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An Investigation of Physical Activity in Women and Barriers to Physical Activity

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Abstract

Background: Physical activity is one of the fundamental steps that enable us to feel psychologically and physically good in all periods of our life. The importance of physical activity in decreasing anxiety and depression and increasing quality of life as well as rehabilitation has also been highlighted.

Aim: The purpose of this study is to investigate physical activity in women and barriers to physical activity (BPA).

Methods: This study used an analytical cross-sectional design. It was conducted with women who were registered in the Family Health Centers of a city located in the eastern part of Türkiye between May and September 2021. The target population of the study was women who were registered in these units and met the research criteria. The sample size was calculated using the sampling method with an unknown population, which indicated 384 individuals. The study included 830 women who agreed to participate in the study. Random sampling and snowball sampling methods were utilized as the sampling methods. Data were collected through the International Physical Activity Questionnaire and the BPA Scale. Data were analyzed using arithmetic means, standard deviation, skewness and kurtosis coefficients, t-test in independent groups, multiple regression analysis, one-way analysis of variance (ANOVA), Welch ANOVA when group variances were not homogeneous, and Bonferroni and X^2 tests for *post hoc* analyses.

Results: Of all the participating women, 48% reported a low-level activity, 42.7% reported a medium-level activity, and 9.3% reported a high-level activity. The study showed that physical activity levels were low in those who did not do physical activities, smoked, and did not do regular housework weekly ($P < 0.05$). BPA scores were significantly higher in those who were obese, had a primary school education level, were married, did not work, did not have social security, had income less than expenses, did not do physical activity, smoked, and had extended family ($P < 0.05$).

Conclusion: This study found women's physical activity levels low and BPA level high. Education and consultancy services to form healthy lifestyle behaviors should be planned, and women's active life should be enhanced by providing them with accessible and safe environments appropriate to their involvement in physical activity.

Keywords: Barriers to physical activity, physical activity, public health nursing, women

Introduction

Physical activity is one of the fundamental steps that enable to feel psychologically and physically good in all periods of our life. Besides, many health problems are reported to be caused by a sedentary life.[1] Due to its negative effects on health, a sedentary lifestyle poses a public health problem that needs to be taken into consideration. Many people who adopt a sedentary lifestyle assess their daily chores as physical activity. This false notion is reported to cause people not to need physical activities and thus lead to a decrease in functional abilities, and decreased functional abilities cause the development of diseases.[2]

Regular physical activity is reported to have positive effects on decreasing obesity as well as several diseases that have negative effects on health (e.g., osteoporosis, diabetes mellitus, ischemic stroke, cardiovascular disease, hypertension, colon cancer, and breast cancer.[3-7] The importance of physical activity in decreasing anxiety and depression and increasing quality of life as well as rehabilitation has been also highlighted.[8,9]

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Sixty per cent of the adult population and two-thirds of the young population in the world are reported not to do enough physical activities, and physical inactivity is reported to be higher in women.[2] In a similar vein, more than 50% of the Turkish population does not do sufficient physical activity, and the physical activity rate of women is lower than that of men.[10]

Limited movements such as housework done by women to maintain their daily life activities are not considered sufficient for physical activity.[2] It is also reported that since the movements in housework are repetitive and monotonous, women do not spend enough energy while doing these activities.[11] With technological developments, the housework requiring efforts of housewives and working women demonstrates a significant decrease.[12] Therefore, the health problems caused by physical inactivity are highlighted more among women. In addition, the COVID-19 process caused people to change their usual life behaviors and habits. The importance of physical activity was understood better in the period when the duration spent at home increased and the activity areas decreased.[13] On the other hand, factors such as keeping up with the developments of the modern age, globalization, urbanization, policies implemented by the countries, the increase in women's education, and women's higher participation in working life have demonstrated an increase in women's physical activity needs in their daily life.[14] Regular physical activity has positive effects on our physical, mental and social health, increases our cognitive performance, and has positive effects on our future life. In addition to bodily health, physical activity also has positive effects on thinking positively, coping with stress, feeling good, enhancing happiness, and having social adaptation and acceptance. All these positive factors listed are important for participation in physical activity.[15,16] Given the benefits of physical activity, it is important to create a collaborative ground by motivating and encouraging women to adopt a physically more active life style and discouraging a sedentary lifestyle. In this regard, public health nurses should be able to contribute to the improvement of women's health status by explaining that regular physical activity is important for maintaining health, that it affects several systems of the body, and that physical inactivity leads to many diseases.[17] Public health nurses should also encourage women to make physical activity part of their life, determine the barriers to physical activity (BPA), and encourage and motivate women to be involved in physical activities.

