

# The Relationship between Menopause Perception, Body Mass Index, and Waist-Hip Ratio with Menopausal Symptoms in Turkish Women

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## ABSTRACT

**Objective:** The study aimed to investigate the relationship between menopause perceptions, feelings felt, body mass index, and waist-hip ratio with menopausal symptoms in Turkish climacteric women.

**Methods:** This descriptive and correlational study was conducted in a Family Health Center. The research sample consisted of 220 women in the climacteric period. Data were collected with the survey form and The Menopause Rating Scale (MRS). Body Mass Index (BMI) and Waist Hip Ratio (WHR) were measured and calculated by the researchers.

**Results:** The women who perceive menopause as a “natural, normal process” had lower somatic, psychological, and general menopausal symptoms, and those who defined it as “the end of sexuality” had higher genitourinary symptoms ( $p < .01$ ). Women who were adversely affected or felt negative emotions about menopause reported that they experienced all menopausal symptoms more severely ( $p < .001$ ). Obese women experienced particularly higher levels of somatic and general menopausal symptoms ( $p < .05$ - $p < .01$ ), while women with  $WHR < 0.72$  experienced a higher level of genitourinary symptoms ( $p < .05$ ).

**Conclusion:** The results showed that menopause perception, feelings felt, obesity, and WHR have an impact on menopausal symptoms and levels.

**Keywords:** Menopause, symptoms, menopause perception, body mass index, waist-hip ratio

## 1. INTRODUCTION

Each life stage of women brings its own physical, psychological, and hormonal changes. Menopause, which occurs in the climacteric period, includes perimenopausal, menopausal, and postmenopausal periods, is almost a cornerstone due to its impact on women’s lives, and it indicates a transition from the reproductive period to the non-reproductive period (1). World Health Organization (WHO) stated that most women experience menopause between the ages of 45 and 55 years as a natural part of biological aging (2). While some authorities reported 51 (3-5). The average age of menopause is reported to be 48 years in Turkey (6). During menopause, various physical and mental changes occur, especially due to estrogen deficiency and many predisposing factors, and could be experienced symptoms related to vasomotor, psychological, somatic, and atrophic changes (8,9).

Changes in estrogen and its level during menopause affect other hormones and metabolism, altered metabolism

leads to increased appetite and reduced metabolic rate. In addition, the tendency to be overweight and obese increases in this process due to decreased physical activity, common emotional eating disorders associated with eating habits and psychological discomfort, and the contribution of environmental factors (8,9). A significant increase in fat mass, especially visceral adipose tissue mass, is observed after menopause, and fat accumulation generally increases in the abdomen, and a transition from gynoid obesity to abdominal obesity occurs with android-type weight gain (10). For these reasons, it is important to measure the Body Mass Index (BMI) and the Waist Hip Ratio (WHR) in terms of this type of weight gain during menopause and to provide recommendations if necessary (11,12). In women, WHR values above 0.72 are considered abnormal, and a value of  $\geq 0.80$  indicates an increased risk (13). There are also many discussions on the relationship between obesity and menopausal symptoms (14). Some studies have reported an

association between menopause and BMI, and increased BMI is an important factor in hot flashes (8,14,15). However, some studies reported an inverse relationship between BMI and hot flashes, and hot flashes are more common in women who are underweight compared to BMI and who do not exercise (16,17). It is stated that there is a positive relationship between abdominal obesity, that is increased WHR, hot flashes, and urogenital symptoms (14). On the other hand, attitudes, perceptions, and expectations are also part of the psychosocial phenomenon surrounding menopause (18). Perceptions and attitudes towards menopause are influenced by many cultural and social variables, and it is assumed that these conditions may affect the experiences and symptoms of menopause (18,19). It has been reported that women with a negative attitude towards menopause experience more symptoms (19).

It is seen that further and quality studies are needed that can determine the relationship between menopause perception, BMI, and WHR with menopausal symptoms. The current study aimed to investigate the relationship between menopausal perception, feelings felt, BMI, and WHR with menopausal symptoms experienced by climacteric women. It was thought that the results obtained would contribute to the literature, and develop more effective and personalized interventions and healthcare services for women in the climacteric period. This study is a crucial step towards enhancing climacteric women's health and quality of life by creating more comprehensive strategies based on menopause knowledge.

## 2. METHODS

The study was reported according to the STROBE Checklist. The STROBE Statement checklist is a tool used to report observational studies, including cohort, case-control, and cross-sectional studies. The checklist consists of items that should be included in reports of observational studies. The checklist is not a prescription for designing or conducting observational studies, nor is it an instrument for evaluating the quality of research (20).

