RESEARCH

The Relationship Between Physical Activity Level, Body Mass Index and Body Perception in Postmenopausal Elderly Women

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Abstract: In the aging process, changes in body images are ignored along with the decrease in physical activity in older women. Therefore, this research aimed to investigate the relationship between body mass index (BMI), body perception, and physical activity level in postmenopausal female elderly living in a rest home. This descriptive study was carried out among fifty postmenopausal older women residing in Fethiye Rest home. The physical activities undertaken over seven days by the older women were assessed using the International Physical Activity Questionnaire (IPAQ). Height (m), and body weight (kg) were used to calculate BMI (kg/m²), Body Perception Scale was used to determine the level of body image perception. The demographic characteristics of the individuals (body weight, age, menstruation termination period, height, other diseases, visual and hearing impairment, etc.) and chronic disease history were collected with personal information form. Fifty community-dwelling older women (mean age 69.30±5.03) were enrolled in the current study. The BMI results of the women were: 34% obese, 34% overweight, 32% normal, and 68% of participants were inactive,%26 inactive, and 6% active. Median and mean length of stay in a rest home were 22(12-49.5) and 32.96±28.30 years. There was a strong positive correlation between body image perception and physical activity (r:0.751,p<0.001) and a weak negative correlation between BMI (r: -0.398, p: 0.004). No correlation was found between body image and age, length of stay in a rest home, incontinence, depression, fall history (p>0.05). Healthcare professionals should plan that postmenopausal women regulate their calorie intake and encourage them to become more active in both recreational and muscle strength. Researchers could be encouraged to examine both functional and appearance-related body image with postmenopause elderly populations.

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INTRODUCTION

The older adult population is increasing rapidly worldwide. In addition, age-related and preventable diseases are expected to increase with the aging population[1]. On the other hand, lifestyle changes especially physical activity, in preventable diseases increase their importance in health policy, especially in the elderly[1]. Researches showed the importance of physical activity in conditions such as osteoporosis, obesity, respiratory disease, hypertension, osteoarthritis, coronary heart disease, type 2 diabetes, stroke[2-4]. However, physical inactivity rates increase in women and elderly individuals[5].

Studies showed that body image dissatisfaction is common among younger women[6, 7]. Also, it was found that body image dissatisfaction was associated with chronic diseases[8]. Although body appreciation was positively associated with age in women[7], it is not clear about its relationship with other features specific to the aging process. In addition, negative body image is commonly associated with being overweight or obese in older women, In addition, negative body image is commonly associated with being overweight or obese in older women, although there is lack of study or researches on this topic [9, 10].

Implacable, physiological aging leads to essential losses in multiple systems. This degenerative process causes physical dependence loss of autonomy in the elderly. In the literature, no adequate studies analyzed the relationship between BMI, physical activity, and body image in the elderly, especially in women. Therefore, this study aimed to investigate the relationship between BMI, body perception, and physical activity level in postmenopausal female elderly living in a rest home.

MATERIALS and METHODS

Study Participants

This descriptive study examined the relationship between BMI, body image perception, and physical activity level of postmenopausal women staying in rest homes. Ethical approval was obtained from the Çukurova University Non-Invasive Clinical Research Ethics Committee (no:44/07-2019) before the study. The sample size consisted of participants who agreed to participate in the study and met the criteria after the call applied to women in the rest home. Fifty postmenopausal older women residing in Fethiye Rest home were included in the study. Inclusion criteria were having the postmenopausal period (having no menstruation in the last 12 months), not having a cognitive impairment (Standardized mini-mental test score above 23). Exclusion criteria are; to have a chronic disease that may affect balance and coordination and to have a history of surgery in the last six months that may affect the level of physical activity.

Assessment Tools

Study data were collected with the following forms and scales.

Personal Information Form: In this form, there were questions about the demographic characteristics of the individuals (body weight, age, menstruation termination period, height, other diseases, visual and hearing impairment, etc.) and chronic disease history.

Body Mass Index (BMI): BMI was used to calculate the desired body weight based on height. The "kg" value of the measured body weight was formulated by dividing the square of the crown in "meters" (kg/m^2).

International Physical Activity Questionnaire (IPAQ): This questionnaire was used to calculate the participants' physical activity levels. This questionnaire provides information on time spent walking, moderate and vigorous activities, and time spent sitting. It was developed to realize comparable and valid data for different activites on daily physical activity[11]. The Turkish reliability, and validity study of this questionnaire was conducted by Sağlam et al.[12].

Body Perception Scale: The scale was used to determine the level of body image perception. The scale includes 40 items, and each item is related to an organ or a part of the body (such as arm, leg, face) or a function (such as sexual activity level). The total score and section scores of the scale, which receives scores ranging from 1 to 5 for each item, and answer options such as "I don't like it at all", "I don't like it very much", "I'm undecided", "I like it quite a lot" and "I like it very much", are given to the items. It is obtained by dividing the sum of the scores by the number of items. The total score varies between 40 and 200, and the high score indicates a high level of body satisfaction. The validity and reliability were made by Secord and Jourard, 1953[13], and it was adapted in to Turkish'' by Hovardaoğlu in 1993[14].

