World Health Organization Quality of Life Assessment: Brief Version in Bahasa Malaysia

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Summary

WHOQOL-100, a 100 items quality of life assessment by WHO is too lengthy to be applicable in researches where the quality of life is one of the many variables of interest. The abbreviated version with 26 items is more acceptable by subjects, especially those with illness.

The generic and the abbreviated Malay version were given to subjects who were healthy and with illness. Results showed that the domain scores produced by WHOQOL-BREF correlate highly with that of WHOQOL-100. WHOQOL-BREF domain scores demonstrated good discriminant validity, construct validity, internal consistency and test-retest reliability.

The study indicates that WHOQOL-BREF in its brevity offers a valid and reliable assessment of quality of life.

Key Words: World Health Organization, Quality of life scale, Abbreviated version, Validation

Introduction

As in other parts of the world there has been an increasing need for Malaysian researchers to assess quality of life (QOL) in their patients. Their practice reflects a growing appreciation of the importance of how patients feel and how satisfied they are with treatment, in addition to the traditional focus on disease outcomes. Researches had proven that there is no better way to assess QOL then to ask patients themselves. Several studies have shown that there are disparities between patients', doctors', and relatives' ratings of the patient's quality of life" [1] or have suggested that doctors are unsuccessful in identifying aspects of disease and treatment that are important to patients [2,3].

The World Health Organization's measures, the 100 items quality of life questionnaire (WHOQOL-100) and the 26 items, abbreviated version (WHOQOL-BREF) are based on theoretical model that were universally regarded as important, in assessing quality of life, by 15 field centres of different countries. The WHOQOL-100 (Malay)

had been pilot tested in the School of Medical Sciences, University Sains Malaysia and it showed significant differences in the domains of healthy individual, patients with hypertension, diabetes, epilepsy, schizophrenia and those with two diagnoses i.e. ischaemic heart disease and hypertension [4]. WHOQOL-100 is however too lengthy to be considered appropriate for assessment of QOL in routine clinical work, large-scale epidemiological studies and in clinical trials. The psychometric properties of WHOQOL-BREF, the 26 items abbreviated version of WHOQOL-100 has been found satisfactory, and is a valid and reliable alternative to the assessment of domain profiles using the WHOQOL-100. [5]

This paper is about the psychometric properties of the Malay version of WHOQOL-BREF, which has been translated following the standard procedures as required by WHO.[6]

Materials and Methods

Subject characteristics
The sample for this study was recruited from the physician's and psychiatric clinic in Universiti Sains Malaysia's Hospital. This is a teaching hospital that caters for the urban and suburban areas of Kota Bharu and the surrounding districts. Recruitment is by convenient sampling and subjects should be able to rate the questionnaire on their own.

Sample size was 200, consisting of 40 healthy subjects and 40 in each group of patients with hypertension, diabetes mellitus, epilepsy, and schizophrenia. Half of each group was males. For the group with illness they must have been diagnosed and on treatment for more than 2 years and had no history of admission for more than 6 months before inclusion into the study. This is to avoid the influence of recent stressful events due to exacerbation of illness and hospitalization.

For patients with schizophrenia, they should not score more than 1 on items for delusion, hallucination and incoherence in the Brief

Psychiatric Rating Scale[7]. This is to ensure a more reliable and homogenous group of patients with schizophrenia. Diabetic and hypertensive patients who could not ambulate independently and who have identified end organ damage were excluded. Other exclusion criteria are cognitive impairment, substance misuse or other co-morbid illness.

The mean age was 39.4 and ranges from 20 to 70. The mean age for the patient group and the healthy group was 40.4 and 34.9 respectively ($p<0.5$), and there was statistically significant difference between the healthy and patient groups. It was difficult to match the age of the healthy group with patients from differing illness, and ideally each illness group should have its own matched for age control. As this is rather cumbersome, the control was selected around the median age of the ill group. The slightly older mean age of the ill group resulted from the more elderly patients in the diabetic and hypertensive group. Patients in all groups were matched for socioeconomic status. All patients were able to complete the questionnaire without assistance.

