

# **The Effect of Physical Activity and Depressive Mood on Menopausal Symptoms in Postmenopausal Women**

## **ABSTRACT**

**Aims:** The symptoms of menopause in postmenopausal women adversely affect the quality of life. Menopausal symptoms are more severe with comorbid disorders such as depression; it may be lighter in physically active people. The present study aimed to evaluate the relationship between menopausal symptoms and physical activity and depressive mood.

**Material and Method:** 190 women under 65 years of age who were at least one year passed since their last menstrual period participated in the study. Sociodemographic data form, Menopause Symptom Rating Scale, International Physical Activity Questionnaire - Short Form and Beck's Depression Inventory were applied to the participants.

**Results:** It was seen that 51.6% (98 subjects) of the women who participated in the study had severe menopausal symptoms. 52.6% (100 subjects) of the participants were physically inactive, and their menopausal symptoms increased as the physical activity scale score decreased ( $p=0.001$ ). Menopausal symptoms increased as the Beck's Depression Inventory score increased ( $p<0.001$ ). It was observed that depression inventory scores decreased as the level of physical activity increased ( $p<0.001$ ).

**Conclusion:** Adoption of regular physical activity habits by postmenopausal women and providing treatment to those with depression will contribute to alleviating the severity of menopausal symptoms.

**Keywords:** Depressive mood, physical activity, menopausal symptoms, postmenopause.

## **INTRODUCTION**

Menopause is a condition that no menstrual bleeding occurs for at least 12 months without pathological cause and the ovarian functions cease.<sup>1</sup> According to the World Health Organization definition, menopause is the gradual decline in fertility functions of ovaries and eventually a complete cessation of those functions. The level of estrogen produced in ovaries also decreases with the cessation of ovarian functions. This hormonal change may cause menopausal women to face many health problems by disrupting their quality of life. Vasomotor symptoms, psychological and atrophic changes develop in the short term due to estrogen deficiency, and in the long term, the risk of osteoporosis and cardiovascular disease increases.<sup>2</sup> Long-term preventive measures and the need for treatment are inevitable against menopausal symptoms and potential diseases. Given the fact that the mean age at menopause is 47 years in Turkey, women are spending up to one-third of their lives in postmenopausal period.<sup>3</sup> Family physicians aim to improve women's health and increase their quality of life at this turning point of their lives by supporting and, if needed, providing

treatment from a multidisciplinary and biopsychosocial perspective.<sup>1</sup> The present study aimed to investigate the effect of physical activity habits and depression presence on menopausal symptoms in postmenopausal women.

## **MATERIAL AND METHOD**

This study, which is cross-sectional and analytical, involved 190 postmenopausal women between the ages 40 and 64 who were registered at Dogantepe Family Health Center of Ankara Training and Research Hospital from 1<sup>st</sup> of July to 30<sup>th</sup> of September 2019 and at least one year has passed since their last menstrual period. Those who are still menstruating and have not passed one year since their last menstrual period, and women aged 65 and over were not included in the study. A questionnaire form including sociodemographic data form, Menopause Symptom Rating Scale, International Physical Activity Questionnaire - Short Form and Beck's Depression Inventory were applied to the participants. Menopause Symptom Rating Scale and Beck's Depression Inventory were administered to those who are illiterate during face-to-face interviews and those who were literate were given the questionnaire. Ethics approval for this study was obtained from the Ethics Committee of Ankara Training and Research Hospital of University of Health Sciences by decision numbered 17.2019 and dated 20.06.2019.

### **Menopause Symptom Rating Scale (MRS)**

The Menopause Symptom Rating Scale is a valuable tool for assessing health related quality of life and is used worldwide.<sup>4</sup> Gürkan<sup>2</sup> conducted the validity and reliability study of the scale in Turkey in 2005. It is a five-point Likert-type scale consisting of 11 items. The total score of the scale is calculated based on the scores given for each item. The range of total score that can be obtained from the scale is 0-44. The scale has totally three sub-dimensions (somatic, psychological and urogenital complaints). The increase in the total score obtained from the scale indicates that the severity of the complaints experienced has increased and the quality of life has been negatively affected.<sup>2</sup>