Standardized Mini-Mental Test (SMMT): SMMT was used to evaluate cognitive status. This test consists of 11 items, gathered under five main headings as recording memory, orientation, attention, recall, language, and calculation. In SMMT, which is evaluated over 30 points, one point is given to each correct answer. The validity and reliability of SMMT were made by Molloy and Standish,1997[15]. Turkish version of SMMT was established by Güngen et al. in 2002[16].

Statistical Analyzes

All statistical analyzes were done with SPSS 20.0 program. (IBM Corp., Armonk, NY, USA). The data were analyzed using Kolmogorov-Smirnov/Shapiro-Wilks tests, visual(histograms, probability plots), and analytical methods, to determine whether or not normally distributed. Non-normally distributed data were expressed as median (quartiles). For normally distributed variables descriptive analyses were presented by standard deviations, and means. Frequency and percentage values were calculated for ordinal variables. Correlations between body image perception, physical activity, age, body mass index, length of stay in the rest home, incontinence, and fall history were analyzed using Pearson's and Spearman's rank correlation coefficients, as appropriate.

RESULTS

Fifty community-dwelling elder persons (mean age 69.30±5.03) were enrolled in the current study. The demographics and clinical characteristics and were shown in table 1. Body mass index classification (BMI, kg/m2) was included in figure 2, and the results were as follows: 34% obese, 34% overweight, 32% normal. Median and mean length of stay in a rest home were 22(12-49.5) and 32.96±28.30 years. 68% of participants were inactive,%26 inactive, and 6% active (figure 1). The relationship of body image perception with physical activity, age, body mass index, length of stay in a rest home, incontinence, and fall history is presented in table 2. There was a strong positive correlation between body image perception and physical activity (r:0.751,p<0.001) and a weak negative correlation between BMI (r: -0.398, p: 0.004) (Table 2). No correlation was found between body image and age, length of stay in a rest home, incontinence, depression, fall history (p>0.05, Table 2).

Table 1. Demographic and clinical characteristics of community-dwelling older adults

	X±SD/median(IQR)/n (%)
Age (year)	69.30±5.03
BMI (kg/m^2)	27.47(23.82-31.53)
Dominant Hand, n (%) R, L	45(90%),5(10%)
Marital status, n (%)	
Married	26(52%)
Single	6(12%)
Divorced	18(36)
Educational status, n (%)	
Uneducated	14(28%)
Primary School Graduate	22(44%)
Secondary School Graduate	4(8%)
High School Graduate	5(10%)
University Graduate	10(10%)
Lengths of stay in rest home (month)	22(12-49.5)
Chronic Diseases, n (%)	
None	11(22%)
HT	23(46%)
DM	5(10%)
COPD	7(14%)
COPD+HT	2(4%)
CAD	2(4%)
Smoking status, n (%)	
yes, no	7(14%), 43(86%)
Alchol consumption, n (%)	
Yes, No	3(6%), 47(94%)
Incontinence, n (%)	
Yes, No	7(14%), 43(86%)
Depression, n (%)	
Yes, No	21(42%), 29(58%)
Falls history n (%)	
Yes, No	7(14%), 43(86)
Body Image Perception Scale	127.5±29.18
Physical activity status n (%)	
Active	3(6%)
Minimal Active	34(68%)
Inactive	13(26%)

BMI: Body mass index, R/L: Right/left, HT: Hypertension, DM: Diabetes Mellitus, COPD: Chronic obstructive pulmonary disease, CAD: Coronary artery disease

Table 2. Correlations of the body imaging, BMI, physical activity status in community-dwelling older adults

	Body Image Perception Scale	
	r	p
Age (years)	-0.221	0.123
BMI (kg/m^2)	-0.398	0.004*
Length of the stay in a rest home	-0.205	0.153
Physical activity status	0.751	<0.001*
Incontinence	0.032	0.828
Falls history	0.089	0.540
Depression	0.032	0.828

BMI: Body mass index, *p < 0.05. r: Pearson/spearman correlation coefficients.