In light of this information, this study aims to investigate physical activity in women and BPA.

Research Questions

- Q.1 Is the physical activity level low in women?
- Q.2 Are physical activity barriers high in women?

Method Research Type

This study used an analytical cross-sectional design.

Population and Sample of the Study

This study was conducted with women who were registered in family health centers in a city located in eastern Türkiye between May and September 2021. The target population of the study was women who were registered in these units and who met the research criteria. The sample size, calculated according to the sampling formula with an unknown target population,[18] was found 384 individuals when the margin of error was accepted 5%. However, 830 women who wanted to participate in the study were included. Random sampling and snowball sampling methods were utilized as the sampling methods. Inclusion criteria of this included women aged over 18 who did not have a diagnosed psychiatric disease and had online access. Those who had a medical diagnosis to cause activity restrictions or loss of a limb and who had a health problem contraindicated with physical activity were excluded from the study.

Data Collection Tools

Data were collected through the Personal Information Form, the International Physical Activity Questionnaire (Short) (IPAQ), and the Barriers to Physical Activity (BPA) Scale.

The Personal Information Form

The form prepared by the researcher was composed of 16 questions that collected data about age, gender, marital status, working condition, income level, social security, and physical activity.

The International Physical Activity Questionnaire (Short)

With the support of the American Centers for Disease Control and Prevention (CDC), the IPAQ (Short Form) was developed by the World Health Organization (WHO) to determine physical activity and sedentary lifestyles, and validity and reliability of the scale were performed by Sağlam et al in Türkiye.[19]

The questionnaire provides information about the time spent by individuals in low, moderate, and vigorous activities and the sitting time. The activities were evaluated using the criterion that each activity is done for at least 10 min at a time. The "MET-min/week" score is obtained by multiplying the MET value (metabolic equivalent) by day and minute for each activity level. Calculations included 8 METs for vigorous physical activity, 4 METs for moderate physical activity, and 3.3 METs for walking. For example, the walking MET- min/week score of a person who walks for 40 minutes 3 days a week is calculated as $3.3 \times 40 \times 3 = 396$ MET-min/week. The weekly duration (min) of each activity is multiplied by the MET values determined for IPAQ for the determination of the amount of energy spent for each physical activity. The classification included doing no physical activity (MET $\leq$ 600 energy level), insufficient activity level (MET=600–3000 energy level), and adequate activity level (MET $\geq$ 3000 energy level).[19] Hence, calculations included individuals' low, medium, and high activity levels.

The Barriers to Physical Activity Scale

The scale developed by Ibrahim et al[20] is responded on a 5-point Likert scale (1=I strongly disagree, 5=I strongly agree) to determine factors that are considered BPA, and it includes 24 items. All the items in the scale are positive statements, and higher scores indicate a higher probability of developing barriers. Scores to be obtained from the scale range between 22 and 110. Cronbach's alpha internal consistency was reported 0.85 for the original scale and between 0.68 and 0.74 for the sub-scales.[20] Reliability and validity of the scale were performed by Yurtçiçek et al[21] reported Cronbach's alpha internal consistency coefficients as 0.87 for the whole scale and between 0.53 and 0.85 for the sub-scales. This study found Cronbach's alpha values of the scale as 0.88 for the whole scale, 0.86 for the Personal sub-scale, 0.58 for the Social Environment sub-scale, and 0.74 for the Physical Environment sub-scale.

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Table 1. Distribution of the participants' descriptive characteristics (n:830)

Characteristics	n	%
Age		
18–19	251	30.2
20–29	400	48.2
30–39	99	12
40–71	80	9.6
BMI	**n**	**%**
Underweight	112	13.5
Normal weight	535	64.5
Pre-obesity	114	13.7
Obesity	69	8.3
Education Level	**n**	**%**
Primary School	93	11.2
High School	359	43.3
University and Postgraduate	378	45.5
Marital status	**n**	**%**
Married	592	71.3
Single	238	28.7
Working	**n**	**%**
Not working	391	47.1
Working	439	52.9
Social Security	**n**	**%**
Yes	459	55.3
No	371	44.7
Income Level	**n**	**%**
Income less than expenses	399	48.1
Income equal to expenses	384	46.2
Income more than expenses	47	5.7
Place of living	**n**	**%**
Center	631	76.0
Countryside	199	24.0
Doing Physical Activity	**n**	**%**
Yes	105	12.7
No	292	35.2
Not regularly	433	52.2
Smoking or not	**n**	**%**
Yes	118	14.2
No	712	85.8
Family Type	**n**	**%**
Nuclear family	564	68.0
Extended family	238	28.6
Fragmented family	28	3.4
How do you usually go from one place to another when you have things to do out of home?	**n**	**%**
Your own car	111	13.4
Walking	357	43.0
Public transportation	362	43.6
Doing regular housework weekly	**n**	**%**
Yes	615	74.1
No	215	25.9
International Physical Activity Questionnaire	**n**	**%**
Low	398	48.0
Medium	354	42.7
High	78	9.3