### 2.1. Participants

This study descriptive and correlational research design was carried out in a Family Health Center. The Finite/Known Populations Formula was used to calculate the study sample size. As a result of the analysis made according to the formula, it was determined that at least 213 women should be sample size and this number was increased. The study sample consisted of 220 women in the climacteric period [Perimenopause n=50 (22.7%); postmenopause n=170 (77.3%)]. Random sampling method was used from non-probability sampling methods in the sampling and women who met the sampling criteria and voluntarily agreed to participate in the study were included. The sampling criteria: Women who were registered at the family health center where the research was conducted, aged between 45 and 65,

in the peri and postmenopausal period, able to understand the questions, with no mental problems or serious chronic diseases and not using medication (for such diseases), and volunteering to participate for the research. Those who did not meet the listed criteria were excluded from the sample. No participants withdrew from the research.

### 2.2. Instruments

Data were collected using the participant's characteristics form prepared by the researcher with expert opinion and the Menopause Rating Scale (MRS). *The participant's characteristics form* has two parts. The first part consisted of 12 questions about socio-demographic, obstetric, and menopausal characteristics and menopause perceptions of women (*What does menopause mean to you? What do you say about your menopause perception and feelings?*). In addition, women were asked to rate their level of being affected by menopausal complaints from 0 to 10 (0: None, 10: Severe). The second part included height, weight, waist, and hip measurements, and BMI and WHR results calculated by the researchers. *Menopause rating scale (MRS)*: The scale was first developed by Heinemann et al. in 1992. The scale consists of 11 items that can determine somatic, psychological, and genitourinary symptoms, and also measure women's quality of life. MRS is a 5-point Likert-type scale ranging between 0 (none at all) and 4 (very severe). The highest score that can be obtained from the scale is 44, and higher scores indicate increased symptoms and adversely affected quality of life (21). The Turkish validity of the scale was conducted by Özlem Can Gürkan and Cronbach's alpha was found 0.84 scale total score (22).

### 2.3. Ethics Committee Approval

Ethical approval for this study was obtained from the Marmara University, Institute of Health Sciences Non-Interventional Clinical Research Ethics Committee (Date: 11.09.2017; Number of approval: 162), and institutional permission was obtained from the Family Health Center (16867222/604.01.01). Written permission was obtained for the use of the Turkish version of the scale. Verbal and written consent was obtained from the volunteer participants.

### 2.4. Data collection

A face-to-face interview technique was used to apply the forms to the women included in the study, and the data were collected through self-reporting. After completing the forms, height, weight, waist, and hip circumference measurements were performed by the researchers, and were recorded in the second part of the participant's characteristics form.

### 2.5. Statistical analysis

Statistical Package for the Social Sciences (SPSS) version 22 was used to analyze the data. The study searched to answer these questions: "What do BMI and WHR values?" "Do the

menopausal symptoms and/or levels vary according to the menopause perception, feelings felt, BMI, and WHR? And "What is the relation between them?" Frequency, mean, chi-square, t-test, ANOVA, and Pearson's correlation test were used in the analysis. Statistical significance was set at  $p < .05$ .

### 3. RESULTS

#### 3.1. Demographic results

Of the women, 22.7% (n=50) were perimenopausal and 77.3% (n=170) were postmenopausal. The average age was  $52.7 \pm 5.5$  years (perimenopause  $47.2 \pm 2.2$ ; postmenopause:  $54.4 \pm 5.1$ ), 48.2% were primary school graduates, the majority (82.3%) were married, and 64.1% were unemployed. Taking Hormone Replacement Therapy (HRT) rate was 5.4% (n=12).

#### 3.2. Women's Perceptions of menopause

More than half of women (53.2%) reported a perception of menopause as a "natural, normal process", while 41.8% described it as "the loss of femininity traits". This expression was higher in postmenopausal women ( $p < .001$ ). The rate of defining menopause as "old age/aging" and "increase in health problems/diseases" was higher in perimenopausal women who are in menopause or will be entering into menopause. (40.9% of women described their feelings mostly as "unhappiness" and "sadness"). Women's level of being affected by menopausal complaints was  $6.28 \pm 1.85$  according to the scores between 0 and 10, while this level was higher in postmenopausal women ( $p < .001$ ). The age of onset of menopause symptoms age was  $45.84 \pm 3.39$ . The natural menopause rate was 94.7% in those who entered menopause, the average age of the final menstrual period of these women was 45 years, and the mean age of menopause was 46 years (Table 1).

