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MENOPAUSE-SPECIFIC QUALITY OF LIFE SCALE: RE-REVIEW ANALYSIS
MENOPOZA ÖZGÜ YAŞAM KALİTESİ ÖLÇEĞİ: YENİDEN GÖZDEN GEÇİRME

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ABSTRACT

It is important to evaluate the quality of life with a measurement tool that evaluates the symptoms specific to menopause in order to determine the current situation in order for women to spend the menopause period in a healthier and better quality. The sample criteria of the Menopause-Specific Quality of Life Scale have expanded over time and the scale needs to be revised due to differences in scoring. This study aimed to re-examine its validity and reliability in a larger sample. This study was planned in methodological and descriptive design. The study, which was conducted between November 2022 and February 2023, included 392 women who underwent menopause surgically or naturally, during the transition to menopause and in the postmenopausal period. The data of the study were collected with the Menopause-Specific Quality of Life Scale and the Participant Demoghraphic Form. Cronbach alpha of the sub-dimensions of the scale used in the study; vasomotor domain was 0.848, psychosocial domain was 0.892, physical domain was 0.934, and sexual domain was 0.868, and the overall scale reliability coefficient was 0.961. The total item correlation of the scale was found to range between 0.472 and 0.733. It was found that there was no statistically significant difference in the test-retest evaluation (*p>0.050*) and there was a very significant correlation between the two measurements (*p<0.001*). As a result of the confirmatory factor analysis, the scale was found to be compatible with the twenty-nine-item and four-factor structure. The Menopause-Specific Quality of Life Scale is a valid and reliable scale that evaluates the menopause-specific quality of life of women.

Keywords: Menopause, quality of life, reliability, scale, validity.

ÖZ

Kadınların menopoz dönemini daha sağlıklı ve kaliteli geçirebilmeleri için mevcut durumun belirlenmesi amacıyla menopoza özgü semptomları değerlendiren bir ölçüm aracı ile yaşam kalitesinin değerlendirilmesi önemlidir. Menopoza Özgü Yaşam Kalitesi Ölçeği Türkçe versiyonunun zaman içerisinde örneklem kriterleri genişlemiş, puanlamada farklı uygulamalar gözlenmiş, bu nedenle ölçeğin yeniden gözden geçirilmesi gereği doğmuştur. Bu doğrultuda ölçeğin dahil edilme kriterleri genişletilerek daha geniş bir örneklem de tekrar geçerliliğinin ve güvenilirliliğinin yapılması amaçlanmıştır. Menopoza Özgü Yaşam Kalitesi Ölçeği versiyonu çalışılmıştır. Bu çalışma metodolojik ve tanımlayıcı tasarımda planlanmıştır. Kasım 2022–Şubat 2023 tarihleri arasında yürütülen çalışmaya cerrahi veya doğal olarak menopoza girmiş, peri menopoz ve post menopozal dönemde 392 kadın katılmıştır. Araştırmanın verileri, Menopoza Özgü Yaşam Kalitesi Ölçeği ve Katılımcı Özellikleri Formu ile toplanmıştır. Araştırmada kullanılan ölçeğin alt boyutlarının güvenilirlik katsayıları; vasomotor alan 0.848, psikososyal alan 0.892, fiziksel alan 0.934 ve cinsel alan 0.868 olup, toplam ölçek güvenirlik katsayısı 0.961 olarak belirlenmiştir. Ölçeğin toplam madde korelasyonu 0.472-0.961 arasında değiştiği saptanmıştır. Test tekrar test değerlendirmesinde istatistiksel olarak anlamlı fark olmadığı (*p>0.050*) ve iki ölçüm arasında çok ileri düzeyde anlamlı ilişki olduğu (*p<0.001*) bulunmuştur. Doğrulayıcı factor analizi sonucunda, ölçeğin yirmidokuz maddelik ve dört faktörlü yapıya uygun olduğu bulundu. Araştırmanın Menopoza Özgü Yaşam Kalitesi Ölçeği kadınların menopoza özgü yaşam kalitesini değerlendiren geçerli ve güvenilir bir ölçektir.

Anahtar kelimeler: Menopoz, yaşam kalitesi, güvenilirlilik, ölçek, geçerlilik.

