

The Association Between Hot Flashes, Quality of Life, and Sexual Satisfaction Among Menopausal Women

Saliha YURTÇİÇEK EREN*, Mukaddes TURAN MİRAL**, Ömer YILDIRIM***,
Şükran BAŞGÖL****

Abstract

Aim: This study aims to determine the association between hot flashes, sexual satisfaction, and quality of life among menopausal women.

Method: This cross-sectional study consisted of 492 menopausal women aged 45 years and above who lived in a city in the Eastern Anatolian Region of Turkey. The data were collected using the personal data form, the Menopause-Specific Hot Flash Scale, the Menopause-Specific Quality of Life Questionnaire, and the Sexual Satisfaction Scale for Women.

Results: A strong positive significant association was found between the Menopause-Specific Hot Flash Scale and the Menopause-Specific Quality of Life Questionnaire ($r = .694, p < 0.000$). A weak negative significant association was found between the Menopause-Specific Hot Flash Scale and the Sexual Satisfaction Scale for Women ($r = -.189, p < 0.000$). A weak negative significant association was found between the Menopause-Specific Quality of Life Questionnaire and Sexual Satisfaction Scale for Women ($r = -.291, p < 0.000$).

Conclusion: According to the findings, as women are affected by hot flashes, their quality of life is affected similarly. Complaints about hot flashes and quality of life negatively affect sexual satisfaction.

Keywords: Hot flash, menopause, quality of life, sexual satisfaction.

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* Asst. Prof., Muş Alparslan University, Faculty of Health Sciences, Department of Midwifery, Muş, Türkiye.

E-mail: s.yurtcicek@alparslan.edu.tr [ORCID https://orcid.org/0000-0002-3303-7526](https://orcid.org/0000-0002-3303-7526)

** Asst. Prof., Istanbul Kultur University, Faculty of Health Sciences, Department of Nursing, Istanbul, Türkiye.

E-mail: m.miral@iku.edu.tr [ORCID https://orcid.org/0000-0002-0696-8923](https://orcid.org/0000-0002-0696-8923)

*** Asst. Prof., Muş Alparslan University, Vocational School of Health Services, Health Care Services, Aged Care Program, Muş, Türkiye. E-mail: o.yildirim@alparslan.edu.tr [ORCID https://orcid.org/0000-0002-8819-4326](https://orcid.org/0000-0002-8819-4326)

**** Asst. Prof., Ondokuz Mayıs University, Faculty of Health Sciences, Department of Midwifery, Samsun, Türkiye.

E-mail: sukran.basgol@omu.edu.tr [ORCID https://orcid.org/0000-0001-9451-4544](https://orcid.org/0000-0001-9451-4544)

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Menopoz Dönemindeki Kadınlarda Sıcak Basmaları, Yaşam Kalitesi ve Cinsel Doyum Arasındaki İlişki

Öz

Amaç: Bu çalışmada, menopoz dönemindeki kadınlarda sıcak basması, yaşam kalitesi ve cinsel doyum arasındaki ilişkinin belirlenmesi amaçlanmıştır.

Yöntem: Bu kesitsel araştırma, Türkiye'nin Doğu Anadolu Bölgesi'nde bir ilde yaşayan 45 yaş ve üzeri menopoz dönemindeki 492 kadını kapsamaktadır. Veriler, kişisel bilgi formu, Menopoza Özgü Ateş Basması Ölçeği, Menopoza Özgü Yaşam Kalitesi Anketi ve Kadınlar için Cinsel Doyum Ölçeği kullanılarak toplandı.

Bulgular: Menopoza Özgü Ateş Basması Ölçeği ile Menopoza Özgü Yaşam Kalitesi Anketi arasında güçlü pozitif anlamlı ilişki bulunurken ($r = ,694; p < 0,000$). Menopoza Özgü Ateş Basması Ölçeği ile Kadınlar İçin Cinsel Doyum Ölçeği arasında zayıf negatif anlamlı bir ilişki bulundu ($r = -,189; p < 0,000$). Menopoza Özgü Yaşam Kalitesi Anketi ile Kadınlar İçin Cinsel Doyum Ölçeği arasında zayıf negatif anlamlı bir ilişki bulundu ($r = -,291; p < 0,000$).

