Original Article

HEALTH SCIENCES
MEDICINE

DOI: 10.32322/jhsm.1177604
J Health Sci Med 2022; 5(6): 1666-1671

Comparison of nutritional status, anthropometric measurements and eating awareness of menopausal women

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Cite this article as: Bardak Perçinci N, Karadeniz E. Comparison of nutritional status, anthropometric measurements and eating awareness of menopausal women. J Health Sci Med 2022; 5(6): 1666-1671.

ABSTRACT

Aim: The aim of this study is to determine the nutritional status, anthropometric measurements and eating awareness of menopausal women.

Material and Method: The study was conducted with 200 female individuals between the ages of 45-65 who had entered the menopause, living in the Nicosia Gönyeli region of the TRNC and voluntarily accepted to participate in the study. The questionnaire method was applied by interviewing the individuals included in the study face to face.

Results: It was determined that there were statistically significant and negative correlations between the pre-menopausal body weight, current body weight, BMI, waist circumference and hip circumference values, and the Eating Awareness Scale scores ($p < 0.05$). Accordingly, it was found that pre-menopausal body weight, current body weight, BMI, waist circumference and hip circumference values decreased as the Eating Awareness Scale scores increased ($p < 0.05$).

Conclusion: The increase of individuals awareness of eating affects anthropometric measurement values positively. It will help control body weight by gaining eating awareness.

Keywords: Nutritional status, anthropometric measurement, eating awareness, menopausal women

INTRODUCTION

Menopause is a natural process that cannot be avoided for women. Due to the onset of menopause and insufficient estrogen hormone, some metabolic changes occur in the body. Depending on the metabolic changes, the appetite increases, the resting metabolic rate decreases, and the inadequacy of the physical activity level leads to obesity (1). Depending on the hormonal changes of women in the menopause period, weight gain may occur due to the increase in adipose tissue in this period, and obesity, vascular disease and metabolic disorders may develop due to the widespread adiposity in the abdomen, which adversely affects women's health (2). It is a known fact that diet and lifestyle are effective in order to protect health and maintain a quality life with nutrition during and after menopause (3). Being aware of the change in diet; it provides convenience in perceiving the reasons and consequences of the decision made while making food choices and eating habits (4). Wrong choices in food consumption and habits negatively affect the quality of life. Nutrient ratio and balance, excessive fat and carbohydrate intake, irregular meal consumption, insufficient fiber intake, wrong eating behaviors are risk factors for obesity (5). Although awareness is associated with problems that negatively affect many health, it is important to reduce food consumption in healthy food selection and weight loss by providing portion control (6).

This study was planned and carried out to determine the nutritional status, anthropometric measurements and eating awareness of 45-65 years old menopausal women living in the Nicosia-Gönyeli region of the TRNC.

Menopause Risk Factors

Due to the onset of menopause and insufficient estrogen hormone, some metabolic changes occur in the body. Night sweats, hot flashes, irregular sleep, visceral fat and abdominal obesity, which are seen due to these changes, negatively affect the quality of life of women in this period (7). There is an increase in body weight due to hormonal changes and a decrease in metabolic rate and energy expenditure. While this situation improves insulin resistance, it causes an increase in vascular diseases and hyperlipidemia (8). In TURDEP-II study data (9) ; It was observed that the prevalence of obesity increased with increasing age, and the obesity rate was found to be higher in individuals in the 55-59 age group.

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Received: 20.09.2022 **Accepted:** 12.10.2022

Physical Activity

Exercise programs have an important place for postmenopausal women's life. While regular physical activity reduces the symptoms of menopause, it has been observed that its effects on healthy aging are positive. It is stated that regular application of physical activity during menopause has effects on body weight control, body composition, muscle tissue and bone strength, endurance, blood pressure and metabolism. Postmenopausal women who are physically active have a lower risk of bone fractures (10). Physical activity can significantly reduce the development of chronic diseases such as diabetes, heart problems, blood lipid disorders, high blood pressure and breast cancer (11). It has been found that physical activity is important in minimizing bone loss due to advancing age, regular walking and playing tennis increase muscle strength, and being physically active in every period of life (12).

