Validation and reliability of the Turkish Utian Quality-of-Life Scale in postmenopausal women

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Abstract

Objective: There are a limited number of menopause-specific quality-of-life scales for the Turkish population. This study was conducted to evaluate the validity and reliability of the Turkish Utian Quality-of-Life Scale in postmenopausal women.

Methods: The study group was comprised of 250 postmenopausal women who applied to a training and research hospital's menopause clinic in Turkey. A survey form and the Turkish Utian quality-of-Life Scale were used to collect data, and the Turkish version of Short Form-36 was used to evaluate reliability with an equivalent form. Language-validity, content-validity, and construct-validity methods were used to assess the validity of the scale, and Cronbach's α coefficient calculation and the equivalent-form reliability methods were used to assess the reliability of the scale.

Results: The Turkish Utian Quality-of-Life Scale was determined to be a valid and reliable instrument for measuring the quality of life of postmenopausal women. Confirmatory factor analysis demonstrates that the instrument fits well with 23 items and a four-factor model. The Cronbach's α coefficient for the quality-of-life domains were as follows: 0.88 overall, 0.79 health, 0.78 emotional, 0.76 sexual, and 0.75 occupational. Reliability of the instrument was confirmed through significant correlations between scores on the Turkish version of the Utian Quality-of-Life Scale and the Turkish version of the Short Form-36 ($r = 0.745$, $P < 0.001$).

Conclusions: This research emphasizes that the Turkish Utian Quality-of-Life Scale is reliable and valid in postmenopausal women—it is a useful instrument for measuring quality of life during menopause.

Key Words: Menopause – Reliability – Turkish – Utian Quality-of-Life Scale – Validation.

T he term menopause is defined as the permanent cessation of menstruation resulting from the loss of ovarian follicular activity. The World Health Organization (WHO) defines menopause after 12 consecutive months of amenorrhea for which there is no other obvious pathological or physiological cause.[1] Menopause commonly occurs around 51 throughout the world.[2] Menopause is a period of hormonal changes in addition to the changes in sense of self in family and work life.[1,3] Follicle-stimulating hormone continues to increase, and estradiol continues to decrease until approximately 2 years after the final menstrual period; the levels of each of these hormones stabilize in early postmenopause. In the late menopause stage, further changes in reproductive endocrine function are more limited, and

processes of somatic aging are of paramount concern. Symptoms of vaginal dryness and urogenital atrophy become increasingly prevalent at this time.[4] In addition to the early-stage medical problems such as hot flashes, night sweats, difficulty sleeping, exhaustion, and anxiety due to estrogen inefficiency, late-stage medical problems such as osteoporosis, osteoporotic fractures, cardiovascular disease, urogenital symptoms, and so on, are experienced.[5,6] At the same time, women have concerns related to aging, loss of fertility, changes in body image, and health problems. These are combined with social and symbolical meanings, and thus quality of life can be affected negatively.[7,8] Previous studies indicate that the menopausal period negatively affects quality of life.[7,9-11] It is estimated that 1.2 billion women will be in the perimenopause and postmenopause stages by 2030.[1] Thus, a great number of women will be enduring the problems of menopause and the resulting diminished quality of life.

The WHO defines quality of life as individuals' 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.[12] It is a wide-ranging concept that is complicated by the person's physical health, psychological state, level of independence, social relationships, personal beliefs, and relationship to salient features of their environment.[12,13] General disease-specific and menopause-specific quality-of-life scales are used to evaluate quality of life,[14] but there are a limited number of

studies on the validity and reliability of menopause-specific quality-of-life scales carried out in the Turkish population.[15]