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INTRODUCTION

Menopause is a physiological event and is a natural part of the aging process. The vasomotor, genitourinary, somatic, and psychological symptoms of menopause can negatively affect the daily life of the woman and may even lead her to seek medical help.[1] Women are under the influence of menopausal symptoms in approximately one third of their lives, and this is also reflected in their quality of life.[2] It is important to evaluate the quality of life with a measurement tool that evaluates the symptoms specific to menopause in order to determine the current situation in order for women to spend this period in a healthier and better quality.[3-5] Originally named Menopause-Specific Quality of Life Questionnaire (MENQOL), the scale was first used by Hildicth et al. (1996) to evaluate the extent to which menopausal symptoms affect the quality of life of postmenopausal women.[3] The Turkish adaptation, validity and reliability study of MENQOL was conducted by Kharbouch and Şahin in 2007.[4]

MENQOL is a validated and reliable menopausal quality of life scale that is widely used all over the world and has been translated into 21 languages so far.[1] The Turkish version of MENQOL is also widely used in research. However, as in all scale studies, its use both nationally and internationally has changed over time on the basis of inclusion criteria. In the validity and reliability evaluation of the scale, women who were in the postmenopausal period, who did not receive hormone replacement therapy (HRT) in the last 6 months, and who entered natural menopause were included in the study. When the literature is examined, it has been determined that women who are in premenopausal and perimenopausal periods, who receive HRT treatment, and who have undergone surgical menopause have also been studied.[6-9]

When using the scale form, the woman is asked to answer "Yes" if she has a complaint and "No" if she has no complaints for each menopausal symptom. Yes; The woman who ticks the option is evaluated by asking her to mark the severity of the complaint using a Likert-type scale of 0 to 6. In the current national literature, there are studies in which the scale scoring scale is evaluated between 0 and 6 points[10] and between 1 and 8 points.[7,11,12] In Ozdemir & Uysal's study, it was determined that the scale was evaluated over the total item score.[12] In addition, confusion arose over time about the sub-dimensions of the scale. Four sub-dimensions in the original English format of the scale; vasomotor domain, psychosocial domain, physical domain, and sexual domain. Hilditch et al., reported that "there is no general total score that can be obtained from the scale, since the contribution of each area to the overall score is not known".[3] In the Turkish format, it has been reported that a total score can be obtained from the scale (min.0_ max. 154) with the opinion of the statistician, but evaluation cannot be made on the total score.[4]

In conclusion; due to the sampling criteria formed over time in the national literature and the different practices observed in scoring, the need to reconsider the MENQOL has arisen. In particular, it was aimed to expand the criteria for inclusion in the study and to revalidate it in a larger sample and to study the MENQOL version.

MATERIALS AND METHODS

Research Design and Participants

This study was conducted between November 2022 and February 2023 using a methodological and descriptive design to re-evaluate the reliability of the MENQOL in Turkish.[4]

Since the data of the study was composed only from the data obtained from healthy menopausal women, no data collection study was carried out in any hospital and/or institution. Research data were collected by snowball method. Data forms were collected using face-to-face interview technique. The research was completed with the women who participated and filled the data collection forms suggesting at least one acquaintance who met the research criteria. Firstly, the purpose of the study was explained to the women in detail, and then written and verbal consent was obtained from each participant to participate in the study. Each scale form was filled in approximately 10 minutes under observation. In the validity and reliability studies of the scale, it is recommended to have 5 to 10 times the number of items in the scale in determining the sample size.[13]It was planned that 290 menopausal women who were at least 10 times the number of items were included in the MENQOL, which consisted of 29 items. In order to prevent data loss, 392 women who met the research criteria were included in the study. Those who did not meet the inclusion criteria were excluded from the study. The research sample included more than 10 times the number of scale items.

Inclusion criteria;

- Volunteering to participate in the research
- Premenopoz, perimenopoz and being in the postmenopausal period (approximately: 40-65 years old)
- Underwent menopause surgically or naturally

Exclusion criteria;

- Being diagnosed with gynecological cancer,
- Receiving chemotherapy/radiotherapy treatment due to any cancer diagnosis,
- Having any diagnosed psychiatric illness.

