Validity and Reliability of a modified Utian Quality of Life Scale for Indonesian Postmenopausal Women

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Abstract

Decreasing levels of estrogen in postmenopausal women can affect their quality of life. The Utian quality of life (UQOL) scale is one instrument used to measure the quality of life (QOL) in menopausal women. This research aimed to test the validity and reliability of an Indonesian version of the UQOL (UQOL-I) scale. The subjects of this study were postmenopausal women (n = 146) aged 50–65 years, who were living in Jakarta and Depok, Indonesia. After translating the instrument into Indonesian, we conducted psychometric testing. The Indonesia translation captured the content of the original instrument. The reliability coefficients (Cronbach α) for the QOL domains were: 0.67 total score; 0.63 occupation; 0.18 health; 0.48 emotional; and 0.45 sexual. The test-retest reliability of the UQOL-I scale was satisfactory with scores of: 0.82 total score; 0.79 occupation; 0.79 health; 0.51 emotional; and 0.59 sexual. The construct validity of the UQOL-I was confirmed by significance between the scores of (1) the UQOL scale and the health question ($r = -0.10–0.47$, $p < 0.05$) except for the emotional domain; and (2) the UQOL scale and the dental health question ($r = -0.12–0.43$, $p < 0.05$) except for the emotional domain. The questionnaire could differentiate the sexual domain between early and late menopause, which showed adequate discriminant validity of the UQOL-I scale. The UQOL-I scale is currently not reliable enough and lacks validity to accurately measure postmenopausal women's QOL in Indonesia. Therefore, further research is recommended to develop this instrument for application in Indonesia.

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Introduction

The Indonesian population is estimated to reach 273.6 million in 2025. In the same year, life expectancy is estimated to reach 73.7 years, a large increase compared to the current 69.0 years.[1] With increasing life expectancy, a large number of women will live for more than 20 years after menopause and spend one-third or more of their lives with estrogen deficiency. Because of this, postmenopausal women are considered an at-risk population.[2,3] Bener *et al.* demonstrated that many factors related to menopausal symptoms have a negative effect on women's quality of life (QOL) in Saudi Arabia.[3] According to the World Health Organization (WHO), postmenopause is reached after menstruation has ceased for 12 consecutive months. The WHO estimated that in 2030 there would be around 1.2 million women aged over 50 years. In light of this, countries worldwide are demanding to fulfill menopausal women's health needs; this is why this condition is an important factor for health research and public health programs.[4,5] In a previous research, it was demonstrated that more than half of postmenopausal women experienced somatic and urogenital symptoms that affected their QOL.[6-8]

Postmenopausal women experience self-identity transformations due to increasing age, disease, and other symptoms. The prevalence of symptoms related to menopause is very high among Asian women (92.3%).[9,10] Ahmed et al. found that psychosocial factors, physical factors, and vasomotor symptoms have a strong correlation with QOL during menopause.[11] Measurements of QOL are divided into generic

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and specific instruments. Generic instruments do not contain specific questions about certain conditions or diseases, whereas specific instruments generally measure specific conditions including menopause.[9,12] Commonly used generic instruments include the: short form (SF)-36 health survey, Nottingham health profile (NHP), sickness impact profile (SIP), and quality of well-being scale.[13]

A specific instrument to measure QOL during menopause is the Greene climacteric scale, which was the first instrument to analyze symptoms using a climacteric (menopause) scale. This instrument aimed to measure the frequency of menopausal symptoms.[14] The women's health questionnaire (WHQ) is an instrument developed to measure distance perception from physical and emotional symptoms in middle-aged women.[9,14] The menopause-specific QOL questionnaire (MENQOL) is an instrument, developed in Canada, comprising 29 items and 4 domains including vasomotor, psychosocial, physical, and sexual.[7] The menopause symptoms list (MSL) is an instrument comprising 25 items and 3 domains including psychological, vaso-somatic, and somatic measured with a 6-point Likert scale.[14] The menopause rating scale (MRS) measures menopausal symptoms and has been translated into nine different languages according to international linguistic standards and the intended culture for the QOL scales use.[15] The menopause QOL scale (MQOL) is an instrument developed by Pamela Jacobs and her colleagues at the Department of Psychology, Plymouth University, United Kingdom, in 2000. This instrument measures 7 domains and 48 items.[14]