One of the brief, comprehensive, and practical scales that provides a distinction between measuring a sense of well being and menopause symptoms and which examines quality of life in terms of emotional, sexual, and occupational issues and health is the Utian Quality-of-Life Scale (UQOL).[14] Validation of this instrument has been performed among American, Portuguese, Chinese, and Serbian populations—the findings suggest that the UQOL can be used worldwide.[9,14,16,17] Therefore, the present study was conducted to evaluate the validity and reliability of the Turkish version of the UQOL (UQOL-T) in postmenopausal women.
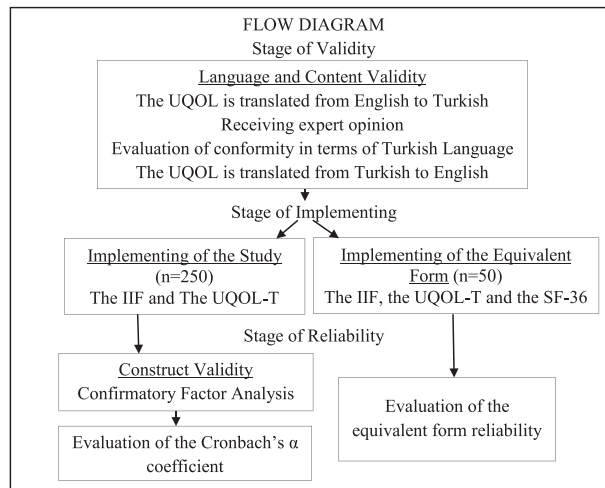
METHODS

Ethical approval

The authors of the UQOL have given electronic written consent for this study's use of the UQOL. This study was approved by the Ethics Committee of Turgut Ozal University (13/12/2013-99950669). Legal permission was also obtained from the hospital management. All participants signed a written informed-consent form before enrolling in the study.

Study population

The study was conducted in a training and research hospital's menopause clinic in Ankara, Turkey. The reason this hospital was chosen is that this is Turkey's capital and its policy of allowing women with various socioeconomic and cultural characteristics from all over Turkey applies to this hospital. The study was conducted between October 2013 and February 2014. Two criteria were established to determine which women to include in the study: women must be under 65 years old (which is defined as beginning of old age by the WHO) and have had amenorrhea for at least 12 consecutive months without an obvious pathological or physiological cause.[1,18] Women with a diagnosed psychiatric disease and serious chronic diseases (malignancies, neurological conditions, immediate deterioration of chronic illness, etc) were not included. In the validity and reliability studies in the adaptation of a scale to another culture, the number of participants must be at least 5 or 10 times the number of items in the instrument (the study group size/number of items in the scale 230/23).[19,20] In this scope, the study group consisted of 250 women who were randomly selected from women applying to the hospital. At the same time, equivalent-form reliability was examined by the application of an equivalent scale on 50 women with similar characteristics within the study group. Fifty women were taken from the total group of 250 women. The Survey Form, the UQOL-T, and the Turkish version of Short Form-36 (SF-36) were filled out by these 50 women. These data were used only for equivalent-form reliability of the UQOL-T (see Fig. 1).

Instruments

The instruments used include the Survey Form, the UQOL-T (see scale, Supplemental Digital Content 1, http://links.lww.com/MENO/A139, which demonstrates the Turkish version of the

| FLOW DIAGRAM |
| Stage of Validity |

Language and Content Validity
The UQOL is translated from English to Turkish
Receiving expert opinion
Evaluation of conformity in terms of Turkish Language
The UQOL is translated from Turkish to English

Stage of Implementing

Implementing of the Study (n=250)
The IIF and The UQOL-T

Implementing of the Equivalent Form (n=50)
The IIF, the UQOL-T and the SF-36

Stage of Reliability

Construct Validity
Confirmatory Factor Analysis

Evaluation of the Cronbach's α coefficient

Evaluation of the equivalent form reliability

FIG. 1. Flow diagram of the study.

Utian Quality-of-Life Scale; see scale, Supplemental Digital Content 2, http://links.lww.com/MENO/A140, which demonstrates the English translation of the Turkish version of the Utian Quality-of-Life Scale), as well as the Turkish version of the SF-36 for equivalent-form reliability. The survey form was prepared by the authors according to the literature, and contains 39 items related to individual characteristics, general medical history, obstetrical and gynecological characteristics, and the menopause stage.[5-7,13,21-24] It is determined that the questions in the survey form are understandable with preapplication of the form. Details of some of the questions in the survey form include walking, swimming, or pilates performed a minimum of three times a week for at least 30 min—this was defined as "positive physical activity."[25] In the assessment of body mass index (BMI), those under $18.50 \, kg/m^2$ were considered to be "underweight," those between 18.50 and $24.99 \, kg/m^2$ were considered to be at a "healthy weight," those between 25.00 and $29.99 \, kg/m^2$ were considered to be "overweight," and those who were $30.00 \, kg/m^2$ or more were classified as "obese."[26] Women who had not had their period for 1 year were considered to be undergoing "natural menopause," and those going through menopause after a hysterectomy-bilateral salpingo-oophorectomy were considered to be undergoing "surgical menopause."[1]