Results

The WHOQOL-BREF(Malay) scale behaviour
The question scores of the respondents on all the 26 questions of the BREF (Malay) ranged from 1 to 5. This indicated that the whole spectrum of the 5-point scales was utilised in the reflection of quality of life of the subjects. The mean scores ranged from 3.14 to 3.98 and the standard deviation ranged from 0.56 to 1.10. This indicated a good spread of the scores around the middle portion of the 5-point scale. No obvious floor or ceiling effect was noted. (Table I)

The question and domain scores for all questions correlated significantly at 0.001 level (two-tailed). The correlation coefficient ranged from 0.51 to 0.80 except for Q8 (Safety) which is 0.38 and Q26 (Negative feeling) which is 0.43. (Table I)

All domain scores correlated significantly to the two overall question scores (Q1, Q2). The

correlation coefficient ranged from 0.39 to 0.67. The highest correlation was found between the Environment domain (Domain 4) and the Psychological domain (Domain 2). The lowest correlation was found between the overall health (Q2) and the Social relationship domain (Domain 3). (Table II)

Internal consistency
The Cronbach alpha values which reflect the internal consistency of the 4 domains in the WHQOL-BREF (Malay), ranged from 0.64 in the domain 2 (psychological domain) to 0.80 in domain 1 (physical domain). These figures are comparable to the data from the pilot study of WHOQOL-BREF in Hong Kong and slightly lower when compared to the global field test by WHO. Cronbach alpha values for domain 3 should be read with caution as they were based on three scores rather than the minimum of four as recommended for assessing internal reliability in general (Table III). Cronbach alpha for question 3 to 26 (24 items) is 0.89.

Test-retest reliability
Out of the 200 total subjects, 100 subjects were asked to complete the same questionnaire within 2 weeks. The agreement of their ratings on the questions at time point one and two, as reflected by intra-class correlation coefficient (ICC), ranged from 0.49 to 0.88, with 7 out of 26 questions with ICC value below 0.75 were regarded as having fair test-retest agreement. The other 19 questions with ICC value equal to 0.75 or above were regarded to have good test-retest reliability. (Table VI)

Concurrent validity
The domain scores and the General question scores, Q1 and Q2, of the BREF (Malay) were compared with the self-rating on current health status of the subjects. It asked, "How is your current health condition?" and the respondents checked their response on a five level scale from "very good" to "very poor". Spearman's correlation was used for the comparison. There were

significant correlation between the reported current health status and domain scores, the correlation coefficient between current health status and domain 1 to 4 were .65, .44, .32, and .45 respectively. The highest correlation was found between current health status and physical domain and the lowest in the social relationship domain. (Table IV)

Criterion validity
One hundred subjects were asked to complete the WHOQOL-100 (Malay) questionnaire two weeks before rating the WHOQOL-BREF (Malay). Pearson Correlation of the domain scores of WHOQOL-100 and domain scores of WHOQOL-BREF was .74 for physical domain, .66 for psychological domain, .67 for social relationship domain and .71 for environmental domain. The time between the rating of WHOQOL-100 and WHOQOL-BREF was 2 weeks apart.

Discriminant validity
The WHOQOL-BREF (Malay) was able to show excellent ability in discriminating between patients and healthy people in all four domains (Table V). Physical impairment was significantly lowest in hypertensive and diabetic group, while psychological domain was significantly and similarly affected in the four groups of patients. Social relationship was most impaired in patients with epilepsy and schizophrenia (p<0.005) and spirituality was significantly impaired in schizophrenia (p<0.05) Figure 1. This pattern of impairment was similar to that demonstrated by the parent version i.e. the WHOQOL-100 (Malay) (Figure 1) [4].

Construct validity
Exploratory factor analysis was done using the question scores of all questions, except the 2 general questions. Principal component method was used to extract 4 factors. Questions under the environmental domain formed the core of factor 1, those under the physical domain form the core of factor 2, those under the social relationship domain form the core of factor 3 and those under

the psychological domain form the core of factor 4. 20 out of 24 questions were regarded as being grouped under the correct factor. This result was about the same as with WHOQOL-BREF (Hong Kong). [8]

Table I: Scale properties of the WHOQOL-BREF (Malay) in 40 healthy individuals and 160 patients.

Question Number Bref(Malay)	Min. Score	Max. Score	Mean	Std. Deviation	Question/ Domain correlation
Q 1	1	5	3.80	0.75	NA
Q 2	1	5	3.21	1.10	NA
Q 3	1	5	3.14	1.05	0.65**
Q 4	1	5	2.94	0.95	0.65**
Q 5	1	5	3.15	0.56	0.56**
Q 6	1	5	3.77	0.69	0.63**
Q 7	1	5	3.45	0.71	0.58**
Q 8	1	5	3.58	0.71	0.38**
Q 9	1	5	3.23	0.66	0.62**
Q10	1	5	3.26	0.91	0.70**
Q11	1	5	3.93	0.82	0.65**
Q12	1	5	3.42	0.80	0.60**
Q13	1	5	3.22	0.66	0.51**
Q14	1	5	2.78	0.99	0.64**
Q15	1	5	3.83	0.74	0.55**
Q16	1	5	3.60	0.94	0.59**
Q17	1	5	3.48	0.94	0.62**
Q18	1	5	3.36	1.08	0.61**
Q19	1	5	3.71	0.91	0.61**
Q20	1	5	3.86	0.65	0.77**
Q21	1	5	3.50	0.70	0.73**
Q22	1	5	3.66	0.81	0.80**
Q23	1	5	3.95	0.70	0.65**
Q24	1	5	3.98	0.60	0.67**
Q25	1	5	3.82	0.79	0.68**
Q26	1	5	3.83	0.70	0.43**