**Table 1.** Menopausal characteristics of women and their perceptions of menopause

Variables	Perimenopause (n=50) n (%)	Postmenopause (n=170) n (%)	Total (N=220) n (%)	$\chi^2, p$
<b>Menopause perceptions<sup>a</sup></b>				
The natural, normal process	26(52.0)	91(53.5)	117(53.2)	$\chi^2= 0.03$ $p= .84$
The loss of femininity traits	10(20.0)	82(48.2)	92(41.8)	$\chi^2= 12.66$ $p= .000$
The end of fertility	10(20.0)	39(22.9)	49(22.3)	$\chi^2= 0.19$ $p= .66$
Old age/aging	19(38.0)	38(22.5)	56(25.5)	$\chi^2= 5.36$ $p= .02$
Decrease or end of sexual activity	5(10.0)	20(11.8)	25(11.4)	$\chi^2= 0.11$ $p= .73$
Increase in health problems/diseases	12(24.0)	22(12.9)	34(15.5)	$\chi^2= 3.61$ $p= .05$
<b>Feelings felt (about being in menopause or entering into menopause)</b>				
Natural feelings, meeting normal	25(50.0)	62(36.5)	87 (39.5)	$\chi^2= 2.95$ $p= .06$
Negative emotions and negatively affected	25 (50.0)	108 (63.5)	133 (60.5)	
<b>Menopausal symptoms</b>				
	<b>Mean<math>\pm</math>SD</b>	<b>Mean<math>\pm</math>SD</b>	<b>Mean<math>\pm</math>SD</b>	<b>p</b>
Age of onset of menopause symptoms	45.20 $\pm$ 2.39	46.02 $\pm$ 3.61	45.84 $\pm$ 3.39	t= 1.51 $p= .13$
Duration of experiencing menopause symptoms / years	2.22 $\pm$ 1.37	6.74 $\pm$ 5.01	2.11 $\pm$ 1.23	t= 6.29 $p= .000$
Affected level by menopause complaints	5.36 $\pm$ 2.14	6.55 $\pm$ 1.66	6.28 $\pm$ 1.85	t= 4.13 $p= .000$
<b>Characteristics of women entering menopause (n=170)</b>				
<b>Menopause type</b>	<b>n (%)</b>			
	Natural 161 (94.7)			
Surgical 9 (5.3)				
	<b>Mean<math>\pm</math>SD</b>	<b>Median</b>		
Final menstrual age	45.66 $\pm$ 3.76	45		
Menopause age	46.67 $\pm$ 3.73	46		
Menopause time/years	7.78 $\pm$ 5.62	6		

Chi-square and t-test were used

While the rate of experiencing positive emotions was higher in women who perceived menopause as a natural process. It has been found that women who have negative interpretations of menopause (*such as loss of femininity traits, end of fertility, aging, and end of sexuality*) are more likely to experience negative emotions during their menopause period ( $p < .01 - .001$ ).

### 3.3. Women's BMI and WHR characteristics

According to BMI, 46.0% of women were obese, and this rate was higher in postmenopausal women (52.3%), while in perimenopausal women the overweight rate was high (44.0%). The abnormal WHR ( $> 0.72$ ) rate was 93.6% and the increased risk ( $\geq 0.80$ ) rate was also high at 85.9% (Table 2).

### 3.4. MRS results according to menopausal perception, emotions, BMI and WHR

MRS total score average was  $14.54 \pm 6.38$ , especially somatic symptoms and the level of experiencing overall menopausal symptoms was higher in postmenopausal women ( $p < .01$ ). Genitourinary symptoms were the least reported. The level of experiencing "somatic", "psychological", and overall

menopausal symptoms of women who define menopause as a "natural, normal process" was lower than others ( $p < .01 - .001$ ). The women who define menopause as a "decrease or end of sexual activity" had a higher level of genitourinary symptoms ( $p < .01$ ) and those who define it as an "increase in health problems/diseases" also had a higher level of psychological symptoms ( $p < .05$ ). Women who were adversely affected or felt negative emotions about menopause reported that they experienced all menopausal symptoms more severely ( $p < .001$ ). Obese women had a higher level of experiencing especially somatic and overall menopausal symptoms ( $p < .05 - .001$ ). The level of experiencing genitourinary symptoms was higher in women with a WHR  $< 0.72$  ( $p < .05$ ) (Table 3).

According to the Pearson's correlation analysis; as BMI increased, the women's level of experiencing somatic, psychological, and general menopausal symptoms, and affected level by menopause complaints also increased, and there was a significant positive correlation between them ( $p < .05 - .01$ ). There was no significant correlation between WHR and MRS total and sub-groups ( $p > .05$ ), but as the WHR increased, the affected level by menopause complaints that women reported was also increasing ( $p < .01$ ) (Table 4).