The UQOL was used to measure menopause-specific quality of life. The UQOL is a 23-item scale with four domains: occupational quality of life (items 2, 3, 6, 17, 18, 19, and 23); sexual quality of life (items 4, 5, and 14); health quality of life (items 7, 8, 9, 10, 16, 21, and 22); and emotional quality of life (items 1, 11, 12, 13, 15, and 20). Initially, a large pool of questions was developed by four senior clinicians with research or clinical expertise in the psychological aspects of menopause. The proposed items were reviewed and revised regarding menopause by eight women, yielding a 40-item scale. A trial study was conducted with 327 women, and these data were factor-analyzed; the final result was a 23-item scale with four domains. The internal consistency, test-retest reliability, and construct validity of the UQOL were all tested. Each question had a five-point Likert scale result, and women

specified their agreement or nonagreement with the statements based on what they experienced in the previous month. The questions were written either positively or negatively. The minimum and maximum points achievable in the questionnaire are 23 and 115, respectively, and higher points in the questionnaire and subdimensions indicate a higher quality of life. In the original validity study, the UQOL demonstrated excellent internal consistency (Cronbach's α coefficient = 0.83).[14] This scale has been shown to be a sound instrument for quality-of-life measurement in several other studies.[9,14,16,17,22]

The SF-36 is a well known tool that has been widely used to measure quality of life. It includes 36 items that collectively probe self-perceived changes in health (1 item) and in eight specific quality-of-life aspects: physical function (10 items), role limitation due to physical health problems (4 items), bodily pain (2 items), general health (5 items), vitality (4 items), social functioning (2 items), role limitation due to emotional problems (3 items), and mental health (5 items).[27] The minimum and maximum points achievable in the questionnaire are 0 and 100, respectively; higher points in the questionnaire indicate a higher quality of life. A Turkish validity and reliability study of the SF-36 was performed by Kocyigit et al,[28] and it was found to be valid and reliable for use in Turkey. Social norm values of the SF-36 in the Turkish society have been reported by Demiral et al.[29] The Cronbach's α coefficient varies between 0.64 and 0.98 for the subdimensions of the questionnaire.[29]

Language and content validity

A language-validity process was used to achieve semantic and conceptual equivalence between the UQOL-T and the UQOL. The language-validity process involves the following three steps. First, three bilingual experts translated the English UQOL into Turkish. The opinions of seven experts were consulted to evaluate this version of the questionnaire, which has been translated into Turkish in terms of content validity, language, expression, and comprehensibility, as well as breadth of the topic coverage.

The items on the questionnaire were revised inline with the opinions of the experts and were evaluated by two experts in terms of conformity to the Turkish language. Second, the UQOL-T was translated from Turkish to English by three independent experts. Finally, English versions of the UQOL-T were compared to the original English version by two back-translation bilingual experts to assess semantic and conceptual equivalence.[30] The translation should replicate the original as closely as possible and capture the closest possible meaning. Of course, the translation should be sensitive to cultural adaptations of the items.[30,31] The translated scale was measured for ease of use and comprehensibility.

Data collection

A preliminary assessment was performed with 25 women (10% of the population), who were selected randomly in conformity to the study criteria. This was similar to the study group. These 25 women were independent of the study group and a preliminary assessment was made to evaluate the comprehensibility of the survey form and the UQOL-T, as well as to determine whether a change occurred during translation and application of the questionnaires. The data obtained here were not included in the analysis.

Researchers described the purpose of the study before examining the applicants in the hospital's menopause clinic. They then described how well the applicants fit the study criteria after they were invited to participate in the study. Data were collected via a face-to-face interview with researchers because participants had some visual impairments that are common among the older population. This also helps to avoid misunderstandings and loss of data. Researchers interviewed the volunteers to complete the questionnaires with 15 to 20 min being allowed for each participant to complete the questionnaire. The researchers told the participants that their answers would not personally affect them either positively or negatively. When filling out the questionnaires with the participants, the researchers controlled their voices and gestures to avoid affecting the participants' decisions. The participants' statements and choices were recorded objectively in the questionnaires. The SF-36 and the UQOL-T were applied to 250 women who met the study's criteria. An equivalent scale application was applied to 50 women, and the Turkish version of the SF-36 was applied along with the survey form and the UQOL-T.