Data Collection

Data collection tools prepared in the online environment were administered to the participants by sending the form to them or their relatives via telephone with the help of the health personnel working in family health centers; the questionnaires were filled in by the participants. The question "Do you want to participate in the study?" was asked before the questions were answered, and data were collected from those who answered this question as "yes." Necessary measures were taken to enable that the questionnaire can be answered only once by the participants. Participation was limited to one e-mail address only. Responding to the questions in the questionnaire form takes 5 min.

Data Analysis

Data analyzed using IBM SPSS 20.0 version (Chicago,USA) statistical package program included descriptive statistics tests (numbers, percentages). Data were analyzed using arithmetic means, standard

Table 2. Distribution of the participants according to BPA scale (n:830)

Mean scores	X±SD	Min-Max
Personal	35.42±9.57	14–70
Social Environment	8.99±2.84	3–15
Physical Environment	15.75±4.46	5–25
Total	**60.17±14.04**	**22–110**

Table 3. International physical activity questionnaire levels of women by their descriptive characteristics (n:830)

Characteristics	Low n	(%)	Medium n	(%)	High n	(%)	
BMI							X^2=5.170 *P*=0.522
Under weight	47	42.0	53	47.3	12	10.7	
Normal weight	255	47.7	232	43.4	48	9.0	
Pre-obesity	63	55.3	39	34.2	12	10.5	
Obesity	33	47.8	30	43.5	6	8.7	
Education level							X^2=0.973 *P*=0.918
Primary school	44	47.3	42	45.2	7	7.5	
High school	172	47.9	150	41.8	37	10.3	
University and postgraduate	182	48.1	162	42.9	34	9.0	
Marital status							X^2=1.034 *P*=0.596
Married	119	50.0	100	42.0	19	8.0	
Single	279	47.1	254	42.9	59	10.0	
Working							X^2=0.351 *P*=0.839
Not working	188	48.1	164	41.9	39	10.0	
Working	210	47.8	190	43.3	39	8.9	
Social Security							X^2=4.499 *P*=0.105
Yes	205	44.7	209	45.5	45	9.8	
No	193	52.0	145	39.1	33	8.9	
Income Level							X^2=4.231 *P*=0.376
Income less than expenses	205	51.4	161	40.4	33	8.3	
Income equal to expenses	173	45.1	172	44.8	39	10.2	
Income more than expenses	20	42.6	21	44.7	6	12.8	
Place of living							X^2=2.966 *P*=0.227
Center	292	46.3	278	44.1	61	9.7	
Countryside	106	53.3	76	38.2	17	8.5	
Doing Physical Activity							X^2=68.266 ***P*<0.001**
Yes	26	24.8	53	50.5	26	24.8	
No	181	62.0	93	31.8	18	6.2	
Not regularly	191	44.1	208	48.0	34	7.9	
Smoking or not							X^2=11.707 ***P*=0.003**
Yes	54	45.8	43	36.4	21	17.8	
No	344	48.3	311	43.7	57	8.0	
Family Type							X^2=1.843 *P*=0.765
Nuclear family	264	46.8	246	43.6	54	9.6	
Extended family	118	49.6	99	41.6	21	8.8	
Fragmented family	16	57.1	9	32.1	3	10.7	
How do you usually go from one place to another when you have things to do out of home?							X^2=8.543 *P*=0.074
Your own car	57	51.4	37	33.3	17	15.3	
Walking	164	45.9	160	44.8	33	9.2	
Public transportation	177	48.9	157	43.4	28	7.7	
Doing regular housework weekly							X^2=10.175 ***P*=0.006**
Yes	275	44.7	277	45.0	63	10.2	
No	123	57.2	77	35.8	15	7.0	

*Line percentage was given.

deviation, skewness and kurtosis coefficients, t-test in independent groups, multiple regression analysis, one-way analysis of variance (ANOVA), Welch ANOVA when group variances were not homogenous, and Bonferroni and X^2 tests for *post hoc* analyses. Statistical significance was accepted $P < 0.05$. Whether the groups demonstrated normal distribution was analyzed. Skewness and kurtosis values were analyzed for the normality test.

Variables of the Study

Dependent Variables

The participants' IPAQ (Short) and the BPA Scale mean scores are the dependent variables of this study.

