

The Relationship between Enjoyment of Physical Activity and Perceived Barriers to Participating in Physical Activity

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Abstract This study aims to reveal the relationship between individuals' enjoyment of physical activity after the pandemic and the barriers they perceive in participating in physical activity. The sample of this study, which was carried out with the relational screening model, was selected by a simple random sampling method, one of the probability sampling methods. The data were collected using the "Physical Activity Enjoyment Scale (PACES)" and "Self-Perceived Barriers for Physical Activity Scale (SPBPA)" scales, and 444 people over the age of eighteen who voluntarily filled out the data collection tool constitute the sample of the study. Since the data did not show a normal distribution, non-parametric tests were used to analyze data analysis. Research results show a moderate negative relationship between individuals' enjoyment of physical activity and the obstacles they perceive in participating in physical activity. After analyzing the variables, the Physical Activity Enjoyment Scale (PACES) test scores of males were significantly higher than those of females. It can be seen that the Self-Perceived Barriers for Physical Activity Scale (SPBPA) test scores of female individuals are significantly higher than the test scores of male individuals. In addition, the analysis found a significant difference between individuals' enjoyment of physical activity and the barriers they perceived in participating in physical activity, depending on their educational status and age. It has been determined that

primary school graduates enjoy physical activity more than university students/graduates. Self-perceived barriers to Physical Activity Scale (SPBPA) were higher in university students/graduates than in high school students/graduates. It was concluded that women's perceived barriers to participation in physical activity were significantly higher than men's in the fatigue/laziness sub-dimension of the Self-Perceived Barriers for Physical Activity Scale (SPBPA). Notably, there is no significant difference in the responsibilities/time limitation sub-dimension of the Self-Perceived Barriers for Physical Activity Scale (SPBPA) according to the gender, educational status and age of the sample group.

Keywords Physical Activity, Enjoyment, Barriers

1. Introduction

Physical activity is a general definition of movements that require energy expenditure that individuals perform using their bodies [1]. The use of skeletal muscles and the energy expenditure in this process allows us to frame physical activity as a mechanical action [2]. This scope includes both intentional (e.g., exercise) and non-intentional (e.g., activities of daily living) movements [3].

This definition emphasizes that any movement an individual exhibits can be called physical activity, causing calorie loss.

It is generally known that physical activity has health benefits for all individuals, regardless of age, gender, ethnicity, or sports background [4]. Regular physical activity has various positive effects, from regulating blood pressure to preventing chronic diseases, from mental development to increasing motivation [1, 5-12].

Physical activity positively affects physical, mental, and emotional health [13]. In this context, it is accepted that physical activity is a fundamental approach to protecting and improving the individual's general health [14]. However, several barriers affect individuals' participation in physical activity. These obstacles include burnout, time constraints, lack of motivation, financial difficulties, dislike of the activity, and lack of family support [15-21]. However, it is stated that solid evidence on these barriers is lacking, and more research is needed [22].

Individuals do not perceive any obstacles to participating in physical activity, and the predominance of factors that increase motivation encourages them to continue physical activity. At this point, it is essential to determine the factors that encourage, initiate and sustain individuals' participation in physical activity. Ensuring the continuity of physical activity depends on the individual's enjoyment of the activity he participates in. It is known that enjoying physical activity ensures the continuity of the activity and, therefore, increases participation in physical activity [23,24]. In this context, it has been observed that enjoying physical activity increases the motivation of individuals, resulting in greater participation in the activity [25].

In addition to contributing to individuals living a healthy life, regular physical activity can also aid weight loss efforts [26]. In particular, it is known that the increasing lack of physical activity since the 1980s has increased obesity rates, and this has become a significant health problem in many countries [27]. It is known that insufficient physical activity levels increase healthcare costs and cardiovascular risks [28-31].