Data analysis

Data were evaluated with the Statistical Package for the Social Sciences (SPSS) 20.0 package program. Statistical significance was established at $P < 0.05$. The frequency and percentage breakdowns of the data are provided.

Language-validity, content-validity, and construct-validity methods were used in the evaluation of the UQOL-T. Cronbach's α coefficient was calculated to determine the scale reliability, and equivalent-form reliability was further evaluated. Seven experts were consulted to determine the content validity of the UQOL-T. The content validity ratio (CVR) was calculated for each item in the evaluation of the opinions obtained from a total of seven experts. The content validity index (CVI) was determined using the mean value of the CVRs. This index was used to identify whether the experts considered the related item necessary or not. It calculated the conformity level of the items. Because the number of experts was seven, it was concluded that items with a CVR and CVI value of more than 0.99 fulfilled the content validity requirements.[32,33]

The confirmatory factor analysis (CFA) method was used to construct a validity evaluation of the UQOL-T. The CFA evaluates the rate of conformity of a factorial model to the actual data. In the literature, the ratio of chi square to the degree of freedom (χ^2/df) is one of the methods to identify conformity of the model to the data. Values below 5 are acceptable,[34-37] and Not-Normed Fit Index (NNFI), Comparative Fit Index (CFI), Normed Fit Index (NFI), and

TABLE 1. *Distribution of participants (n = 250) by sociodemographic, health-related, and menopause-related characteristics*

Characteristics	
Age, mean (SD), y	54.2 (6.17)
Marital status, n (%)	
Married	203 (81.2)
Single	47 (18.8)
Education, n (%)	
Illiterate	13 (5.2)
Literate	57 (22.8)
Primary and middle school	137 (54.8)
High school	39 (15.6)
University degree and ↑	4 (1.6)
Professional status, n (%)	
Active	24 (9.6)
Domestic occupations	226 (90.4)
Physical activity, n (%)	
Yes (walking, swimming, or pilates)	55 (22.4)
No	194 (77.6)
BMI (kg/cm^2), n (%)	
Normal	21 (8.4)
Overweight	86 (34.4)
Obese	143 (57.2)
Chronic disease, n (%)	
Yes	158 (63.2)
No	92 (36.8)
Age of menopause, mean (SD), y	45 (4.85)
Type of menopause, n (%)	
Natural	210 (84.0)
Surgical	40 (16.0)
Health problems during menopause, n (%)	
Yes	157 (62.8)
No	93 (37.2)
Menopausal health problems, n (%)	
Hot flashes	146 (93.0)
Night sweats	143 (91.1)
Sleeplessness	134 (85.4)
Fatigue	96 (61.2)
Headache	94 (59.9)
Nervousness	93 (59.2)
Weight gain	86 (54.8)
Depression	62 (39.5)
Osteoporosis	58 (36.9)
Lack of sexual appetite	52 (33.1)
Vaginal dryness	50 (31.9)
Dyspareunia	49 (31.2)
Palpitations	21 (13.4)
Skin dehydration	13 (8.3)
Sought medical help to manage menopause, n (%)	
Yes	84 (33.6)
No	166 (66.4)
Hormone therapy, n (%)	
Yes	24 (9.6)
No	226 (90.4)
Time of received a hormone therapy, mean (SD), mo	35 (81.40)
Menopause perception, n (%)	
Positive	136 (54.4)
Negative	114 (45.6)

BMI, body mass index; SD, standard deviation.

Goodness of Fit Index (GFI) values of 0.90 and higher indicate good conformity.[20,34,36,38] Path coefficients obtained in the path analysis realized in a scope of CFA of 0.30 and above indicates acceptability of the scale structure.[39]

Cronbach's α coefficient was calculated to determine the reliability of the UQOL-T. It is specified in the literature that for the reliability coefficient to be sufficient in a Likert-type scale, it must be close to 1.[34]

The SF-36 measures similar structures with the UQOL and it was used during the development of the scale. The Turkish versions of the SF-36 and the UQOL-T were applied to 50 women simultaneously to assess equivalent form reliability in the study. The literature reports that a Pearson's correlation coefficient of 0.70 to 0.80 or above is an indication of the two scales measuring the same structure.[40]