Sonuç: Bulgulara göre kadınlarda sıcak basması şikayetleri arttıkça, menopozal şikayetlerinin de artmakta, cinsel doyumları ise azalmaktadır. Menopozal şikayetler artıkça da cinsel doyum azalmaktadır.

Anahtar Sözcükler: Sıcak basması, menopoz, yaşam kalitesi, cinsel doyum.

Introduction

Menopause is a physiological process that affects women's lives in every aspect due to the loss of ovarian function¹. Menopause, characterized by 12 months of amenorrhea, consists of approximately a third of women's lives together with the periods of premenopause and postmenopause². During this period, changes in the menstrual cycle, hot flashes, night sweating, sleep problems, a decline in sexual desire, vaginal atrophy, and dyspareunia may affect women's quality of life³.

Hot flashes are the most distinct symptom that starts in the premenopausal period and may continue for ten years in the postmenopausal period⁴. Hot flashes are a sudden feeling of heat in the face, neck, or upper body, often accompanied by sweating, which may appear anytime. Nearly two-thirds of menopausal women experience hot flashes, and 10-20% find hot flashes highly disturbing⁵.

While hot flashes and night sweating cause energy loss in women, decreases in estrogen production lead to vaginal dryness, affecting sexual functioning⁶. Sexual health is an essential component of life. During menopause, dyspareunia, a decline in sexual desire, and vaginal dryness may occur^{7,8}. Sexual problems are the second most common symptom in postmenopausal women⁷. Nazarpour et al. (2018) reported that 61.0% of the

menopausal women in the study had sexual dysfunction⁹. In another study carried out in Turkey, this rate was 82.0%¹⁰. There is a reciprocal interaction between sexual functioning and quality of life; a decrease in sexual functioning adversely affects the quality of life^{10,11}. Nazarpour et al. (2018) reported a significant negative correlation between the severity of menopause symptoms and sexual functioning, stating that higher severity of menopause symptoms increased the likelihood of sexual dysfunction by 9.6%⁹. However, El Khoudary et al. (2019) reported that sexual desire declines and dyspareunia increases during the menopausal period, but menopausal periods are not related to the frequency of sexual intercourse, emotional satisfaction, and physical pleasure⁸. This suggests that sexual satisfaction must be separately evaluated among menopausal women.

Severe symptoms of menopause are essential variables affecting women's quality of life¹²⁻¹⁵. Despite the high prevalence of hot flashes, there are no adequate studies that examine the effect of hot flashes on quality of life and sexual satisfaction. Although there are studies on vasomotor symptoms, sexual symptoms, and quality of life in menopause, few studies have examined hot flashes and sexual pleasure, and to the best of our knowledge, there are no studies in the literature that examine the association between these factors. This study aims to determine the association between hot flashes, sexual satisfaction, and quality of life among menopausal women.

Material and Methods

Population and Sample

The population of this cross-sectional study consisted of menopausal women aged 45 years and above who lived in a city in the Eastern Anatolian Region of Turkey and could complete an online questionnaire form. The study sample was calculated per the sampling method for an unknown population (5% deviation, 95% confidence) with the smallest sample size of 384. The snowball sampling method was used to collect the study data. As people avoided responding to questions about sexuality in face-to-face interviews, online questionnaires were preferred, and 492 women who completed the online questionnaire form were included in the study.

Inclusion Criteria

The study included menopausal women aged 45 years and above with no visual impairments or severe mental problems, who were open to cooperation and could

complete an online form. To determine these criteria, the statements of the participants were taken into consideration.

Data Collection Tools

The data collection tools used in the study were the personal data form prepared by the researchers, the Menopause-Specific Hot Flash Scale, the Menopause-Specific Quality of Life Questionnaire, and the Sexual Satisfaction Scale for Women.

Personal data form: This form was developed by the researchers. It comprises 11 items regarding specific characteristics such as age, height, weight, and income status.