At this point, the effects of the COVID-19 pandemic on our lives worldwide have led to changes in many areas. The pandemic has also caused fluctuations in individuals' physical activity levels. In this context, Brattlöf et al. [32] examine social inequalities and changes in participation in physical activity in Sweden before and during the pandemic period, revealing the effects of social dynamics on physical activity. Pang et al. [33] examine physical activity levels' psychological and behavioural effects on children and young people during the pandemic and contribute to understanding the challenges specific in this period. Ray et al. [34] address the effects of lifestyle changes during the pandemic on obesity and dysglycemia, which helps us understand the changes in individuals' health habits.

Knowing that enjoyment is one of the factors that increase participation in physical activity leads to the

necessity of examining the relationship between perceived barriers to participation in physical activity and enjoyment of physical activity, which is the research problem. When the literature is examined, it is seen that there are few studies examining the relationship between these two concepts. This issue has been studied under perceived barriers to physical activity participation and motivating factors in Turkey. In these studies, the motivating factors were also examined, and thus, the concept of enjoyment came to the forefront. However, the relationship between barriers and enjoyment has yet to be examined.

This research aims to understand the factors affecting individuals' participation in physical activity and, in particular, to examine the relationship between perceived barriers to participation and their enjoyment of physical activity. Considering the wide-ranging effects of physical activity on health and changes during periods of extraordinary situations such as pandemics, understanding individuals' behaviour in this area is critical.

2. Materials and Methods

2.1. Research Model

The relational screening model, one of the quantitative research methods, was used in the research. The model aims to determine the existence and the degree of change between two or more variables [35,36]. This study examines the relationship between individuals' enjoyment of physical activity and their perceptions of the obstacles to physical activity. In survey research, the researcher only influences the process by applying the data collection tools necessary to collect the data. [37]. During this research process, no changes or improvements were made to the data collection tools, and examinations were made to determine the current situation.

2.2. Sample of the Research

The research sample was selected using the simple random sampling method, one of the probability sampling methods. In simple random sampling, each unit forming the population can be included in the sample; this probability is known, and all units have an equal and independent chance [37,38]. A 95% confidence interval and a 5% margin of error were considered when calculating the sample size to represent the population. As a result of the calculations, 444 people over eighteen who voluntarily filled out the data collection tool constitute the research sample.

444 people in the sample;

- Two hundred seventy-seven of them are female, and 167 are men.
- Twenty-two of them stated their education level as primary school, 99 as high school, 293 as university and 30 as postgraduate.

- While 266 are between the ages of 15 and 24, 178 are between the ages of 25 and 60.

2.3. Data Collection Tools

Two scales and a descriptive personal information form were used to collect data. The scales used are the Physical Activity Enjoyment Scale (PACES) and the Self-Perceived Barriers for Physical Activity Scale (SPBPA), which were obtained from the researchers for the study. Ethical principles were carried out at all stages of the research, and the ethics committee's permission for the research was received with the decision of Istanbul Aydın University Social and Human Sciences Ethics Commission dated 21.09.2023 and numbered 2023/08.

2.4. Physical Activity Enjoyment Scale (PACES)

The Physical Activity Enjoyment Scale (PACES), adapted to Turkish by Özkurt et al. [39], consists of 8 items and a single dimension with a seven-point Likert-type rating. Exploratory factor analysis (EFA) revealed the scale's factor structure. Confirmatory factor analysis (CFA) was performed to verify the accuracy of the factor structure obtained due to EFA. The scale's reliability was examined by calculating the Cronbach alpha internal consistency coefficient and composite reliability value. According to the findings, it was stated that the Turkish scale, consisting of 8 items and one dimension, explained 76% of the total variance, and the fit indices obtained as a result of CFA were among the acceptable and good fit (GFI= .98, CFI= .99, TLI= .99 and RMSEA= .042) indices.