** Indicates the correlation significant at 0.001 level (2-tailed).

Table II: Correlation matrix of the domain scores and the general questions scores (Q1, Q2) of the healthy individuals (n=40) and patients (n=160).

	Pearson's correlation coefficients					
	Domain 1	Domain 2	Domain 3	Domain 4	Overall QOL(Q1)	Overall QOL(Q2)
Domain 1	1.00					
Domain 2	0.48**	1.00				
Domain 3	0.43**	0.42**	1.00			
Domain 4	0.52**	0.67**	0.54**	1.00		
Q1	0.47**	0.54**	0.55**	0.51**	1.00	
Q2	0.43**	0.47**	0.39**	0.48**	0.51**	1.00

** Correlation is significant at 0.01 level (2-tailed)

Table III: Internal consistency of the 4 domains in the WHOQOL-BREF (Malay) in local field test, Hong Kong data and from the global field data from WHO

		Cronbach Alpha		
WHOQOL-BREF		Malay N=200	Hong Kong N=848	Global N=2369
Domain 1	Physical Health	0.80	0.75	0.95
Domain 2	Psychological	0.64	0.80	0.93
Domain 3	Social relationship	0.65	0.67	0.89
Domain 4	Environment	0.73	0.78	0.95

Table IV: Correlation matrix (Spearman's rho) of the reported current health status, domain scores and the general questions scores (Q1, Q2) of the healthy individuals (n=40) and patients (n=160).

	Reported Health	Q1	Q2	Domain 1	Domain 2	Domain 3	Domain 4
Reported Health	1.00						
Q1	.398**	1.00					
Q2	.493**	.519**	1.00				
Domain1	.653**	.545**	.602**	1.00			
Domain 2	.436**	.570**	.536**	.551**	1.00		
Domain 3	.324**	.422**	.368**	.441**	.367**	1.00	
Domain 4	.446**	.447**	.460**	.554**	.664**	.344**	1.00

** Correlation is significant at 0.01 level (2-tailed)

Table V: Discriminant validity of the domain scores of the WHOQOL-BREF (Malay)

	WHOQOL-BREF (MALAY)		
	Mean difference	95% C.I	t value
Physical Health Domain	3.37	2.7-4.0	10.14***
Psychological Domain	1.58	.95-2.22	5.02***
Social Relationship Domain	.75	.73-1.42	2.21**
Environment Domain	1.15	.48-1.81	3.4**

* p < .05   ** p < .005   *** p < .0005

Table VI: Test-retest reliability of the WHOQOL-BREF (Malay)

Domains	Malay BREF	Intra-class correlation coefficient	WHOQOL-BREF (Malay) Person of test & retest N=100	WHOQOL-BREF (Global) Person of test & retest N=391
Overall question	Q 1	0.79	0.79	0.68
	Q 2	0.88	0.88	0.71
Physical Health domain	Q 3	0.82	0.82	0.59
	Q 4	0.88	0.89	0.81
	Q10	0.74	0.77	0.66
	Q15	0.82	0.82	0.72
	Q16	0.82	0.83	0.69
	Q17	0.84	0.84	0.61
	Q18	0.81	0.81	0.63
Psychological domain	Q 5	0.49	0.50	0.66
	Q 6	0.63	0.65	0.64
	Q 7	0.79	0.80	0.57
	Q11	0.73	0.74	0.73
	Q19	0.86	0.89	0.65
	Q26	0.87	0.73	0.59
Social Relationship domain	Q20	0.74	0.81	0.65
	Q21	0.75	0.75	0.74
	Q22	0.79	0.79	0.65
Environment domain	Q 8	0.78	0.81	0.56
	Q 9	0.71	0.78	0.69
	Q12	0.83	0.83	0.84
	Q13	0.62	0.70	0.65
	Q14	0.75	0.75	0.68
	Q23	0.69	0.69	0.69
	Q24	0.78	0.78	0.67
	Q25	0.78	0.83	0.78

