



Developing an Abbreviated WHOQOL-BREF for Patients with Major Chronic Diseases Using the IRT Model

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1. Objectives

To lower the burden and shorten the evaluation time of patients before outpatient clinic appointments, a short version of the WHOQOL-BREF assessment was developed for patients with major chronic diseases to assess their health-related quality of life.

3. Instruments

- (1) The WHOQOL-BREF measures four domains of quality of life (QOL), containing twenty-six items in total.
- (2) EUROHIS-QOL-8 has eight items selected from the WHOQOL-BREF.
- (3) The 36-item of the short form survey (SF-36) are classified into two summary scales: the physical component summary (PCS) and the mental component summary (MCS).
- (4) The visual analog scale measures four general domains of QOL.

2. Samples

The data (N= 8,920) was selected from the National Health Interview Survey (NHIS) project in 2001 in Taiwan.

Characteristics of the samples

Characteristic	Unhealthy participant						Healthy participant
	Heart disease	Cancer	Lung disease	Stroke	Diabetes	Kidney disease	
sample size	447	43	400	51	293	239	7657

4. Statistical Analysis

- (1) Use corrected item-total correlation (CITC > 0.4), multiple regression model (alpha < 0.05), and multidimensional rating scale (0.6 ≤ Outfit, Infit ≤ 1.4) to screen items
- (2) Use Pearson correlation to test concurrent validity.
- (3) Use independent sample t test to investigate discriminant validity.

5. Results

(1) **Nine items** (from the WHOQOL-BREF) were selected based on multiple statistical analyses.

domain	CITC	Beta	Outfit	Infit	Content
physical	0.60	0.20	0.70	0.68	Do you have enough energy in everyday life?
	0.62	0.13	0.98	1.02	How well are you able to get around?
	0.47	0.10	1.11	1.11	How satisfied are you with your sleep?
Psychological	0.78	0.07	1.22	1.23	To what extent do you feel your life is meaningful?
	0.74	0.15	0.87	0.88	How well are you able to concentrate?
	0.59	0.29	1.19	1.16	How often do you have negative feelings ?
socail relationships	0.78	0.36	0.75	0.76	How satisfied are you with your personal relationships?
	0.77	0.12	0.90	0.91	How satisfied are you with your sex life?
	0.77	0.19	0.67	0.69	How satisfied are you with the support you get from your friends?
environment	0.68	0.08	0.92	0.93	How safe do you feel in your daily life?
	0.66	0.16	1.11	1.10	How available to you is the information that you need in your day- to-day life?
	0.58	0.10	0.93	0.94	How satisfied are you with your access to health services?

(2) **The four-dimensional structure** measured by the selected items was verified.

Assumption	Deviance	AIC	Likelihood ratio test
Unidimensional structure	33129.32	33227.32	$\chi^2_{(9)} = 132.46, p < .001$
Four-dimensional structure	32996.86	33112.86	

(3) The proposed short version of the WHOQOL-BREF showed **acceptable concurrent validity**.

domain	general physical health	general psychological health	general social relationships	general environment	EUROHI-QOL -8	PCS	MCS
physical	0.58	0.55	0.43	0.42	0.79	0.46	0.43
Psychological	0.47	0.55	0.45	0.37	0.67	0.31	0.49
socail relationships	0.41	0.46	0.53	0.37	0.71	0.24	0.34
environment	0.45	0.46	0.43	0.52	0.68	0.26	0.33

(4) The proposed short version of the WHOQOL-BREF performed **well in discriminant validity**.

- Scores calculated from four domains in unhealthy group were statistically significantly lower than those in healthy group (p < 0.001).

6. Conclusions

The proposed short version of the WHOQOL-BREF was reliable and valid for patients with major chronic diseases. Therefore, this new form is recommended for use in clinical settings.