The Menopause-Specific Hot Flash Scale (HFRDIS): The original scale was developed by Carpenter (2001)¹⁶. The Turkish validity and reliability study of the 10-item scale was performed by Dişli and Şahin (2022)¹⁷. Each item on the scale is rated from 0 to 10. During the scoring phase, women are requested to evaluate their status of being affected by hot flashes considering the experiences within the last two weeks. The total score is obtained by summing scores from all of the items. Higher scores indicate higher interference levels due to hot flashes. The Cronbach alpha value of the original scale is 0.96. This value was detected to be 0.90 in the Turkish adaptation study. In the present study, the Cronbach alpha value was 0.91.

The Menopause-Specific Quality of Life Questionnaire (MENQOL): The scale was developed by Lewis, Hilditch, and Wong (2005)¹⁸. The validity and reliability study of the MENQOL was performed by Kharbouch and Şahin (2007). The questionnaire is also used to evaluate the severity and existence of menopause symptoms¹⁹. The MENQOL is a 29-item Likert-type scale. This tool was adapted to Turkish by performing relevant validity and reliability studies. Each item in the questionnaire is rated between 0 and 6. The scores of the domains are calculated by summing the scores for the items in the field, and higher total scores from the questionnaire indicate more severe complaints. The questionnaire consists of four domains, vasomotor, psychosocial, physical, and sexual. The Cronbach's alpha value was between 0.73 and 0.88 in the Turkish adaptation (vasomotor domain $\alpha=0.73$, psychosocial domain $\alpha=0.84$, physical domain $\alpha=0.88$, sexual domain $\alpha=0.84$). However, in this study, the alpha value was between 0.86 and 0.93 (vasomotor domain $\alpha=0.86$, psychosocial domain $\alpha = 0.90$, physical domain $\alpha = 0.93$, sexual domain $\alpha=0.887$).

The Sexual Satisfaction Scale for Women (SSS-W): The scale, developed by Meston and Trapnell in 2005, is a Likert-type tool rated from 1 to 5²⁰. The Turkish

adaptation study of this 30-item scale was performed by Abalı Çetin and Aslan (2018)²¹. The scale consists of five domains: contentment, communication, compatibility, relational concern, and personal concern. The original scale has an acceptable internal consistency (Cronbach $\alpha \geq 0.74$). In the present study, the Cronbach α value was detected as 0.91.

Data Analysis

The obtained data were analyzed with the SPSS 24 software. Descriptive data are shown as mean, standard deviation, median (min-max), percentage, and numbers. The normal distribution of the data was examined by skewness and kurtosis. To compare the scores from the scale and the domains according to variables, independent samples T-test was used in paired groups, one of the parametric test techniques, and one-way variance analysis (ANOVA) was used to compare more than two groups. Furthermore, the Tukey test, one of the post-hoc tests, was used to determine which groups caused the variation^{22,23}. The Pearson correlation analysis assessed the relationship between the Menopause-Specific Hot Flash Scale, the Menopause-Specific Quality of Life Questionnaire, and the Sexual Satisfaction Scale for Women. In the present study, a weak or low correlation ($r = 0-0.29$), a moderate correlation ($r = 0.30-0.64$), a strong correlation ($r = 0.65-0.84$), and a very strong correlation ($r = 0.85-1.0$) were taken as a reference when calculating the power of correlation²⁴.

Results

Table 1 shows the demographic characteristics of the women. They were mainly within the 45-49 age group (49.2%), and the majority had an educational level of primary school or below (61.4%) (Table 1).

Table 1. Demographic characteristics of the women (n:492)

Variables	Number (n=492)	%
Age		
45-49	242	49.2
50-54	144	29.3
55 and over	106	21.5
Educational level		
Primary school or less	302	61.4

High school	127	25.8
University or above	63	12.8
Family type		
Nucleus	341	69.3
Extended	151	30.7
Employment status		
Employed	74	15.0
Unemployed	382	77.6
Retired	36	7.3
Perceived income status		
Low	182	37.0
Moderate	251	51.0
Good	59	12.0
Place of residence		
Village	102	20.7
District	144	29.3
City	246	50.0
Existence of chronic diseases		
Yes	228	46.3
No	264	53.7
Status of smoking		
Smoking	103	20.9
Non-smoking	389	79.1
The mode of menopause		
Natural	443	90.0
Surgical	49	10.0

Table 2 presents the participants' mean scores from the Menopause-Specific Hot Flash Scale, the Menopause-Specific Quality of Life Questionnaire, and the Sexual Satisfaction Scale for Women. The mean score of the women from the Menopause-Specific Hot Flash

Scale was 5.25 ± 2.00 . The participants' mean score from the Menopause-Specific Quality of Life Questionnaire was 3.62 ± 1.15 . The women's mean score from the Sexual Satisfaction Scale for Women was 76.63 ± 13.00 (Table 2).

