

Social Capital and Participation of Elderly Woman Based on the Sport Acceptance

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ABSTRACT

Objective: The present study was performed aiming to address the social capital and participation of elderly women based on the sport acceptance.

Methods: The research method is applied and is a descriptive- survey research. The statistical population of the study includes the elderly women. 227 elderly women were selected as the sample size and simple probabilistic sampling method was used. Standard questionnaire was administered and SPSS and PLS were used for data analysis.

Findings: The effect of cognitive social capital variable on the elderly women's sport participation subjective development was 9.98, the effect of communication social capital on the subjective development of elderly was 2.71, the effect of structural social capital on the objective development of elderly women's sport participation was 6.98 and effect of structural social capital on the subjective development of elderly women's sport participation is 2.32 indicating that variables are influenced by each other. ($p < 0.05$).

Conclusion: according to the findings, increasing the social capital rate of elderly women is a promising way to enhance the participation of elderly women through sport participation. So, authorities and policy makers should plan and make policies in order to increase social capital as a variable affecting sport participation of elderly people.

Keywords: subjective development; women; participation; social capital.

1. Introduction

The phenomenon of population aging is one of the most significant demographic transitions of the 21st century. By 2050, the number of people over 60 years is expected to reach nearly 2 billion globally, compared to 600 million in the year 2000, indicating a dramatic shift in the age composition of societies (Nguyen et al., 2024). Iran

mirrors this global trend, with projections estimating that the elderly population will rise from the current 9% to approximately 30% by 2050 (Norouzi Seyed Hosseini, 2021). This demographic transformation presents both challenges and opportunities, especially in terms of elderly health, autonomy, and social integration.

Among the numerous factors influencing the well-being of older adults, social capital has garnered growing academic

and policy interest. Social capital, understood as the networks, relationships, and norms that enable collective action, plays a crucial role in enhancing the quality of life and health outcomes of elderly populations (Afrashteh et al., 2022; Yang, 2018). It fosters trust, reciprocity, and cooperation, offering emotional and instrumental support vital for maintaining health and social participation (Ke & et al., 2019; Xu & Zhao, 2022). Social capital is often categorized into structural (formal networks and institutions), relational (interpersonal trust and norms), and cognitive (shared meanings and understandings) dimensions (Emmanuel, 2020; Sharifi et al., 2022).

As societies experience an aging population, it becomes increasingly essential to explore mechanisms that facilitate active aging and prevent social isolation. One promising strategy is sport participation, which has been linked to improved physical health, psychological resilience, and enhanced social integration among the elderly (Bahiraei et al., 2023; Faghfouriazar, 2023). Physical activity is not merely a matter of physiological benefit but also a social experience that builds connections, enhances community belonging, and contributes to subjective well-being (Himanshu & et al., 2019; Lee et al., 2020). For elderly women, in particular, sport and recreational activities may serve as critical platforms for rebuilding social networks eroded by retirement, widowhood, or reduced mobility (Kalashi et al., 2020; Kaneda et al., 2024).

Yet, participation in sport is not uniformly distributed. Various socioeconomic, cultural, and psychological barriers limit older adults' involvement, especially among women who may face added gender-based obstacles (Deaner et al., 2016; Stoyel et al., 2021). It is within this context that social capital becomes a vital enabler. Higher levels of social capital are associated with increased participation in both formal and informal physical activities, as networks and shared norms act as channels for encouragement, inclusion, and logistical support (Adedeji & et al., 2019; Sun & et al., 2017). Research by (Gao et al., 2018) and (Knorst et al., 2019) confirm that older adults embedded in socially rich environments are more likely to participate in health-promoting behaviors, including sports.

The role of structural social capital—such as participation in community organizations, neighborhood associations, and sport clubs—has been emphasized in numerous studies for its capacity to mobilize resources and institutional support for elderly engagement in leisure activities (Ghadimi & Asadi, 2016; Kawasaki & et al., 2019). Such structures create accessible pathways for older women to engage in

sport without needing to overcome personal inertia or logistic limitations on their own. Additionally, relational social capital, characterized by trust and mutual obligations within close-knit social groups, is also crucial. Trust in one's community has been shown to increase the likelihood of engaging in group exercise or recreational sport (Novak et al., 2016; Youssim et al., 2015).

Moreover, cognitive social capital, encompassing shared values and communal goals, supports sport participation by shaping attitudes toward health, activity, and aging itself (Xu & Zhao, 2022; Zhou et al., 2023). When elderly individuals perceive health and active living as valued social goals, they are more inclined to adopt behaviors consistent with these norms, including participation in sport (Nikkhah et al., 2017; Yang, 2018). These cognitive components also mediate the relationship between community-level dynamics and personal decisions, influencing not only the decision to participate but also the motivation to sustain such participation over time (Zamani, 2019).

Studies conducted in Iran and similar contexts provide empirical support for these theoretical claims. For instance, research by (khodaparast et al., 2020) found that elderly men in Lahijan who had higher levels of social capital were significantly more likely to participate in sport activities. The same relationships have been observed in women, though typically mediated by additional factors such as family encouragement, perceived safety, and access to gender-sensitive sport environments (Afrashteh et al., 2022; Mohamadzadeh et al., 2018). The gendered nature of sport participation highlights the need for specific policy and community interventions tailored to the unique circumstances of elderly women.