2.5. Self-Perceived Barriers for Physical Activity Scale (SPBPA)

The Self-Perceived Barriers for Physical Activity Scale (SPBPA), adapted to Turkish by Kolbaşı et al. [40], consists of 17 items and four subscales with a ten-point Likert-type rating. A high score on the scale indicates that the perceived obstacles are high. Each subscale score is calculated by adding the score of each item in the subscale and dividing the total score by the number of items. Validity and reliability analyses of the scale were conducted, and it was stated that it had internal solid consistency ($\alpha=0.83$; ICC=0.88) and test-retest reliability (ICC2.1=0.90). In addition, the SEM value of the scale was 1.083, and the MDC was 3.00. It was stated that the scale was semantically and linguistically appropriate.

2.6. Data Collection and Analysis

In this study, data was collected via Google Forms. Necessary explanations about the study were made in the introduction part of the form, and it was stated that the form should be filled out by giving participant approval. The research data was collected between 25.09.2023 and 05.11.2023, and before analyzing the data, it was checked whether there was any missing or incorrect data. It was determined that there was no missing or erroneous data, and it was checked using different methods to determine the analysis method whether the data met the assumption of normality. Firstly, Shapiro-Wilk tests were performed for normality assumption analysis, and it was concluded that the data were not normally distributed ($p<0.001$). Kim [41] states that histogram graphs should be interpreted for normality assumptions when the sample size exceeds 300. Since the sample size of this study was 444, histogram graphs were also examined, and the finding that the data was not normally distributed was confirmed.

Since the data did not meet normality assumptions, non-parametric tests were used to analyze the data. The Spearman correlation coefficient was calculated to explain the relationship between two variables [38]. In addition, non-parametric tests were used to analyze the data obtained from the scales according to the data obtained from the descriptive personal information form.

3. Results

Regarding the primary sub-problem under investigation, the Spearman correlation test and scatter diagram were applied to ascertain a relationship between individuals' perceived barriers to physical activity participation and their levels of enjoyment. Insights from this analysis are documented in Figure 1 and Table 1. According to the results of the Spearman correlation test, which was conducted to determine the relationship between individuals' enjoyment of physical activity and the obstacles they perceive in participating in physical activity, it was concluded that there was a moderate negative relationship between the two variables ($r = .427$, $p < .00$). In this regard, we can say that as the obstacles individuals perceive in participating in physical activity increase, the level of enjoyment of physical activity partially decreases. Likewise, as their enjoyment of physical activity increases, the obstacles they perceive in participating in physical activity decrease.