Independent Variables

Age, Body Mass Index (BMI), education level, marital status, working, social security, income level, place of living, doing physical activity, smoking or not, family type, and doing regular housework weekly are the independent variables of this study.

Body Mass Index

BMI was found by dividing the individual's body weight (kg) by the square of height (m) (BMI=kg/m^2). Participating women's BMI was calculated according to the classification determined by the WHO:[22] underweight (<18.5), normal weight (18.5–24.9), and pre-obesity (25.0–29.9), Obesity (30.0–34.9).

Ethical Considerations

Before the study was conducted, ethics committee approval was obtained from the Scientific Research Ethics Committee of the Ağrı İbrahim Çeçen University (Approval Number: E-95531838-050. 99-2408, Date: 11.01.2021). Participating women were given information about the purpose of the study online, and their verbal consent was obtained. Necessary permissions were obtained from the authors for the scales used in the study. Besides, the study was conducted in line with the principles of the Declaration of Helsinki.

Results

Table 1 demonstrates the distribution of women's socio-demographic characteristics. Of all the participants, 48.2% were aged 20–29, 64.5% had normal weight, 45.5% had an education level of university and above, 71.3% of women were married, 52.9% did not work, 48.1% had income less than expenses, and 76% lived in the city center. Besides, 52.2% did not do physical activity regularly, 85.8% did not smoke, 43.6% used public transportation when they had things to do out of home, and 74.1% did regular housework weekly.

Of all the participating women, 48% reported a low-level activity, 42.7% reported to have a medium-level activity, and 9.3% reported to have a high-level activity (Table 1).

Women's BPA Scale personal sub-scale mean score was 35.42 ± 9.57; social environment sub-scale mean score was 8.99 ± 2.84; physical environment sub-scale mean score was 15.75 ± 4.46; and the total mean score was 60.17 ± 14.04 (Table 2).

When the IPAQ and women's descriptive characteristics are compared in Table 3, no statistically significant difference was detected between BMI, education level, marital status, working or not, social security, income level, place of living, family type, and type of transportation used when they had things to do outside of the home ($P > 0.05$).

When the women's descriptive characteristics were compared with the IPAQ, the physical activity levels were found to be low in those who smoked and did not do regular housework weekly ($p<0.05$).

Table 4 demonstrates the distribution of participating women's BPA mean scores according to their descriptive characteristics. BPA Scale total mean scores were found to have no significant differences according to the place of living, type of transportation while doing things out of home, and doing regular housework weekly ($P > 0.05$). BPA scale mean scores were significantly higher in those who were obese, had primary school education level, were married, did not work, did not have social security, had income less than expenses, did not do physical activity, smoked, and had extended family ($P < 0.05$).

Multiple linear regression analysis results showed that the three independent variables (height, weight, BMI) did not have a significant effect on the physical activity-dependent variable (Table 5).

The determination of the changes in BPA by three dependent variables was found as Adjusted R^2=0.073. Analysis results showed that 7.3% of the variance in the significant regression model F(3,826)= 22.556, $P < 0.001$ and dependent variable (BPA) was explained by the independent variables (height, weight, BMI). Hence, independent variables predict dependent variables significantly and positively. Weight, height, and BMI are significant and major variables for the changes in BPA (Table 6).

Discussion

Increasing an active lifestyle is one of the important recommendations for national and international community health. The American Academy of Nutrition and Dietetics and the College of Sports Medicine highlighted that adult people should do a minimum of 30-min of moderate level vigorous activity each day or most days of the week.[23]

The results of this study indicate that the women have low physical activity levels. Similar studies in the literature also reported scores close to the ones in this study.[2,24] Women's BPA Scale total mean score was found 60.17 ± 14.04, indicating a high level of BPA. When women's descriptive characteristics were compared according to the IPAQ, physical activity levels were found to be low in those who did not do physical activities, smoked, and did not do regular housework weekly ($P < 0.05$). An analysis of the studies in the literature indicates that those who did not do physical activities,[2,23,25,26] smoked,[23,27,28] and did not do regular housework weekly[29] were inactive and their physical activity levels were low.

BPA Scale total mean scores were found to be significantly higher in those who were obese, had a primary school education level, were married, did not have social security, had income less than expenses, did not do physical activities, smoked, and had extended family structure ($P < 0.05$). Similar studies in the literature indicated that BPA mean scores were high in obese women who showed laziness as the main reason,[30,31] in married and nonworking women who indicated spending a lot of time on housework activities (washing the dishes, cooking, cleaning the house, and taking care of children) as the main barrier to physical activity,[33-35] and in women had a low education level,[32] smoked,[27,28] did not do physical activities,[36] and had no social security and income less than expenses[35,37] Findings of this study and the literature show that women indicate lack of time and low socioeconomic levels as BPA. Women should be encouraged to become active by providing them with accessible and safe environments suitable for physical activity involvement.