RESULTS

Study population

All participants were Turkish and had a mean age of 54.25 ± 6.17 years (range 39-65). The mean age of menopause was 45 ± 4.85 years (range 30-63), and the majority (84.0%) went through menopause naturally. It was determined that 62.8% of women experienced menopausal health problems and these problems were hot flashes, night sweats, sleeplessness, fatigue, headache, nervousness, weight gain, depression, osteoporosis, lack of sexual appetite, vaginal dryness, dyspareunia, palpitations, and skin dehydration. More than half of the women (66.4%) did not seek medical help to manage menopause, and only 24 women (9.6%) received hormone therapy for 35 + 81.40 months. It was determined that 54.4% of women had a positive perception of menopause (see Table 1).

The mean UQOL-T total score of all the participants was determined to be 75.43 ± 15.64 (range 37-111). Moreover, the group mean scores for the UQOL-T domain ranged from 9.34 ± 3.16 to 26.75 ± 4.13. These scores are as follows: 26.75 ± 4.13 (range 15-34), occupational; 9.34 ± 3.16 (range 3-15), sexual; 20.43 ± 6.59 (range 7-35), health; and 18.91 ± 5.43 (range 7-30), emotional (see Table 2).

Language and content validity

The content of the UQOL-T is similar to the content of the original English version of the UQOL. No specific problem was identified during the translation/back-translation process. The 25 women who reviewed the content and tested the usability of the translated scale reported no problems understanding

TABLE 2. *Distribution of participants' UQOL-T means quality-of-life scores*

UQOL-T subscales	n	x̄	Min	Max	SD
Occupational quality of life	250	26.75	15	34	4.13
Sexual quality of life	250	9.34	3	15	3.16
Health quality of life	250	20.43	7	35	6.59
Emotional quality of life	250	18.91	7	30	5.43
Overall	250	75.43	37	111	15.64

SD, standard deviation; UQOL-T, Turkish version of the Utian Quality-of-Life Scale; x̄, mean.

TABLE 3. *Reliability of the UQOL-T*

UQOL-T subscales	Cronbach's α
Occupational quality of life	0.75
Sexual quality of life	0.76
Health quality of life	0.79
Emotional quality of life	0.78
Overall	0.88

UQOL-T, Turkish version of the Utian Quality-of-Life Scale.

TABLE 5. *Fit indexes of the UQOL-T for construct validity*

Fit indexes	Value
χ^2/df	3.23
The Not-Normed Fit Index (NNFI)	0.92
The Comparative Fit Index (CFI)	0.93
The Normed Fit Index (NFI)	0.90
The Goodness of Fit Index (GFI)	0.93

χ^2/df, ratio of chi-square to the degree of freedom.

the statements in the translated scale and considered responding to be easy.

On the basis of expert opinion, it was determined that certain items in the questionnaire could be used with revisions. The study was resumed as per the assessment of the seven experts with 23 items being suitable. After collecting opinions about the conformity from all experts, the CVR and CVI values were determined to be 1.

Reliability and validity

Cronbach's α coefficient of the UQOL-T was 0.75 for occupational quality of life, 0.76 for sexual quality of life, 0.79 for health quality of life, and 0.78 for emotional quality of life. The overall Cronbach's α coefficient was 0.88 (see Table 3).

The Turkish version of the SF-36 that used the same structure as the UQOL-T was applied simultaneously to 50 women. There is a significant and high relationship between the mean quality-of-life scores of both scales ($r = 0.745$, $P < 0.001$) (see Table 4).

Confirmatory factor analysis showed that the χ^2/df rate of the UQOL-T was 3.23, the NNFI value was 0.92, the CFI value was 0.93, the NFI value was 0.90, and the GFI value was 0.93 (see Table 5). The path coefficients of the UQOL-T varied between 0.44 and 1.04 (see Fig. 2). The regression coefficients and the t values obtained from the regression analysis of CFA were meaningful ($P < 0.05$). This verified the model. Furthermore, the items that contributed most to the emotional quality of life, which constituted the first subdimension of the scale, was item 11 ($R^2 = 1.04$). The one that contributed the least was item 1 ($R^2 = 0.70$). The item that contributed most to the sexual quality of life and that constituted the second subdimension of the scale was item 5 ($R^2 = 0.75$). The one that contributed the least was item 14 ($R^2 = 0.44$). The item that contributed most to the occupational quality-of-life subdimension was item 19 ($R^2 = 0.91$), and the one that contributed the least was item 3

TABLE 4. *Pearson's correlation between the UQOL-T and the Turkish version of the SF-36 overall score*

	Correlation
	The Turkish version of the SF-36 overall score
The UQOL-T overall score	$r = 0.745$
	$P < 0.001$
	n = 50

SF-36, Short Form-36; UQOL-T, Turkish version of the Utian Quality-of-Life Scale.