Nutrition

While consuming daily food and food groups, increasing the diversity and taking the nutrients to the body at a sufficient and balanced level improves the nutritional pattern. It is known that chronic diseases such as obesity, diabetes and even cancer can be prevented with food diversity and it is important for women's health (2). Osteoporosis is an important health problem in women during menopause with advancing age. Excessive protein intake poses a risk for osteoporosis (1). Consumption of animal proteins such as chicken, fish and eggs as needed, but consumption of red meat more than 4 days a week poses a risk (13). Adequate intake of protein, calcium and vitamin D to the body is very important in ensuring proper bone development and preventing age-related bone loss (14). The leading causes of bone loss for the post-menopausal period are estrogen deficiency, increased urinary calcium excretion, decreased calcium absorption from the intestines, and insufficient calcium intake with food (14). Women aged 50 and over are recommended to take 1200 mg of calcium per day (1).

Eating Awareness

Awareness provides convenience in perceiving the reasons and consequences of the decision made while making food choices and eating habits. Skipping meals, eating irregularly, consumption of foods with high energy value but non-nutritive value that adversely affect health cause various diseases such as obesity, increase in plasma blood fat levels, insulin resistance and high blood pressure. Eating awareness supports healthy living and protecting heart health by paying attention to the right timing and appropriate amount for the individual (15). With eating awareness, it can provide healthy weight loss by gaining portion control, meal planning and record keeping skills (16). Upon evaluating arithmetic mean is used and 3 or more score means that the awareness of eating exists.

MATERIAL AND METHOD

The study was carried out with the permission of European University of Lefke University Ethics Board (Date: 28.12.2020, Decision No: 57/01/12/2021/01). All procedures were carried out in accordance with the ethical rules and the principles of the Declaration of Helsinki.

This study was carried out with female individuals between the ages of 45-65 years who entered the menopause and voluntarily participated in the research, living in the Nicosia-Gönyeli region of the TRNC between December 2020 and January 2021. For the Gönyeli region in Nicosia, the number of female population was determined as 5583. After statistical calculation according to the random sampling model and population records, the number of samples was calculated as 330. However, due to the pandemic reasons, 200 female individuals were reached. All women included in the study signed the Informed Consent Form. The method of this study is a quantitative research. Questionnaire form, Eating Awareness Scale, International Physical Activity Questionnaire (Short) form were used as data collection tools.

The questionnaire includes demographic information, general information about menopause, questions about eating habits, frequency of food consumption and anthropometric measurements. The questionnaire form was carried out by interviewing the participants face to face.

Eating Awareness Scale (EAS-30)

The scale was first developed by Baer et al. (21) to determine the quality of attention paid to the eating experience. Eating Awareness Scale (EAS-30), which was conducted by Köse et al. (6) in its Turkish, reliability and validity study, consists of 30 questions and 7 sub-factors. The scale's 5-point Likert scale (1: Never, 2: Rarely, 3: Sometimes, 4: Often, 5: Always) is used. Total average point is calculated by summing up the answers to each question.

Anthropometric Measurements

Pre-menopausal body weight, current body weight, height, waist-hip circumference measurements of the individuals participating in the study were taken by the researcher in the questionnaire. The body weights of the individuals were measured with a foot scale in thin clothes and without shoes. Individuals answered their

pre-menopausal weights as an estimate and were recorded in the questionnaire. The heights were measured with the feet side by side and leaning against the wall with a non-flexible measuring tape. In waist circumference measurement, the circumference passing through the middle between the lowest rib bone and the navel was measured with a tape measure. In the measurement of hip circumference, the circumference passing the highest point was measured by standing next to the individual with a non-stretchable measuring tape (17).