Table VII: Scale construct validity and extracting 4 factors by the rotated principle components

	Question No in WHOQOL-BREF (Malay)	Correlation coefficient r
Factor 1		
Environmental Domain 4	Q 24	Δ
	Q 9	Δ
	Q 5	Δ
	Q 23	Δ
	Q 25	O
	Q 14	O
Factor 2		
Physical Domain 1	Q 3	Δ
	Q 4	Δ
	Q 18	O
	Q 10	O
	Q 15	O
	Q 17	O
Factor 3		
Social Domain 3	Q 22	Δ
	Q 20	Δ
	Q 21	O
Factor 4		
Psychological Domain 2	Q 6	Δ
	Q 7	Δ
	Q 11	O
Questions that were not	Q 8	
loaded into its original domain	Q 12	
	Q 16	
	Q 26	

Δ Correlation coefficient $r \geq .60$ O Correlation coefficient $.30 < r < .60$

The WHOQOL-BREF domain scores for the 5 groups of subjects

normal   hypertensive   diabetic
epilepsy   schizophrenia

Mean scores / WHOQOL-BREF Domains

general physical psychol social rel spiritual

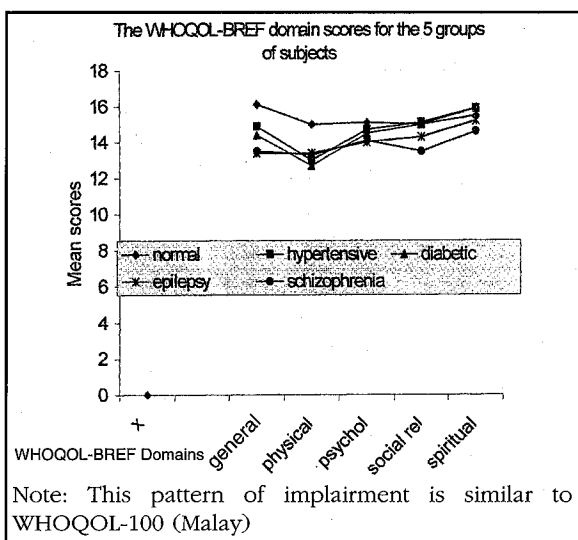Note: This pattern of implairment is similar to WHOQOL-100 (Malay)

Fig. 1: The discriminant validity of WHOQOL-BREF according to domains in healthy (n=40) and 4 groups of patient (n=160)

Discussion

The above study demonstrated that the psychometric properties of WHOQOL-BREF (Malay) were satisfactory. It was also able to reveal the characteristic impairment specific to certain illness that was comparable to the WHOQOL-100 (Malay). The WHOQOL-BREF remains slightly longer than some other short forms of quality of life assessment, e.g. SF-12 [9], but encompasses a larger number of domains that are integral to the assessment of quality of life; notably the social and sexual relationships and environmental domains that are not always included in other assessments. Many other QOL questionnaires were based on health professionals' definitions of what was relevant, resulting in failure to capture the quality of life of individual patients or what are actually

considered as important to patients. Such limitation was apparent in established questionnaires like the European quality of life measure (EuroQol), Nottingham Health Profile and the medical outcomes study 36-item short form health survey (SF-36). In SF-36, domains on sleep, relationship, sexual functioning, dependence or independence, self-perception of body image and perceptions of the future were not included[10].

As measure of outcome for drug intervention, WHOQOL-BREF has been found to be sensitive to changes from drug treatment [11] and is now in use to measure the quality of life of Asian patients in a multicenter clinical study comparing haloperidol with olanzapine. Increasing health related quality of life studies are carried out in Malaysia, thus the need for a valid and reliable health related quality of life measure. Data obtained by WHOQOL-BREF is comparable to other WHOQOL collaborating countries, and Universiti Sains Malaysia has been accepted as one.

Conclusion

For its brevity yet comprehensive measure of QOL, WHOQOL-BREF is useful in epidemiological studies as well as in intervention studies. Its additional appeal is that it is a questionnaire that is applicable cross culturally as its has been internationally multicentered from its conception.