Data Collection Tools

The data of the research were collected with MENQOL and Participant Demoghraphic Form. Participant Demographic Form consists of three questions that evaluate the age, menopause status of women, and hormone therapy status and hormone therapy status.

MENQOL was first described by Hilditch et al. in 1996.[3] It was developed in 1996 to assess women's menopausal-specific quality of life. MENQOL was adapted into Turkish by Kharbouch & Şahin in 2005.[4] MENQOL; it consists of four sub-dimensions: vasomotor domain (questions 1-3), psychosocial domain (questions 4-10), physical domain (questions 11-26), and sexual domain (questions 27-29). In the Turkish version of the scale, items are evaluated between zero-six.[4] In the scale scoring, item scores are converted into scores ranging from one to eight points in the analysis phase of the scale: If the woman did not complaint the specified symptom, the "None" option is one point, if she experienced the symptom and did not feel any discomfort, the "Yes" and "zero" options are two points, if if he felt discomfort, the level of discomfort she felt is scored between three and

eight points. For the sub-dimensions, the average and standard deviation of each item are taken. Then, the arithmetic mean and standard deviation of the items of the relevant sub-dimension are taken and divided by the number of items. There is no total score in the original English format of the scale. However, there is a total score in the Turkish version. The minimum score that can be obtained from each sub-dimension and the total score of the scale is one and the maximum score is eight. An increase in the score obtained from the scale indicates that the symptoms negatively affect the quality of life. Marking one on the scale questionnaire indicates that the woman has no problems with that issue, while two indicates that there are problems. Scores between three and six show the increase and severity of the existing problem.

In the scoring given between one and eight, if the woman feels discomfort, the level of discomfort she feels is scored between three and eight points.[3,4] The Cronbach alpha value of the scale was determined between 0.73-0.88 in the Kharbouch & Şahin study (Vasomotor domain *α=0.73*, Psychosocial domain *α=0.84*, Physical domain *α=0.88*, Sexual domain *α=0.84*).[4]

Translation of the Scale into Turkish and Intercultural Adaptation

Permission was obtained from the authors of the scale via e-mail. The English of the scale underwent translation into Turkish, a task undertaken by two proficient English-speaking researchers. Subsequently, the Turkish-translated scale was reverse-translated into English by an expert in the English language, utilizing the back-translation method. A meticulous comparison between the original scale and the English version back-translated from Turkish was conducted, with researchers scrutinizing for any alterations in meaning resulting from translation. It was ascertained that no changes were present that could compromise the intended meaning and structural integrity of the scale. Furthermore, upon comparing the scale with its initial Turkish version, it was determined that there were no structural and meaning modifications among the items.

Language and Scope Validity

Existing literature claimed that a content validity index (*CVI*) falling within the range of 0.80 to one is considered sufficient.[13] In this study, based on input received from expert faculty members specializing in Women's Health and Diseases Nursing (n=5) and a perinatology specialist doctor (n=2), the content validity index of each item in the scale exceeded 0.9. Following this, the final version of the scale underwent a pilot study involving 10 menopausal women outside the sample, resulting in the conclusion that all items were both readable and understandable.

Statistical Analysis

In the study, data were analyzed using the Statistical Package for Social Sciences (SPSS) for Windows 25.0 and Analysis of Moment Structures (AMOS) 22.0 programs. The statistical methods used in the study were explained in the individual points.

- Descriptive statistics: The data were analysed using descriptive analysis methods such as mean, standard deviation and frequency.
- Linguistic validity The Turkish translation and the back translation were produced.
- Scope validity: An expert opinion was obtained and the Scope Validity Index (CVI) was calculated.
- Reliability analysis: The Cronbach's alpha coefficient was used to test the reliability of the scale. In addition, the "item-total score correlation" was calculated.
- Confirmatory factor analysis (CFA): CFA was conducted to confirm the four-factor structure of the scale. The CFA results were used to assess the degree of fit of the scale.
- Explanatory Factor Analysis (EFA): EFA was conducted using principal component analysis and the varimax rotation method to determine the factor structure of the scale. In addition, the Kaiser-Meyer-Olkin (KMO) analysis and the Barlett test were performed.
- Test-retest analysis: A test-retest analysis was conducted and a correlation analysis was applied to assess the consistency of the scale over time.
- t-test: The T-test for dependent groups was used to assess the difference between the test-retest results.