Nutritional Habits and Frequency of Food Consumption

Frequency of food consumption is a frequently used method to determine the relationship between disease risk and nutrition. It can be used in different ways according to the purpose, and the amount of food can be questioned according to the frequency of daily, weekly or monthly consumption. In order to determine the frequency of food consumption, a food consumption frequency registration form containing 13 types of food was filled (17). In order to determine the nutritional status of individuals, their eating habits and food consumption frequencies were questioned by face-to-face interviews. Consumption of main and snack meals, reasons for skipping meals or meals, eating speeds, water, salt, tea and coffee consumption were questioned with 14 questions.

Statistical Analysis

The SPSS 25.0 (Statistical Package for Social Sciences) program was used to evaluate the answers given by the women participating in this study to the questions and the data obtained.

Descriptive statistics such as mean, standard deviation, min-max according to anthropometric measurements, age at menarche, menopause and pregnancy status, Eating Awareness Scale scores of female individuals included in the study are given. The Mann-Whitney U test and the Kruskal-Wallis H test for more than two independent variables were used to compare the Eating Awareness Scale scores according to the socio-demographic characteristics, health status, smoking-alcohol habits, general nutritional habits, and activity levels of the women included in the study. In addition, Spearman's test was used to examine the correlation between women's anthropometric measurements and Eating Awareness Scale scores.

RESULTS

When **Table 1** is examined, the mean premenopausal body weight of women is 65.63±10.61 kg, their current body weight is 71.76±11.35 kg, their height is 161.04±5.37 cm, and their BMI is 27.63 ±4.02 kg/m², mean waist circumference values of 91.22±13.93 cm, mean hip circumference values of 106.33±10.28 cm, and mean waist/hip values of females as 0.85±0.07.

Table 1. Anthropometrical measurements of women

	n	x̄	s	Min	Max
Body weight before menopause (kg)	200	65.63	10.61	45	110
Body weight (kg)	200	71.76	11.35	43	120
Height (cm)	200	161.04	5.37	146	175
Body mass index (kg/m²)	200	27.63	4.02	17.5	42.5
Waist circumference (cm)	200	91.22	13.93	62	138
Hip circumference (cm)	200	106.33	10.28	83	135
Waist/hip ratio	200	0.85	0.07	0.66	1.08

Table 2 shows the results for the comparison of the Eating Awareness Scale scores according to the meal consumption status of the women. When **Table 2** was examined, it was determined that the difference between the Eating Awareness Scale scores was significant according to the daily main meal consumption of the women participating in the study ($p<0.05$). There was no significant difference between the Eating Awareness Scale scores according to women's daily snack consumption and meal skipping ($p>0.05$).

Table 2. Eating awareness scale scores according to the meal consumption status of the women

	n	x̄	s	M	SO	χ2/Z	p
Daily main meal consumption						-1.967	0.049*
2 meals	89	106.00	13.33	107.00	92.43		
3 meals	111	108.94	14.05	111.00	106.97		
Daily snack consumption						2.590	0.459
Never	9	112.67	10.93	115.00	122.78		
One time	21	105.14	14.66	109.00	92.52		
Two times	45	108.98	13.63	110.00	107.14		
Three times	125	107.20	13.88	107.00	97.84		
Meal skipping status						-0.642	0.521
Skipping	115	107.21	13.40	108.00	98.24		
Non-skipping	85	108.20	14.34	110.00	103.55		

*p<0,05 χ2: Kruskal-Wallis H testi Z: Mann-Whitney U testi

Table 3 shows the results for the comparison of the Eating Awareness Scale scores according to the distribution of some eating characteristics of women. When **Table 3** was examined, it was determined that there was no significant difference between the Eating Awareness Scale scores according to the way of eating and adding extra salt to the meals ($p>0.05$). Considering the eating speed of female individuals, it was determined that the difference between the scores they got from the Eating Awareness Scale was at a significant level ($p<0.05$). The scores on the Eating Awareness Scale of the women whose eating speed was slow and moderately fast were found to be significantly higher than those who were fast and very fast.