Table 4. Distribution of the participants' BPA scale mean scores according to their descriptive characteristics (n:830)

		Barriers to physical activity scale		
	Personal	Social environment	Physical environment	Total
Characteristics	X±SD	X±SD	X±SD	X±SD
BMI				
Underweight	33.50±9.89	8.53±3.01	15.18±4.61	57.16±14.99
Normal weight	34.55±8.69	8.98±2.70	15.71±4.30	59.18±12.92
Pre-obesity	37.06±9,42	9.42±3.22	15.71±4.64	62.21±14.34
Obesity	42.53±12.01	9.02±2.86	16.75±4.87	68.31±16.56
	F(Welch)*=12.026 **P<0.001**	F(Welch)*=1.555 P=0.202	F=1.636 P=0.180	F=8.397 **P<0.001**
Education Level				
Primary School	40.70±11.05	9.46±2.88	16.09±4.78	66.26±16.21
High School	35.41±9.70	8.80±2.74	16.01±4.41	60.24±14.01
University and	34.12±8.59	9.05±2.91	15.42±4.42	58.60±13.07
Postgraduate	F(Welch)*=14.549	F=2.116	F=1.904	F(Welch)*=9.113
	P<0.001	P=0.121	P=0.150	**P<0.001**
Marital status				
Married	34.41±9.25	8.81±2.82	15.64±4.74	59.01±13.62
Single	37.93±9.92	9.43±2.84	15.79±4.35	63.04±14.65
	t=4.853	t=2.877	t=0.333	t=3.771
	P<0.001	**P=0.004**	P=0.739	**P<0.001**
Working				
Not working	36.52±9.71	9.24±2.88	15.39±4.52	61.16±14.21
Working	34.43±9.36	8.76±2.78	16.07±4.38	59.28±13.83
	t=3.154	t=2.389	t=2.206	t=1.925
	p=0.002	**p=0.017**	**p=0.028**	**p=0.055**
Social Security				
Yes	34.79±9.56	8.93±2.84	15.22±4.51	58.94±14.04
No	36.19±9.55	9.06±2.83	16.42±4.32	61.68±13.90
	t=2.100	t=0.667	t=3.877	t=2.799
	p=0.036	p=0.505	**p<0.001**	**p=0.005**
Income Level				
Income less than expenses	36.37±9.47	9.34±2.90	16.96±4.45	62.69±13.89
Income equal to expenses	34.85±9.66	8.74±2.73	14.86±4.15	58.46±13.73
Income more than expenses	31.93±8.73	7.97±2.80	12.74±3.88	52.65±13.19
	F=5.843	F=7.710	F=35.706	F=16.595
	P=0.003	**P<0.001**	**P<0.001**	**P<0.001**
Place of living				
Center	35.43±9.61	8.95±2.87	15.33±4.46	59.72±14.20
	35.37±9.49	9.12±2.73	17.08±4.19	61.58±13.45
Countryside	t=0.076	t=0.735	t=4.877	t=1.629
	P=0.940	P=0.463	**P<0.001**	P=0.104

(*Continued*)

Table 4. Distribution of the participants' BPA scale mean scores according to their descriptive characteristics (n:830) (*Continued*)

		Barriers to physical activity scale		
	Personal	Social environment	Physical environment	Total
Characteristics	X±SD	X±SD	X±SD	X±SD
Doing Physical Activity				
Yes	27.27±7.78	7.01±2.62	12.65±4.02	46.95±12.03
No	39.07±8.93	10.01±2.75	17.25±4.14	66.34±12.29
Not regularly	34.93±9.07	8.77±2.64	15.50±4.34	59.21±13.13
	F=69.66	F=51.090	F=47.151	F=92.529
	***P*<0.001**	***P*<0.001**	***P*<0.001**	***P*<0.001**
Smoking or not				
Yes	36.80±11.55	9.41±3.09	16.27±4.74	62.49±16.51
No	35.19±9.20	8.92±2.79	15.67±4.41	59.78±13.56
	t=1.696	t=1.752	t=1.349	t=1.942
	P=0.090	*P*=0.080	*P*=0.178	***P*=0.053**
Family Type				
Nuclear family	34.80±9.42	9.02±2.86	15.65±4.53	59.48±14.10
Extended family	36.96±9.79	8.90±2.78	16.00±4.28	61.87±13.76
Fragmented family	t=2.951	t=0.540	t=1.025	t=2.226
	***P*=0.003**	*P*=0.589	*P*=0.306	***P*=0.026**
How do you usually go from one place to another when you have things to do out of home?				
Your own car	35.09±10.13	8.84±3.05	14.72±4.84	58.66±15.89
Walking	35.64±9.11	8.93±2.67	15.63±4.13	60.21±12.74
Public transportation	35.30±9.86	9.09±2.93	16.19±4.60	60.59±14.64
	F=0.194	F=0.194	F(Welch)*=4.322	F(Welch)*=0.646
	P=0.824	*P*=0.824	***P*=0.014**	*P*=0.525
Doing regular houseworkweekly				
Yes	35.25±9.52	8.92±2.87	15.89±4.57	60.07±14.11
No	35.91±9.72	9.17±2.72	15.35±4.13	60.44±13.85
	`t=0.871	t=1.111	t=1.544	t=0.328
	P=0.384	*P*=0.267	*P*=0.123	p=0.743