($R^2 = 0.44$). The item that contributed the most to the health quality of life was item 8 ($R^2 = 0.91$); item 7 was the lowest ($R^2 = 0.65$).

DISCUSSION

It is known that quality of life is affected negatively by menopause symptoms. However, individual perceptions of health and satisfaction with life are affected by expectations regarding health and the ability to cope with limitations and disabilites.[41] Therefore, two women with the same menopause-related symptoms may perceive a different quality of life in relation to perception of menopause. Perception of menopause can be positive in some cultures in which social status increases with age; however, menopause is also perceived negatively in other cultures. Negative menopausal perception can be associated with aging concerns, a decrease in reproductive ability, focusing on changes in appearance and perceived decreased attractiveness, and/or considering menopause to be a serious disease that needs to be treated. Therefore, cultural factors can affect the perception of menopause, and the perception of menopause can affect quality of life.[42-46] Additionally, in women experiencing pain arising from menopause symptoms, pain thresholds and the levels to which they can tolerate pain can influence perceived quality of life.

Utian et al suggest that the ideal practical assessment in clinical practice would be to combine the UQOL with a validated menopause-related symptom inventory. The UQOL is a suitable scale to assess the quality of life in the menopause stage rather than the menopause symptoms.[14] Given that estimation of quality of life in menopause could be an essential aspect in the decision-making process related to treatment, lifestyle changes, and follow-up of health status, the translation and application of such a questionnaire could be of paramount importance in understanding the health-related needs of postmenopausal women worldwide.[23,24]

Translation and back translation were performed by three experts in terms of both language and content validity. This was the first phase of the study. Seven experts were then consulted for semantic and conceptual expertise. Equivalence was assessed by two Turkish language experts and preliminary application realized with 25 women. The UQOL-T was thus determined to be equivalent to the original English version of the UQOL. This process was performed similarly to other studies.[9,16,17]

The mean of the women's UQOL-T total score was 75.43 ± 15.64 (range 37-111). Moreover, the group mean scores for the UQOL-T domain ranged from 9.34 to 26.75;
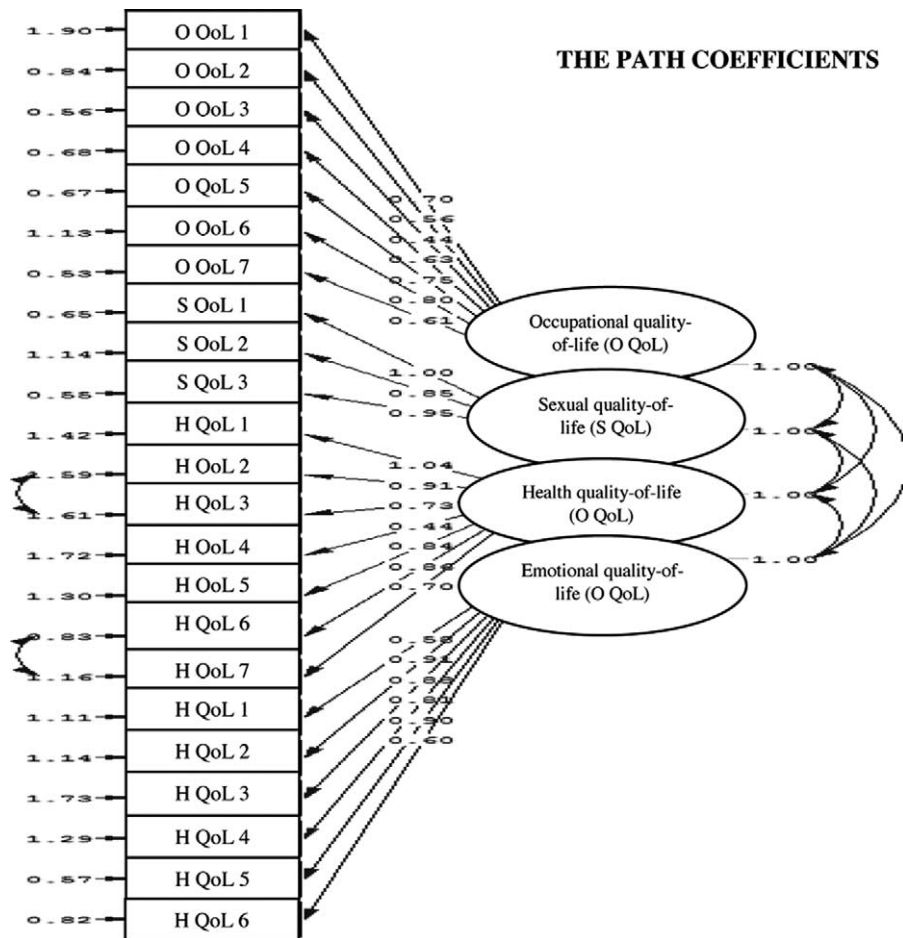
FIG. 2. The path coefficients of the UQOL-T. UQOL-T, Turkish version of the Utian Quality-of-Life Scale.

