Validation of an Instrument for Measuring Quality of Life amongst Malaysian Youth

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Abstract

Psychometrics analysis is often used in quality of life outcomes research to evaluate the validity of survey instruments. Many psychometrics assessment instruments have been tested to various cohorts of participants. This paper offers a contribution to validate the instrument of quality of life research that was tested to Malaysian youths. The aim of this paper is to provide an analysis of psychometrics properties of the instrument WHOQOL-BREF, based on the scores of 435 valid questionnaires collected in the study. These psychometrics analyses, which include internal reliability, factor structure, loadings item and inter-domain correlations were tested to the data obtained from 15 to 40 years old of Malaysian youths who completed a 25-item questionnaire on quality of life. The questionnaire was designed to measure four different domains, two of which included physical health and psychological factor. The items fulfilled the internal consistency reliability while the factor analysis extracted approximately 65 percent of the items as the main seven factors. The loading items recognized the domain of Environment as the highest items load followed by the domain of Physical Health. Inter-domain correlations were measured and Spearman's rho coefficients ranged from 0.554 to 0.613 to prove the connectivity of the four domains. The statistical evidence from Malaysian youth data supports the conclusions of WHOQOL-BREF as a suitable psychometrics tool for measuring quality of life.

Keywords: factor analysis, quality of life, youth, internal consistency, correlation

1. Introduction

Quality of life (QOL) has gained momentum in recent years with increasing awareness efforts made to create a higher quality living environment. With the advent of conceptual meaning of QOL, many attempts have been made in various perspectives to define what constitutes the QOL. There are many and diverse definitions of QOL that have been noted in the literature. Some authors use the term interchangeably with other concepts such as subjective well-being, happiness, life satisfaction and the good life (Rice, 1984). While there is no certainty to what QOL means, QOL had been defined as the degree of well-being, satisfaction and standard of living (Campbell et al., 1976). It is also believed that the quality of a person's life is directly related to the person's capability. A capability is defined as the ability or the potential to do or be something or more technically, is defined as to achieve a certain level of function such as health and education (Sen, 1987). QOL has been used as an indicator to measure not only the progress of nations and societies in general but also as a gauge to evaluate special cohort in society such as elderly people, children and youths. For example, Chipuer et al. (2003) examined youth's experience of loneliness and community connectedness in Australia. Loneliness and community connectedness among youths were examined in relation to seven domains of subjective quality of life among pre-adolescents, early adolescents, and middle adolescents. In the USA, Garcia-Rea and LePage (2010) assessed the quality of life of male African American homeless veteran population. In a reliability study, Izutsu et al. (2005) investigated QOL among adolescent population in Bangladesh.

Several attempts have been made to explore QOL with multiple approaches and instruments. Khamis (2000) adopted linear structural model to a fifteen variables questionnaire representing three factors were considered in the measurement of QOL. The three factors were socio-economic factors, structural demographic factors and family factor. Abdullah and Jamal (2010) described the application of a fuzzy decision making method in ranking indicators of health related QOL with the decisions from expert opinions. Among the popular

instruments used in QOL research were Positive and Negative Affect Schedule (1988) and Philadelphia Geriatric Center Positive Affect Rating Scale (1992). Of the many instruments, one of the much talked instruments is World Health Organization Quality of Life (WHOQOL). The instrument was developed by a group of quality of life enthusiasts attached to World Health Organization. The WHOQOL project was initiated in 1991 with the aim to develop an international cross-culturally comparable QOL assessment instrument. It assesses the individual's perceptions in the context of their culture and value systems, and their personal goals, standards and concerns. The WHOQOL instruments were developed collaboratively in a number of centers worldwide, and have been widely field-tested. As an improvement and simplification of the original version of WHOQOL, the WHOQOL-BREF questionnaire was designed by an international collaboration on QOL working through the World Health Organization (WHO, 2010). The WHOQOL-BREF provides a shorter instrument and being, theoretically, more manageable (Garcia-Rea & LePage, 2010). The WHOQOL-BREF has been tested in numerous populations including geriatric (Chachamovich et al., 2008), transplants (Nejatisafa et al., 2008), anxiety and depression (Masskulpan et al., 2008), cognitive impairment (Kim et al., 2008), heart failure (Zhao et al., 2008), multiple sclerosis (Wynia et al., 2008) and homeless veteran (Garcia-Rea & LePage, 2010). In brief, the instrument has four domains: Physical Health, Psychological, Social Relationship, and Environment. It contains 26 questions about many different aspects of QOL, with some questions about respondents' perception toward their QOL and their health conditions. In other words, the WHOQOL-BREF is a shorter version of the original instrument, which is may be more convenient to use in large research studies.

