

# Role of flow experience, recreational participation and place attachment in the socio-economic status of physically active older adults in Tehran province, Iran

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## ABSTRACT

The aim of the current study was to investigate the role of flow experience, recreational participation, and place attachment in the socio-economic status of physically active older adults in Tehran province. This study was a cross-sectional correlational study involving 407 older adults who engaged in sports and physical activity at Velayat Park, Shahr Park, and Niavaran Park in Tehran. Three questionnaires were used to measure the flow experience, place attachment, and socio-economic status, and the data were analyzed using SPSS. There was a significant effect of socio-economic status on flow experience ( $p < 0.05$ ), while gender did not significantly affect flow experience ( $p > 0.05$ ). The interaction between gender and socio-economic status did not significantly affect flow experience ( $p > 0.05$ ). Socio-economic status significantly influenced recreational participation ( $p < 0.05$ ), and there was a significant gender difference ( $p < 0.05$ ). The interaction of gender and socio-economic status on recreational participation was significant ( $p < 0.05$ ). Both socio-economic status ( $p < 0.05$ ) and gender ( $p < 0.05$ ) significantly affected place attachment. The interaction of gender and socio-economic status did not significantly affect place attachment ( $p > 0.05$ ). The findings emphasize the necessity for targeted interventions that consider socio-economic factors to promote positive experiences, participation in recreational activities, and emotional connections among older adults.

## KEYWORDS

Place Attachment; Flow Experience; Physically Active Older Adults; Socio-Economic Status; Recreational Participation

## 1. INTRODUCTION

Vitality, along with health, is the right of every individual and should be a collective goal, with governments bearing responsibility for the well-being of their diligent citizens. Changes in lifestyle patterns, which have reduced the prevalence of diseases and increased life expectancy, have led to greater attention to the concepts of health and quality of life for older adults in recent years. Aging may lead to mental and physical decline, reducing productive years and healthy life expectancy. In modern times, older adults are increasingly recognized as important members of society across different cultures. The most important reason for this is the rising human lifespan in many countries (Ajmi & Heidarinia, 2014).

Inactivity is the fourth most important risk factor for mortality worldwide. The United Nations Sustainable Development Goals prioritize the value of healthy living at all ages (International Council on Sports Science and Physical Education, Berlin, Germany, 2022). Aro et al. (2018) investigated the factors affecting regular physical activity among older adults in health care centers within a health district in South Africa. They concluded that health status and related barriers were significant reasons for non-participation in physical activity among this group. On the other hand, physical inactivity is a global epidemic, causing five million deaths annually due to its effects on various non-communicable diseases (Sallis et al., 2017).

With the rapid growth of the older adult population, their physical and mental health plays a crucial role in overall societal health. Therefore, research that improves the lives of older adults is vital. The relationship between sports and social or cultural factors has long been recognized, and older adults generally have more free time compared to other stages of life. Planning activities like sports, which enhance their quality of life, helps improve life satisfaction, vitality, and social-emotional stability (Nawrocka & Mynarski, 2016). Ahmadi et al. (2022) found that depression is a leading cause of abnormal behavior, drug abuse, and various mental and physical illnesses. Thus, mental fitness is as important as physical fitness, and both should be prioritized for the well-being of older adults. Iran is considered a developing country in this regard. Physical activity has always been vital for individuals and plays a key role in fostering social relationships.

Flow experience occurs when residents fully immerse themselves in leisure activities, leading to a deep connection with the place and a sense of belonging, which becomes part of their urban identity (Tao et al., 2022). Freire Junior et al. (2018) studied factors affecting inactivity and physical activity among Brazilian older adults and found that those living near the beach had lower physical

activity levels. Heart disease and economic status were key barriers to participation in physical activity at this age. Given the many benefits of social participation for older adults, attention to obstacles, particularly for those with chronic diseases or low income, is essential. Government and non-government organizations should focus on facilitating older adults' involvement in community activities. Sarvari (1991) found that women from lower socio-economic classes tend to have lower activity levels, as they experience fewer sports and physical activities and spend more free time watching TV or socializing with family. Knowledge of sports and the goals of recreational programs appears to be more prevalent in higher socio-economic classes, influencing attitudes toward health and fitness.