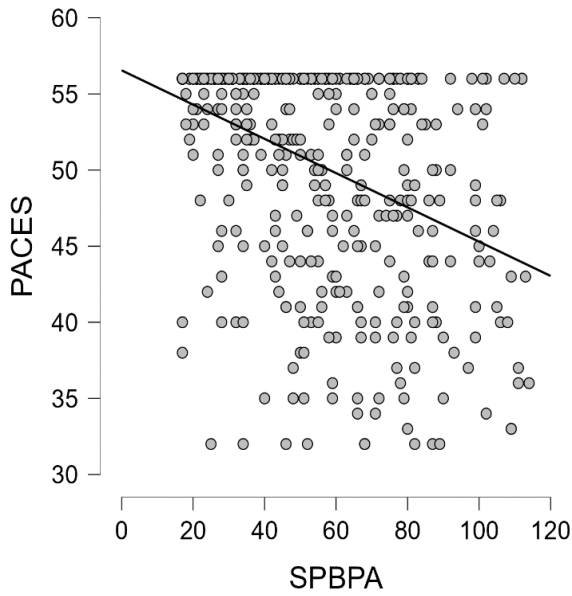
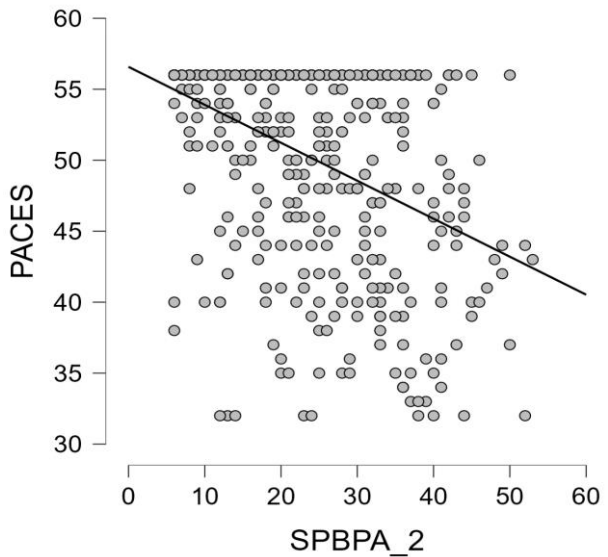
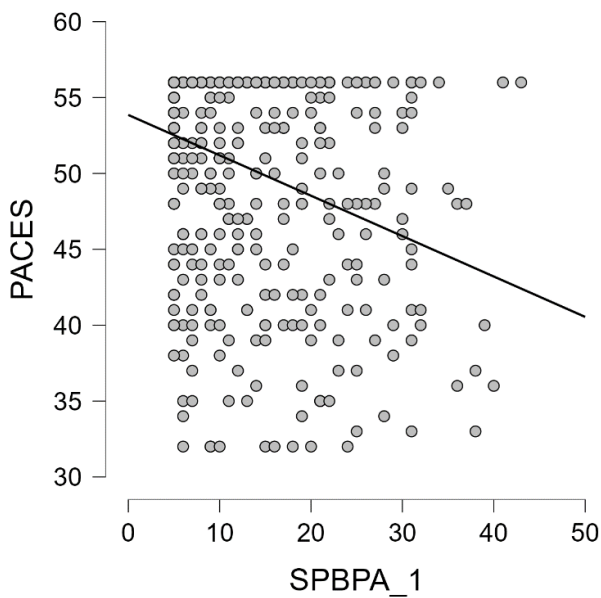


Figure 1. Simple Scatter of PACES by SPBPA

Table 1. Spearman correlation test result to determine the relationship between individuals' PACES and SPBPA

Tests	N	r	p
PACES	444	-.427	.000
SPBPA			

Spearman correlation test and scatter diagram were used to determine the relationship between SPBPA subscales and PACES levels (Figure 2, Table 2). According to the Spearman correlation test results (Table 2), it was observed that there was a moderate, negative linear relationship between the SPBPA Body Image & Physical-Social Anxiety and Fatigue & Laziness sub-dimensions and PACES (Subdimension1r=-.392 and Subdimension2r=-.442, p=.000). A low level, a negative linear relationship was found between the SPBPA Responsibilities / Obligations & Lack of Time-Environment & Facilities sub-dimensions and PACES (Sub-dimension 3r=-.286 and Sub-dimension 4r=-.271, p=.000).