To date, many research have been adopted the WHOQOL-BREF throughout the globe with various versions of local languages and have been experimented to many groups of societies. For example, Min et al. (2002) develop Korean version of WHOQOL-BREF. The WHOQOL-BREF was translated into colloquial Korean according to the instructions of the WHOQOL study group. Four hundred and eighty six people completed the questionnaire. Collected data were validated statistically using reliability, internal consistency, criterion validity, content validity and discriminant validity. The WHOQOL-BREF questionnaire was also translated into many other versions such as Chinese, Bangladeshi, and Arabic. This instrument was used to analyze QOL level at the locality of the study. The Arabic version of the WHOQOL-BREF questionnaire was initiated by Abdel-Khalek (2010). In his analysis, Abdel-Khalek (2010) measures the correlations of the domains and test-retest of the domains. Izutsu et al. (2005) conducted a research about validity and reliability of the Bangladeshi's version of WHOQOL-BREF to an adolescent population in Bangladesh. In another research, Garcia-Rea and LePage (2010) examined the reliability and validity of the WHOQOL-BREF in measuring QOL among veteran homeless. Past research evidently shows that the WHOQOL-BREF focuses on aspects of QOL in societies and has been tested with various psychometrics properties. So far, however, there has been little discussion about testing of the instrument with a group of society in Malaysia. Besides validity and reliability, other psychometrics properties such as factor analysis associated with the WHOQOL-BREF, has not yet been fully analysed especially for youth cohort. Based on these premises, the present paper extends the psychometrics properties of the WHOQOL-BREF using Malaysian youth data. Specifically this paper aims to provide the properties of reliability, factor analysis and inter-domains correlation of the WHOQOL-BREF in measuring the QOL amongst Malaysian youths.

The rest of the paper is organized as follows. In Section 2, preliminary discussions on theoretical definitions of the related psychometrics tests are presented. An experiment to a sample of Malaysian youths is explained in Section 3. Results and discussion are given in Section 4. This paper finally ends with conclusion in Section 5.

2. Preliminaries

As to make this paper self-contained, the psychometrics property of reliability, factor analysis and correlation are theoretically explained in this section. Three subsections are introduced to make the three psychometrics properties clearly presented.

2.1 Internal Consistency Reliability

Reliability is defined as the extent to which results are consistent over time and an accurate representation of the total population under study (Joppe, 2006). If the results of a study can be reproduced under a similar methodology, then the research instrument is considered to be reliable. Kirk and Miller (1986) identify three types of reliability in quantitative research. Of the three methods, the most commonly used measure of reliability in statistics is Kuder-Richardson Formula 20 (KR-20). The KR-20 is a measure of internal consistency reliability for measures with dichotomous choices. Kuder-Richardson procedure is used to determine how all the items in a test relating to each item with other items, the sub-item to total items. The formula for KR-20 to assess reliability is given as

$$\alpha = \frac{K}{K-1}\left[1 - \frac{\sum_{i=1}^{K} p_i q_i}{\sigma_X^2}\right] \tag{1}$$

where K is the length of the test, p is the proportion of people passing the item, q is the proportion of people failing the item, and variance in the denominator is given as

$$\sigma_x^2 = \frac{\sum_{i=1}^{N}\left(X_i - \overline{X}\right)^2}{N} \tag{2}$$

The analogous and extension of KR-20 is Cronbach's α. The Cronbach's α is a coefficient of reliability and commonly used as a measure of the internal consistency or reliability of a psychometrics test (Cronbach, 1951). The Cronbach's α is used for non-dichotomous (continuous) measures. The KR-20 is seen as a derivative of the Cronbach's α formula, with the advantage to Cronbach's α that it can handle both discontinuous and continuous variables. Cronbach's α is defined as

$$\alpha = \frac{K}{K-1}\left[1 - \frac{\sum_{i=1}^{K} \sigma_{Yi}^2}{\sigma_X^2}\right] \tag{3}$$

where K is the number of components (K-items or testlets), σ_X^2 the variance of the observed total test scores, and the σ_{Yi}^2 variance of component i for the current sample of persons.