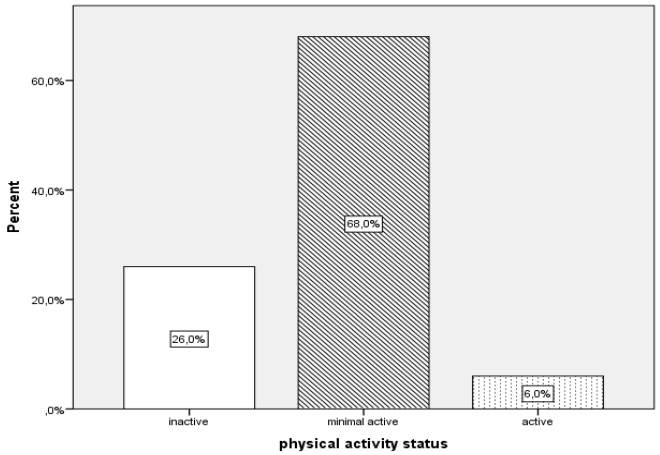

Figure 1. Physical activity status of community-dwelling older adults

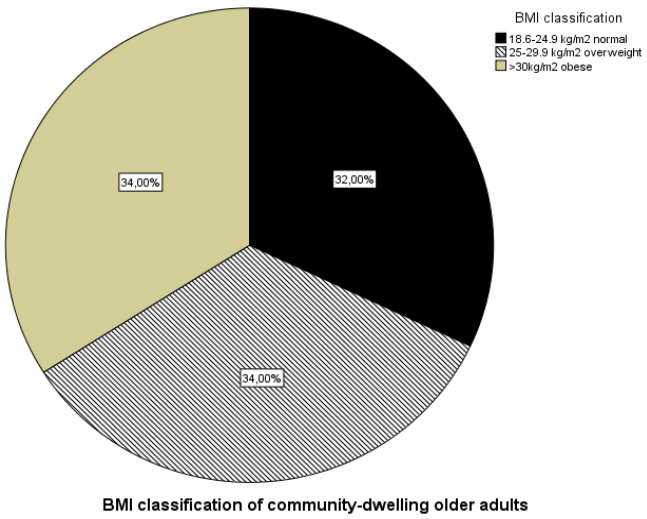

Figure 2. BMI classification of community-dwelling older adults

DISCUSSION

Our study indicated that women already in menopause were mostly minimal active and inactive (% 94). Their BMI ratios were balanced. More physical activity causes better body image, and there were negative correlations between body image and BMI. Postmenopause condition in a population seems to affect women's muscular-skeletal symptoms towards this life change[17]. Most of the Turkish researches have shown that, Turkish women had bad feelings about menopause Losing the ability to give birth to children, the decrease in femininity, the decrease in muscle strength, and bodily changes and impact emotions with physical appearance[18-20].

Menopause causes social, physical, and psychological changes with age because of the hormonal changing as increase of gonadotropin levels and decrease of estrogen levels. There are also decreases in parathyroid and thyroid hormone levels of prolactin[21]. These changes can cause put on weight, dietetic problems, postural changes, pain, muscular and skeletal problems, skin and breast atrophy, cardiovascular system diseases, hot flushes, vasomotor symptoms, night sweats, and senile vaginitis could feel worst for women, and it may affect a body image of woman[22]. Changes associated with aging, such as the physical image of the breast, kyphosis, white hair, wrinkles, can increase negative woman body image, thus resulting in sadness, anxiety, and depressive mood[23]. In this study, BIS average score was 127.5 ± 29.18, and it was higher than normal. Results also showed that women inactive and with higher BMI towards menopause had higher positive body image scores (Table 1 and 2). Khorshid et al. detected similar BIS average scores (139.46 ± 20.8) for Turkish women in menopause. Also, there was no significant difference between BIS average points according to marital status, age group, education level, job, or number of children[24]. Another study showed that menopause affected a woman's appearance and fitness. Perimenopausal and recently postmenopausal women had more negative perceptions of fitness and appearance than premenopausal women[25]. If a woman is at peace with her physical appearance experienced less problematic symptoms, and there was a significant relationship between a reduction in the number of menopausal symptoms, and high self-esteem[26]. The high level of concern about negative attitudes and body image during the transition to menopause can be due to women's perception of the relationship between aging and menopausal transition as the same and a feeling less sexually attractive[27,28]. These results of the study were similar to the literature data.

When examined in terms of physical activity, publications showed that athletes have a better body image than those who do not exercise. This situation indicates that athletes are closer to a weak and muscular body for men and a lean and fit physique for women than those who do not exercise due to their activity levels and provide ideal body image perception[29]. This finding related with increased psychological well-being related with positive body image and associated physical activity level[30,31]. Studies have reported that groups taken to any exercise program have a developed body image at the end of the intervention than control groups who do not exercise[32,33]. The light of these studies shows that physical activity and exercise can be a good treatment method for some eating disorder problems (bulimia nervosa, etc.) in combination with general therapies such as cognitive behavioral therapy and diet-nutritional counseling. Besides, those participating in an exercise program reported a better body image after program[31]. For all ages, exercise and activity resulted in a developed body image and for the elderly. It may reflect body image is linked to their physical capabilities and body's functioning, which was mostly measured[31-35].

One of the limitations of this study is the absence of a control group and a small sample size. The participant group was performed in an elderly care center in the southwest region of Turkey, and the results can not be generalized. More objective evaluation methods and an activity intervention task could be added to the survey.

Conclusion

As a result, there is a significant relationship between body perception and physical activity. Menopause causes changes in the body with age and changing hormonal status and affects body perception. Healthcare professionals should plan that postmenopausal women regulate their calorie intake and encourage them to become more active in recreational and muscle strength. Researchers could be encouraged to examine both functional and appearance-related body image with postmenopause elderly populations.

Conflicts of Interest Statement

The authors declare have no competing interests.

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