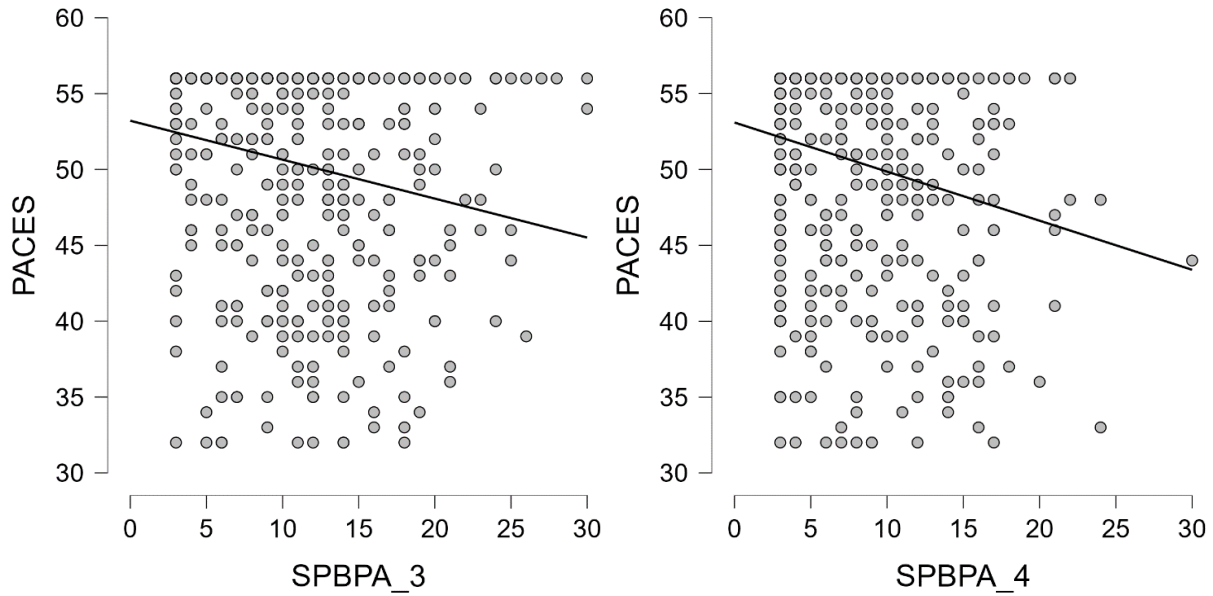


Figure 2. Scatterplot Matrix PACES, SPBPA_1, SPBPA_2, SPBPA_3, SPBPA_4

Table 2. Spearman correlation test result to determine the relationship between PACES and SPBPA subscales

Variables	N	r	p
PACES	444		
SPBPA-1 Body Image & Physical-Social Anxiety dimension	444	-.392	.000
PACES	444		
SPBPA-2 Fatigue & Laziness Sub-dimension	444	-.442	.000
PACES	444		
SPBPA-3 Obligations & Lack of Time Sub-dimension	444	-.286	.000
PACES	444		
SPBPA-4 Environment & Facilities Sub-Dimension	444	-.271	.000

In line with other sub-problems of the research, findings regarding whether there is a relationship between individuals' PACES and SPBPA are presented according to gender, educational status, and age variables. The Mann-Whitney U test was used to check whether there was a significant difference between PACES and SPBPA according to the first variable, the gender of the individuals (Table 3).

Table 3. Mann-Whitney U test result for comparing the test scores of male and female individuals according to the gender variable

Tests	Gender	N	Md.	\bar{x}	U	p
PACES	Female	277	53	209.03	19397.5	.003
	Men	167	56	244.85		
SPBPA	Female	277	54	233.08	26060.5	.025
	Men	167	45	204.95		

According to the Mann-Whitney U test results (Table 3), it was concluded that male individuals' PACES scores were significantly higher than female individuals' test scores

($U=19.368$, $p<.05$). It is seen that the SPBPA scores of female individuals are significantly higher than the test scores of male individuals ($U=26.061$, $p<.05$). When the SPBPA sub-dimensions were examined (Table 4), it was concluded that the SPBPA test scores of female in the Fatigue & Laziness (Sub-Dimension 2) sub-dimension were significantly higher than the test scores of men ($p<.05$). However, no statistically significant difference was observed between male and female in the Body Image & Physical-Social Anxiety (Sub-Dimension 1), Obligations & Lack of Time (Sub-Dimension 3) and Environment & Facilities (Sub-Dimension 4) sub-dimensions of the scale ($p>.05$).

The Kruskal Wallis test was used to check whether there was a significant difference between PACES and SPBPA according to the second variable, the educational status of the individuals.