The statistical significance value was taken as *p≤0.05*.

Ethical Dimension

Before the research data began to be collected by the researchers, the women were informed about the purpose of the study and written and verbal consent was obtained from the volunteers. The research was conducted as specified in the Declaration of Helsinki. Ethics committee approval was obtained from İstanbul Kültür University Ethics Committee (date: 14.10.2022, 2022/144) to conduct this research. Since the researcher researching the Turkish version of the scale was involved in this study, additional permission was not obtained.

RESULTS

Of the women participating in the study, 38% (n:149) were under the age of 45, 45.9% (n:180) were between the ages of 46 and 55, and 16.1% (n:63) were over the age of 56. It was determined that 61.2% (n:240) of the women entered menopause, 38.8% (n:152) were in the premenopausal period, and only 22.2% (n:87) of the women received hormone therapy.

Factor Analysis

Explanatory Factor Analysis; Before the EFA application, the Kaiser-Meyer-Olkin (KMO) test was applied to test the suitability of the sample size for factor analysis. As a result of the analysis, the KMO value was found to be 0.959 and the Bartlett Sphericity test results as $\chi 2$ (406)=7506.81 and *p=0.0001*. In order to reveal the factor pattern of the scale used in the research, principal component analysis was chosen as the factorization method, and varimax, one of the vertical rotation methods, was chosen as rotation. In the explanatory factor analysis carried out to reveal the factor pattern of the scale; The items were grouped under four factors. It was determined that these factors explained 62.35% of the total variance. As a result of the factor analysis; The

first factor "F1: Physical area" accounted for 19.54% of the total variance, the second factor "F2: Sexual area" 19.23%, the third factor "F3: Psychosocial area" 13.70% and the fourth factor "F4: Vasomotor area" It was found that she explained 9.87% of them. The reliability coefficients of the scale and its sub-dimensions used in the research are as follows; Vasomotor domain (0.848), psychosocial domain (0.892), physical domain (0.934) and sexual domain (0.868) and total scale reliability coefficient were determined as 0.961. When examining the total item correlation of the scale, the smallest value was 0.472 (Item 1) and the largest value was 0.733 (Item 7). In Table 1, the discrimination power and item correlation coefficients of all items are given.

Test-Retest Analysis

Test-retest was performed to evaluate the time invariance of the scale. Thirty-four women randomly selected for test-retest were re-evaluated 15 days later. In order to evaluate the invariance of the scale with respect to time, the mean scores obtained from the first and second tests of the reliability analysis were analyzed with the t-test and Pearson correlation analysis in paired groups. It was found that there was no statistically significant difference between the evaluations (*p>0.05*). According to the analysis results, a statistically significant relationship was found between the scale scores (Vasomotor area: *r:0.982, p<0.001*; Psychosocial area: *r:0.959, p<0.001*; Physical area: *r:0.864; p<0.001*; Sexual area: *r:0.975, p<0.001*; Total score: *r:0.933, p<0.001*). Test-retest analysis results are given in Table 2.

Confirmatory Factor Analysis: Following the results of the EFA, the 29-item version of the scale was evaluated for its compatibility with Turkish culture using confirmatory factor analysis. The model was refined by identifying variables that reduced compatibility and creating new covariances (e12-e13, e16-e18, e21-e22,

Table 1. Explanatory factor analysis results

Items no	Factors				Total Items Correlation	Item Deleted***
	F1	F2	F3	F4		
Items 1				0.795	0.472	0.961
Items 2				0.751	0.643	0.959
Items 3				0.744	0.683	0.959
Items 4			0.638		0.627	0.960
Items 5			0.643		0.676	0.959
Items 6			0.562		0.653	0.959
Items 7			0.517		0.733	0.959
Items 8			0.607		0.717	0.959
Items 9			0.644		0.720	0.959
Items 10			0.512		0.681	0.959
Items 11	0.307				0.673	0.959
Items 12	0.760				0.635	0.960
Items 13	0.752				0.667	0.959
Items 14	0.372				0.651	0.959
Items 15	0.654				0.605	0.960
Items 16	0.709				0.705	0.959
Items 17	0.666				0.716	0.959
Items 18	0.774				0.673	0.959
Items 19	0.403				0.674	0.959
Items 20	0.445				0.556	0.960
Items 21	0.694				0.669	0.959
Items 22	0.632				0.675	0.959
Items 23	0.420				0.679	0.959
Items 24	0.433				0.676	0.959
Items 25	0.632				0.668	0.959
Items 26	0.584				0.639	0.960
Items 27		0.727			0.712	0.959
Items 28		0.761			0.673	0.959
Items 29		0.666			0.667	0.959
Reliability	0.848	0.892	0.934	0.868	0.961	
Explained Variance (%)	19.54	19.23	13.70	9.87	62.35	
KMO*: $\chi 2(406) = 7506.81^{**} = 854.08$; Bartlett's sphericity test (p) < *0.0001*						