these scores are as follows: 26.75 ± 4.13, occupational; 9.34 ± 3.16, sexual; 20.43 ± 6.59, health; and 18.91 ± 5.43, emotional. In a study by Utian et al, the sample mean of the original UQOL total score was 74.45 ± 12.91. The group mean scores for the scale domain ranged from 8.48 to 24.59. These scores are as follows: 24.59 ± 6.03, occupational; 8.48 ± 3.80, sexual; 21.40 ± 5.34, health; and 19.99 ± 3.84, emotional.[14] In a study by Chen et al,[9] the sample mean of the Chinese version of the UQOL total score was 82.08 ± 13.12 (range 38-113). The group mean scores for the scale domain ranged from 10.32 to 25.01. These subscores are as follows: 23.13 ± 6.14, occupational; 10.32 ± 2.89, sexual; 25.01 ± 4.97, health; and 23.62 ± 4.21, emotional.[9] In a study by Dotlic et al,[17] the sample mean of the Serbian version of the UQOL total

score was 80.53 ± 13.58 (range 40-110). The group mean scores for the scale domain ranged from 10.12 to 25.11; these scores are as follows: 25.11 ± 5.53, occupational; 10.12 ± 3.18, sexual; 23.56 ± 4.66, health; and 21.75 ± 5.01, emotional[17] (see Table 6). In this context, the quality of life of Turkish women was higher than other non-US populations of women. We suspect that this is related to the perception of menopause, free health care services, ethnicity and traditional structures, and the extended-family and social support that is firmly established in the Turkish culture.[47,48]

The Cronbach's α coefficient evaluates the construct validity measured. The value tends to increase in conjunction with the intercorrelations among the test items.[49,50] The UQOL-T Cronbach's α coefficient of 0.88 demonstrates

TABLE 6. *The UQOL scores in different cultures*

	Original UQOL scores	Turkish version of the UQOL scores	Chinese version of the UQOL scores	Serbian version of the UQOL scores
Occupational quality of life	24.59 ± 6.03	26.75 ± 4.13	23.13 ± 6.14	25.11 ± 5.53
Sexual quality of life	8.48 ± 3.80	9.34 ± 3.16	10.32 ± 2.89	10.12 ± 3.18
Health quality of life	21.40 ± 5.34	20.43 ± 6.59	25.01 ± 4.97	23.56 ± 4.66
Emotional quality of life	19.99 ± 3.84	18.91 ± 5.43	23.62 ± 4.21	21.75 ± 5.01
Overall	74.45 ± 12.91	75.43 ± 15.64	82.08 ± 13.12	80.53 ± 13.58

UQOL, Utian Quality-of-Life Scale.