According to the results of the Kruskal Wallis test (Table 5), there is a significant difference between PACES according to the educational status of individuals ($H(3) = 12.571$, $p = .006$). The scores of Elementary graduates and

Postgraduate students (Avg.=56) are significantly higher ($p<0.05$) than the scores of university students/graduates (Avg.=53). It is observed that there is a significant difference between the barriers individuals perceive towards physical activity according to their educational status ($H(3) = 21.042, p = .00$). This difference shows that the scores of university students/graduates (Avg.=55) are

significantly higher than the scores of individuals at other levels ($p<0.05$). It was concluded that there is a significant difference between another variable, the educational status of individuals and the perceived barriers to participation in physical activity. It was examined whether this difference also existed in the sub-dimensions of the scale (Table 6).

Table 4. Mann-Whitney U test result for comparison of SPBPA subscales according to gender variable

Tests	Gender	N	Md.	\bar{x}	U	p
1. Body Image & Physical-Social Anxiety	Female	277	10	228.16	24698	.224
	Men	167	9	213.11		
2. Fatigue & Laziness	Female	277	24	241.40	28363.5	.000
	Men	167	18	191.16		
3. Obligations & Lack of Time	Female	277	10	229.38	25036.5	.144
	Men	167	10	211.08		
4. Environment & Facilities	Female	277	7	218.02	21887.5	.335
	Men	167	7	229.94		

Table 5. Kruskal Wallis test result for comparison of SPBPA and PACES scores of individuals participating in the study

Tests	Educational Status	N	Md.	H	p
PACES	Elementary	22	56	21.042	.006
	High school	99	55		
	University	293	53		
	Postgraduate	30	56		
SPBPA	Elementary	22	31	21.042	.000
	High school	99	37		
	University	293	55		
	Postgraduate	30	41.5		

Table 6. Kruskal Wallis test result for the comparison of individuals' SPBPA subscales according to the educational status variable

Tests	Educational Status	N	Md.	H	p
1. Body Image & Physical-Social Anxiety	Elementary	22	5	13.364	.003
	High school	99	7		
	University	293	10		
	Postgraduate	30	7		
2. Fatigue & Laziness	Elementary	22	17	23.918	.000
	High school	99	17		
	University	293	24		
	Postgraduate	30	17		
3. Obligations & Lack of Time	Elementary	22	7	6.259	.100
	High school	99	9		
	University	293	10		
	Postgraduate	30	9		
4. Environment & Facilities	Elementary	22	3	19.786	.000
	High school	99	5		
	University	293	7		
	Postgraduate	30	5		

When Table 6 is examined, there is a significant difference between the educational status of individuals in the SPBPA Body Image & Physical-Social Anxiety (Sub-Dimension 1), Fatigue & Laziness (Sub-Dimension 2) and Environment & Facilities (Sub-Dimension 4) sub-dimensions ($p < 0.05$). However, no statistically significant difference was observed in the third sub-dimension of the scale, the Obligations & Lack of Time sub-dimension ($p > 0.05$). It is seen that the scores of university students/graduates in all sub-dimensions of the scale are higher than the scores of individuals at other levels ($p < 0.05$). The Mann-Whitney U test was used to examine whether there was a significant difference in individuals' enjoyment of physical activity and their perceptions of the Barriers to physical activity according to their ages (Table 7).

According to the Mann-Whitney U test results, the PACES scores of adults (25-60) are significantly higher

than the PACES scores of young individuals ($U = 32.973$, $p = .000$). SPBPA test scores of young individuals are also significantly higher than SPBPA scores of adult individuals ($U = 18.385$, $p = .025$). It was concluded that there was a significant difference between the individuals' ages and SPBPA. It was examined whether this difference also existed in the scale's sub-dimensions (Table 8).

When Table 8 is examined, the test scores of young individuals in the SPBPA Body Image & Physical-Social Anxiety (Sub-Dimension 1), Fatigue & Laziness (Sub-Dimension 2) and Environment & Facilities (Sub-Dimension 4) sub-dimensions are significantly higher than the test scores of adult individuals ($p < .05$). However, no statistically significant difference was observed between young and adult individuals for the third sub-dimension of the scale, the Obligations & Lack of Time sub-dimension ($p > .05$).