*Kaiser Meyer-Olkin, ** Barlett's Sphericity Test, F1: Physical area, F2: Sexual area, F3: Psychosocial area, F4: Vasomotor area; ***Cronbach's Alpha if Item Deleted

Table 2. Test-retest analysis results

Sub-dimension	First $\bar{X} \pm Sd.$	Second $\bar{X} \pm Sd.$	*t*	*p* *	*r*	*p* **
Vasomotor area	2.23±1.60	2.13±1.57	1.894	0.067	0.982	*<0.001*
Psychosocial area	2.52±1.48	2.58±1.51	-0.915	0.367	0.959	*<0.001*
Physical area	2.72±1.35	2.85±1.62	-0.967	0.341	0.864	*<0.001*
Sexual area	2.52±1.74	2.72±1.86	-2.726	0.060	0.975	*<0.001*
Total score	75.47±39.62	78.41±44.24	-1.075	0.290	0.933	*<0.001*

t: Paired sample t-test; *r*: Pearson correlation (two tailed); **p>0.05; **p<0.001*

e25-e26) for those with high covariance among residual values. The analysis revealed that the factor loadings of all items were above 0.30. Figure 1 shows the model for the first-level multi-factor confirmatory factor analysis of the scale. The fit indices of the scale were calculated as *χ2/df*=2.252, *RMSEA*=0.08, *GFI*=0.805, *AGFI*=0.798, and *CFI*=0.867 (Table 3). According to the CFA, the structural equation model result of the scale was significant at the *p<0.001* level. Additionally, it was determined that the 29 items and four sub-dimensions constituting the scale were related to the overall scale structure.

DISCUSSION

A quality scale tool should have good validity and reliability. Validity evaluates whether the evaluation is done in accordance with the rules and correctly and whether the data to be measured reflects the property

Table 3. Goodness of fit values of the structural model

Structural Model Values		Recommended Values
χ2/df	2.252	≤ 5
RMSEA	0.08	≤0.08
GFI	0.805	≥ 0.80
AGFI	0.798	≥ 0.80
CFI	0.867	≥ 0.80
NFI	0.801	≥ 0.80
χ2 =831.149. (435 - 66): 369. p <0.001		

