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ORIGINAL RESEARCH

Aging anxiety and beliefs about exercise in middle-aged women

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Abstract

This study aimed to determine the levels of aging anxiety in middle-aged women who exercise and their beliefs about exercise. This is a descriptive cross-sectional study and 221 middle-aged women were contacted. For data collection, a "Personal Information Form", the "Aging Anxiety Scale for Middle-Aged Women", and the "Exercise Health Belief Model Scale" were used. It was found that aging anxiety varied according to age, education level, employment status, and the number of years of exercise. It was determined that as women's general health scores increased, their physical weakness scores decreased. A positive correlation was found between beliefs about the vulnerability of not exercising and the aging anxiety score. The physical weakness score which is a subscale of aging anxiety had a significant effect on the score of beliefs about the vulnerability of not exercising and explained 13.7 % of the total variance. It has been determined that the mental health of middle-aged women is affected by the exercise they perform. It should be provided to make exercise a habit in the lives of middle-aged women and to improve their physical and mental health by organizing exercise programs.

Keywords: Aging anxiety, exercise, middle-aged women.

Introduction

Changes in body weight and body structure may occur in women with advancing age, especially during middle age and old age, due to the transition to menopause and hormonal effects (Karvonen-Gutierrez & Kim, 2016). The transition to menopause in middle-aged women may cause skeletal muscle and bone losses, and a tendency for falls and fractures in later years. In terms of solving these problems, middle-aged women should be encouraged to engage in physical activity (Sipilä et al., 2020). Continuous and regular physical activity can be an effective strategy to prevent weight gain in women in midlife (Karvonen-Gutierrez & Kim, 2016). Not only does physical activity provide important evidence for the improvement of women's health problems (Mena et al., 2019), it can also be performed as a tool used by women to achieve the ideal body image perceived by society. In the event that the ideal body accepted in society is not achieved, the self-esteem of women is affected, and anxiety may be experienced due to low self-esteem (Kızılelmas, 2021).

Aging anxiety is a concept consisting of a combination of factors such as fear of losses and old age, concerns about physical appearance, and psychological concerns that occur during the aging process (Lasher & Faulkender, 1993). In women, anxiety about aging may be due to factors such as decreased attractiveness, health and fertility. It is observed that anxiety related to health and attractiveness is more predictive of psychological distress in women (Barrett & Robins, 2008). In a study conducted with middle-aged women, it was determined that depression scores increased when body dissatisfaction and aging anxiety scores increased (Carrard et al., 2021). Lee & Sun (2017), found that healthy lifestyle behaviors, including exercise, positively affected successful aging, and that this situation was

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negatively correlated with aging anxiety. It was determined that as aging anxiety in middle-aged women increased, health-promoting behaviors decreased (Seo & Noh, 2019).

In order to reduce aging anxiety in middle-aged women, it is very important to orient women towards social activities and to implement support programs aimed at raising their self-esteem (Kim, 2020). Exercise can be regarded as an activity program that supports women's healthy lifestyle behaviors and increases individuals' self-esteem. Middle-aged women need to make behaviors such as exercise a lifestyle in order to lead a healthy life in terms of physical, mental and social aspects. In this case, it is an important issue to reveal the belief of middle-aged women towards exercise. In this regard, no study was found in the literature review that examined women's beliefs about exercise and their aging anxiety together. The findings obtained from this study will help fill this gap in the literature. Thus, it is thought that the study will be a step forward in terms of future studies.

The aim of this study was to determine the levels of aging anxiety in women who exercise and their beliefs about exercise. In the study, answers to the following questions were sought: What are the levels of aging anxiety and beliefs about exercise among middle-aged women who exercise? Is there any difference in the level of aging anxiety and beliefs about exercise in middle-aged women who exercise according to demographic variables? Is there any relationship between the levels of aging anxiety in middle-aged women who exercise and their beliefs about exercise?

Methods

This was a descriptive cross-sectional study and the population conducted of women who exercise in Türkiye.