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Appendix 1
WHOQOL-BREF

		Sangat tidak baik	Tidak baik	Sederhana	Baik	Sangat baik
1(G1)	Bagaimanakah anda menilai kualiti kehidupan anda?	1	2	3	4	5

		Sangat tidak berpuas hati	Tidak berpuas hati	Sederhana	Berpuas hati	Sangat berpuas hati
2(G4)	Setakat manakah anda berpuas hati dengan kesihatan anda?	1	2	3	4	5

Soalan-soalan berikutnya bertanyakan setakat mana anda telah mengalami sesuatu perkara **dalam dua minggu yang lepas.**

		Tiada langsung	Sedikit sahaja	Sederhana	Sangat banyak	Teramat
3(F1.4)	Setakat manakah anda berasa kesakitan (fizikal) menghalang anda dari melakukan apa yang anda perlu lakukan?	1	2	3	4	5
4(F11.3)	Berapa banyakkah rawatan perubatan yang anda perlu untuk berfungsi dalam kehidupan harian anda?	1	2	3	4	5
5(F4.1)	Berapa banyakkah anda menikmati keseronokan dalam hidup anda?	1	2	3	4	5
6(F24.2)	Setakat manakah anda rasa hidup anda bermakna?	1	2	3	4	5

		Tiada langsung	Sedikit sahaja	Sederhana	Sangat	Teramat
7(F5.3)	Berapa baikkah anda dapat memberi tumpuan?	1	2	3	4	5
8(F16.1)	Berapa selamatkah anda rasa dalam kehidupan seharian anda?	1	2	3	4	5
9(F22.1)	Berapa sihatkah persekitaran fizikal anda?	1	2	3	4	5

Soalan-soalan berikutnya bertanyakan bagaimana sempurnanya anda mengalami atau berupaya melakukan sesuatu perkara **dalam dua minggu yang lepas**.

		Tiada langsung	Sedikit sahaja	Sederhana	kebanyak-kannya	Sepenuhnya
10(F2.1)	Adakah anda mempunyai cukup tenaga untuk kehidupan harian anda?	1	2	3	4	5
11(F7.1)	Adakah anda dapat menerima rupa dan bentuk tubuh anda?	1	2	3	4	5
12(F18.1)	Adakah anda mempunyai wang yang cukup untuk memenuhi keperluan anda?	1	2	3	4	5

		1	2	3	4	5
13(F20.1)	Setakat manakah kemudahan bagi anda untuk mendapatkan maklumat yang diperlukan dalam kehidupan harian?	1	2	3	4	5
14(F21.1)	Setakat manakah anda mendapat peluang untuk aktiviti riadah?	1	2	3	4	5

		Sangat baik	tidak baik	Sederhana	Baik	Sangat baik
15(F9.1)	Sebaik manakah keupayaan anda bergerak dari satu tempat ke satu tempat yang lain?	1	2	3	4	5

Soalan-soalan berikut bertanyakan tentang perasaan anda terhadap beberapa aspek tertentu dalam kehidupan anda **sepanjang dua mingggu yang lepas.**

		Sangat tidak berpuas hati	Tidak berpuas hati	Sederhana	Berpuas hati	Sangat berpuas hati
16(F3.3)	Adakah anda berpuas hati dengan tidur anda?	1	2	3	4	5
17(F10.3)	Adakah anda berpuas hati dengan keupayaan anda melaksanakan aktiviti kehidupan harian anda?	1	2	3	4	5
18(F12.4)	Adakah anda berpuas hati dengan keupayaan anda bekerja?	1	2	3	4	5
19(F6.3)	Adakah anda berpuas hati dengan diri anda?	1	2	3	4	5
20(F13.3)	Adakah anda berpuas hati dengan perhubungan peribadi anda?	1	2	3	4	5
21(F15.3)	Adakah anda berpuas hati dengan kehidupan seks anda?	1	2	3	4	5
22(F14.4)	Adakah anda berpuas hati dengan sokongan yang anda dapati dari kawan-kawan anda?	1	2	3	4	5
23(F17.3)	Adakah anda berpuas hati dengan keadaan tempat tinggal anda?	1	2	3	4	5
24(F19.3)	Adakah anda berpuas hati dengan kemudahan mendapatkan perkhidmatan kesihatan ?	1	2	3	4	5
25(F23.3)	Adakah anda berpuas hati dengan pengangkutan anda?	1	2	3	4	5

Soalan berikut merujuk kepada kekerapan anda merasa atau mengalami sesuatu emosi **sepanjang dua minggu yang lepas.**

		Tidak pernah	Jarang-jarang	Kerap	Sangat Kerap	Sentiasa
26(F8.1)	Berapa kerapkah anda mempunyai perasaan-perasaan negatif, seperti susah hati, kecewa, kegelisahan atau kemurungan?	1	2	3	4	5

Adakah anda mempunyai sebarang maklumbalas tentang soal-jawab ini?