Another instrument to evaluate the QOL in postmenopausal women is the Utian quality of life (UQOL) scale. The UQOL scale, comprising 23 items, measures how a woman accepts her life under multiple dimensions and free from somatic or psychological complaints.[12,16,17] This instrument was modified from the original Utian questionnaire in 1970. It was systematically designed based on prior instruments and resulted in an instrument that is capable of measuring the QOL and health aspects and is a clearly validated psychometric instrument.[18] The UQOL scale questionnaire originated in a country with a different culture than Indonesia, therefore, the validity and reliability of the questionnaire should be tested prior to application to Indonesian women. The lack of information regarding postmenopausal QOL in Indonesia made the researcher interested in contributing to this subject by developing an Indonesian version of the UQOL scale questionnaire. The current research aimed to test the validity and reliability of an Indonesian UQOL (UQOL-I) scale questionnaire so that it can be applied to measure the postmenopausal quality of women's lives in Indonesia.

Materials and methods

The UQOL scale consists of 23 items and 4 domains: occupation (7 items numbered 2, 3, 6, 17–9, 23); health (7 items numbered 7–10, 16, 21, 22); emotional (6 items numbered 1, 11–13, 15, 20); and sexual (3 items numbered 4, 5, 14). Items in the UQOL scale are scored on the degree of match with the subject. Every item in the UQOL scale is scored using a 5-point Likert scale: 1 being *not true of me*, to, 5 *being very true of me*. Scores of negative items were seen at numbers 4, 7, 8, 11–13, 15, and 16. Each domain score is calculated by adding the total scores of each item in each domain. Total scores were then calculated from the total scores of each item. Scores ranged from 23 (lowest score) to 115 (highest score), reflecting increasing QOL.[18]

The questionnaires usage was permitted by the questionnaire developers. The initial stage of this research was to adapt the questionnaire to Indonesian language and culture. Initially, translation was undertaken by two individuals and resulted in two sets of Indonesian language questionnaires, which were combined into one synthesized translation. Next, a back-translation was undertaken to translate the questionnaire back into English. All the translations were then evaluated to produce a pre-final questionnaire that was tested on actual subjects.[19]

Subjects were asked to fill in the questionnaire and afterwards undergo an interview to capture their thoughts about the questions and check how they answered each point according to their condition. The answers gathered from Subjects were then categorized as *not true of me, moderately true of me, and very true of me*. Questions that failed to reach more than 85% of the subject's true comprehension were revised. The total number of subjects tested at this stage was six. The entire translation

process and reporting was audited and verified by the research team who determined that the entire research procedure had been followed properly.[20]

Statistical significance was established at $p < 0.05$. Descriptive statistics were used to describe the subjects' demographics: date of birth, age at menarche, duration of menopause, medical visit in the last three months, dental visits in the last six months, and QOL. Internal consistency reliability was measured by Cronbach α statistics with scores higher than 0.70 considered *appropriate* and scores higher than 0.90 considered as *not recommended*.[21] A test-retest method was estimated by reference to information gathered from 33 subjects using an intraclass correlation coefficient (ICC). Construct validity was measured by the Pearson's correlation between the total item scores and the total of each domain's score using the global questions: (1) how do you rate your general health, and (2) how do you rate your dental health. These global questions were answered with the Likert scale answers: 1 = terrible; 2 = quite good; 3 = good enough; 4 = good; 5 = very good. Validity discriminants between total items and the total of each domain with the duration of menopause were measured using a Mann-Whitney test.

The research subjects consisted of postmenopausal women who: were domiciled in Jakarta and Depok, Indonesia, between April 2017 and May 2017; aged between 50 and 65 years; had entered the menopause period naturally, had not menstruated for at least one year; had an occupation; still had a spouse; were willing to participate in the research and fill out informed consent forms. The size of the sample was determined using a sample-size formula to test the validation of 92 subjects with a 95% power and a correlation coefficient of 0.3.[22] At least 110 subjects were required for the research (after addition of 10% of the total required sample size). This research was approved by the Dental Research Ethical Committee, Faculty of Dentistry, University of Indonesia (No: 21/Ethical Approval/ FKGUI/IV/2017 Protocol Number: 070210317).