2.2 Factor Analysis

Factor analysis is a statistical method used in psychometrics to describe variability among observed variables in terms of a potentially lower number of unobserved variables called factors. Factor analysis was employed to ascertain the minimum number of factors that could be accounted from the observed covariation among factors (Thompson, 2004).

Factor analysis begins with number of variables $X_1, X_2, \ldots, X_p$ where

$$\begin{aligned}
X_1 &= l_{11}\lambda_1 + l_{12}\lambda_2 + l_{1m}\lambda_m + \ell_1 \\
X_2 &= l_{21}\lambda_1 + l_{22}\lambda_2 + l_{2m}\lambda_m + \ell_2 \\
&\ldots \\
&\ldots \\
X_p &= l_{p1}\lambda_1 + l_{p2}\lambda_2 + l_{pm}\lambda_m + \ell_p
\end{aligned} \tag{4}$$

Equation (4) can be simplified in matrix form,

$$\begin{pmatrix} X_1 \\ X_2 \\ \ldots \\ X_p \end{pmatrix} = \begin{pmatrix} l_{11} & l_{12} & l_{1m} \\ l_{21} & l_{22} & l_{2m} \\ \ldots & \ldots & \ldots \\ l_{p1} & l_{p2} & l_{pm} \end{pmatrix} \begin{pmatrix} \lambda_1 \\ \lambda_2 \\ \ldots \\ \lambda_m \end{pmatrix} + \begin{pmatrix} \ell_1 \\ \ell_2 \\ \ldots \\ \ell_p \end{pmatrix} \tag{5}$$

where:

$X_1, X_2, \ldots, X_p$ are known variables;

l_{ij} is a contant represents loading for i-th and j-th factor;

λ_j is j-th factor.

Similarly, the Equation (5) can be expressed in the matrix notation:

$$\mathbf{x} = \mathbf{\Lambda}\,\mathbf{f} + \mathbf{e}$$

where

$\mathbf{\Lambda} = \{l_{ij}\}$ is a $p \times k$ matrix of constants, called the matrix of factors loadings.

The factor loadings are the correlation coefficients between the variables and factors. Factor loadings are the basis for imputing a label to different factors.

$\mathbf{f}$ = random vector representing the k common factors.

$\mathbf{e}$ = random vector representing p unique factors associated with the original variables.

The common factors $f_1, f_2, ..., f_k$ are common to all X variables, and are assumed to have mean = 0 and variance = 1. The unique factors are unique to Xi. The unique factors are also assumed to have mean = 0 and are uncorrelated to the common factors.

Equivalently, the covariance matrix $\boldsymbol{\Sigma}$ can be decomposed into a factor covariance matrix and an error covariance matrix:

$$\boldsymbol{\Sigma} = \boldsymbol{\Lambda}\,\boldsymbol{\Lambda}^{T} + \boldsymbol{\Psi} \tag{6}$$

where

$\boldsymbol{\Psi} = \text{Var}\{u\}$

$\boldsymbol{\Lambda}^{T}$ is the transpose of $\boldsymbol{\Lambda}$

The diagonal of the factor covariance matrix is called the vector of communalities h_i^2 where

$$h_i^2 = \sum_{j=1}^{n} \lambda_{ij}^2 \tag{7}$$

The sum of the squared factor loadings for all factors for a given variable is the variance in that variable accounted for by all the factors, and this is called the communality. The factor analysis model does not extract all the variance; it extracts only that proportion of variance, which is due to the common factors and shared by several items.

2.3 Spearman's rho Correlations

Besides reliability and factor analysis, the measure of inter domain correlations is also used in psychometrics test. In non parametric statistics where the distribution of data is free or unknown, the Spearman's rho is used to indicate the strength of correlations between two domains (Maritz, 1981). With Spearman's rho, differences between data values ranked further apart are given more weight, similar to the signed-rank test. Rho is perhaps the easiest to understand as the linear correlation coefficient computed on the ranks of the data. Thus rho can be computed as a rank transform method. To compute rho, the data for two variables are ranked independently among themselves. The Spearman rho is defined as the coefficient between the ranked variables (Myers & Well, 2003). The n raw scores x_i, y_i are converted to ranks x_i, y_i and rho is computed from the following equation.

$$rho = \frac{\sum_i \left(x_i - \overline{x}\right)\left(y_i - \overline{y}\right)}{\sqrt{\sum_i \left(x_i - \overline{x}\right)^2 \sum_i \left(y_i - \overline{y}\right)^2}} \tag{8}$$