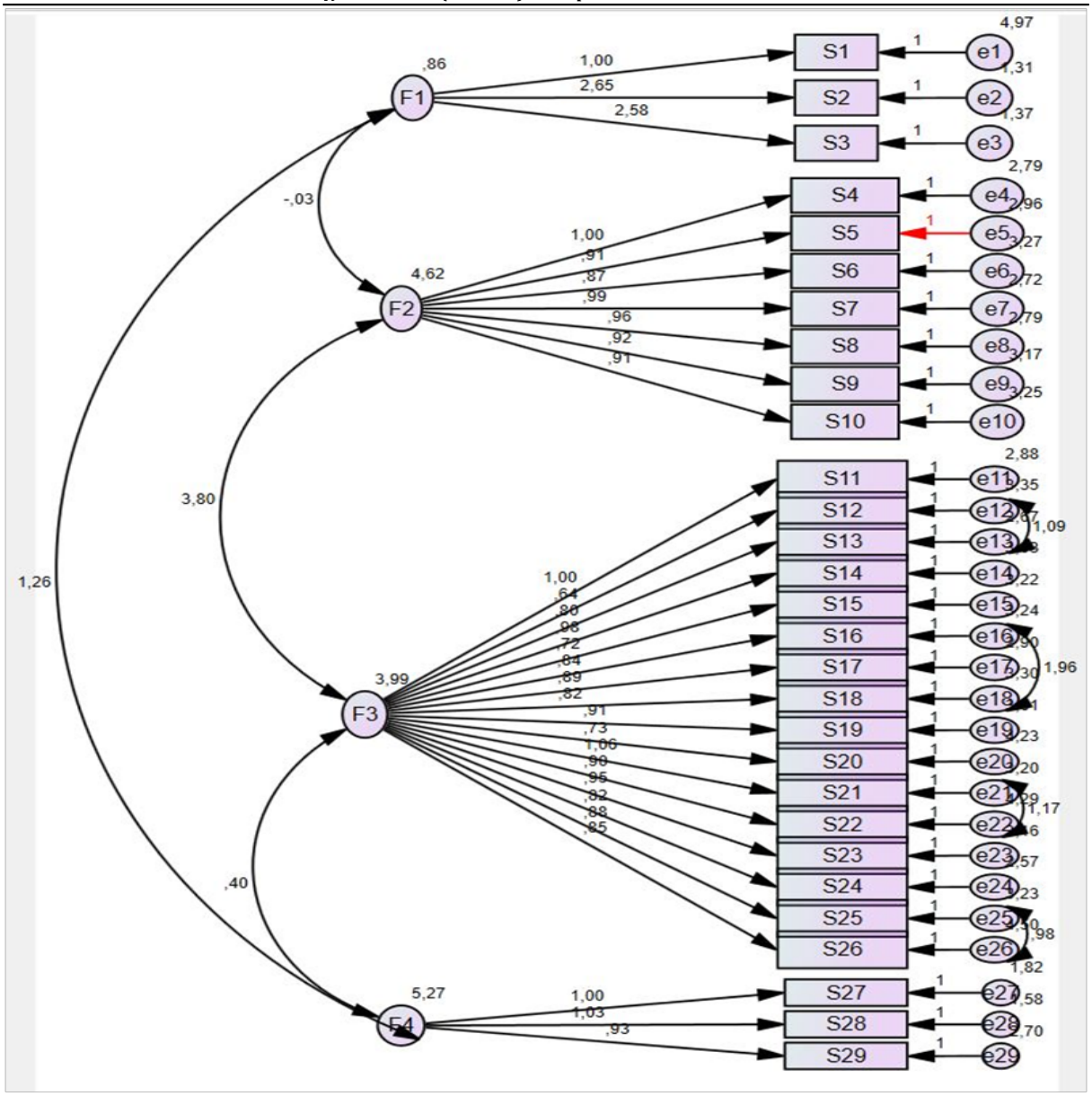

Figure 1. The mode of the first-level multifactor confirmatory factor analysis of the scale

to be measured. Reliability on the other hand. is defined as the consistency between the answers given by the individuals to the items in the assessment tool.[13,14] While adapting the scale to a language. it is recommended that the validity of the scope of the items in the scale. their equivalence in terms of language and culture be proven with numerical values. and that all these should be interpreted with grading techniques so that the opinions of the experts can be evaluated in a healthy way.[13]

In the study of Kharbouch & Sahin. Davis technique was used for the content validity of the scale. and the Content Validity Index (CVI) value was found to be higher than 0.80 as recommended.[4]

In this study. The CVI value was found to be among the values recommended in the literature. In the study. the adequacy of the sample was evaluated with the Kaiser-Mayer-Olkin (KMO) sample adequacy test and the suitability of the factor correlation matrix was evaluated with the Bartlett's sphericity test. In this study. the KMO value of the scale (0.959) and Bartlett's test were found to be significant. The KMO test result above 0.50 indicates that factor analysis is applicable. The chi-square value obtained as a result of the Bartlett's test being significant is expected to be statistically significant. The significance of Bartlett's test indicates that the correlation matrix of the items in the scale is suitable for factor analysis.[15] For this study. it was determined that the sample was perfect for factor analysis and the items were suitable for the correlation matrix. Principal component analysis (PCA) is one of the most commonly used methods in explanatory factor analysis. If the total factor load has an eigen value less than 1.00. it is not taken into consideration. In multifactorial designs. it is considered sufficient if the explained variance is above 50%.[15,16] In this framework. it is seen that the contribution of a defined factor to the total variance is sufficient. When the reliability of the scale used in the study and its sub-dimensions were evaluated separately. it was determined that the reliability coefficients were good for each sub-dimension and the overall scale. A Cronbach α value greater than 0.60 indicates that the scale used is reliable. The reliability of the scale shows that the internal consistency of the scale used in the research is good.[13,16]