*Welch ANOVA test values were utilized when group variances were not homogenous.

When the participants' BPA scale total mean scores were compared according to their descriptive characteristics, it was found that BPA total scores were significantly higher in those who had extended family. Although the literature includes no studies concerning extended families, the study conducted by Rimal showed that the family structure affected the level of physical activity and BPA.[38] This finding can be explained by the fact that women in extended families have more

Table 5. Effect of independent variables on physical activity (n:830)

	β	SE	Beta	t	*P*-value
Constant	−508.235	2024.128		−0.251	0.802
Weight	−6.180	7.881	−0.047	−0.784	0.433
Height	11.703	12.619	0.055	0.927	0.354
BMI	7.188	15.362	0.033	0.468	0.640

R: 0.040 Adjusted R^2=−0.002 F=0.446 *P*>0.05.

Table 6. Effect of independent variables on barriers to physical activity (n:830)

	β	SE	Beta	t	*P*-value
Constant	141.528	15.892		8.906	*P*<0.001
Weight	0.419	0.062	0.390	6.777	*P*<0.001
Height	0.590	0.099	0.342	5.954	*P*<0.001
BMI	0.452	0.121	0.252	3.750	*P*<0.001

R:0.2756 Adjusted R^2=0.073 F=22.740 *P*<0.001.

responsibilities within the family than women in nuclear families, so they may not have enough time for physical activity. In line with this result, creating an exercise plan by taking into account the health status of women and using the periods in which they can participate in the planning are considered to be important.

When the participants' physical activity levels and BPA scale mean scores were compared, it was found that low physical activity levels increased all sub- sub-scales of BPA. The literature reports that cultural characteristics, personal characteristics, and social and physical environment affected physical activity and BPA. The findings of this study are in line with the literature.[35,39]

Limitation of the Study

The limitation of the study is that the data were collected online due to the pandemic, which indicated that the height and weight of the women in our study were based on their own statements. This factor may have caused differences in women's categorization according to their BMI (underweight, normal weight, pre-obesity, obesity). Hence, it might also have affected the findings showing physical activity levels according to the BMI categories.

Conclusion

This study showed that women had low physical activity scores and high BPA scores. While the physical activity level was negatively affected by factors such as not doing physical activity, smoking, not doing regular housework weekly; BPA was affected by factors such as being obese, having a primary school education level, being married, having no social security, having income less than expenses, not doing physical activities, smoking, and having an extended family structure. Inadequate physical activity brings along problems such as obesity and related health problems. Therefore, both the physiological and psycho-social benefits of physical activity should be emphasized.

Community health nurses should determine factors affecting the physical activity level and BPA and have interventions to encourage women to have an active lifestyle. Similarly, education and consultancy services to form healthy lifestyle behaviors should be planned, and women's active life should be enhanced by providing them with accessible, safe environments appropriate to their involvement in physical activity.

Women especially in low socio-economic groups should be provided with spaces and activities that help them to be physically active. Besides, public health nurses should be able to closely follow the newly developed programs and technologies for physical activity and utilize them in their consultancy and training role in terms of physical activity.

Besides, although the literature includes studies that investigated physical activity levels, no studies were found to have investigated BPA. Studies on the physical activity levels are recommended to be conducted in larger groups and include BPA.

Ethics Committee Approval: Before the study was conducted, ethics committee approval was obtained from the Scientific Research Ethics Committee of the Ağrı İbrahim Çeçen University (Approval Number: E-95531838-050.99-2408, Date: 11.01.2021).

Informed Consent: Participating women were given information about the purpose of the study online, and their verbal consent was obtained.