This study introduces the concept of flow as a mediator in developing a model of recreational participation and place attachment among park users in Tehran, aiming to expand the existing theory of place attachment. When designing strategies for leisure experiences in parks, park managers should enhance visitors' perceptions of leisure, focus on sensory stimulation, and evoke positive emotions, thereby increasing citizen participation and interaction. Consequently, this study seeks to investigate the roles of flow experience, recreational participation, and place attachment in relation to the socio-economic status of physically active older adults.

## **2. METHODS**

### **2.1. Study Design and Participants**

This study was a cross-sectional study of a correlational type. The statistical population for this research comprised all older adults who engage in sports and physical activity at Velayat Park, Shahr Park, and Niavaran Park in Tehran. To determine the optimal sample size, G\*Power software was utilized. The final sample consisted of 407 older adults who engage in sports and physical activity.

### **2.2. Instrument and Procedure**

A demographic form, a social and economic status form, a recreational participation form, and measures of flow experience and place attachment were utilized to collect data in the field. The economic and social status form measured four dimensions: income, economic class, housing status, and education. The recreational participation form, based on Kyle (2005), included 11 items assessing the importance and interest in recreational participation, focusing on three aspects: attraction, self-expression, and lifestyle. Ramkison et al.'s Place Attachment Questionnaire (2013)

contained 12 items divided into four components (spatial identity, location dependence, place influence, and social connection), each evaluated using a five-point Likert scale. The Jackson and Marsh Flow Experience Questionnaire (1996) comprised 31 items across nine components (balance of challenge and skill, integration of action and awareness, clear goals, unambiguous feedback, focus on the task at hand, feeling of control, loss of self-awareness, the evolution of time, and internal experience) using a seven-point Likert scale to measure flow experience (see Table 1).

The questionnaires were distributed among older adults by the coach and the researcher after referring to the selected parks and coordinating with the coaches or the participants. For those who did not have enough time and preferred to respond online, their contact information was collected, and the link to the questionnaire was sent to them. Ultimately, 165 responses were received online and 285 in person. After removing 47 incomplete responses, a total of 407 questionnaires were included in the final analysis.

**Table 1.** Characteristics of the questionnaires used

Questionnaire	Author	Dimensions	Components	Number of items	Spectrum
Flow Experience	Jackson and Marsh (1996)	9	Balance of challenge and skill	4	7 Likert values
			Integration of action and awareness	4	
			Clear goals	4	
			Unambiguous feedback	4	
			Focus on the task at hand	4	
			A sense of control	4	
			Loss of consciousness	4	
			The evolution of time	4	
			Inner experience	4	
Place attachment	Ramkinson et al. (2019)	4	Dependence on the place	3	7 Likert values
			The social connection of the place	3	
			The influence of place	3	
			Place Identity	3	

### 2.3. Validity and Reliability of the Questionnaire

The standard version of the Jackson and Marsh questionnaire items was used to evaluate flow experience, along with Ramkison's questionnaire. The translation process involved three stages: first, the questionnaire items were translated into Farsi; second, the translated items were translated back from Persian to English; and finally, they were translated from English to Persian again. Face validity was assessed by a group of experts, professors of sports management from various universities in the country who have researched leisure time. The table and questionnaires were modified accordingly. Then, 40 copies of the questionnaires were distributed randomly among older adults in Tehran to

evaluate reliability. The reliability coefficient of the questionnaires was assessed using Cronbach's alpha and combined reliability tests. After measuring the validity and reliability, the final version of the questionnaires was distributed and collected during the summer and autumn of 1401. The reliability status was reported as 0.968 for the flow experience variable, 0.918 for the spatial attachment variable, 0.918 for the recreational participation variable, and 0.683 for the economic and social status variable.

## 2.4. Statistical Analysis

Data were analyzed using two-way analysis of variance at a significance level of  $p < 0.05$  with SPSS software. Descriptive statistics were used for categorization, classification, tabulation, and summarization, focusing on statistical indicators of central tendency and dispersion. Structural equation modeling was also employed to test statistical hypotheses.

## 3. RESULTS

Before examining the research hypotheses and questions, descriptive statistics and information related to each of the mentioned variables were analyzed (Table 2). Among the subscales, the socio-economic status subscale had the highest average at 3.183, while the experimental dimension ranked lowest with an average of 1.85.