Participants

Data were collected using the snowball sampling method and 221 middle-aged women were contacted. The inclusion criteria for the study were: doing exercise, being aged between 40-59, having no problems with understanding and participating in the study voluntarily. Also, the women participating in the study were asked to send the research questionnaire to women around them who met the inclusion criteria. In the selection of the sample, it was tried to reach the women who met the inclusion criteria throughout Türkiye. In order to provide sample diversity, individuals from different cities and occupational groups who met the criteria and could be reached were included in the study. In this study, the sample size was calculated prior to data collection by using the G*Power 3.1.9.7 program. The power calculation was made based on the study by Nam et al. (2021), in which aging anxiety was examined. Accordingly, by taking the effect size of the study as 0.54, the alpha value as 0.05, and the power as 0.95, the minimum sample size was determined as 146. Considering that there would be loss of participants in the research, 211 people were contacted. Data were collected online via Google Forms between 01.10.2022 and 21.01.2023.

Ethical Dimension of the Study

Ethics committee approval for the study was obtained from the Non-Interventional Clinical Research Ethics Committee of Karabuk University (Decision No: 2022/1026). Information about the study was given at the beginning of the online form, and consent was obtained from each participant regarding voluntary participation.

Measurements

In the study, a Personal Information Form, the Aging Anxiety Scale for Middle-Aged Women, and the Exercise Health Belief Model Scale were used for data collection.

Personal information form

In the form created by the researchers, there are questions related to age, occupation, marital status, presence/absence of children, number of children, education level, employment status, type of exercise performed, and weekly frequency of exercise.

Aging Anxiety Scale for middle-aged women

This scale, which was developed by Lee and You (2019), was adapted to Turkish by Aydın & Kabasakal (2022). The scale reveals the aging anxiety of women between the ages of 40-59. The scale is a 5-point Likert type and consists of a total of 19 items and four sub-dimensions, namely physical weakness (questions 1-4), concern about changes in appearance (questions 5-8), social worthlessness (questions 9-16), and negative expectations about old age (questions 17, 18 and 19, which are reverse scored). As the scale score increases, the level of aging anxiety also increases. The Cronbach alpha coefficient of the scale was 0.91 in the development study (Lee & You, 2019), and 0.89 in the Turkish adaptation study (Aydın & Kabasakal, 2022).

Exercise Health Belief Model Scale

This measurement instrument, which measures individuals' exercise health behaviors, was developed by Esparza-Del Villar et al. (2017), and adapted into Turkish by Yılmaz and Kartal (2021). In the Turkish version of the scale, the number of items was reduced from 32 items in the original to 25 items. The scale consists of five sub-dimensions: "beliefs that the benefits exceed the costs of exercising", "beliefs that exercising reduces the risk of disease (threats)", "beliefs about the vulnerability of not exercising", "beliefs about the severity of not exercising", and "general health values". The first 19 items of the scale are scored as 5-point Likert-type items ("not at all", "a little", "more or less", "quite a bit", and "a lot"), and items 20-25 are also scored as 5-point Likert-type items ("I don't believe", "maybe, but it's unlikely", "I believe it's likely". , "I believe it's very likely", and "I believe, I'm sure of it"). As the scores obtained from the scale increase, the belief in exercise also increases. The Cronbach alpha values of the original scale ranged between 0.67 and 0.90 (Esparza-Del Villar et al., 2017). In the Turkish version, the Cronbach alpha coefficients were found to range between 0.85 and 0.93 (Yılmaz & Kartal, 2021).

Data Analyses

The analysis of the data was performed using SPSS 25 software. For descriptive statistics, percentage, ratio, mean, standard deviation, minimum and maximum values were used. Skewness and kurtosis values were used to test whether the data were normally distributed, and parametric tests were used because the data were normally distributed (Table 2). The ANOVA test, the post hoc Tukey test for pairwise comparisons, and, to determine the relationship between variables, Pearson correlation analysis were used. Multiple linear regression analysis was performed to determine the effect of the independent variables on the dependent variables.

Results

The mean age of the women was 46.52±5.32 years old (Min.: 40 years, max.: 59 years). The participants were between the ages of 40-45 (50.2%). In addition, 83.3% of the participants were married, 87.3% had children, 29.4% had bachelor's degrees, and 41.2% were public employees. It was determined that the highest number of participants had spent 3-5 years exercising (36.7%), the most common type of exercise was walking (40.27%), and the highest frequency of exercising was 3-4 days per week (42.53%). Finally, the most frequent response given by the participants as the reason for exercising was health (66.06%), while their response to the item about the relationship between exercise and aging was predominantly healthy aging (54.75%) (Table 1).