**Table 2.** Women's BMI and WHR characteristics

Characteristics	N=220			p
	Perimenopause	Postmenopause	Total	
	(n=50)	(n=170)	(n=220)	
	n(%)	n(%)	n(%)	
<b>BMI</b>				
Underweight ( $< 18.5$ )	2(4.0)	1(0.6)	3(1.4)	$\chi^2 = 23.18$ $P = .000$
Normal weight (18.5 – 24.9)	14(28.0)	15(8.8)	29(13.2)	
Overweight (25.0 – 29.9)	22(44.0)	65(38.2)	87(39.5)	
Obesity	12(24.0)	89(52.3)	101(46.0)	
Obesity class I (30.0 – 34.9)	8(16.0)	74(43.5)	82(37.3)	
Obesity class II (35.0-39.9)	4(8.0)	12(7.1)	16(7.3)	
Obesity class III ( $\geq 40$ )	0(0.0)	3(1.8)	3(1.4)	
WHR				
$\leq 0.72$ (Normal)	3 (6.0)	11(6.5)	14(6.4)	$\chi^2 = 0.01$ $p = .60$
$> 0.72$ (Abnormal)	47 (94.0)	159(93.5)	206(93.6)	
$\geq 0.80$ (increased risk)	39(78.0)	150(88.2)	189(85.9)	$\chi^2 = 3.34$ $p = .06$
$< 0.80$	11(5.0)	20(9.0)	31(14.1)	
<b>BMI and WHR averages</b>	<b>Mean<math>\pm</math>SD</b>	<b>Mean<math>\pm</math>SD</b>	<b>Mean<math>\pm</math>SD</b>	
<b>BMI</b>	27.37 $\pm$ 4.61	30.16 $\pm$ 4.04	29.52 $\pm$ 4.33	$t = 4.14$ $p = .000$
<b>WHR</b>	0.85 $\pm$ 0.08	0.86 $\pm$ 0.86	0.86 $\pm$ 0.07	$t = 0.45$ $p = .65$

Chi-square and t-test were used

**Table 3.** MRS sub-groups and overall score averages according to menopause perception, feelings, BMI, and WHR

Variables		N=220			
		MRS sub-groups and total			
		Somatic score	Psychological score	Genitourinary score	Total score
		Mean±SD	Mean±SD	Mean±SD	Mean±SD
<b>Menopause status</b>					
Perimenopause (n=50)		4.56±2.61	5.58±2.96	1.94±2.03	12.08±6.10
Postmenopause (n=170)		6.48±2.69	6.42±2.77	2.35±2.20	15.27±6.30
<b>Total</b>		6.05±2.79	6.23±2.83	2.25±2.17	14.54±6.38
		t=4.47; p= .000	t=1.87; p= .06	t=1.18; p= .23	t=3.16; p= .002
<b>Menopause perceptions</b>					
The natural, normal process	Yes	5.60±2.76	5.54±2.62	2.04±1.85	13.19±5.93
	No	6.55±2.74	7.01±2.87	2.50±2.47	16.07±6.55
		t=-2.54; p= .01	t=3.97; p= .000	t=1.57; p= .11	t=3.42; p= .001
The loss of femininity traits	Yes	6.28±2.65	6.42±2.80	2.33±2.18	15.04±6.48
	No	5.88±2.88	6.10±2.85	2.20±2.17	14.18±6.31
		t=-1.04; p= .29	t=-0.83; p= .40	t=-0.45; p= .65	t=-0.98; p= .32
The end of fertility	Yes	5.67±2.80	6.40±3.14	2.51±2.37	14.59±6.69
	No	6.15±2.78	6.18±2.74	2.18±2.11	14.53±6.31
		t=1.07; p= .28	t=-0.48; p= .63	t=-0.91; p= .36	t=-0.05; p= .95
Old age/aging	Yes	5.82±2.62	6.25±2.79	2.39±2.37	14.46±5.97
	No	6.12±2.85	6.23±2.85	2.21±2.10	14.57±6.53
		t=0.70; p= .47	t=-0.04; p= .96	t=-0.53; p= .59	t=0.11; p= .91
Decrease or end of sexual activity	Yes	6.84±3.83	7.00±3.85	3.44±3.61	17.28±10.25
	No	5.94±2.62	6.13±2.67	2.10±1.87	14.19±5.65
		t=-1.50; p= .13	t=-1.43; p= .15	t=-2.93; p=.004	t=-2.29; p= .02
Increase in health problems/ diseases	Yes	6.50±3.09	7.08±3.76	2.58±3.37	16.17±9.00
	No	5.96±2.73	6.08±2.60	2.19±1.87	14.24±5.76
		t=-1.02; p=.30	t=-1.91; p=.05	t=-0.96; p=.33	t=-1.62; p=.10
<b>Feelings felt (about being in menopause or entering into menopause)</b>					
●Natural feelings, meeting normal		5.33±2.86	5.48±2.67	1.79±1.79	12.60±5.93
●Negative emotions and negatively affected		6.51±2.64	6.72±2.83	2.56±2.34	15.81±6.37
		t= - 3.14; p= .002	t= - 3.26; p= .001	t= - 2.60; p= .01	t= 3.74; p= .000
<b>BMI</b>					
Normal		4.56±2.38	5.56±3.01	1.81±1.94	11.93±5.53
Overweight		5.97±2.61	6.03±2.81	2.54±2.17	14.55±6.22
Obesity		6.58±2.90	6.62±2.75	2.15±2.23	15.36±6.60
		F=6.76; p= .001	F=2.09; p= .12	F=1.51; p=.22	F=3.58; p= .02
<b>WHR</b>					
≤ 0.72		6.28±3.26	6.35±2.95	3.35±3.15	16.00±7.50
> 0.72		6.03±2.76	6.23±2.83	2.18±2.08	14.44±6.31
≥ 0.80		6.10±2.71	6.22±2.77	2.22±2.05	14.56±6.14
		t= 0.32; p= .74	t=0.16; p= .87	t=1.96; p= .05	t= 0.88; p= .38