Data were collected after the research subjects signed the informed consent forms. The researcher provided the questionnaires for the research subjects to answer according to their self-condition with three answer options. The time to complete the questionnaire was 15 to 20 minutes. Thirty-three out of 146 subjects were asked to complete the questionnaire twice in order to test-retest scoring and this was agreed to by the subjects. The total duration between the first data collection and second data collection was 14 days. Private information such as age, education level, occupation, number of births, menarche age, and duration of menopause were noted in this research. The duration of menopause was further divided into two categories: early menopause (1–5 years of menopause) and late menopause (>5 years of menopause).[8] Answers to the number of medical visits in the last three months and dental visits in the last six months were also noted.

Results

The contents of the translated and original versions of the UQOL scale were similar. Only slight differences were observed between the back translated and the original version. No specific issues were identified during the translation/ back-translation process.

Variables	n	%
Age		
50-55	62	42.5
56-60	60	41.2
61-65	24	16.2
Occupation		
Formal	46	31.5
Informal	100	68.5
Education		
Primary school	19	13
Secondary school	13	8.9
High school	75	51.4
Diploma	22	15.1
Bachelor's degree	14	9.6
Master's degree	3	2.1
Number of births		
None	1	0.7
1	14	9.6
2	2	44
3	3	55
≥4	32	21.9
Menarche		
Age ≤11	10	6.8
Age 12-14	99	67.8
Age ≥15	37	25.3
Duration of menopause		
Early menopause	92	63
Late menopause	54	37

Table 1. Research Subjects' Characteristics (n = 146).

Therefore, no modification was made to the original version of the UQOL scale. There were 163 postmenopausal women willing to

participate in this research; however, 17 subjects were eliminated from the research by not fulfilling the inclusion criteria, so the total number of research subjects was 146. Table 1 shows the research subjects' characteristics. They mainly consisted of women aged 50 to 55 years (42.5%). As many as 100 subjects had informal occupations. The majority of the subjects, 75 women (51.4%), were educated to the end of high school. The largest number of births was four or more (21.9%). The majority of the subjects reached menarche at 12 to 14 years of age (67.8%), and most subjects (92 women, 63%) were at early menopause.

The average UQOL-I scale was 84.70±8.07 (ranging from 63 to 109). The average value range, including the deviation standard, of the UQOL scale domain was 10.71 to 25.68. These values were based on occupation domain 25.68±3.69; health domain 24.94±3.00; emotional domain 23.36±3.06; and sexual domain 10.71±2.33. For the UQOL-I in this study, Cronbach's alpha coefficient (n = 146) was 0.67 for overall scores; occupation 0.632; health 0.182; emotional 0.487; and sexual 0.456. Test-retest reliability was conducted for 33 subjects; an ICC value of 0.82 was achieved for the total scores indicating *good reliability* (Table 2).

Indonesian UQOL scale	Internal Consistency (Cronbach α) (n = 146)	Test-Retest Reliability (ICC) (n = 33)
Total Scores	0.670	0.829
Occupation Domain	0.632	0.795
Health Domain	0.182	0.799
Emotional Domain	0.487	0.519
Sexual Domain	0.456	0.597

Table 2. Reliability of Indonesian UQOL.

	Health (n = 146)		Oral Health (n = 146)	
	r	*p* value*	r	*p* value*
Total Scores	0.27	0.00	0.23	0.00
Occupation Domain	0.22	0.00	0.19	0.02
Health Domain	0.47	0.00	0.43	0.00
Emotional Domain	-0.1	0.21	-0.12	0.14
Sexual Domain	0.23	0.00	0.16	0.04

Table 3. Construct (Convergent) Validity.
*Spearman's correlation.