The 'comparison result' of this research. there is a significant difference at the *p=0.001* level between the averages of the upper and lower group item scores in terms of items for each sub-dimension. In this context. it was determined that the sub-dimensions of the scale were distinctive in terms of measuring the desired quality.[13,15,16] If the item total score test correlation coefficient is at least above 0.30. it indicates that the measurement tool is reliable.[13-16]

The scale was found to be reliable according to the item -test correlation coefficient of this study. Test-retest analysis is used to determine how stable the test gives stable measurements over time. the correlation coefficient calculated between the scores obtained twice at regular intervals for the same group.[17,18] The high correlation obtained from the test-retest shows both the stability of the test scores and the fact that there is not much change in time between the two applications measured. As a result of the research. it was determined that there was a high and strong relationship between the scale scores between the two measurements according to the Test-retest analysis'result.[19]

The results of the confirmatory factor analysis of the structural model indicate that the scale was successfully adapted to Turkish culture. The improvements made to the 29-item version of the scale increased the overall fit of the model. Specifically. identifying variables that reduced the fit and creating new covariances for those with high covariance between residual values reinforced the accuracy and reliability of the model. The analysis revealed that the factor loadings of all items were above 0.30 indicating that the items were suitable for the scale structures and made significant contributions.[13] When the fit indices were examined. the $\chi 2/df$ ratio was 2.252 the RMSEA value was 0.08 the GFI value was 0.805, and the CFI value was 0.867 all indicating that the model was at acceptable fit levels. However. the AGFI value was 0.798. Since this value was very close to 0.8, no new covariance was introduced, and this value was kept constant. When looking at the fit index limits of the scale for CFA, it was found that the AGFI value was very close to the recommended value, but the model had a good level of fit for other variables.[13,17-19]

The research results are limited to the sample.

CONCLUSION

It is important to evaluate the quality of life with a measurement tool that evaluates the symptoms specific to menopause in order to determine the current situation in order for the woman to spend the menopausal period in a healthier and better quality. MENQOL is an important measurement tool that evaluates the extent to which a woman's menopausal complaints affect her quality of life.

MENQOL is a measurement tool that was translated into Turkish in 2007 and is widely used in both national and international literature. In this study. the inclusion criteria of the MENQOL were expanded and reconfirmed. "Being in pre-menopause or peri-menopause" receive hormone replacement therapy", and "having undergone surgical menopause" were added to the inclusion criteria. Women on hormone replacement therapy were also included in the study. In this context. it was found that the MENQOL is a valid and reliable scale that evaluates the menopause-specific quality of life of women.

Ethics Committee Approval: Ethics committee approval was received for this study from the Ethics Committee of Istanbul Kültür University (Date: 14.10.2022, Number: 2022/144).

Informed Consent: Written and verbal consent was obtained from women participating in the study.

Peer-review: Externally peer-reviewed.

Author Contributions: Concept-NHS, MMK; Design-NHS, MMK, MTM; Supervision-NHS, MMK; Resources-NHS, MMK, MTM; Materials-MMK, MTM; Data Collection and/or Processing-MMK, MTM; Analysis and/or Interpretation- NHS, MMK; Literature Search- NHS, MMK, MTM; Writing Manuscript- MMK, MTM; Critical Review-NHS, MMK, MTM.

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Hakem Değerlendirmesi: Dış bağımsız.
Yazar Katkıları: Fikir- NHŞ, MMK; Tasarım-NHŞ, MMK, MTM; Denetleme NHŞ, MMK; Kaynaklar-NHŞ, MMK, MTM; Malzemeler-MMK, MTM; Veri Toplanması ve/veya işlenmesi-MMK, MTM; Analiz ve/veya yorum-NHŞ, MMK; Literatür taraması-NHŞ, MMK, MTM; Yazıyı yazan - MMK, MTM; Eleştirel inceleme-NHŞ, MMK, MTM.
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