Table 2. The mean scores that the women received from the scales (n:492)

	The number of items	Min-max	Mean \pm SD
The Menopause-Specific Hot Flash Scale	10	0-9.8	5.25 ± 2.00
The Menopause-Specific Quality of Life Questionnaire	29	0-6	3.62 ± 1.15
Vasomotor domain	3	0-6	3.81 ± 1.48
Psychosocial domain	7	0-6	3.44 ± 1.34
Physical domain	16	0-6	3.69 ± 1.19
Sexual domain	3	0-6	3.43 ± 1.50
The Sexual Satisfaction Scale for Women	30	34-119	76.63 ± 13.00
Satisfaction	6	6-29	17.56 ± 3.75
Communication	6	6-30	18.69 ± 4.18
Compatibility	6	6-30	20.32 ± 4.37
Relational Concern	6	6-30	20.27 ± 4.85
Personal Concern	6	8-30	20.05 ± 4.50

When the women's mean total and domain scores from the Menopause-Specific Hot Flash Scale (HFRDIS), the Menopause-Specific Quality of Life Questionnaire (MENQOL), and the Sexual Satisfaction Scale for Women (SSS-W) were examined according to specific variables in Table 3, the mean scores of the women aged 50-54 years from the SSS-W were significantly higher than those aged 55 years and above. No significant differences were detected regarding the age groups in scores from the HFRDIS and the MENQOL ($p > 0.05$).

As for educational level, the mean scores of high school graduates from the MENQOL, the psychosocial domain, and the sexual domain were significantly higher than those with an educational level of university or above. In the communication domain of the SSS-W, the women with an educational level of university or above had significantly higher mean scores than those with primary school or lower education ($p < 0.05$). No significant differences in scores from the HFRDIS regarding educational level ($p > 0.05$) were found.

As for the mode of menopause, the women with natural menopause had higher mean scores from the MENQOL, the vasomotor domain, the psychosocial domain, and the physical domain than those with surgical menopause ($p < 0.01$). No significant differences were detected regarding the mode of menopause in scores from the HFRDIS, the SSS-W, and the domains ($p > 0.05$).

Table 3. The comparison of the women's mean total and domain scores from HFRDIS, MENQOL, and SSS-W according to certain variables (n: 492)

Scales	Variables	Mean	SD	F	P	Tukey
	Age					
HFRDIS	45-49	5.28	1.97	0.224	0.799	
	50-54	5.29	1.98			
	55 and above	5.14	2.10			
MENQOL	45-49	3.67	1.15	.698	.498	
	50-54	3.52	1.05			
	55 and above	3.62	1.27			
SSS-W	45-49 ^a	76.98	12.64	3.648	.027*	b > c
	50-54 ^b	78.15	12.60			
	55 and above ^c	73.78	14.00			
Satisfaction	45-49 ^a	17.87	3.75	4.077	.018*	a > c
	50-54 ^b	17.72	3.48			
	55 and above ^c	16.66	3.97			
Communication	45-49 ^a	19.08	4.17	4.803	.009**	a > c
	50-54 ^b	18.84	4.12			
	55 and above ^c	17.60	4.15			

	Educational level	Mean	SD	F	P	Tukey
MENQOL	Primary school or below ^a	3.60	1.19	3.366	.035*	b > c
	High school ^b	3.79	1.03			
	University or above ^c	3.33	1.12			
Psychosocial domain	Primary school or below ^a	3.42	1.34	3.077	.047*	b > c
	High school ^b	3.63	1.22			
	University or above ^c	3.12	1.52			
Sexual domain	Primary school or below ^a	3.31	1.54	4.034	.018*	b > c
	High school ^b	3.75	1.31			
	University or above ^c	3.37	1.61			
SSS-W	Primary school or below ^a	75.84	11.84	2.792	.062	
	High school ^b	76.80	12.92			
	University or above ^c	80.07	17.43			
Communication	Primary school or below ^a	18.40	4.02	3.766	.024*	c > a
	High school ^b	18.74	3.94			
	University or above ^c	19.98	5.16			
The mode of menopause						
MENQOL	Natural ^a	4.13	1.09	3.310	.001**	a > b
	Surgical ^b	3.56	1.14			
Vasomotor domain	Natural ^a	4.44	1.47	3.140	.002**	a > b
	Surgical ^b	3.74	1.46			
Psychosocial domain	Natural ^a	3.95	1.50	2.860	.004**	a > b
	Surgical ^b	3.38	1.31			
Physical domain	Natural ^a	4.20	1.08	3.207	.001**	a > b
	Surgical ^b	3.63	1.18			