Tied values are assigned a rank equal to the average of their positions in the ascending order of the values. In applications where ties are known to be absent, a simpler procedure can be used to calculate rho. Differences $d_i = x_i - y_i$ between the ranks of each observation on the two variables are calculated, and rho is given by:

$$rho = 1 - \frac{6 \sum d_i^2}{n\left(n^2 - 1\right)} \tag{9}$$

The three measures: internal consistency reliability, factor analysis and Spearman's rho correlation coefficients are employed in validating the instrument WHOQOL-BREF. The experiment design of the QOL among Malaysian youth and the validating results are explained in the following sections

3. Experiment

Using an approach of survey, the study was designed to assess validity of the instrument WHOQOL-BREF. Four hundred and thirty five youth of the age from 15 to 40 years old in State of Kedah, Malaysia participated in this experiment. Part of the data in SPSS data view file are shown in Appendix A. The descriptive of the sample data are presented in Table 1.

Table 1. Demographic characteristics of the sample data

Demographic characteristics	n (%)
Gender	
Male	128 (29.4)
Female	307 (70.6)
Age (year)	
15 to 24	311 (71.5)
25-30	97 (22.3)
31-40	27 (6.2)
Employment status	
Student	316 (72.6)
Employed	107 (24.6)
Unemployed	12 (2.8)

The instrument WHOQOL-BREF was used to identify the QOL in the four domains of Physical Health, Psychological, Social Relationship, and Environment. There are twenty six items in the original instrument. The first two items are about perception of respondents toward their general quality of life and health (global items). Tthe other twenty four items are the question related to the four domains of QOL. In this research, item number 21 was deleted because it was not suitable with young unmarried Malaysian participants. The item intends to tap sexual satisfaction and it deems inappropriate in the context of unmarried Malaysian youths who made up the majority of the participants. For each item, generally there are five scales: one (not at all), two (A little), three (A moderate amount), four (very much), and five (an extreme amount). The instrument used in this study is given in Appendix B. After the data collection was completed, each item was analyzed and the scores were considered as nominal data. In order to validate the instrument, three main analyses: internal consistency reliability, factor analysis and Spearman rho's correlation coefficients were conducted.

4. Results and Discussion

This section is divided into three subsections as to align to the preliminaries and the objectives of this paper.

4.1 Internal Consistency Reliability

By using Equation (3), analysis of reliability was performed on the twenty three items for all four hundred and thirty five valid WHOQOL- BREF questionnaires (Table 2). The reliability of the items was found as 0.863. This coefficient reflects strong reliability of the items rated by Malaysian youths.

Table 2. Internal consistency reliability Cronbach's α

Cronbach's α	Number of Items
0.863	25

The Cronbach's α shows that the instrument is reliable for the Malaysian youth. In actual fact, the reliability of the instrument for Malaysian youth outperformed the test-retest reliability of the Arabic version instrument tested by Abdel-Khalek (2010). This version records reliability between 0.72 and 0.88. The reliability of the current study are generally consistent with those of Skevington et al. (2004) who found that internal consistency generally adequate for the Physical (0.82), Psychological (0.81), and Environment (0.80) domains though somewhat limited for the social domain (0.68). Very recently, Garcia-Rea and LePage (2010) shows the support for the use of the WHOQOL-BREF in a homeless population where internal consistencies and test–retest coefficients were above 0.70 for all domains.

4.2 Factor Analysis

Factor analysis was performed as the next validating tool. The number of components extracted using Kaiser's criterion (eigenvalues less than 1.0) was seven, accounting for 64.6% of the total variance. Total variance explained for the seven factors that can be seen in Table 3.