Table 3. Eating awareness scale scores according to the distribution of some eating characteristics of women

	n	$\bar{x}$	s	M	SO	χ2/Z	p	Difference
Way of food consumption								
Non-salty	12	106.67	12.82	110.00	95.92	7.766	0.051	
Low salty	61	110.89	12.60	112.00	113.79			
Normal	118	105.59	14.33	107.00	92.04			
Too salty	9	113.56	11.10	119.00	127.44			
Are you adding extra salt to meals?								
Yes	33	105.94	14.73	106.00	94.79	-0.621	0.535	
No	167	107.96	13.61	110.00	101.63			
Rate of food consumption								
Slow	29	113.28	9.50	113.00	122.31	35.401	0.000*	1-3
Mild rate	106	110.88	12.92	113.00	115.10			1-4
Fast	60	100.92	13.04	101.00	70.34			2-3
Too fast	5	86.60	13.59	87.00	26.30			2-4

*p<0,05 χ2: Kruskal-Wallis H testi Z: Mann-Whitney U testi

Table 4 shows the Spearman test results, in which the correlations between women's anthropometric measurements and Eating Awareness Scale scores are examined. According to **Table 4**, the difference between women's pre-menopausal weight, current weight, waist circumference, BMI, hip circumference values and Eating Awareness Scale scores was found to be statistically significant, and the correlations were found to be negative and low-strength (p<0.05). Accordingly, as the Eating Awareness Scale scores of women increase, their pre-menopausal weight, BMI, current weight, hip circumference and waist circumference decrease.

Table 4. Correlations between women's anthropometric measurements and Eating Awareness Scale scores

		Eating awareness scale
Body weight before menopause (kg)	r	-0.204
	p	0.004*
Body weight (kg)	r	-0.254
	p	0.000*
Height (m)	r	0.010
	p	0.884
BMI (kg/m²)	r	-0.292
	p	0.000*
Waist circumference (cm)	r	-0.262
	p	0.000*
Hip circumference (cm)	r	-0.293
	p	0.000*
Waist/Hip ratio	r	-0.105
	p	0.140

*p<0,05 r: Spearman testi

DISCUSSION

The average body weight of the women included in our study before and after menopause, respectively; It was determined that they were 65 kg and 71 kg, their height was 161 cm on average, and the average BMI values were 27.6 kg/m² (**Table 1**). Sağnak (22), in his study, calculated the average of pre-menopausal and current body weights, respectively; It was determined that 68 kg and 77 kg. In another study, the average weights before and after menopause, respectively; 62 kg and 71 kg, their height is 159 cm, and their BMI is determined as 28.6 kg / m² (18). In the studies conducted by Sağnak and Fakılı (15,22), an increase was observed in premenopausal and current body weights with increasing age. As a result of our study, a similarity was found with an increase in premenopausal and current body weights.

The average waist circumference of the women in our study was 91 cm, the average hip circumference was 106 cm, and the waist/hip ratio of the individuals was 0.85 on average (**Table 1**). In a study, it was determined that menopausal women had a waist circumference of 87 cm, a hip circumference of 104 cm, and a waist/hip ratio of 0.83 for women (19). According to the results of another study, the average waist area of menopausal women is 87 cm, and the average of hip area measurements is 106 cm; ratio was found to be 0.8 cm (18). Studies have shown that the waist/hip ratio exceeds 0.8, which is a risk factor for obesity and is similar to the results of our study.

It was determined that the daily main meal consumption of the women in our study was significantly different from the Eating Awareness Scale scores (p<0.05). The difference between the consumption of snacks and skipping meals of female individuals with the Eating Awareness Scale scores was not found significant (p>0.05) (**Table 2**). The difference between the eating speed of the women included in the study and the scores they got from the Eating Awareness Scale was found to be significant (p<0.05). Eating speed; The scores on the Eating Awareness Scale of the women who were slow and medium fast were found to be significantly higher than those who were fast and very fast (**Table 3**).