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References

1. Dunstan DW, Howard B, Healy GN, Owen N. Too much sitting--a health hazard. *Diabetes Res Clin Pract*. 2012;*97*(3):368-376. [CrossRef]
2. Kitiş Y, Gümüş Y. Identifying physical activity levels of women, their conviction about exercise and behavioral stages. *Gümüşhane Univ J Health Sci*. 2015;*4*(3):399-411.
3. Cotie LM, Prince SA, Elliott CG, et al. The effectiveness of ehealth interventions on physical activity and measures of obesity among working-age women: a systematic review and meta-analysis. *Obes Rev*. 2018;*19*(10):1340-1358. [CrossRef]
4. Makambi KH, Adams-Campbell LL. Mediation effect of physical activity on obesity in black women. *J Natl Med Assoc*. 2018;*110*(5):512-518. [CrossRef]
5. Daly RM, Dalla Via J, Duckham RL, Fraser SF, Helge EW. Exercise for the prevention of osteoporosis in postmenopausal women: an evidence-based guide to the optimal prescription. *Braz J Phys Ther*. 2019;*23*(2):170-180. [CrossRef]
6. Castillo SS, Smith L, Suárez AD, Sánchez GFL. Association between physical activity and comorbidities in Spanish people with asthma-COPD overlap. *Sustainability*. 2021;*13*(14):7580.[CrossRef]
7. Sigal RJ, Armstrong MJ, Bacon SL, et al. Physical activity and diabetes. *Can J Diabetes*. 2018;*42*(suppl 1):54-63.[CrossRef]
8. Farris SG, Thomas JG, Abrantes AM, et al. Anxiety sensitivity and intentional avoidance of physical activity in women with probable migraine. *Cephalalgia*. 2019;*39*(11):1465-1469. [CrossRef]
9. Nawrocka A, Polechoński J, Garbaciak W, Mynarski W. Functional fitness and quality of life among women over 60 years of age depending on their level of objectively measured physical activity. *Int J Environ Res Public Health*. 2019;*16*(6):972. [CrossRef]
10. T.C. Sağlık Bakanlığı Türkiye Halk Sağlığı Kurumu. *Türkiye Kronik Hastalıklar ve Risk Faktörleri Sıklığı Çalışması*. Ankara: Anıl Matbaa; 2013.
11. Dinkel DM, Hein N, Snyder K, et al. The impact of body mass index and sociodemographic factors on moderate-to-vigorous physical activity and sedentary behaviors of women with young children: a cross-sectional examination. *Womens Health (Lond)*. 2020;*16*:1745506519897826. [CrossRef]
12. Buchholz SW, Wilbur J, Halloway S, et al. Study protocol for a sequential multiple assignment randomized trial (SMART) to improve physical activity in employed women. *Contemp Clin Trials*. 2020;*89*:105921. [CrossRef]
13. Larsen B, Micucci S, Hartman SJ, Ramos G. Feasibility and acceptability of a counseling- and mhealth-based physical activity intervention for pregnant women with diabetes: the fit for two pilot study. *JMIR mHealth uHealth*. 2020;*8*(10):e18915. [CrossRef]
14. Rowland SA, Cohen MZ, Pullen CH, et al. Vicarious experience to affect physical activity in women: A randomized control trial. *West J Nurs Res*. 2020;*42*(4):286-292. [CrossRef]
15. Alanoglu S, Isık O, Ayhan C. The effect of regular recreational activities on adult women's stress, happiness, and life satisfaction levels. *Prog Nutrıtıon*. 2020;*22*:1-9.
16. Yılmaz A, Ulaş M. Kadınların rekreatif alanlarda fiziksel aktivite yapma amaçları ve karşılaştıkları sorunlar. *Spor Bilimleri Derg*. 2016;*27*(3):101-117.
17. Canlı S, Karataş N. Yaşlılar için bir halk sağlığı hemşireliği yaklaşımı:''fiziksel aktivite danışmanlığı''. *Ank Sağlık Hizmetleri Derg*. 2018;*17*(2):36-45.