### **International Physical Activity Questionnaire - Short Form (IPAQ)**

The questionnaire was designed by Dr. Michael Booth in 1996 to examine the health and physical activity levels of the community and the relationship between them. Saglam et al.<sup>5</sup> conducted the validity and reliability study of the questionnaire in Turkey in 2010. The questionnaire includes questions about physical activities performed for at least 10 minutes in the last 7 days. The questionnaire consists of seven questions in total. In determining the physical activity level, IPAQ

scoring protocol - short form data was used while calculating the total energy spent.<sup>6</sup>

### **Beck's Depression Inventory**

The inventory was developed by Beck in 1961 to determine the risk of depression and to measure the level of depression symptoms and the change in their severity. Hisli conducted the validity and reliability study of the inventory in Turkey in 1989. The inventory includes 21 sentences with four options. The range of total score that can be obtained from the inventory is 0-63 and the cutoff score is 17.<sup>7</sup>

### **Statistical Analyses**

Statistical evaluation was performed using the IBM SPSS software package (v.21.0). Kolmogorov-Smirnov and Shapiro-Wilk tests were used to determine whether quantitative parameters were consistent with normal distribution. The mean and standard deviations of quantitative parameters were provided, and qualitative parameters were specified as numbers and percentages. In comparison of quantitative parameters between the two groups, Student's-T or one-way Anova test was used for those consistent with normal distribution, and Mann Whitney U or Kruskal Wallis test was used for those inconsistent with normal distribution. Chi-square test was used to compare qualitative parameters. Pearson's correlation test was used to examine the degree of relationship between quantitative variables. p value <0.05 was considered statistically significant.

## **RESULTS**

The ages of women participated in the study ranged from 43-64 years with an average age of  $56.04 \pm 4.98$ . The mean age for women who reach menopause was found to be  $46.77 \pm 5.44$  (min:30 max:57). Most of them were married (76.8%), graduated from elementary school (59.5%), not working (88.4%), having a balanced income and expenditure (57.9%), obese (48.4%), having a chronic disease (64.7%), never smokers (56.3%), menopausal naturally (86.8%) (Table 1).

When the menopausal symptoms of the participants were evaluated, it was found that 86 (45.3%) of participants had moderate level of somatic symptom severity, 112 (58.9%) of the participants had severe level of psychological symptom severity, 134 (70.5%) of the participants had severe level of urogenital symptom severity; and when the total scores of menopausal symptoms were evaluated, 98 (51.6%) of the participants were found to experience severe level of symptom severity.

When some sociodemographic characteristics and menopausal symptoms were examined, the age at

menopause, the number of pregnancies, and body mass index were found to be related to the severity of menopausal symptoms. As the number of pregnancies and body mass index increased, the severity of menopausal symptoms increased significantly ( $p=0.041$ ;  $p=0.035$ , respectively). It was observed that the severity of menopausal symptoms increased as the age at menopause decreased ( $p=0.001$ ).

When the physical activity levels of the participants were examined, 100 (52.6%) women were found to be inactive, 74 (38.9%) minimally active and 16 (8.4%) very active. When the relationship between the physical activity scale score of the participants and the menopausal symptoms was observed, it was seen that as the physical activity scale score decreased, the menopausal symptoms were became significantly more serious ( $p=0.001$ ) (Table 2). According to Pearson's correlation analysis, there was a negative and significant ( $p=0.01$ ,  $r=-0.264$ ) correlation between menopause symptom rating scale score and physical activity scale score. It was seen that the body mass index decreased significantly as the participants' physical activity level increased ( $p<0.001$ ).

The Beck's Depression Inventory mean score of the participants was  $12.69\pm7.51$ . There were depression symptoms in 48 (25.3%) women. When the relationship between depression scale score and menopausal symptoms was examined, it was seen that as depression inventory score increased, menopausal symptoms became more serious and this difference was statistically significant ( $p<0.001$ ) (Table 2). According to Pearson's correlation analysis, there was a positive and significant ( $p=0.01$ ,  $r=0.572$ ) correlation between Beck's Depression Inventory score and menopause symptom rating scale score.