It was determined that there was no significant difference between the Eating Awareness Scale scores according to the food consumption style of the women in our study and the status of adding extra salt to the meals (p>0.05) (**Table 3**).

The difference between the pre-menopausal weight, current weight, waist circumference values, BMI and hip circumference values of the women participating in our study was at a significant level with the Eating Awareness Scale scores, and the correlations were found to be negative (p<0.05). Accordingly, as the Eating Awareness Scale scores of women increase, pre-menopausal and current body weight, waist circumference values, BMI and hip circumference values decrease (**Table 4**). Barışkan and Kumsar (20), in the study conducted with the aim of determining the eating awareness of university students, could not find a relationship between the eating awareness of the body and waist circumference. It differs from our study. The reason is thought to be that university students' body perceptions are higher than menopausal women.

In one study: it shows the participants experienced abnormal eating tendencies. Twentyone percent of the participants sometimes avoided eating when they were hungry, 25% were sometimes terrified about being overweight, 82% refused to eat sometimes, and 3% often had the impulse to vomit after a meal. The correlation analysis showed consumption of fruits and vegetables was positively associated to abnormal eating practices, such as binge eating, consuming large quantities of food deliberately out of the sight of other people, and eating alone. A community survey conducted in Australia showed strict dieting, fasting, and binge eating tripled, while purging quadrupled in women 65 years and older (23). The same abnormal eating practices were also found in women 45 to 64 years old, compared to younger women who had similar eating disorders (23).

In another study; it was found that Adult Eating Behaviour had a significant (p< 0.01) impact on Quality of Life. The study stated that postmenopausal had a higher attitude of self-regulation compared to premenopausal women (P = 0.05), Among body composition, eating behaviours and quality of life no between-group differences were observed at the baseline.It was noticed that only food responsiveness had significance difference (24)

CONCLUSION

According to the results of the research, a significant relationship was found between the scores that women got from the eating awareness scale and their BMI values, waist-hip measurements, and body weights. It was found that as the scores obtained from the eating awareness scale increased, these values decreased. In the literature, studies on eating awareness of menopausal women have not been found. It is recommended that similar studies be carried out in the same or different societies, considering that they will contribute to the field. Efforts are necessary for creating nutritional and health awareness among rural women to ensure a better quality of life at menopause.

ETHICAL DECLARATIONS

Ethics Committee Approval: The study was carried out with the permission of European University of Lefke University Ethics Board (Date: 28.12.2020, Decision No: 57/01/12/2021/01).

Informed Consent: All patients signed the free and informed consent form.

Referee Evaluation Process: Externally peer-reviewed.

Conflict of Interest Statement: The authors have no conflicts of interest to declare.

Financial Disclosure: The authors declared that this study has received no financial support.

Author Contributions: All of the authors declare that they have all participated in the design, execution, and analysis of the paper, and that they have approved the final version.