Table 7. Mann-Whitney U test result for comparing individuals' test scores according to age variable

Tests	Age	N	Md.	\bar{x}	U	p
PACES	15-24	266	51	187.54	32.973	.000
	25-60	178	56	274.74		
SPBPA	15-24	266	55	242.38	18.385	.025
	25-60	178	45	192.79		

Table 8. Mann-Whitney U test result for comparing individuals' SPBPA subscales according to age variable

Tests	Age	N	Md.	\bar{x}	U	p
1. Body Image & Physical-Social Anxiety	15-24	266	11	245.25	17622.5	.000
	25-60	178	7	188.50		
2. Fatigue & Laziness	15-24	266	24,5	245.23	17627.5	.000
	25-60	178	18	188.53		
3. Obligations & Lack of Time	15-24	266	10	219.91	24363.5	.602
	25-60	178	10	226.37		
4. Environment & Facilities	15-24	266	7.5	236.44	19966.5	.004
	25-60	178	5	201.67		

4. Discussion

This study examined the relationship between individuals' perceived barriers to participation in physical activity and their enjoyment of physical activity. The findings suggest that as individuals' perceived barriers to engaging in physical activity increase, their enjoyment of physical activity decreases to some extent. Similarly, as individuals' enjoyment of physical activity increases, their perceived barriers to engaging in physical activity tend to decrease.

Gender variable affects the level of participation in physical activity: When examining the enjoyment derived from participation in physical activity based on gender, it has been determined that men tend to score significantly higher on the enjoyment scale test than women (Table 3). These findings align with existing literature [42-47]. On the other hand, few studies suggest women derive more pleasure from perceived enjoyment in physical activity than men [48]. Additionally, some studies report no significant difference in perceived enjoyment scale scores between genders [49-51]. In light of this data, it can be understood that, in general, men experience more enjoyment in physical activity compared to women. However, at times, women may derive more pleasure, and in some cases, there may be no significant difference in enjoyment between genders. These findings suggest that the preferences for activities may differ between men and women [52] or that the chosen physical activities may vary between genders, leading to these differences.

Women perceive more barriers to participation in physical activity than men: When examined in terms of gender, data regarding perceived barriers to participation in physical activity reveal that women generally perceive more barriers than men (Table 3). Research in this area consistently demonstrates gender-based differences in participation in physical activity. Previous studies have often shown that men are more active than women [53,54]. The issue here arises not from women having less interest in physical activity but rather from having fewer opportunities [55]. This naturally leads to the observation that women perceive more barriers than men [56]. A literature review reveals that studies consistently indicate that women perceive more barriers than men [57-60]. On the other hand, it is also possible to find findings suggesting that women and men sometimes perceive different types of barriers [61] or perceived barriers at different levels [54].

When examining the sub-dimensions of the perceived barriers to physical activity scale, it is observed that women perceive more barriers as expected in certain sub-dimensions (e.g., fatigue/laziness). In contrast, there is no significant difference between women and men in other sub-dimensions (e.g., Body Image & Physical-Social Anxiety, Obligations & Lack of Time and Environment & Facilities). This finding aligns with the notion that women and men perceive similar barriers while engaging in physical activity, contributing to the existing literature [62].

In conclusion, men and women commonly perceive certain sub-dimensions of barriers when engaging in physical activity. This insight contributes to the literature by emphasizing that despite gender differences in some aspects, there is a shared perception of barriers related to physical activity participation in specific dimensions.

Individuals' educational status affects their enjoyment of physical activity and their perceived barriers to participation in physical activity: One particularly intriguing finding from the study is that individuals with a primary education background derive more enjoyment from physical activity than those with a university education ($H(3) = 12.571, p = .006$). Upon reviewing the literature, a study examining the level of enjoyment in physical activity among primary school graduates was not found. However, some studies suggest that individuals with a high school education tend to derive more pleasure from physical activity than university graduates [45,46]. These findings are particularly intriguing because the enjoyment level derived from physical activities seems to decrease as individuals' educational levels rise. It is also known that social interaction, social support and well-being are closely related to enjoyment of physical activity in individuals with different social backgrounds [63]. It underscores the need for detailed exploration in future research to understand this phenomenon better.