ANOVA ("F") was used for the analyses, and t-test ("t") was used for independent samples. * $p < 0.05$, ** $p < 0.01$

When the association between the Menopause-Specific Hot Flash Scale, the Menopause-Specific Quality of Life Questionnaire, and the Sexual Satisfaction Scale for Women was examined in Table 4, a strong positive significant association was found between the HFRDIS and the MENQOL ($r = .694$, $p < 0.000$). A weak negative significant association

was detected between the HFRDIS and the SSS-W ($r=-.189$, $p<0.000$). A weak negative significant association was found between the MENQOL and the SSS-W ($r=-.291$, $p<0.000$) (Table 4). According to the findings, as women are affected by hot flashes, their quality of life is affected in a parallel way. Complaints about hot flashes and quality of life negatively affect sexual satisfaction.

Table 4. The association between HFRDIS, MENQOL, and SSS-W (n: 492)

Scales	HFRDIS	MENQOL	Vasomotor domain	Psychosocial domain	Physical domain	Sexual domain	SSS-W	Satisfaction	Communication	Compatibility	Relational Concern	Personal Concern
HFRDIS	1											
MENQOL	.694**	1										
Vasomotor domain	.628**	.735**	1									
Psychosocial domain	.687**	.882**	.643**	1								
Physical domain	.615**	.964**	.627**	.763**	1							
Sexual domain	.488**	.771**	.471**	.597**	.710**	1						
SSS-W	-.189**	-.291**	-.160**	-.319**	-.235**	-.344**	1					
Satisfaction	-.161**	-.258**	-.149**	-.257**	-.213**	-.334**	.740**	1				
Communication	-.075	-.157**	-.030	-.190**	-.132**	-.181**	.753**	.474**	1			
Compatibility	-.091*	-.176**	-.066	-.225**	-.124**	-.247**	.796**	.410**	.458**	1		
Relational Concern	-.202**	-.269**	-.225**	-.275**	-.223**	-.256**	.759**	.404**	.404**	.568**	1	
Personal Concern	-.269**	-.303**	-.230**	-.302**	-.255**	-.313**	.720**	.455**	.343**	.465**	.722**	1

Pearson correlation analysis was used. * $p<0.05$, ** $p<0.01$

Discussion

Menopause-Specific Hot Flashes

Changes in vasomotor problems may occur in menopausal women with increasing age. In this study, the mean score of the women from the HFRDIS was at a moderate level. Similar findings were reported in the current literature^{14,25}. No significant association was detected between the HFRDIS and age in this study. To support this finding, Sun et al. (2018) reported that the most disturbing problem at the onset of the premenopausal period was vasomotor problems. Also, such complaints changed with menopause, and this change was independent of age²⁵.

Menopause-Specific Quality of Life

In this study, the mean MENQOL score of the participants was at a moderate level, and the mean scores found in the existing studies for the MENQOL and the domains were similar to the present study^{14,26}.

Though menopausal symptoms vary from one woman to another, they may start approximately at ages 40-45 and last for 15-20 years. This may suggest that changes in quality of life are based on age, but no significant association was found between age and the MENQOL in the present study. Sun et al. (2018) reported that quality of life gradually decreases from the beginning of the premenopausal period till the end of the postmenopausal period, yet menopause affects the quality of life independently of age²⁵. This finding overlaps with our study, suggesting that controlling the disturbing symptoms of menopause in women may increase their quality of life independently of age.