excellent internal consistency in the Turkish population. Likewise, an equal coefficient was obtained during the initial development of the scale.[14] In other cultures including Chinese, Portuguese, and Serbian settings, the Cronbach's α coefficient for the total scale were 0.86, 0.85, and 0.83, respectively. These are comparable to this study's result.[9,16,17] Moreover, the Cronbach's α coefficient of the subdimensions of the UQOL-T varied between 0.75 and 0.79. The Cronbach's α coefficients were 0.36 to 0.76 in the study by Dotlic et al, 0.61 to 0.86 in the study by Pimenta et al, and 0.61 to 0.85 in the study by Chen et al.[9,16,17] The Cronbach's α coefficient found in our study constitutes acceptable and desirable values. In the study by Chen et al, Dotlic et al, and Pimenta et al, the Cronbach's α coefficients of emotional and sexual domains are 0.66 to 0.61, 0.36 to 0.66, and 0.68 to 0.61, respectively. [8,15,16] These Cronbach's α coefficients of emotional and sexual domains are lower than 0.70. These domains had higher coefficients in the Turkish population (0.78 for emotional, 0.76 for sexual) than other non-US populations of women. The UQOL-T's emotional and sexual domains show high reliability; therefore, the answers to the questions in these domains are consistent. Emotional and sexual domains are in the private sphere, and shyness and timidity could be felt when discussing these matters with an unfamiliar person. This decreases the consistency of the answers to the questions. It is thought that the high consistency of Turkish women's answers to questions in these domains is related to trust they have with the interviewers and the creation of a private area for the questionnaire interviews.

The equivalent-form reliability method was applied to evaluate the reliability of the UQOL-T in our study. The Turkish version of the SF-36 was used for the equivalent-form reliability in our study—the scales were used simultaneously. The test-retest technique is used in some studies, or both methods may be used together.[51,52] Chen et al used the test-retest and equivalent-form reliability method, whereas Dotlic et al and Pimenta et al used the equivalent-form reliability method.[9,16,17] There is a significant and positive correlation between the mean quality-of-life scores obtained using both scales in the study ($r = 0.745$, $P < 0.001$). These results shows that an increase in quality-of-life scores from the UQOL-T is also reflected in the scores obtained using SF-36, which implies that the UQOL-T is a reliable measurement tool. In the study by Chen et al, significant correlations were found between scores on the Chinese version of the UQOL and the Taiwanese version of the SF-36 ($r = 0.15$-0.59, $P < 0.01$).[9] In the study by Doltic et al, significant positive correlations were found between the Serbian version of the UQOL total score and the Serbian version of the SF-36 in all domains ($P = 0.001$).[17] Pimenta et al found significant negative correlations between the Portuguese version of the UQOL subscales and the Portuguese version of the Menopause Symptoms' Severity Inventory subscales. Conversely, significant positive correlations were found between the overall scores of the Portuguese version of the UQOL and the

Portuguese version of the Subjective Well Being Scale.[16] Different methods have been used to evaluate scale reliability, but these all reached similar conclusions. As a result, the correlation coefficient of the UQOL in different cultures are meaningful and have a linear relationship that is statistically significant ($P < 0.05$) between the scales.

The UQOL-T has shown factorial validity. In this study, the CFA method determined that the scale is compatible with the Turkish culture via its four factors and 23 items. The regression coefficients and the *t* values found in the regression analysis of CFA are significant ($P < 0.05$) and confirm the model (χ^2/df $= 3.23$, NNFI $= 0.92$, CFI $= 0.93$, NFI $= 0.90$, GFI $= 0.93$, and the path coefficients $= 0.44$-1.04). In the study by Pimenta et al, the Portuguese version of the UQOL without item 20 showed a instrument model with an acceptable fit (χ^2/SD $= 4.899$; CFI $= 0.887$; GFI $= 0.913$; root mean square error of approximation $= 0.062$; $P < 0.001$; 90% CI 0.059-0.066).[16] The results of our study are consistent with other studies.

Limitations

This study is limited by the characteristics evaluated in the UQOL-T, the women applying to the menopause clinic of a training and research hospital in Turkey, and the individual statements they made during scale evaluation. However, it has an important characteristic in terms of constituting a representative study and offering comparisons.

CONCLUSIONS

The present study aims to measure the validity and reliability of the UQOL-T for postmenopausal women. Language-validity, content-validity, and construct-validity methods are used to assess the validity of the scale. A Cronbach's α coefficient calculation and equivalent-form reliability methods are used to assess the reliability of the scale. This study emphasizes that the UQOL-T is reliable and valid and can be a useful instrument for assessing quality of life during menopause. The UQOL-T is a helpful assessment instrument for Turkish-speaking health care professionals because of its simplicity, usability, reliability, and validity.

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