It can be seen that as a result of the analysis of the obtained data, the data met the assumption of normality. For the normality test, in studies conducted in the social sciences and in which the Likert-type scale method is used, Skewness and Kurtosis values are taken into account, and the distribution is considered normal if the skewness and kurtosis values are in the range of ±2 (George & Mallery, 2019). In this study, the Cronbach alpha value of the Aging Anxiety Scale for Middle-Aged Women was calculated as 0.87, while the Cronbach alpha values of its sub-dimensions ranged from 0.60 to 0.86. The Cronbach alpha coefficients of the sub-dimensions of the Exercise Health Belief Model Scale were found to range between 0.84 and 0.92 (Table 2).

In Table 3, the participants' scale mean scores, standard deviations, and minimum and maximum values are given. The total mean score for the aging anxiety scale was determined as 50.37±12.01, while scores of 12.72±3.77 for the physical weakness sub-dimension, 10.90±3.90 for the sub-dimension of anxiety about changes in appearance, 18.63±6.24 for the social worthlessness sub-dimension, and 8.12±2.36 for the sub-dimension of negative expectations about old age were determined. For the exercise health belief scale, participants' mean scores were determined as 3.23±0.96 for the general health values sub-dimension, 4.50 0.84 for the sub-dimension of beliefs about the severity of not exercising, 3.79±0.84 for the sub-dimension of beliefs that exercising reduces the risk of disease (threats), 4.18±0.82 for the sub-dimension of beliefs that the benefits exceed the costs of exercising, and 2.57±0.82 for the sub-dimension of beliefs about the vulnerability of not exercising.

A statistically significant difference was found between the age variable of the participants and the sub-dimension of negative expectations about old age. It was determined that the mean score for negative expectations about old age in women aged 40-45 was higher than for those in the 46-50 age group.

Table 1
Demographic data.

Variables	n	%
Age		
40-45	111	50.2
46-50	61	27.6
51 and over	49	22.2
Marital Status		
Single	37	16.7
Married	184	83.3
Presence of Children		
Yes	193	87.3
No	28	12.7
Education Level		
Literate-Primary school	17	7.7
Secondary school	17	7.7
High school	58	26.2
Associate degree	28	12.7
Bachelor's degree	65	29.4
Postgraduate degree	36	16.3
Employment Status and Type of Institution		
Public	91	41.2
Private	44	19.9
Retired-Not working	86	38.9
Number of Years of Exercise		
2 years or less	69	31.2
3-5 years	81	36.7
6 years or more	71	32.1
Type of Exercise		
Fitness	28	12.67
Jogging	10	4.52
Pilates	63	28.51
Tennis	9	4.07
Walking	89	40.27
Swimming	22	9.96
Frequency of Exercise (weekly)		
1-2 days	84	38.01
3-4 days	94	42.53
5 days or more	43	19.46
Reason for Doing Exercise		
Health	146	66.06
Health-looking fit	11	4.98
Health-weight control	15	6.79
Weight control	16	7.24
Looking fit	6	2.71
Other	27	12.22
Relationship between Exercise and Aging		
Healthy aging	121	54.75
Delaying aging	71	32.13
Looking fit	29	13.12

Table 2
Normality values and Cronbach alpha values for scales.

Scales / Sub-Dimensions	Skewness	Kurtosis	α
Aging Anxiety Scale for Middle-Aged Women			
Physical Weakness	-0.052	-0.769	0.75
Concern about Changes in Appearance	0.167	-0.733	0.79
Social Worthlessness	0.576	0.181	0.86
Negative Expectations about Old Age	0.312	0.053	0.60
Total	0.289	-0.278	0.87
Exercise Health Belief Model Scale			
General health values	0.204	-0.505	0.90
Beliefs about the severity of not exercising	-1.521	1.320	0.89
Beliefs that exercising reduces the risk of disease (threats)	-0.158	-1.000	0.87
Beliefs that the benefits exceed the costs of exercising	-0.620	-0.833	0.92
Beliefs about the vulnerability of not exercising	0.075	-0.050	0.84

Table 3
Mean scores of Aging Anxiety Scale for middle-aged women and Exercise Health Belief Model Scale.