**Table 2.** Descriptive statistics of research variables and their averages

Components	Indicators of tendency to the center			Scattering indices			Distribution indices	
	Mode	Median	Mean	Variation range	Variance	Standard deviation	Crookedness	Elongation
Socio-economic situation	3.0	3.166	3.183	3.83	0.449	0.6701	0.209	0.156
Recreational participation	3.36	2.636	2.796	6.0	1.184	1.088	0.794	0.681
Gravity dimension	1	1.75	2.11	6	1.423	1.1929	1.571	2.251
Express yourself	3	3.25	3.29	6	1.586	1.2593	0.251	-0.454
Focus on lifestyle	2.33	3.00	3.04	6	1.579	1.2566	0.347	-0.408
Flow experience variable	2.2	2.451	2.687	5.94	1.017	1.008	1.465	2.402
Challenge and skill dimension	3	3.33	3.42	6	1.141	1.0683	0.776	1.207
The integration	3	3.00	2.81	6	1.662	1.2892	0.476	0.046

dimension of action and awareness									
Clear goals	1	2.0	2.27	6	1.315	1.729	1.240	1.118	
Unambiguous feedback later	1	2.25	2.48	6	1.773	1.3316	1.062	0.815	
Focus on the floor	3	2.66	2.88	6	1.156	1.0751	0.682	0.989	
The feeling of control	2	2.75	2.83	6	1.135	1.0653	0.904	1.393	
After losing consciousness	2	2.33	2.54	6	1.639	1.2803	1.004	0.626	
After the evolution of time	2	3.00	3.12	6	1.323	1.1500	0.477	-0.069	
The inner experience	1	1.50	1.85	6	1.277	1.1302	1.819	2.950	
Spatial attachment variable	2.50	2.750	3.022	6.0	1.317	1.147	1.038	1.133	
The location dependence dimension	2.33	2.66	2.99	6.0	1.568	1.2520	0.788	0.427	
Next link location	2.0	3.00	3.18	6.0	2.083	1.4431	0.552	-0.260	
The influence of place	2.0	2.33	2.65	6.0	1.564	1.2507	1.221	1.153	
Dimension of place identity	3.0	3.00	3.25	6.0	1.747	1.3217	0.569	0.138	

### 3.1. Flow experience role in the socio-economic situations of physically active older adults

Table 3 presents the main results of the two-way analysis of variance. This table discusses whether the differences in averages observed in the descriptive statistics table are significant based on the significance level. There are no statistically significant differences between men and women regarding flow experience ( $p > 0.05$ ). In contrast, the significance level between socio-economic status and flow experience is 0.0001, indicating with 99% certainty that socio-economic status significantly affects the flow experience in physically active older adults. The most notable interaction effect of gender and socio-economic status on flow experience is equal to 0.179, which is greater than 0.05, suggesting that the interaction between these two factors does not significantly affect flow experience.

To assess the size of the effect of gender and socio-economic status on flow experience, we examine the eta value. The combined effect size of gender and socio-economic status explains 10%

of the variance in flow experience. According to Cohen's statistic, the effect size is 0.33, indicating a medium effect. The independent effect of gender on flow experience is 0.001, showing that gender does not significantly influence flow experience. The effect of socio-economic status on flow experience is 9.9% with a Cohen's value of 0.33, also indicating a medium effect. The interactive effect of gender and socio-economic status on flow experience is 0.9%, with a Cohen's value of 0.095, indicating a minor effect. The coefficient of determination shows that gender and socio-economic status can explain only 10% of the changes in the flow experience variable, with the remaining 90% explained by other factors.

**Table 3.** Flow experience role in socio-economic situations of physically active older adults

	<b>Sum of squares</b>	<b>Standard deviation</b>	<b>Mean square</b>	<b>Quantity F</b>	<b>P</b>	<b>Eta squared</b>
Corrected model	39.975	5	7.991	9.029	0.0001	.102
Width from the origin	1661.130	1	1661.130	1876.859	0.0001	0.825
Gender	0.072	1	0.072	0.082	0.775	0.0001
Socio-economic situation	38.760	2	19.380	21.897	0.0001	0.099
Gender and socio-economic	3.057	2	1.529	1.727	0.179	0.009
Error	351.367	397	0.885			
Total	3279.617	403				
Corrected total	391.325	402				
Determination coefficient = 0.102 (adjusted determination coefficient = 0.091)						

### 3.2. Recreational participation role in the socio-economic status of physically active older adults

Eta squared indicates that the combined effect of gender and socio-economic status explains 15% of the variance in recreational participation. According to Cohen's table, this effect size corresponds to 0.434, which is considered high. The significance level of gender on recreational participation is 0.010, confirming that there is a significant difference between men and women regarding recreational participation among physically active older adults. The Eta squared value for gender is 0.017, indicating that the independent effect of gender on recreational participation accounts for only 1.7%, which is classified as small (Cohen's effect size = 0.13).