t-test and ANOVA were used

**Table 4.** Correlation analysis results

Variables	1	2	3	4	5	6	7
	r	r	r	r	r	r	r
1 BMI	1	.33*	.23**	.15*	.03	.18**	.21**
2 WHR		1	-.003	.01	-.01	-.002	.18**
3 Somatic symptoms			1	.69**	.38**	.87**	.48**
4 Psychological symptoms				1	.37**	.87**	.43**
5 Genitourinary symptoms					1	.67**	.17**
6 MRS total						1	.46**
7 Affected level by menopause complaints							1

\*:  $p < .05$ ; \*\*:  $p < .01$ - $p < .001$ , Pearson's correlation analysis was used; r: correlation coefficient

#### 4. DISCUSSION

The Turkey Demographic and Health Survey data (23) shows that 84.0% of women aged 40-49 are overweight in Turkey. In the study, the average BMI of women was  $29.52 \pm 4.33$ , 44.0% of women in the perimenopausal period were overweight and 52.3% of postmenopausal women were obese. In the literature, there are studies indicating the average BMI of postmenopausal women as  $28.98 \pm 5.71$  (24) and  $29.5 \pm 6.0$  (25), and the obesity rate of 20.2% and while the rate of being overweight varies at 42% (26), 36.0% (27). One study, reports that WHR also increases especially in the postmenopausal period (14). In the current study, the abnormal WHR ( $> 0.72$ ) rate was 93.6% and the increased risk ( $\geq 0.80$ ) rate was also 85.9%. In the literature, there are studies reporting that WHR varies between 0.76 and 0.84 (28) and  $WHR \geq 0.85$  is 85.3% (29). The current study results and the literature show that in the climacteric period, especially in postmenopausal women, weight, obesity rate and increase in WHR are serious and significant problems, and women in the climacteric period constitute an important risk group (Table 2).

World Health Organization (WHO) declares the menopause age as 52 (2) while some authorities reported 51 (3,4) and a study conducted in China reported 49 (7). In the current study, the menopause age was 46 years (Table 1). The results support that menopause age varies from society to society. In the study, the rate of women describing menopause as a "natural, normal process" adopting a positive perception was 53.2%. About half of the women reported negative definitions related to menopause, such as "the loss of femininity traits", "end of fertility", "aging", "decrease or end of sexual activity" and "increase of diseases" (Table 1). Our findings show parallelism with the studies carried out (Table 1) (26,27). The rate of being negatively affected by menopause and feeling negative emotions about menopause was higher in women with a negative perception of menopause. The results of the study by Polat and Karasu (2021) also support our data and they stated that women's negative perceptions of menopause affect their emotions negatively (30). According to Vural and Yangin (2016), Turkish and German women think that menopause is an unpleasant experience for a woman. At the same time, women in both cultures perceive the views that "Femininity is lost in

menopause" and "Menopause increases family problems" negatively (31). Women with normal BMI had significantly higher attitude scores towards menopause (32). On the other hand, the study results showed that women with a positive menopause perception experienced general menopausal symptoms except for genitourinary symptoms at lower levels than those with a negative perception. In addition, women who were adversely affected or felt negative emotions about menopause reported that they experienced all menopausal symptoms more severely (Table 3). Some studies reported that the perception of menopause can vary across cultures and negative perception affects the level of experiencing symptoms (30,33). Our results support these literature data. Since there are multifactorial effects in perceptions and approaches to menopause, the results showed the necessity and importance of meeting training and counseling needs in a way that would provide positive perceptions, attitudes, and emotions towards menopause by assessing each woman within her own cultural norms and values. In addition, in the study, high levels of genitourinary symptoms and general menopausal symptoms were also considered a remarkable result in women who defined menopause as a "decrease or end of sexual activity" (Table 3). Whether is the perception of this direct effect on the level of experiencing genitourinary symptoms? or does experienced genitourinary complaints cause this perception? It should be noted that this is important for the sexual function of women, regardless of the direction of this relationship, and it should be taken into consideration during the assessment.