Scales / Sub-Dimensions	Mean±SD	Min-Max
Aging Anxiety Scale for middle-aged women		
Physical weakness	12.72±3.77	4-20
Concern about changes in appearance	10.90±3.90	4-20
Social worthlessness	18.63±6.24	8-38
Negative expectations about old age	8.12±2.36	3-15
Total	50.37±12.01	24-83
Exercise Health Belief Model Scale		
General Health Values	3.23±0.96	1-5
Beliefs about the severity of not exercising	4.50±0.84	1-5
Beliefs that exercising reduces the risk of disease (threats)	3.79±0.84	1.57-5
Beliefs that the benefits exceed the costs of exercising	4.18±0.82	1.67-5
Beliefs about the vulnerability of not exercising	2.57±0.82	1-5

A statistically significant difference was found in the aging anxiety total score and the scores for the physical weakness and social worthlessness sub-dimensions based on the education level variable. It was found that the aging anxiety total score and physical weakness mean scores of postgraduates were lower than those of literate-primary, secondary and high school graduates. It was determined that the social worthlessness mean scores of secondary school graduates were higher than those of participants with associate and bachelor's degrees. A statistically significant difference was also found in the sub-dimension of beliefs about the severity of not exercising according to the education level variable. It was determined that as the education level increased, the mean scores for beliefs about the severity of not exercising decreased.

In terms of the employment status variable, it was determined that the physical weakness, social worthlessness and total aging anxiety mean scores of retired/non-employed participants were higher than scores of those who worked in the private and public sectors.

According to the variable of the number of years of exercise, it was determined that the physical weakness and total aging anxiety mean scores of participants who

had been exercising for 6 years or more were lower than those of the other groups. It was also determined that the social worthlessness score of those who had been exercising for 6 years or more was lower than the score of those who had been exercising for 3-5 years. Finally, it was found that the mean score for general health values was higher in those who had been exercising for 6 years or more than in those who had been exercising for 2 years or less (Table 4).

As shown in Table 5, a weak significant negative correlation was found between the general health values and physical weakness sub-dimensions ($p<0.05$; $r=-0.139$), while a weak significant positive correlation was found between beliefs about the severity of not exercising and concern about changes in appearance ($p<0.01$; $r=0.196$). A weak significant positive correlation was found between beliefs about the vulnerability of not exercising and the sub-dimensions of physical weakness ($p<0.01$; $r=0.338$), concern about changes in appearance ($p<0.01$; $r=0.220$), and social worthlessness ($p<0.01$; $r=0.286$), as well as the total score for aging anxiety ($p<0.01$; $r=0.338$).

Table 5
Correlations between scale scores.

		Aging Anxiety Scale for Middle-Aged Women				
Exercise Health Belief Model Scale	Sub-Dimensions	Physical Weakness	Concern about Changes in Appearance	Social Worthlessness	Negative Expectations about Old Age	Total Score
	General health values	-.139*	.077	-.077	-.058	-.070
	Beliefs about the severity of not exercising	.113	.196**	.068	-.024	.130
	Beliefs that exercising reduces the risk of disease (threats)	.063	.019	-.048	-.057	-.010
	Beliefs that the benefits exceed the costs of exercising	-.047	.070	-.031	-.023	-.013
	Beliefs about the vulnerability of not exercising	.338**	.220**	.286**	.058	.338**

***p<0.01 *p<0.05*

Table 6
Multiple regression analysis results regarding determinants of beliefs about exercise.

	B	Std. Error	Beta	t	p
Constant	1.457	.252		5.792	.000
Physical Weakness	.062	.028	.285	2.202	.029
Concern about Changes in Appearance	.015	.027	.073	.564	.574
Social Worthlessness	.027	.027	.205	.992	.322
Aging Anxiety Total Score	-.007	.023	-.099	-.297	.767

R^2=.137; F= 8.605; p<0.05; Durbin-Watson: 1.825. Dependent Variable: Beliefs about the vulnerability of not exercising

The results of the multiple linear regression analysis reveal a positive and significant correlation between physical weakness and beliefs about the vulnerability of not exercising. The score of physical weakness had a significant effect on the score of beliefs about the vulnerability of not exercising and explained 13.7 % of the total variance together with the independent variables (Table 6).

Table 4

Comparative analyses according to demographic variables.