	Early Menopause (n = 92) Mean (SD)	Late Menopause (n = 54) Mean (SD)	*p* value*
Total Domain	85.54 (7.77)	83.26 (8.43)	0.27
Occupation Domain	25.99 (3.53)	25.17 (3.97)	0.27
Health Domain	25.04 (3.26)	24.76 (2.53)	0.35
Emotional Domain	23.58 (2.91)	23.00 (3.29)	0.44
Sexual Domain	10.93 (2.45)	10.33 (2.07)	**0.04**

Table 4. Discriminant Validity *Mann-Whitney test

Construct validities indicated that total scores and the occupation, health, and sexual domains of the UQOL-I scale had significant relationships with general and dental health (Table 3). This was not applicable for the emotional domain (Table 3). Discriminant validity indicated the sexual domain differentiated between early and late menopause (Table 4).

Discussion

Quality of life (QOL) is an important endpoint for health and medical research. QOL can be related to an individual or group of patients in a large population.[9] Menopause is a unique experience. It is a condition rather than a disease, being a phase of biological and physiological development. This cross-adaptation research was adapted and successfully validated for use with post-menopausal women in Indonesia. The study showed that research subjects were able to provide perceptions of themselves in relation to post-menopausal QOL.

Conceptual similarities of both the translated and original instrument were conducted by two English translators. During face validity, six subjects had difficulty understanding the word *control* that appeared in items 1, 9, 13, and 16. Accordingly, the word was replaced with *master*. As well as obtaining detailed translations, the study also implemented a pre-test phase of the questionnaire content to identify potential problems such as a misconception of the meaning of the words in each item. The results showed that there were semantic similarities between the Indonesian translation and the original version of the UQOL scale.

The Cronbach α reliability tests, in which a construct is measured, statistically tested the internal consistency of each instrument item. Overall, the Cronbach α score for the UQOL-I

scale was 0.67, that is, in the range of *questionable*. This was lower than any score from the original UQOL, UQOL-C (Chinese version), and Serbian UQOL.[17,18] This may have occurred because of the subject's misinterpretation of the questionnaire items and environmental factors such as fatigue and other feelings that may have affected subject's ability to fill in the questionnaire. Items that are unclear or hard to comprehend, according to the subjects, decreases the questionnaire's reliability.

Test-retest is an evaluation concept that is routinely used to measure an equipment's validation process. Test-retest is the ability of measuring equipment to be used twice by the same subject and result in similar scores at different times.[20] In this research, the test-retest value using ICC was 0.89, indicating *good reliability*. The health domain had the highest score of 0.79, indicating *acceptable reliability*. For psychometric assessment, use of Cronbach α for testing reliability had several advantages; it is rarely challenged, and is commonly used as a reference to measure reliability. However, it is important to analyze the α value in depth and compare it with a test-retest index.[21]

Construct validity of the Indonesian UQAL scale showed that all items had significant relationships with general health and dental health except in the emotional domain. Items in the occupation, health, and sexual domains had a positive correlation with health and dental health, except for the emotional domain, which showed a negative correlation. Total scores and health domains had moderate correlation. This showed that items in the UQOL-I scale generally represented the image of general and dental health in Indonesia, despite the weak correlation.

Discriminant validity was measured using menopause duration variables divided into early menopause and late menopause. Menopause duration was selected since the longer the duration of menopause, the lower estrogen hormone levels will be, causing several somatic, vasomotor, sexual, and psychological signs that can affect postmenopausal women's QOL. Items in the UQOL scale and occupation, health, and emotional domains could not change the duration of menopause. Only items in the sexual domain could change the duration of menopause. This may be due to postmenopausal women experiencing sexual disturbances 3.2 times more than average women, and this condition may affect their QOL.[22] This research was designed as a cross-sectional study where many independent variables were able to affect the results. The subject's lack of comprehension of the research items may have caused the Cronbach α values to fall within the *questionable* category. This suggests that future research requires vocabulary changes to assist the subjects' comprehension. The highly variable educational backgrounds of the subjects were also suspected to have affected how they filled in the questionnaires.

Conclusions

The current study showed that the Indonesian UQOL scale needs further development to improve its reliability and validity for measuring the quality of life of Indonesian postmenopausal women. Therefore, further research should be carried out in order to develop this instrument for application in Indonesia.

Declaration of Interest

The authors report no conflict of interest.

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