In the literature, it is reported that as BMI and WHR increase, women's levels of experiencing menopausal symptoms also increase (34,35). In the study, as BMI increased, the level of experiencing menopausal symptoms also increased, and the level of experiencing general menopausal symptoms, especially somatic symptoms was higher in obese women. Women with a  $WHR \leq 0.72$  experienced more severe genitourinary complaints ( $p < .05$ ) (Table 4). According to the study results, there was a positive relationship between experienced menopausal symptoms and level and BMI and WHR (Table 4). The results of the study are important in terms of indicating that the increase in BMI triggers the increase in the level of experiencing general menopausal symptoms and especially the increase in somatic and psychological

symptoms, that a WHR of  $\leq 0.72$  affects the increase in genitourinary symptoms, and that women with higher BMI and WHR are more affected by the menopausal complaints they experience. Some studies indicate that there is a positive relationship between obesity and menopausal symptoms (36), and obesity causes an increase in psychological, somatic, and vasomotor symptoms (37), which lead to an increase in heat flashes (17) due to increased weight. The current study results are consistent with the literature. Some studies reported that women with high WHR mostly experience more genitourinary symptoms (36,38). However, the current study showed the opposite, which suggests that further studies are needed regarding this issue.

**Limitation:** The results of the study cannot be generalized as it was conducted in a specific region.

## 5. CONCLUSION

The study results indicate that experienced menopausal symptoms and levels can differ according to the state of entering menopause, the perception of menopause, the feelings experienced/felt, BMI, and WHR. The results are valuable in terms of revealing the current situation in climacteric women and guiding the care process to be provided to women in this group. In this context, it is important that climacteric women are evaluated holistically and that an individualized treatment/care approach is adopted.

It is critical to adopt an individualized approach to support the health and improve the quality of life of women in the climacteric period. Health professionals should assess women holistically, taking into account menopausal symptoms, emotional states, body composition, and other individual factors. This assessment will form the basis for creating a customized treatment and care plan for women. In addition, awareness-raising campaigns should be organized to increase the level of awareness about menopause in the community and to make this process more understandable. These campaigns should emphasize that menopause is not only a physical but also an emotional and psychological period and provide information for all segments of society to support women. In conclusion, supported by individualized health services and awareness-raising campaigns, climacteric women can have a healthy menopause and improve their quality of life.

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**Author Contribution:**

Research idea: AU, HY

*Design of the study:* AU, HY

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*Analysis of data for the study:* AU, HY

*Interpretation of data for the study:* AU, HY

*Drafting the manuscript:* AU

*Revising it critically for important intellectual content:* HY

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**Ethics:** This study was approved by the Marmara University Institute of Health Sciences Non-Interventional Clinical Research Ethics Committee (Date:11.09.2017; Number of approval: 162)

## REFERENCES

- [1] El Khoudary SR, Greendale G, Crawford SL, Avis NE, Brooks MM, Thurston RC, Karvonen Gutierrez C, Waetjen LE, Matthews K. The menopause transition and women's health at midlife: Progress report from the Study of Women's Health Across the Nation (SWAN). *Menopause* 2019;26(10):1213-1227. DOI: 10.1097/GME.000.000.0000001424.
- [2] World Health Organization. Menopause. Published [17 October 2022]. Accessed [16 May 2023]. <https://www.who.int/news-room/fact-sheets/detail/menopause>.
- [3] Kim BV, Iliodromiti S, Christmas M, Bell R, Lensen S, Hickey M. Protocol for development of a core outcome set for menopausal symptoms (COMMA). *Menopause* 2020;27(12):1371-1375. DOI: 10.1097/GME.000.000.0000001632.
- [4] Duralde ER, Sobel TH, Manson JE. Management of perimenopausal and menopausal symptoms. *BMJ*. 2023;8;382:e072612. DOI: 10.1136/bmj-2022-072612.
- [5] Rees M, Bitzer J, Cano A, Ceausu I, Chedraui P, Durmusoglu F, Erkkola R, Geukes M, Godfrey A, Goulis DG, Griffiths A, Hardy C, Hickey M, Hirschberg AL, Hunter M, Kiesel L, Jack G, Lopes P, Mishra G, Oosterhof H, Pines A, Riach K, Shufelt C, van Trotsenburg M, Weiss R, Lambrinoudaki I. Global consensus recommendations on menopause in the workplace: A European Menopause and Andropause Society (EMAS) position statement. *Maturitas* 2021;151:55-62. DOI: 10.1016/j.maturitas.2021.06.006.
- [6] İkişik H, Turan G, Kutay F, Karamanlı DC, Gülen E, Özdemir E, Taşdemir M, Maral İ. Awareness of menopause and strategies to cope with menopausal symptoms of the women aged between 40 and 65 who consulted to a tertiary care hospital. *ESTUDAM Public Health Journal* 2020;5(1):10-21. DOI: 10.35232/estudamhsd.632194.
- [7] Du L, Xu B, Huang C, Zhu L, He N. Menopausal symptoms and perimenopausal healthcare-seeking behavior in women aged 40–60 years: A community-based cross-sectional survey in Shanghai, China. *Int. J. Environ. Res. Public Health*. 2020;17(8):26-40. DOI: 10.3390/ijerph17082640.
- [8] Lombardo M, Perrone MA, Guseva E, Aulisa G, Padua E, Bellia C, Della Morte D, Iellamo F, Caprio M, Bellia A. Losing weight after menopause with minimal aerobic training and mediterranean diet. *Nutrients* 2020;12(2471):1-12 DOI: 10.3390/nu12082471.
- [9] Proietto J. Obesity and weight management at menopause. *Aust.Fam. Physician*. 2017; 46(6):368-370.
- [10] Kapoor E, Collazo Clavell ML, Faubion SS. Weight gain in women at midlife: A concise review of the pathophysiology and strategies for management. *Mayo Clinic Proceedings* 2017;92(10):1552–8. DOI: 10.1016/j.mayocp.2017.08.004.