Table 3. Total variance explained

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	7.650	30.602	30.602	7.650	30.602	30.602
2	1.835	7.339	37.941	1.835	7.339	37.941
3	1.652	6.607	44.547	1.652	6.607	44.547
4	1.549	6.194	50.742	1.549	6.194	50.742
5	1.256	5.026	55.767	1.256	5.026	55.767
6	1.156	4.626	60.393	1.156	4.626	60.393
7	1.056	4.223	64.616	1.056	4.223	64.616
8	.989	3.955	68.571			
9	.857	3.429	72.001			
10	.694	2.777	74.778			
…..	……	…..	…..			
….	……	…..	…..			
24	.262	1.050	99.251			
25	.234	.934	100.00			

As another move to triangulate the number of extracted components, the scree plot test was used in which components are ignored beyond the place where the smooth decrease of eigenvalues appears to level off to the right of the plot. The number of extracted factors was equal to seven. The corresponding scree plot is shown in Figure 1.
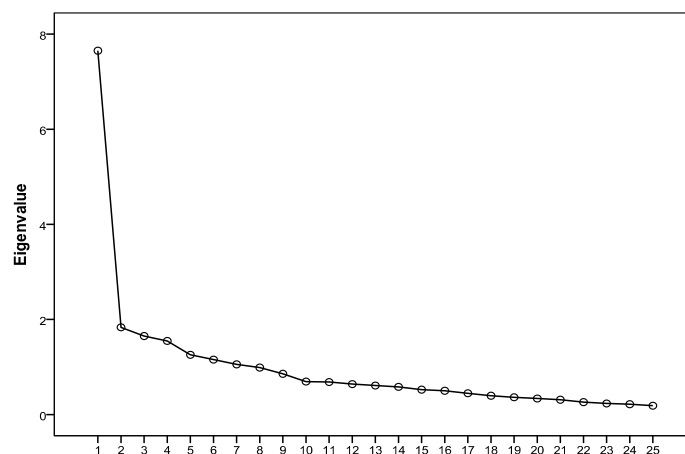
Figure 1. Scree plot for factor analysis on WHOQOL-BREF scores (n = 435)

The total variance explained and scree plot substantiate the number of extracted factors in this validating experiment are seven. The seven extracted factors are considered as a good representative of the instrument as the total variance explains more than fifty percent. In other words, the scree plot and total variance are firmly providing evidence to postulate that the instrument is feasible for Malaysian youths.

In order to observe the distributions of items in the seven factors, a rotated matrix factor was obtained. The extracted factors were identified with those items on the WHOQOL that were highly loaded. Taking into account the experience of Abdullah and Asghari (2011), this analysis only consider loadings that greater than 0.3. In other words, dropping an item that does not score above 0.30 means that this analysis rejecting all the items which indicate low correlations within the common factors. The solution was rotated using orthogonal Varimax rotation.

The results of rotated matrix are shown in Table 4.

Table 4. Rotated factor matrix

Items	Factors						
	1	2	3	4	5	6	7
Q9	.675						
Q23	.662	.310					
Q10	.655						
Q18	.554	.372					
Q24	.516			.457	.393		
Q6		.774					
Q19		.704		.351			
Q5	.433	.646					
Q11			.784				
Q25			.723				
Q8	.374		.498	.343			
Q17		.388	.446				
Q20				.695			
Q16				.683			
Q7	.412			.613			
Q22					.783		
Q15			.329		.650		
Q4	-.432				.478		.397
Q14						.757	
Q13		.472	.355			.563	
Q12						.553	
Q3							.783
Q26		-.387		-.362			.595

It seems that most of the loading items converged diagonally in the matrix. However, distributions of loading items according to the domains of WHOQOL-BREF are still unrecognizable. Therefore loading items for the four domains are subjected to further analysis. Based on the rotated matrix (Table 4), distribution of loadings according to the four domains is analyzed and tabulated in Table 5.

Table 5. Distribution of loading items according to domains

Domains	Factors							Total
	1	2	3	4	5	6	7	
Physical Health Health	3	2	2	1	2		3	13
Psychological	2	4	1	2			1	10
Social Relations				1	1			2
Environment	4	2	3	2	1	3		15

Items from the Environment and Physical Health domains are predominantly loading Factor 1. With the same tone, items from the Psychological domain are predominantly loading Factor 2. However, items from the Social Relations domain load Factor 4 and Factor 5 with no clear dominance. Of the four domains, Environment has the most items loaded followed by Physical Health. It can be seen that loadings are predominantly in the first four factors with lesser number of loading items in the last three factors.

4.3 Spearman's rho Correlations

In the next validating initiative, direct inter-domain correlation was considered. Table 6 shows Spearman's rho correlation coefficients computed between scores on the WHOQOL-BREF domains.

