environment	12.24	13.42	12.99	13.65
6. SRPB	12.31	14.51	13.17	13.28

effects for any of the WHOQOL-100 and WHOQOL-BREF areas.

Reliability

Internal consistency measured by the Cronbach alpha for the WHOQOL-100 ranged across domains from 0.69 (physical) to 0.90 (SRPB) and from 0.74 (psychological) to 0.80 (physical) for the WHOQOL-BREF. For the WHOQOL-BREF, Cronbach's alpha values were acceptable for the three groups studied, except for the psychological domain among *healthy* people (0.69). (Table 1).

Validity

Construct validity. An item-to-domain correlation matrix showed all items correlated highest with their corresponding domains (data not shown).

Discriminant validity. The WHOQOL-100 discriminated between different groups of participants. Patients with schizophrenia scored significantly lower in all domains (worst QoL) than caregivers, patients with physical conditions, and participants without health problems (Table 2). Similarly, the WHOQOL-BREF discriminated between groups of participants. People with schizophrenia scored significantly lower in all WHOQOL-BREF domains compared with patients with health physical conditions and participants self-reporting not having any medical condition. Patients with physical conditions scored lower than participants without health problems, but differences were statistically significant only in two domains (physical and psychological) (Table 3).

A confirmatory factor analysis was conducted on the total sample. The result was acceptable and similar to that reported previously by the WHOQOL Group for the international sample [8, 11]. See Fig. 1.

Table 3 WHOQOL-BREF: gender, age, and WHOQOL-BREF domain mean scores among different groups

Domain	Patients with schizophrenia $n = 216$		Patients with physical conditions $n = 207$		Healthy people $n = 101$
Gender: % male	60		45		38
Age: mean (years)	38.5		41		37
Domain				p value	Scheffe
1. Physical	13.02	15.27	18.52	0.001	a < b < c
2. Psychological	12.07	15.30	17.05	0.001	a < b < c
3. Social relations	11.02	15.40	16.95	0.001	a < b = c
4. Environment	12.60	14.20	15.20	0.001	a < b = c

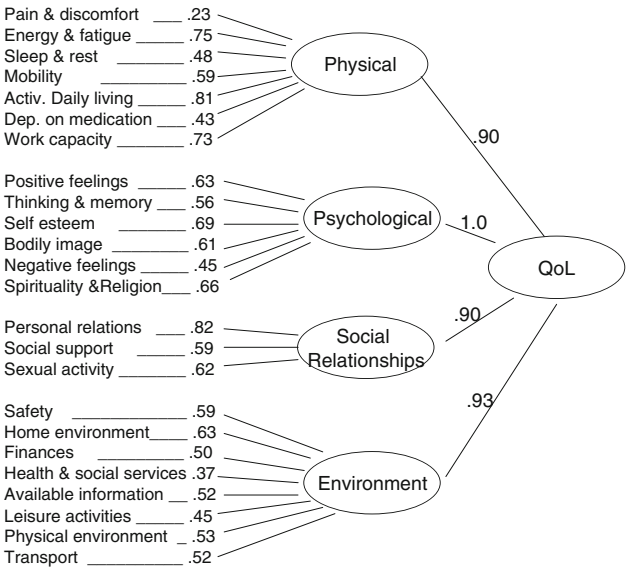

Fig. 1 Four model confirmatory factor analysis, CFI = .901

Conclusion

The WHOQOL was designed to assess QoL across cultures. The Spanish version of the WHOQOL-100 and the WHOQOL-BREF showed satisfactory psychometric properties as follows: acceptability, internal consistency, and evidence of convergent and discriminant validity.

The construct validity of the WHOQOL-100 and WHOQOL–BREF was supported in the correlation matrix analyses. Evidence for convergent validity was supported by significant positive correlations between all domains of the WHOQOL-100 with the global QoL facet as well as between WHOQOL–BREF domains and the global QoL item.

The Spanish WHOQOL-100 seemed to be a reliable instrument for use in the groups studied: patients with physical problems, *well* subjects, family caregivers, and patients with schizophrenia. Similarly, the WHOQOL-BREF was found to be reliable in patients with health physical conditions, *well* subjects, and patients with schizophrenia. Both, patients with schizophrenia and families also participated on the focus groups phase; focus groups provided evidence that patients with schizophrenia were willing and able to talk and comment meaningfully about their QoL [9, 12]. Both field trials showed that patients with schizophrenia had worst QoL compared with the other populations studied. These results demonstrated that some existing beliefs in the 1990s regarding concerns about patient self-report and validity problems when assessing QoL in schizophrenia were unjustified.

In the field of mental health, QoL became an issue in the context of deinstitutionalization. We did not found differences on QoL among patients who were residents in psychiatric institutions and those living in the community, but most of the patients living in the community had been deinstitutionalized in the previous years after being long-term institutionalized, and we did not collect detail information neither on the number of years they were deinstitutionalized nor on the type of community programs they were involved. Also possible, insufficient community services after deinstitutionalization could account for the lack of differences between groups.

During development of the WHOQOL, Spain was the only center including patients with schizophrenia in the validation studies. Other WHOQOL centers worked with different populations or conditions, among others, pain [13], diabetes [14], childbearing women [15], sarcoidosis [16], and persons with cancer [17]. Similarly to the results found in Spain, colleagues from the mentioned studies reported that the WHOQOL had good psychometric properties in the populations they studied.