According to the existing studies, educational level is related to the MENQOL score, stating that the higher the education level, the higher quality of life^{27,28}. In the present study, the participants with a high school education had higher MENQOL scores than those with a university education. This may be explained by the fact that women with a higher educational level can more easily access information and health services related to the management of menopause. The existing studies support this notion, showing that the information level of women as to menopause positively affects their quality of life^{27,29,30}.

In cases of some specific diseases, women's ovaries may be removed, which causes them to undergo surgical menopause. This unnatural mode of menopause may adversely affect the quality of life of women. Similarly, the MENQOL scores of women who had surgical menopause were lower than those of women who had natural menopause in the present study. It is suggested that this is because women who have surgical menopause experience menopause directly without having the premenopausal transition. Furthermore, it is related to their perspective on surgical menopause. A study comparing surgical and natural menopause reported that women who have natural menopause regard menopause as a stage of life, while those who have surgical menopause view it as the loss of sexuality³¹.

Sexual Satisfaction during Menopause

In this study, the SSS-W score of the participants was found to be slightly above the average. Another study carried out in Turkey also reported moderate-level sexual quality of life, which confirms our findings¹⁰. The period in which women are the most sexually active is the period of sexual maturity, and with increasing age, there may be declines in sexual activity due to menopause⁷. In our study, women aged 55 years and above had significantly lower SSS-W scores than those aged 50-54. Though it varies from one woman to another, women mostly undergo menopause between 45 and 55 years of age, and the postmenopausal period occurs after 55 years of age²⁶. In this regard, it can be said that postmenopausal women had lower scores from the SSS-W. Sun et al. (2018) reported that sexual scores are related to the postmenopausal period, and the quality of life in the sexual health domain gradually decreases in the postmenopausal period, which supports our findings²⁵. Therefore, health services must be improved to enhance the sexual health of women in this period.

Hot Flashes and Sexual Satisfaction

Although it was reported that hot flashes might result in sexual disharmony and a decline in sexual desire^{6,32}, our study found a weak association between the HFRDIS and the SSS-W. Sun et al. (2018) reported that hot flashes mostly peak at the onset of the premenopausal period, while sexual symptoms primarily increase towards the end of the postmenopausal period²⁵. These findings indicate that hot flashes and sexual satisfaction do not have a strong association, which is consistent with the literature.

Hot Flashes and Quality of Life

Hot flashes may overwhelm menopausal women, affecting their quality of life³³. The present study revealed a strong positive association between the HFRDIS and the MENQOL. The existing studies also confirm this finding^{29,32,33}. In line with this, it is considered that interventions aiming to address the hot flashes of menopausal women will also improve their quality of life.

Sexual Satisfaction and Quality of Life

The existing literature reports that the sexual symptoms of menopause affect the quality of life among women^{11,29,34,35}. Cea Garcia et al. (2022) reported a positive reciprocal relationship between women's quality of life and their sexual life scores, stating that lower scores of sexual life also decrease quality of life postmenopausal state affects sexual

functions negatively¹¹. In a study carried out with menopausal women in Turkey, a positive association was found between multiple sexual dysfunctions and the perceived severity of menopause symptoms³¹. Nazarpour et al. (2018), who reached a similar conclusion, reported that each increase in the severity of menopause symptoms increased the likelihood of sexual dysfunction by 9.6%⁹. However, the present study observed a weak relationship between the SSS-W and the MENQOL. This may have been because premenopausal women were also included in the study sample, while the sample consisted of postmenopausal women in other studies. The current studies report that the sexual symptoms of menopause mainly occur in the postmenopausal period^{25,34}, which supports this notion.

Conclusion

The women who took part in this study had moderate levels of hot flashes problems and menopause-specific quality of life, and their sexual satisfaction levels were slightly above the average level. It was revealed that as the complaints about hot flashes increased, so did the complaints about the quality of life. Furthermore, complaints about hot flashes and quality of life negatively affected sexual satisfaction. Accordingly, it is recommended that more efforts be spent to control hot flash symptoms and thus increase the quality of life. Conducting the study in a single center is a limitation of the study, and multicenter studies on the scale are recommended. It may also be suggested that future studies assess sexual satisfaction separately for periods of premenopause, perimenopause, and postmenopause.

Disclosure

The author reports no conflicts of interest in this work.

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