- [11] Alwachi SN, Khazaal FA, Yenzeel JH, Karim NA. Waist hip ratio as predictors of obesity types in postmenopausal Iraq women. *European Journal of Health* 2013;2013(7):1-16.
- [12] Chung GKK, Yu RHY, Woo J, Lai FTT, Chung RY, Yeoh EK, Ho SC. Accelerated progression of waist-to-hip ratio but not body mass index associated with lower socioeconomic position: A cohort study of nonobese early postmenopausal Chinese women. *Menopause* 2020;27(5):550-558. DOI: 10.1097/GME.000.000.0000001503.
- [13] Rastegari Z, Noroozi M, Paknahad Z. Socioeconomic and reproductive determinants of waist-hip ratio index in menopausal women. *J Mid-life Health* 2017;8:170-3. DOI: 10.4103/jmh.JMH\_48\_17.
- [14] Moradpour F, Koushkie Jahromi M, Fooladchang M, Rezaei R, Sayar Khorasani MR. Association between physical activity, cardiorespiratory fitness, and body composition with menopausal symptoms in early postmenopausal women. *Menopause* 2020;27(2):230-237. DOI: 10.1097/GME.000.000.0000001441.
- [15] Ozcan H, Oskay U. Menopoz döneminde semptom yönetiminde kanıta dayalı uygulamalar. *Göztepe Tıp Dergisi* 2013;28(4):157-163. DOI: 10.5222/J.GOZTEPETRH.2013.157 (Turkish)
- [16] Erel CT. Menopoz olgularındaki sıcak basması semptomunda tedavi seçenekleri nedir? *TJD Uzmanlık Sonrası Eğitim Dergisi* 2004;6:53-57. (Turkish)
- [17] Shobeiri F, Jenabi E, Hazavehei SM, Roshanaei G. Quality of life in postmenopausal women in Iran: A population-based study. *JMM*. 2016;22(1):31-8. DOI: 10.6118/jmm.2016.22.1.31.
- [18] Mustafa GN, Sabir JM. Perception and experience regarding menopause among menopausal women attending teaching hospitals in Erbil City. *GJHS*. 2012;28;4(3):170-8. DOI: 10.5539/gjhs.v4n3p170.
- [19] Ayers B, Forshaw M, Hunter MS. The impact of attitudes towards the menopause on women's symptom experience: A systematic review. *Maturitas* 2010;65(1):28-36. DOI: 10.1016/j.maturitas.2009.10.016.
- [20] Strengthening the reporting of observational studies in epidemiology (STROBE). Accessed [05 February 2024]. <https://www.strobe-statement.org/>.
- [21] Heinemann K, Ruebig A, Potthoff P, Schneider HP, Strelow F, Heinemann LA, Do MT. The menopause rating scale (MRS) scale: A methodological review. *HRQOL*. 2004;2;2:45. DOI: 10.1186/1477-7525-2-45.
- [22] Gürkan ÖC. Reliability and validity of the Turkish version of the menopausal symptoms rating scale. *Nursing Forum* 2005; 30-35.
- [23] Türkiye Nüfus ve Sağlık Araştırması (TNSA). 2018 Nüfus ve sağlık araştırması, temel bulgular. Published [November 2019]. Accessed [27 November 2019]. [https://hips.hacettepe.edu.tr/tr/2018\\_tnsa\\_analiz\\_ve\\_rapor-56](https://hips.hacettepe.edu.tr/tr/2018_tnsa_analiz_ve_rapor-56).
- [24] González Carrillo Y, Vázquez Méndez J, Guerrero González G, Vidal Gutiérrez O, Cervantes Flores M. Correlation between BMI and climateric symptoms in menopausal women. *Medicina Universitaria* 2014;16(62):12-14.
- [25] Tokgöz VY, Tosun Ş. Fiziksel aktivite ve vücut kitle indeksi ile menopozal semptomların ilişkisi: Kesitsel çalışma. *Jinekoloji – Obstetrik ve Neonatoloji Tıp Dergisi* 2020;7(1): 269-274. (Turkish)