The significance level between socio-economic status and recreational participation is 0.0001, showing with 99% confidence that socio-economic status significantly affects recreational participation in physically active older adults. The Eta squared value is 0.157, suggesting that socio-economic status explains 15% of the variance in recreational participation, which is high according to Cohen's value of 0.431.

Furthermore, the significance level of the interaction between gender and socio-economic status on recreational participation is 0.012, indicating a significant effect. The Eta squared value for this interaction is 0.022, which means that the interaction of gender and socio-economic status explains 2.2% of the variance in recreational participation, with Cohen's value suggesting a small effect (0.149). Lastly, the coefficient of determination shows that gender and socio-economic status together explain only 16% of the variance in recreational participation, while 84% is attributed to other factors.

**Table 4.** Recreational participation role in the socio-economic situations of physically active older adults

	<b>Sum of squares</b>	<b>Standard deviation</b>	<b>Mean square</b>	<b>Quantity F</b>	<b>P</b>	<b>Eta squared</b>
Corrected model	73.160	5	14.632	14.994	0.0001	0.159
Width from the origin	1883.872	1	1883.872	1930.441	0.0001	0.829
gender	6.604	1	6.604	6.767	0.010	0.017
Socio-economic situation	71.948	2	35.974	36.863	0.0001	0.157
Gender and socio-economic	8.805	2	4.403	4.511	0.012	0.022
error	387.423	397	0.976			
Total	3612.777	403				
Corrected total	460.584	402				
Determination coefficient = 0.159 (adjusted determination coefficient = 0.148)						

### 3.3. Place attachment role in the socio-economic status of physically active older adults

Based on the results of Table 5, the two-way variance analysis indicates that the corrected model reveals the combined effect of gender and socio-economic status on place attachment. The significance level is equal to 0.0001, and the F-value is 5.894. Therefore, the hypothesis that gender



factors and socio-economic status significantly affect place attachment in physically active older adults is confirmed.

Additionally, Eta squared indicates that the combined effect of gender and socio-economic status explains 7% of the variance in place attachment, corresponding to a moderate effect size of 0.27 according to Cohen's statistic. The significance level of gender on spatial attachment is 0.0001, confirming a significant difference between men and women regarding their level of place attachment. The Eta squared value for gender is 0.014, indicating that gender has only a 1.4% effect on spatial attachment, which corresponds to a small effect size of 0.11 according to Cohen's statistic.

The significance level for socio-economic status and place attachment is 0.018, indicating a significant main effect with 95% confidence. The Eta squared value for socio-economic status is 0.062, which signifies a 6.2% effect on place attachment, corresponding to a medium effect size of 0.25 based on Cohen's statistic.

However, the interaction effect of gender and socio-economic status on place attachment is not significant, with a p-value of 0.098, which is greater than 0.05. Consequently, it can be concluded that the interaction of these two factors does not significantly influence place attachment in physically active older adults. Overall, the coefficient of determination indicates that gender and socio-economic status explain only 7% of the variability in spatial attachment, while 93% is attributed to other factors.

**Table 5.** Place attachment role in the socio-economic status of physically active older adults

	<b>Sum of squares</b>	<b>Standard deviation</b>	<b>Mean square</b>	<b>Quantity F</b>	<b>P</b>	<b>Eta squared</b>
Corrected model	36.486	5	7.297	5.894	0.0001	0.069
Width from the origin	2076.980	1	2076.980	1677.711	0.0001	0.809
gender	7.028	1	7.028	5.677	0.018	0.014
Socio-economic situation	32.547	2	16.273	13.145	0.0001	0.062
Gender and socio-economic	5.797	2	2.898	2.341	0.098	0.012
error	491.480	397	1.238			
Total	4209.167	403				
Corrected total	527.966	402				
Determination coefficient = 0.069 (adjusted determination coefficient = 0.057)						