Considering the relationship between the participants' physical activity scale score and depression statuses, there was a significant difference between the physical activity level and depression status ( $p<0.001$ ) (Table 3). Those with symptoms of depression had lower physical activity scale scores.

## **DISCUSSION**

When the MRS and its sub-dimensions' scores of the women participating in the study were evaluated, it was seen that more than half of the participants experienced menopausal symptoms with severe level of severity. When other studies conducted using MRS were examined in Turkey, Coban et al.<sup>8</sup> study was similar to the present results in terms of the total mean score of MRS. In a multinational study conducted by Heinmann et al.<sup>9</sup> the climacteric complaints of women in Latin America, North America and Europe were found to be more intense than those in Asian countries. In the present study, the severity of menopausal symptoms was found to be higher than those in Latin America, North America and Europe. This may be due to cultural characteristics and educational level. Ethnic, cultural and geographical differences greatly affect menopausal complaints.<sup>10,11</sup>

When the physical activity levels of women in the present study were evaluated, more than half of the participants were found to be inactive, and a few of them were found to be very active. As the level of physical activity increased, it was found that the total scores of MRS total group, psychological and urogenital sub-dimensions decreased significantly. In other studies, a positive correlation was found between regular physical activity and decreased menopausal symptoms.<sup>12-15</sup> Physical activity is effective in improving overall health in menopausal women.<sup>16</sup> Women who exercise regularly felt more comfortable, and experienced menopausal symptoms less frequently and severely.<sup>17</sup> The socio-cultural life in Turkey, women's position in society and family and factors such as educational level trigger physical inactivity. Sedentary life and physical inactivity remain an important problem in primary care. Family physicians should support individuals, especially women registered in their related Family Health Center, with a comprehensive approach in terms of physical activity. The education of society is possible with education of women.

When the depression statuses of women in the present study were evaluated, it was seen that the presence of depression in the participants was approximately in line with its frequency in the society.<sup>18</sup> The prevalence of depression in the study of Unsal et al.<sup>19</sup> with postmenopausal women was similar to the present study. In the present study, we found that menopausal symptoms became significantly more serious when accompanied by depression and found similar results in the literature.<sup>20</sup> Women can survive this period more easily if supported socially and spiritually.<sup>21</sup>

In the present study, depression symptoms increased as the physical activity scale score decreased. In addition to medical treatment, recommending regular physical activity to patients in depression treatment will be beneficial in reducing symptoms of depression.

Poor eating habits and sedentary lifestyle cause obesity and many chronic diseases. When the body mass indexes of the participants in the present study were evaluated, almost half of them were obese.

According to the Turkey Nutrition and Health Survey report of 2010, obese and morbidly obese women aged 31-50 years in total, while the total of obese and morbidly obese in women aged 31-50 is 42.1%, it is 64.4% in women aged 51-64. In the present study, as the body mass index, that is, obesity increased, menopausal symptoms became more severe. When the literature was examined, it was observed that obesity was significantly associated with the severity of menopausal symptoms.<sup>22,23</sup> These symptoms may be reduced by suggesting postmenopausal women attending for symptoms of menopause lose weight and life changes. In the present study, a strong relationship was found between body mass index and physical activity level. Similar results with this finding are available in the literature.<sup>14</sup>

In the present study, the age to reach menopause was found to be  $46.77 \pm 5.44$ . Our finding was consistent with the average in developing countries.<sup>24</sup> In the present study, menopausal symptoms

became more severe as the age to reach menopause decreased in women. When we look at the factors that affect the age to reach menopause, causes such as genetic factors, smoking, low sociocultural and economic level, working women, irregular menstruation, and psychic traumas may decrease the age to reach menopause. Studies reported that mother and daughter reached menopause at almost the same age. Of all these factors, most of the factors are changeable risk factors, except the genetic ones.

In Unsal et al.<sup>19</sup> study, early menopause age was found as a risk factor for depression. In the present study, the age to reach menopause of those with symptoms of depression was smaller but it was not statistically significant.

As a result, the habit of physical activity in postmenopausal women may play an important role in improving menopausal symptoms. The presence of depression may lead to experiencing more severe menopausal symptoms. Family physicians should aim to improve health and enhance the quality of life in the postmenopausal period with a biopsychosocial approach.

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