A similarly noteworthy finding is as follows: university students or graduates perceive more barriers to physical activity compared to individuals with lower educational levels, such as high school or elementary school graduates. This observation suggests that as individuals' educational levels increase, perceived barriers to participation in physical activity also increase. However, no current need exists to examine the relationship between perceived barriers to physical activity and educational levels. The present study has partially addressed the ambiguity in the existing literature on this topic. Nevertheless, it is deemed essential to enhancing the number of studies conducted in this area and for researchers to shed further light on the subject.

Additionally, significant differences were found in the perceived barriers during individuals' participation in physical activity based on their educational levels, particularly in Body Image & Physical-Social Anxiety, Fatigue & Laziness, and Environment & Facilities (Table 6).

Perceived barriers to participation in physical activity may include time constraints, fatigue and lack of energy, financial constraints, health-related constraints, and low motivation [21]. In addition, more local sports opportunities are needed where costs are reduced [63]. On the other hand, individuals' educational backgrounds do not have a statistically significant impact on the responsibilities/time constraints sub-dimension; no significant difference was observed in this sub-dimension.

Individuals' age affects their enjoyment of physical

activity and the perceived barriers to participation in physical activity: It was observed that adult individuals (25-60 years old) derive more enjoyment from physical activity than younger individuals (Table 7). This finding aligns with previous studies in the literature [48]. On the other hand, it is evident in the literature that the types of physical activities individuals find enjoyable may vary across different age groups [43]. Additionally, findings suggest that the enjoyment of physical activity tends to decrease with age [45], while others indicate no significant difference in the level of enjoyment based on age [50]. Thus, generalizing the relationship between age and the level of enjoyment in physical activity becomes challenging. It is plausible to interpret these results differently based on specific sample groups, gender, culture, nationality, and education levels. Future interventions to increase participation in physical activity should consider the age factor, considering that efforts to enhance enjoyment may vary across different age groups [44].

The study's findings indicate that young individuals encounter more barriers than adults (Table 7). It is a well-known phenomenon that as individuals age, there are changes in the perceived barriers [64]. The inability of young individuals to balance work and family life within their daily routines implies that they have fewer opportunities to engage in physical activity than adults [59]. Compared to adults, young individuals' longer working hours and lower income create more obstacles to achieving physical activity goals [65]. On the other hand, it is a recognized fact that the number of barriers increases as individuals age [60]. Some studies also suggest no relationship between age and perceived barriers to participation in physical activity [66]. The results of Çingöz et al. [66] align with our study, particularly concerning the responsibility and time sub-dimensions of the barriers scale.

5. Conclusions

This research examines the relationship between the enjoyment derived from physical activity and the perceived barriers affecting participation in physical activity. The findings indicate a significant connection between these two concepts, implying that pleasure from physical activity can be directly associated with engaging in physical activity [49]. Consequently, guiding individuals towards physical activities they enjoy is considered a crucial factor in ensuring the sustainability of physical activity. Examining the results of this study and other research collectively reveals that women often perceive more barriers, presenting a universal issue. Addressing this issue can involve projects and initiatives that create positive discrimination, helping to reduce the perceived barriers among women to at least an equal level as men.

In conclusion, the study sheds light on the intricate

relationship between the enjoyment of physical activity and the perceived barriers affecting participation, emphasizing the importance of aligning individuals with pleasurable activities. Furthermore, the study underscores the prevalent issue of women perceiving more barriers to physical activity, suggesting the need for targeted initiatives to address this gender-based discrepancy and promote equal participation. These insights contribute to the broader understanding of factors influencing physical activity engagement and pave the way for tailored interventions to enhance overall physical activity experiences.

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