Variables	Aging Anxiety Scale for Middle-Aged Women					Exercise Health Belief Model Scale				
	Physical Weakness	Concern about Changes in Appearance	Social Worthlessness	Negative Expectations about Old Age	Total Aging Anxiety Scale	General health values	Beliefs about the severity of not exercising	Beliefs that exercising reduces the risk of disease (threats)	Beliefs that the benefits exceed the costs of exercising	Beliefs about the vulnerability of not exercising
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Age										
40-45[a]	12.55(3.62)	11.14 (4.12)	18.38(6.25)	8.54 (2.50)	50.60(12.22)	3.31 (0.93)	4.52 (0.87)	3.84 (0.86)	4.20 (0.88)	2.49 (0.89)
46-50[b]	12.54(4.25)	10.59 (3.72)	17.93 (6.02)	7.33 (2.25)	48.39 (12.41)	3.13 (0.98)	4.48 (0.83)	3.77 (0.83)	4.26 (0.72)	2.56 (0.74)
51 and over[c]	13.35 (3.48)	10.76 (3.63)	20.08 (6.37)	8.16 (1.91)	52.35 (10.84)	3.20 (0.99)	4.50 (0.79)	3.72 (0.79)	4.02 (0.82)	2.74 (0.72)
Statistical Analysis	F=.858 p=.425	F=.426 p=.654	F=1.809 p=.166	F=5.423 p=.005 (a,b)	F=1.517 p=.222	F=.706 p=.495	F=.037 p=.964	F=.347 p=.707	F=1.260 p=.286	F=1.618 p=.201
Education Level										
Literate-Primary[a]	13.88 (2.80)	11.35(4.97)	21.06 (5.89)	8.47 (1.87)	54.76 (10.02)	3.27 (0.97)	4.53 (0.88)	4.26 (0.60)	4.25 (0.72)	2.81 (0.91)
Secondary[b]	14.65 (4.08)	10.47(4.16)	21.88 (7.80)	8.88 (2.32)	55.88 (13.49)	3.37 (1.17)	4.53 (0.74)	3.60 (0.90)	3.97 (0.92)	2.82 (0.65)
High school[c]	13.47 (3.89)	11.24(4.21)	19.84 (6.78)	8.17 (2.64)	52.72 (12.90)	2.99 (1.02)	4.59 (0.71)	3.81 (0.87)	4.18 (0.81)	2.57 (0.77)
Associate degree[d]	12.00 (3.46)	10.21(3.32)	16.43 (4.61)	7.71 (2.09)	46.36 (9.85)	3.21(0.83)	4.23 (0.90)	3.77 (0.85)	4.03 (0.92)	2.61 (0.81)
Bachelor's degree[d e]	12.72 (3.70)	11.46(3.84)	18.29 (6.37)	8.08 (2.34)	50.55 (12.36)	3.38 (0.90)	4.75 (0.58)	3.78 (0.87)	4.33 (0.81)	2.56 (0.88)
Postgraduate degree[d f]	10.64 (3.32)	9.86(3.10)	16.33 (3.94)	7.92 (2.38)	44.75 (8.62)	3.28 (0.91)	4.09 (1.17)	3.68 (0.75)	4.07 (0.80)	2.31 (0.78)
Statistical Analysis	F=4.373 p=.001 (a,f) (b,f) (c,f)	F=1.134 p=.343	F=3.820 p=.002 (b,d) (b,f)	F=.624 p=.658	F= 4.088 p=.001 (a,f) (b,f) (c,f)	F=1.153 p=.333	F=3.876 p=.002 (c,f) (d,e) (e,f)	F=1.409 p=.222	F=1.012 p=.411	F=1.360 p=.241
Employment Status										
Public[a]	12.03 (3.58)	10.80 (3.59)	17.32 (5.27)	8.19 (2.32)	48.34 (10.91)	3.29 (0.89)	4.58 (0.78)	3.73 (0.89)	4.23 (0.89)	2.49 (0.90)
Private[b]	12.11 (3.91)	9.93 (3.76)	17.39 (6.08)	7.43 (2.48)	46.86 (10.96)	3.40 (0.93)	4.39 (1.02)	3.75 (0.82)	4.27 (0.69)	2.45 (0.70)
Retired-not working[c]	13.79 (3.70)	11.50 (4.20)	20.66 (6.77)	8.41 (2.29)	54.34 (12.65)	3.09 (1.02)	4.48 (0.80)	3.88 (0.78)	4.08 (0.82)	2.71 (0.77)
Statistical Analysis	F=5.624 p=.004 (a,c) (b,c)	F=2.435 p=.090	F=7.918 p=.000 (a,c) (b,c)	F=2.583 p=.078	F=8.391 p=.000 (a,c) (b,c)	F=1.759 p=.827	F=.827 p=.439	F=.740 p=.478	F=1.080 p=.342	F=2.182 p=.115
Number of Years of Exercise										
2 years or less[a]	13.42 (3.20)	11.28 (3.95)	18.70 (5.31)	8.20 (2.32)	51.59 (10.66)	3.00 (0.83)	4.51 (0.81)	3.82 (0.84)	4.14 (0.88)	2.67 (0.83)
3-5 years[b]	13.62 (3.83)	11.01 (4.18)	19.89 (6.82)	8.22(2.33)	52.74 (12.32)	3.18 (0.95)	4.58 (0.73)	3.75 (0.85)	4.17 (0.77)	2.58 (0.79)
6 years or more[c]	11.03 (3.70)	10.41 (3.50)	17.14 (6.15)	7.93 (2.45)	46.51 (12.19)	3.52 (1.01)	4.40 (0.98)	3.81 (0.82)	4.22 (0.84)	2.46 (0.84)
Statistical Analysis	F=11.659 p=.000 (a,c) (b,c)	F=.917 p=.401	F=3.768 p=.025 (b,c)	F=.348 p=.707	F=5.854 p=.003 (a,c) (b,c)	F=5.424 p=.005 (a,c)	F=.844 p=.431	F=.165 p=.848	F=.131 p=.877	F=1.208 p=.301