- [26] AlDughaiter A, AlMutairy H, AlAteeq M. Menopausal symptoms and quality of life among Saudi women visiting primary care clinics in Riyadh, Saudi Arabia. *International Journal of Women's Health* 2015;29 (7):645-53. DOI: 10.2147/IJWH.S84709.
- [27] Williams RE, Levine KB, Kalilani L, Lewis J, Clark RV. Menopause-specific questionnaire assessment in US population-based study shows negative impact on health-related quality of life. *Maturitas* 2009;20;62(2):153-9. DOI: 10.1016/j.maturitas.2008.12.006.
- [28] Demir S, Karaagaoglu N. Üç nesil kadınlarda obezite ile beden algı durumu ve zayıflamaya yönelik uygulamalar. *Bes Diy Derg.* 2013;41(1):18-26. (Turkish)
- [29] Yesil E, Özdemir M, Colak Arıttıcı G, Aksoydan E. Bel/boy oranı ve diğer antropometrik ölçümlerin kronik hastalık riski ile ilişkisinin değerlendirilmesi. *AUHSJ*. 2019;10(2):241-246. DOI: 10.31067/0.2018.78. (Turkish).
- [30] Polat F, Karasu F. Menopoz dönemindeki kadınların gözüyle menopoz: Nitel bir araştırma örneği. *TJFMPC*. 2021;15(4):809-817. DOI: 10.21763/tjfmpe.902774. (Turkish).
- [31] Vural P, Yangın H. Menopoz algısı: Türk ve Alman kadınların karşılaştırılması. *Gümüşhane Üniversitesi Sağlık Bilimleri Dergisi* 2016; 5(3): 7-15. (Turkish).
- [32] Erbil N, Gümüşay M. Relationship between perceived social support and attitudes towards menopause among women and affecting factors. *Middle Black Sea Journal of Health Science* 2018; 4(2):7-18. DOI: 10.19127/mbsjohs.417940.
- [33] Fıskın G, Hotun N, Güler İ. Menopozal dönemdeki kadınların bu yaşam dönemine ilişkin bakış açılarının kalitatif analizi. *JAREN*. 2017;3(3):122-128. DOI: 10.5222/jaren.2017.122. (Turkish).
- [34] Yoshany N, Mazloomi Mahmoodabad SS, Bahri N, Moori MK, Hanna F. Association between lifestyle and severity of menopausal symptoms in postmenopausal women. *Electron J Gen Med*. 2020;17(5):em222. DOI: 10.29333/ejgm/7885.
- [35] Blümel JE, Chedraui P, Aedo S, Fica J, Mezones Holguín E, Barón G, Bencosme A, Benítez Z, Bravo LM, Calle A, Flores D, Espinoza MT, Gómez G, Hernández Bueno JA, Laribezcoa F, Martino M, Lima S, Monterrosa A, Mostajo D, Ojeda E, Onatra W, Sánchez H, Tserotas K, Vallejo MS, Witis S, Zúñiga MC. Obesity and its relation to depressive symptoms and sedentary lifestyle in middle-aged women. *Maturitas* 2015;80(1):100-5. DOI: 10.1016/j.maturitas.2014.10.007.
- [36] Koo S, Ahn Y, Lim JY, Cho J, Park HY. Obesity associates with vasomotor symptoms in postmenopause but with physical symptoms in perimenopause: A cross-sectional study. *BMC Womens Health* 2017;17(1):126. DOI: 10.1186/s12905.017.0487-7.
- [37] Moilanen J, Aalto AM, Hemminki E, Aro AR, Raitanen J, Luoto R. Prevalence of menopause symptoms and their association with lifestyle among Finnish middle-aged women. *Maturitas* 2010;67(4):368-74. DOI: 10.1016/j.maturitas.2010.08.007.
- [38] Sreerenjini B, Muthulakshmi. Effectiveness of deep breathing and walking exercise in reducing menopausal symptoms among women at Karadivavi, India. *IJRMS*. 2018;6(4):1203-1206. DOI: 10.18203/2320-6012.ijrms20181029.

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