#### 4. DISCUSSION

Based on the results of our study, we notice that there is a significant effect of socio-economic status on flow experience ( $p = 0.0001$ ,  $F = 9.029$ ), while gender does not significantly affect flow experience ( $p = 0.775$ ). The interaction between gender and socio-economic status does not significantly affect flow experience ( $p = 0.179$ ). Socio-economic status significantly influences recreational participation ( $p = 0.0001$ ,  $F = 14.99$ ), and there is a significant gender difference ( $p = 0.010$ ). The interaction of gender and socio-economic status on recreational participation is significant ( $p = 0.012$ ), with a small effect size ( $\eta^2 = 0.022$ ). Both socio-economic status ( $p = 0.018$ ) and gender ( $p = 0.0001$ ) significantly affect place attachment. The interaction of gender and socio-economic status does not significantly affect place attachment ( $p = 0.098$ ).

The analysis of findings indicates that exercising in natural spaces, such as parks, helps older adults recharge mentally and improves their mental and physical health. Additionally, the reasonable cost and availability of these spaces are crucial for recreational participation among this age group.

Research based on the classic two-dimensional structure of place attachment, place dependence and place identity, has introduced new dimensions based on various research directions. Studies show that the flow experience affects spatial attachment and that they mutually influence each other. However, investigations of gender differences in flow experience have been inconclusive. Some research indicates that women have a stronger attachment to places than men. The current study suggests that recreational participation can reasonably predict flow experience; as leisure participation increases, the likelihood of experiencing flow also rises. Conversely, a deeper flow experience enhances place attachment.

According to our study, both women and men with average economic and social status report higher levels of flow experience compared to those with lower economic and social status. The analysis concludes that gender and socio-economic status do not significantly affect the flow experience in physically active older adults. Both older men and women report similar flow experiences. Jackson (1996) found that elite athletes' experiences can enhance understanding of flow conditions in sports, aligning with the present study's findings. Han (1988) found gender differences, with male participants experiencing more flow in leisure activities while females experienced flow during household tasks.

Regarding recreational participation and socio-economic status, women with higher economic and social status engage in more recreational activities than those with medium and low status.

Meanwhile, men with average socio-economic status participate more than those with high or low status. Thus, the assumption of a significant difference in recreational participation between men and women is confirmed, indicating that women engage more than men.

The two factors of gender and socio-economic status affect older adults' recreational participation. In line with Hidalgo & Hernandez's (2001) study, which found varying degrees of place attachment across regions and demographics, women showed stronger emotional connections to places. However, Brown et al. (2013) concluded that gender does not affect place attachment. The analysis indicates that while flow experience contributes to spatial attachment, gender does not moderate the relationship between spatial attachment and activity flow experience. There is a significant difference between flow experience levels and spatial attachment between women and men.

In general, socio-economic class impacts sports activities. Furthermore, social inequalities manifest in varying access to recreational opportunities. Additionally, the accessibility and affordability of these natural spaces are significant. Yari et al. (2022) indicated a strong positive relationship between environmental factors and place attachment, along with a correlation between place attachment and older adults' motivation to participate in physical activities. However, the indirect relationship between physical factors and participation motivation through place attachment is inconsistent with upcoming research.

## **5. CONCLUSIONS**

The study highlights the critical role of socio-economic status in influencing the experiences and activities of physically active older adults. Socio-economic status impacts flow experience and recreational participation, underscoring its importance in enhancing these aspects of well-being. While gender did not have a notable effect on flow experience, it revealed a notable difference in recreational participation.

Both socio-economic status and gender influenced place attachment, indicating that these factors shape individuals' emotional connections to their environments. However, the interaction between gender and socio-economic status did not have a meaningful effect on flow experience or place attachment. Overall, the findings emphasize the necessity for targeted interventions that consider socio-economic factors to promote positive experiences, participation in recreational activities, and emotional connections among older adults.

## 6. RECOMMENDATIONS

In light of the findings, it is recommended that macro-management strategies be developed to enhance recreational participation among older adults, including improving social status, reducing healthcare costs, and identifying practical strategies to promote physical activity. Additionally, regulations requiring retirement homes to hire sports experts and create park-like green spaces should be approved by relevant authorities. Research projects should focus on the older adult population to further enhance their engagement in physical activities.

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#### **AUTHOR CONTRIBUTIONS**

All authors listed have made a substantial, direct and intellectual contribution to the work, and approved it for publication.

#### **CONFLICTS OF INTEREST**

The authors declare no conflict of interest.

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