Discussion

The aim of this study was to determine the aging anxiety of middle-aged women who exercise and their beliefs about exercise. Exercise has holistic (physical, mental, social, etc.) effects on women's health. It is seen that women turn to exercise for reasons such as being liked physically, ensuring the maintenance of health, and the representation of beauty in society by women in terms of gender (Kızılelmas, 2021). Women in middle age are at risk in terms of their health due to the hormonal changes that they experience with the menopause. Since the menopause period also affects the loss of muscles and bones, it has been determined that physical activity is very beneficial (Sipilä et al., 2020). In a qualitative study conducted by Yılmaz and Ulaş (2017), it was determined that women tended towards physical activity for reasons of health and physical appearance. In a study conducted with women who exercised, it was found that the great majority (69%) of women exercised for health reasons (Yavuz Söyler et al., 2022). In fact, the findings of our study also support these reasons, and it was determined that when women were asked why they exercised, the response of more than half of the participants (66.6%) was health.

In our study, the participants' total aging anxiety score was 50.37±12.01. Similarly, in a study conducted with middle-aged women, this score was found to be 59.29±10.90 (Nam et al., 2021). In a study conducted in Malaysia which examined aging anxiety in middle-aged women, it was determined that most of the participants thought about aging and the negative experiences caused by aging. It was also determined that aging anxiety developed from individuals' experiences and observations (Minhat et al., 2015).

When the differences between aging anxiety were examined according to age, it was determined that the mean score for negative expectations about old age among women in the 40-45 age range was higher than that of women in the 46-50 age range. In a qualitative study conducted by Karaarslan (2022), it was emphasized that women at the age of 40 asked themselves various questions about their lives. In that study, one of the participants expressed thoughts to the effect that she did not feel mentally or physically young at the age of 40. In a study conducted with middle-aged individuals, it was determined that as age increased, the difficulties in accepting old age decreased (Atay & Kumcağız, 2022). In this case, it can be revealed that negative expectations about old age will also decrease. Contrary to the findings of our study, in a study conducted by Suh and Choi (2013), it was reported that the mean aging anxiety score in the 50-59 age range was higher than that in the 40-49 age range. In the literature review, there are also studies that did not find any difference between aging anxiety and the age variable (Kim, 2020; Nam et al., 2021; Young-Ok, Hyo-Sook, 2016).

It was determined that women with higher education levels had lower physical weakness, social worthlessness, and total aging anxiety scores. By bringing with it roles such as self-confidence and leadership, education can change women's perspectives on life and their positions in society. A positive perspective on aging can lead to the development of health-promoting behaviors (Rainville & Clark-Shirley, 2022). Through education, health-promoting behaviors can be acquired and adopted by transferring them to life.