Limitations of the study. We did not collect information on sensitivity to change, but other samples in Spain have shown that the WHOQOL is sensitive to change in patients with depression [18, 19], persons with neurodegenerative diseases [20], dementia [21], and elderly [22].

In conclusion, the results of the present study showed that both Spanish versions of the WHOQOL had good reliability and validity, and, therefore, they are suitable instruments for measuring QOL in different populations,

thus enabling a wide range of diseases and conditions to be compared.

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References

1. WHOQOL Group. (1993). Study protocol for the World Health Organization project to develop a quality of life assessment instrument (WHOQOL). *Quality of Life Research*, *2*(2),153–159.
2. WHOQOL Group. (1994). Development of the WHOQOL: Rationale and current status. *International Journal of Mental Health, 23*, 24–56.
3. WHOQOL Group. (1995). The World Health Organization Quality of Life assessment (WHOQOL): Position paper from the World Health Organization. *Social Science and Medicine, 41*, 1403–1409.
4. Sartorius, N., Kuyken, W. (1994) Translation of health status measures. In J. Orley & W. Kuyken (Eds.), *Quality of life assessment: International perspectives*. Heidelberg: Springer.
5. Szabo, S., Orley, J., Saxena, S. on behalf of the WHOQOL Group. (1997). An approach to response scale development for cross-cultural questionnaires. *European Psychologist*, *2*, 3270–3276.
6. WHOQOL Group. (1998). The World Health Organization quality of life assessment (WHOQOL): Development and general psychometric properties. *Social Science and Medicine, 46*, 1569–1585.
7. Power, M., Bullinger, M., Harper, A. (1999). The World Health Organization Quality of Life Group: The World Health Organization WHOQOL-100: Tests of the universality of quality of life in 15 different cultural groups worldwide. *Health Psychology*, *5*, 495–505.
8. WHOQOL Group. (1998). Development of the World Health Organization WHOQOL-BREF quality of life assessment. *Psychology Medicine, 28*, 551–558.
9. Lucas-Carrasco, R. (1998). Versión Española del WHOQOL. Editorial Ergón. Madrid.
10. Bentler, P. M., & Wu, E. J. (1995). *EQS structural equation program manual*. Encino, C.A: Multivariate Software, Inc.
11. Skevington, S. M., Lotfy, M., & O'Connell, K. A. (2004). The World Health Organization's WHOQOL-BREF quality of life assessment: Psychometric properties and results of the international field trial. A report from the WHOQOL group. *Quality of Life Research, 13*, 299–310.
12. Lucas-Carrasco, R., Salcedo, A., Susín, C., et al. (1997). Calidad de vida en pacientes esquizofrénicos y en parientes de esquizofrénicos. *Revista de psiquiatría de la Facultad de Medicina de Barcelona, 24*(6), 143–155.
13. Skevington, S. M., Carse, M. S., & Williams, A. C. (2001). Validation of the WHOQOL-100: Pain management improves quality of life for chronic pain patients. *The Clinical Journal of Pain, 17*(3), 264–275.
14. Pibernik-Okanović, M. (2001). Psychometric properties of the World Health Organisation quality of life questionnaire (WHOQOL-100) in diabetic patients in Croatia. *Diabetes Research and Clinical Practice, 51*(2), 133–143.
15. Bonomi, A. E., Patrick, D. L., Bushnell, D. M., & Martin, M. (2000). Validation of the United States' version of the World Health Organization Quality of Life (WHOQOL) instrument. *Journal of Clinical Epidemiology, 53*(1), 1–12.
16. De Vries, J., & Van Heck, G. L. (1997). The World Health Organization Quality of Life Assessment Instrument (WHOQOL-100): Validation study with the Dutch version. *European Journal of Psychological Assessment, 13*, 164–178.
17. Tazaki, M., Nakane, Y., Endo, T., Kakikawa, F., Kano, K., Kawano, H., et al. (1998). Results of a qualitative and field study using the WHOQOL instrument for cancer patients. *Japanese Journal of Clinical Oncology, 28*(2), 134–141.
18. Bech, P., Lucas, R., Amir, M., Bushnell, M., Martin, M., Buesching, D., et al. (2003). Association between clinically depressed subgroups, type of treatment and patient retention in the LIDO study. *Psychology Medicine, 33*, 1051–1059.
19. Simon, G., Fleck, M., Lucas, R., Bushnell, D., for the LIDO Group. (2004). Prevalence and predictors of depression treatment in an international primary care study. *American Journal of Psychiatry*, *161*, 1626–1634.
20. Lucas-Carrasco, R., Pascual-Sedano, B., Galán, I., Kulisevsky, J., Sastre-Garriga, J., Gómez-Benito, J. (2010) Quality of life in persons with physical disabilities caused by neurodegenerative disorders: Using the WHOQOL-DIS. *Neurodegenerative diseases* Dec 3 [Epub ahead of print].
21. Lucas-Carrasco, R., Skevington, S., Gómez-Benito, J., Rejas, J., March, J. (2011). Using the WHOQOL-BREF in patients with dementia: A validation study. Alzheimer Disease and Associated Disorders Feb 2 [Epub ahead of print].
22. Lucas-Carrasco, R., Laidlaw, K., Power, MJ. (In press) Suitability of the WHOQOL–BREF and WHOQOL-OLD for Spanish older adults. *Ageing and Mental Health*.