REFERENCES

1. Görgel E, Çakıroğlu F. Menopoz döneminde kadın. Ankara Üniversitesi Basımevi, Ankara 2007: 10-12.
2. Bulmuş GT. Evaluation of the Relationship between nutritional status and frax fracture risk analysis in premenopausal and postmenopausal women: master thesis, Gazi University, Institute of Health Sciences, Ankara 2016.
3. Narsule CK, Sridhar P, Nair D, et al. Percutaneous thermal ablation for stage IA non-small lung cancer: long-term follow-up. J Thorac Dis 2017; 9: 4039-45.
4. St-Onge MP, Ard J. Baskin ML, Chiuve SE, Johnson HM, Krisetherton P. Meal timing and frequency implications for cardiovascular disease prevention: a scientific statement from the American heart association. Circulation; 2017; 135: 96-121.
5. Şanlıer N, Konaklıoğlu E, Güçer E. The relationship between young people's nutritional knowledge, habits and behaviors and body mass indexes. J of Sci Gazi Uni 2009; 25: 333-52.
6. Köse G. A Study on Eating Awareness of University Students. PhD Thesis, Başkent University, Institute of Health Sciences, Ankara 2017.
7. Atasoy M. Hormone: Before and After Menopause. Support Publications, Istanbul 2019.
8. Rakıcıoğlu N. Nutrition in Menopause Period. Ministry of Health, General Directorate of Basic Health Services, Department of Food Safety, Community Nutrition Branch, Ankara 2008.
9. Satman İ, Beyhan Ö, Tütüncü Y, et al. Turkey Diabetes, Hypertension, Obesity and Endocrinologic Diseases Prevalence Study (TURDEP-II) Results 2011.
10. Javadivala Z, Kousha A, Allahverdipour H, AsghariJafarabadi M, Tallebian H. Modeling the relationship between physical activity and quality of life in menopausal-aged women: a cross-sectional study. J Res Health Sci 2013; 17: 168-75.

11. Ağıl A. The effects of different short-term exercise approaches on menopausal symptoms, psychological health and quality of life in postmenopausal women. Master thesis, Başkent University, Institute of Health Sciences, Physical Therapy and Rehabilitation Program, Ankara 2010.
12. Demirgöz M. Sahin NH. Hormonal and non-hormonal pharmacological treatment approaches in perimenopausal hot flashes. Selcuk University, J of Fac Med 2009; 25: 98–106.
13. Paknahad Z, Mohammadifard N, Bonakdar Z, Hasanzadeh A. Nutritional status and its reletionship whith bone mass density in postmenopausal womwn admitted in osteodensitometry center. School of Healty, Isfahan Universty of Medical Sciences, Isfahan-Iran 2015.
14. Demirtaş EM. Investigation of the relationship between food consumption, body composition and some biochemical parameters in postmenopausal women. Master thesis, Hacettepe University, Institute of Health Sciences, Community Nutrition, Ankara 2018.
15. St-Onge MP, Ard J, Baskin ML, Chiuve SE, Johnson HM and Krisetherton P. Meal timing and frequency implications for cardiovascular disease prevention: a scientific statement from the American heart association. Circulation 2017: 96-121.
16. Wansink B. Environmental factors that increase the food intake and consumption volume of unknowing consumers. Annu Rev Nutr 2004: 455-79.
17. Pekcan G. Determination of Nutritional Status, Hacettepe University Faculty of Health Sciences, Department of Nutrition and Dietetics, Ankara 2008.
18. Fakılı FE. Determination of nutritional status and physical activity and nutritional knowledge levels of menopausal individuals. Master Thesis, Başkent University, Institute of Health Sciences, Department of Nutrition and Dietetics, Ankara 2013.
19. Lemay A, Dodin S, Kadri N, Jacques H and Forest J.G. Flaxseed dietary supplement versus hormone replacement therapy in hypercholesterolemic menopausal women. Obstet Gynecol 2002: 495-504.
20. Barışkan H, Kumsar A. Abdominal obesity prevalence and eating awareness levels in health sciences students. J Nurs Educ 2020; 17: 162-9.
21. Baer H. Redoing feminism: Digital activism, body politics, and neoliberalism. Feminist Media Studies 2016: 17-34.
22. Sağnak B. Determination of general nutritional status of menopausal individuals applying to a private clinic in Malatya. Master thesis, Haliç University, Institute of Health Sciences, Department of Nutrition and Dietetics, Istanbul 2015.
23. Hay PJ, M. J., Buttner P, Darby A. Eating disorder behaviors are increasing: findings from two sequential community surveys in south Australia. PLoS ONE 2008; 3: 1541.
24. Özkan S, Alataş ES, Zencir M. Women's quality of life in the premenopausal and postmenopausal periods. Qual Life Res. 2005; 14: 1795–801.