18. Biyoistatistik TS, Güler Ç, Akın L, ed. *Halk Sağlığı Temel Bilgiler 1 Içinde*. 3. Baskı (Tıpkı Basım). Ankara: Hacettepe Üniversitesi Yayınları; 2015: 158-199.
19. Saglam M, Arikan H, Savci S, et al. Internatıonal physıcal actıvıty questıonnaıre: relıabılıty and valıdity of the turkısh versıon. *Percept Mot Skills*. 2010;*111*(1):278-284. [CrossRef]
20. Ibrahim S, Karim NA, Oon NL, Ngah WZW. Perceived physical activity barriers related to body weight status and sociodemographic factors among Malaysian men in Klang Valley. *BMC Public Health*. 2013;*13*(1):275. [CrossRef]
21. Yurtçiçek S, Şahin NH, Miral M. Fiziksel Aktivite Engelleri Ölçeği'nin Türkçe formunun geçerlik ve güvenirlik çalışması. *The J Acad Soc Sci*. 2018;*6*(71):396-404.[CrossRef]
22. Halk sağlığı genel müdürlüğü. https://hsgm.saglik.gov.tr/tr/obezite/obezite-nasil- saptanir.html; Erişim Tarihi: 12.01.2022.
23. Kızar O, Kargün M, Togo OT, Biner M, Pala A. Üniversite öğrencilerinin fiziksel aktivite düzeylerinin incelenmesi. *Marmara Univ Spor Bilimleri Derg*. 2016;*1*(1):61-72.[CrossRef]
24. Erdoğan Yüce GE, Muz G. COVID-19 pandemisinin yetişkinlerin diyet davranışları, fiziksel aktivite ve stres düzeyleri üzerine etkisi. *Cukurova Med J*. 2021;*46*(1):283-291. [CrossRef]
25. Awadalla NJ, Aboelyazed AE, Hassanein MA, et al. Assessment of physical inactivity and perceived barriers to physical activity among health college students, South-Western Saudi Arabia. *East Mediterr Health J*. 2014;*20*(10):596-604. [CrossRef]
26. Al-Hazzaa HM. Physical inactivity in Saudi Arabia revisited: A systematic review of inactivity prevalence and perceived barriers to active living. *Int J Health Sci (Qassim)*. 2018;*12*(6):50-64.[CrossRef]
27. Masood S, Cappelli C, Li Y, et al. Cigarette smoking is associated with unhealthy patterns of food consumption, physical activity, sleep impairment, and alcohol drinking in Chinese male adults. *Int J Public Health*. 2015;*60*(8):891-899. [CrossRef]
28. Chen LJ, Steptoe A, Chen YH, Ku PW, Lin CH. Physical activity, smoking, and the incidence of clinically diagnosed insomnia. *Sleep Med*. 2017;*30*:189-194. [CrossRef]
29. Sağınç S 2019. Ev Hanımlarının fiziksel aktivite ve oturma Sürelerinin İncelenmesi. *Sağlık Bilimleri Enstitüsü, Yüksek Lisans Tezi, Ankara*. Hacettepe Üniversitesi.
30. Lee YY, Kamarudin KS, Muda WAMW. Associations between self-reported and objectively measured physical activity and overweight/obesity among adults in Kota Bharu and Penang, Malaysia. *BMC Public Health*. 2019;*19*(1):1.[CrossRef]
31. Althoff T, Sosič R, Hicks JL, King AC, Delp SL, Leskovec J. Large-scale physical activity data reveal worldwide activity inequality. *Nature*. 2017;*547*(7663):336-339. [CrossRef]
32. Bethancourt HJ, Rosenberg DE, Beatty T, Arterburn DE. Barriers to and facilitators of physical activity program use among older adults. *Clin Med Res*. 2014;*12*(1-2):10-20. [CrossRef]
33. Dassanayake J, Dharmage SC, Gurrin L, Sundararajan V, Payne WR. Are Australian immigrants at a risk of being physically in active. *Int J Behav Nutr Phys Act*. 2011;*8*:53. [CrossRef]
34. Bauman AE, Reis RS, Sallis JF, et al. Correlates of physical activity: why are some people physically active and others not? *Lancet*. 2012;*380*(9838):258-271. [CrossRef]
35. Karunanayake AL, Senaratne CD, Stathi A. A descriptive cross sectional study comparing barriers and determinants of physical activity of Sri Lankan middle aged and older adults. *PLoS One*. 2020;*15*(5):e0232956. [CrossRef]
36. Boutevillain L, Dupeyron A, Rouch C, Richard E, Coudeyre E. Facilitators and barriers to physical activity in people with chronic low back pain: A qualitative study. *PLoS One*. 2017;*12*(7):e0179826. [CrossRef]
37. O'Donoghue G, Kennedy A, Puggina A, et al. Socio-economic determinants of physical activity across the life course: A "DEterminants of DIet and Physical ACtivity" (DEDIPAC) umbrella literature review. *PLoS One*. 2018;*13*(1):e0190737. [CrossRef]
38. Rimal A. Association of nutrition concerns and socioeconomic status with exercise habits. *Int J Cons Stud*. 2002;*26*(4):322-327. [CrossRef]
39. Kasırga Z, Odabaşıoğlu ME, Dedeoğlu T. Üniversite öğrencilerinde fiziksel aktivite düzeyi ve egzersiz yarar/engel algılarının incelenmesi. *Sosyal Araştırmalar Yönetim Derg (SAYOD)*. 2021;*1*:83-95.[CrossRef]