Based on employment status, it was determined that the physical weakness and social worthlessness scores of retired/non-employed participants were higher than scores of those who worked in the public and private sectors. Although it varies according to the working environment and the characteristics of the job, working life can lead to an increase in individuals' level of physical activity (Marquet et al., 2020). Spending energy on going to and from the workplace and on the requirements of the job can contribute to the individual's feeling of vigor and adopting an active lifestyle for a healthy life. A sedentary lifestyle is associated with obesity, depression, anxiety, insomnia and severe menopausal symptoms in women (Blümel et al., 2016). Unused muscles and the associated symptoms can lead to physical weakness in individuals. It has been determined that in addition to physical symptoms and weakness associated with aging, social losses also occur due to stigmatizing attitudes towards old age (Yawar et al., 2022). Working life also contributes to individuals' involvement in society, to their productivity, and thus to regarding themselves as valuable in society.

In our study, it was determined that the physical weakness and total aging anxiety scores of participants who had exercised for 6 years or more were lower. In the literature review, it was determined that individuals' participation in sports and physical exercise had positive effects on their mental health (Demir & Duman, 2019; Grasdalsmoen et al., 2020). In their systematic review and meta-analysis study, Kazeminia

et al. (2020), also found that exercise significantly reduced anxiety in the elderly. In a study conducted with middle-aged women, it was determined that those who exercised regularly had higher mean scores for aging preparedness (Choi et al., 2019). It has been observed that exercises (Pilates and aerobics) applied to physically inactive women have positive effects on their physical and mental health (Soori et al., 2022). In this study, it was determined that the mean score for general health values was higher in those who had been exercising for 6 years or more than in those who had been exercising for 2 years or less. In a study by Karabulut and Altun (2018), it was determined that the mean health responsibility score of women who exercised regularly was higher than that of those who did not exercise regularly.

In the study, it was determined that as beliefs about the vulnerability of not exercising increased, the total aging anxiety score and scores for the sub-dimensions of physical weakness, concern about changes in appearance, and social worthlessness increased. This finding shows that aging anxiety can develop in people who are aware of the need for exercise in their lives. It was determined that physical weakness explained 13.7% of the beliefs about the vulnerability of not exercising. For individuals to experience a mentally healthy aging process, it is very important to ensure that they are actively involved in exercise in their lives, and to raise awareness that if this is not done, the stage will be set for various diseases.

Limitations

Since the study was conducted with middle-aged women in the 40-59 age group, it cannot be generalized to all women. Another limitation is that since the online environment was used for data collection, the study could not be conducted with individuals who could not access the internet. Since it was determined during the implementation phase of the study that middle-aged women engaged in fewer exercise behaviors, difficulties were experienced in reaching the sample. There is a need for more comprehensive studies with larger samples and including all age groups.

Conclusion

It is observed that in addition to the effects of exercise behavior on physical and mental health, it also impacts individuals' attitudes towards the aging process. Accordingly, in our study, aging anxiety and beliefs about exercise were examined in middle-aged women. It was determined that the majority of women walked and that they exercised for health reasons. A negative relationship was found between the participants' general health scores and their physical weakness scores, while a positive relationship was found between their beliefs about the vulnerability of not exercising and their aging anxiety scores. The physical weakness score explained 13.7% of their beliefs about the vulnerability of not exercising. It was determined that women who had been exercising for a greater number of years had higher general health scores and lower social worthlessness scores. It is thought that women's adoption of exercise in their lives with the aim of improving their health and mental well-being will contribute to their perception of themselves as valuable to society. In this way, stronger and more active women will take their place in society. It is recommended that women be supported in developing effective strategies for coping with anxiety that occurs with advancing age, and that training be provided on the effectiveness of exercise for active aging. Furthermore, longitudinal studies can be conducted in the future to investigate the long-term effects of exercise on women's health.

Authors' Contribution

Study Design: NT, AA; Data Collection: NT, AA; Statistical Analysis: AA; Manuscript Preparation: NT, AA; Funds Collection: NT, AA.

Ethical Approval

The study was approved by the Karabuk University of Non-Interventional Clinical Research Ethics Committee (2022/1026) and it was carried out in accordance with the Code of Ethics of the World Medical Association also known as a declaration of Helsinki.

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Conflict of Interest

The authors hereby declare that there was no conflict of interest in conducting this study.

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