Table 6. Correlations between domain scores on the WHOQOL-BREF

Spearman's rho	Physical Health	Correlation Coefficient	1.000	.610**	.554**	.613**
		Sig. (one-tailed)	.	.000	.000	.000
		N	435	435	435	435
	Psychological	Correlation Coefficient	.610**	1.000	.510**	.604**
		Sig. (one-tailed)	.000	.	.000	.000
		N	435	435	435	435
	Social	Correlation Coefficient	.554**	.510**	1.000	.507**
		Sig. (one-tailed)	.000	.000	.	.000
		N	435	435	435	435
	Environment	Correlation Coefficient	.613**	.604**	.507**	1.000
		Sig. (one-tailed)	.000	.000	.000	.
		N	435	435	435	435

**. Correlation is significant at the 0.01 level (1-tailed).

The inter-domain correlations show that the correlation coefficients are ranged from 0.554 to 0.613. All the domains had moderate inter-domain correlation with significant level at 0.01 (one-tailed). The significant level means the correlations between two domains of WHOQOL-BREF among Malaysian youth are correlated with ninety nine percent confidence levels. Despite the mediocre correlation coefficients, all the four domains of WHOQOL-BREF are inter-correlated. It shows that the instrument is practical for Malaysian youth data. The findings of the current study are consistent with those of Abdel-Khalek (2010) who found that all the correlations of the criteria were significant and ranged from 0.39 to 0.65.

5. Conclusion

Instruments used in measuring quality of life have been proven as a vital component in research design and implementation. However, the instrument is not always fit for all conditions. This paper has contributed to the validation of the instrument WHOQOL-BREF in the case of Malaysian youth. The reliability analysis of the instrument scores for Malaysian youth suggested a strong reliability of the items. The factor analysis has identified the seven factors that contribute in describing quality of life among Malaysian youth. The Physical Heath, Psychological, Social and Environmental domains made significant contributions in explaining the variance in the quality of life. The Environment domain contributed most in overall quality of life followed by the Physical Health domain. The Social Relations domain made the least contribution toward quality of life. The results of the inter-domain correlations also support the cohesiveness of the domains. Cronbach α has successfully met acceptable limits, while factor analysis effectively extracted the seven main factors. Finally, correlation coefficients indicated the connectedness among the domains. All these statistical evidences suggest that the WHOQOL-BREF provides a reliable, valid, and brief assessment of quality of life among Malaysian youth. In conclusion, this paper concurs with many researchers that the HRQOL-BREF is a suitable psychometrics instrument to assess the quality of life issues of Malaysian youth. However, work on its assessment should continue to ascertain the applicability of WHOQOL-BREF in predicting quality of life. Multiple regressions model or any intelligent predictive analyses are among the potential predicting tools. These predictive analyses could be left for future research.

Acknowledgements

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Appendix A

qol_1 - Copy.sav [DataSet1] - SPSS Data Editor

File Edit View Data Transform Analyze Graphs Utilities Add-ons Window Help

1 : a2   2   Visible: 32 of 32 Variables

	a1	a2	a3	a4	a5	a6	b1	b2	b3	b4	b5	b6	b7	b8	b9	b10
1	2	2	4	1	2	2	4	3	3	2	3	3	3	3	3	4
2	2	2	4	1	2	2	4	3	3	1	4	5	3	3	3	2
3	2	2	4	1	1	1	4	3	2	4	4	4	3	4	3	3
4	1	5	4	2	2	1	4	4	2	1	4	4	4	4	4	4
5	2	2	4	2	2	1	4	4	3	2	4	4	4	4	3	3
6	1	3	3	2	1	2	3	4	4	2	5	5	4	4	4	3
7	2	5	3	2	2	2	4	4	2	2	4	4	4	4	4	4
8	1	4	3	2	2	1	5	5	2	2	4	4	4	4	3	4
9	2	1	4	1	2	1	4	3	3	3	3	3	3	3	3	3
10	2	1	4	1	2	1	4	4	5	2	5	5	4	4	4	4
11	2	5	3	2	2	2	3	3	3	2	4	5	5	5	4	4
12	2	1	4	1	2	1	3	4	2	2	5	4	2	3	3	4
13	1	4	3	1	2	1	3	4	3	1	5	4	4	3	3	4
14	1	3	4	2	2	1	4	3	1	3	3	4	4	3	3	3
15	1	5	3	2	2	2	3	3	3	3	3	3	3	3	3	3
16	2	1	4	1	2	2	4	3	3	3	4	5	4	5	4	4
17	1	4	3	2	2	1	5	5	3	2	4	4	4	3	3	4
18	1	4	4	1	2	1	4	4	3	2	4	4	4	4	4	4
19	2	2	4	1	2	1	3	4	3	2	3	3	4	3	3	3
20	2	1	4	1	2	2	4	4	3	2	4	4	3	3	4	3
21	2	3	3	1	2	1	4	4	3	4	4	4	3	3	3	3
22	2	3	3	2	2	2	4	4	3	3	4	4	4	3	3	4
23	2	3	3	2	2	2	5	5	3	3	4	4	4	3	3	4
24	1	3	3	2	2	1	3	3	4	2	3	4	3	3	3	3
25	2	3	3	1	2	2	4	4	3	3	4	4	4	3	3	4
26	1	4	4	1	2	2	3	4	3	3	3	3	3	3	3	3
27	2	1	3	1	2	2	3	3	3	2	3	3	3	4	4	3
28	2	2	4	1	2	1	3	3	3	3	3	2	3	4	3	3
29	1	5	3	2	2	1	3	4	3	2	3	4	2	3	4	4
30	2	2	4	1	2	1	3	3	4	2	4	4	4	4	4	4
31	1	2	4	1	2	2	3	2	2	2	4	3	4	3	3	4

Data View Variable View

Appendix B

WHOQOL-BREF

ABOUT YOU

Before you begin, we would like to ask you to answer a few general questions about yourself: by circling the correct answer or by filling in the space provided.

What is your gender?   Male   Female

What is your date of birth?   _____ / _____ / _____

                                             Day   Month   Year

What is the highest education you received?   None at all

                                          Primary school

                                          Secondary school

                                          Tertiary

What is your marital status?   Single

                                          Married

                                          Separated

                                          Divorced

                                          Widowed

What is your employment status   Student

                                          Employed

                                          Unemployed

Are you currently ill?   Yes   No

If something is wrong with your health,
what do you think it is?   Illness   Problem

INSTRUCTIONS

This assessment asks how you feel about your quality of life, health, or other areas of your life. Please answer all the questions. If you are unsure about which response to give to a question, please choose the one that appears most appropriate. This can often be your first response.

Please keep in mind your standards, hopes, pleasures and concerns. We ask that you think about your life in the last two weeks.

		Very poor	Poor	Neither poor nor good	Good	Very good
1	How would you rate your quality of life?	1	2	3	4	5

		Very dissatisfied	Dissatisfied	Neither satisfied nordissatisfied	Satisfied	Very Satisfied
2	How satisfied are you with your health?	1	2	3	4	5

		Not at all	A little	A moderate amount	Very much	An extreme Amount
3	To what extent do you feel that physical pain prevents you from doing what you need to do?	1	2	3	4	5
4	How much do you need any medical treatment to function in your daily life?	1	2	3	4	5
5	How much do you enjoy life?	1	2	3	4	5
6	To what extent do you feel your life to be meaningful?	1	2	3	4	5
7	How well are you able to concentrate?	1	2	3	4	5
8	How safe do you feel in your daily life?	1	2	3	4	5
9	How healthy is your physical environment?	1	2	3	4	5

10	Do you have enough energy for everyday life?	1	2	3	4	5
11	Are you able to accept your bodily appearance?	1	2	3	4	5
12	Have you enough money to meet your needs?	1	2	3	4	5
13	How available to you is the information that you need in your day-to-day life?	1	2	3	4	5
14	To what extent do you have the opportunity for leisure activities?	1	2	3	4	5

		Very poor	Poor	Neither	Good	Very good
15	How well are you able to get around?	1	2	3	4	5

		Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very Satisfied
16	How satisfied are you with your sleep?	1	2	3	4	5
17	How satisfied are you with your ability to perform your daily living activities?	1	2	3	4	5
18	How satisfied are you with your capacity for work?	1	2	3	4	5
19	How satisfied are you with yourself?	1	2	3	4	5
20	How satisfied are you with your personal relationships?	1	2	3	4	5
22	How satisfied are you with the support you get from your friends?	1	2	3	4	5

		Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very Satisfied
23	How satisfied are you with the conditions of your living place?	1	2	3	4	5
24	How satisfied are you with your access to health services?	1	2	3	4	5
25	How satisfied are you with your transport?	1	2	3	4	5

		Never	Seldom	Quite often	Very often	Always
26	How often do you have negative feelings such as blue mood, despair, anxiety and depression?	1	2	3	4	5

Note: Item no. 21 is deleted.

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