Additionally, social capital's impact is not limited to increasing participation rates but also influences the quality and outcomes of that participation. Higher levels of social capital are correlated with greater enjoyment, higher perceived benefits, and sustained engagement in sport-related programs (Deaner et al., 2016; Nguyen et al., 2024). The multidimensional role of social capital makes it a strategic asset in public health and gerontology, particularly in designing community-based sport programs that are inclusive and sustainable (Fenton et al., 2023; Laird et al., 2016).

Despite these insights, the literature has gaps. Most studies focus on general populations or mixed-gender samples, with few focusing exclusively on elderly women and the nuanced mechanisms through which social capital influences their sport behavior. The COVID-19 pandemic

has further complicated this dynamic, with reduced social interaction, closure of public facilities, and increased health vulnerability potentially undermining established social networks and thereby diminishing sport participation (Norouzi Seyed Hosseini, 2021). Therefore, a focused investigation into the components of social capital that most strongly predict sport participation among elderly women is timely and necessary.

In light of the above, the present study aims to explore the relationship between social capital and sport participation in elderly women, with a particular emphasis on differentiating the effects of cognitive, structural, and communicative social capital dimensions.

2. Methods

2.1. Study Design and Participants

This study is applied in respect of objective and is a descriptive- survey research in respect of methodology.

Study population was including inactive elderly women of Lahijan city. Simple probabilistic sampling was used to select statistic population to apply inferential analytic technique i.e. there was no previous subjective selection.

2.2. Measure

Field technique was used to collect required data. One of the very common techniques to collect field information is questionnaire enabling data collection in a wide range. This questionnaire was consisting of 5 general questions in the first section and the other sections were including social

capital and sports participation questionnaire in formation. Standard disability and Gushal questionnaire (1998) was used to measure social capital variable in this study and standard trail questionnaire (2012) was used to measure sports participation. This questionnaire was affirmed by several authors and has good credibility and reliability for conducting research.

Questionnaires questions also are including 28 questions for variable of social capital (questions 1 to 7 related to the structural aspect, questions 8 to 19 related to the relational aspect and questions 20 to 28 related to the cognitive aspect) and 22 questions were related to the variable of sports participation development (questions 1 to 15 related to the mental development of sports participation and questions 16 to 22 related to the objective development of sports participation).

Respondents mark the items based on the five point Likert scale (from completely agree to completely disagree). Before the final trust to the measurement tools and applying them in the main step of data collection, it is necessary for author to find a relative confidence in respect to using the considered tool and its validity. To resolve the effects of missed and defective questionnaires and unanswered cases by respondents on the results, about 10 percent excess questionnaire was distributed between respondents which at the end among total 240 distributed questionnaires, 227 correct questionnaires were selected for data analysis. To calculate the questionnaire reliability, before its final distribution 30v questionnaires were distributed between studied subjects which finally Cronbach's alpha coefficient of 98% was calculated.

Table 1

K-S test to test data normality

Variables	Sample size	Test statistics	Significance level
Structural Capital	227	2.336	0.000
Communication Capital	227	2.455	0.000
Cognitive Capital	227	2.713	0.000
Sports Participation Subjective development	227	3.402	0.000
Sports participation objective development	227	3.099	0.000

So, it can be said that this questionnaire has a very good validity, that is, achieved responses were not by chance and contingent but they are due to the variable being tested.

2.3. Data Analysis

Kolmogorov- Smirnov test was used to study the normality of data distribution assumption. Data gained by this study was analyzed using SPSS 19 and smart pls.

3. Findings and Results

According to results of analysis and information achieved from questionnaires, 182 respondents were employed, and 45 persons were retired. So, most respondents consisting of 182 people were employed.

Index reliability is calculated through absolute value of factor loads of each of observable variables corresponding to the latent variable of that model which should have at least the value 0.4 and be significant in the desired level. If the factorial load of an item and the corresponding aspect is lower than 0.4 it is possible to delete that question from the model and subsequent analysis. Significance level of factorial loads according to each variable is reported.

The second reliability criterion which is also known as combined reliability is considered as a more modern criterion compared to Cronbach alpha to define reliability. Since Cronbach alpha index assumes that observable variables of each measurement model have similar weights and in fact consider their relative significances as equal. But this assumption is not applied in the combined reliability index. In fact, in the combined reliability items factorial loads are used in the combined reliability when calculating. The same change in calculation technique will indicate the values of combined reliability in a better way compared to the Cronbach alpha. Even though combined reliability value should be larger than 0.7, but if the number of questions as well as population number are small, the value 0.6 is also acceptable. As is observed, combined reliability coefficient for all the study variables is in an acceptable level.

Table 2

Combined Reliability of Research Variables

Variable	Combined reliability
Structural capital	0.933
Communication capital	0.842
Cognitive capital	0.934
Subjective development of sports participation	0.969
Objective development of sports participation	0.954

In the following table the correlation between study constructs, and AVE square root.

As id seen, the values of the major diameter of matrix (the AVE coefficients square root of each component) are greater

than the lower values (correlation coefficients between each construct with other constructs). This implies the acceptability of divergent validity of constructs.

Table 3

Divergent Validity of the Study Variables

variable	1	2	3	4	5
1. structural capital	1*				
2. communication capital	0.895	1			
3. cognitive capital	0.969	0.847	1		
4. subjective development	0.970	0.874	0.979	1	
5. objective development	0.99	0.921	0.963	0.966	1

Table 4

Confirmatory Factor Loadings

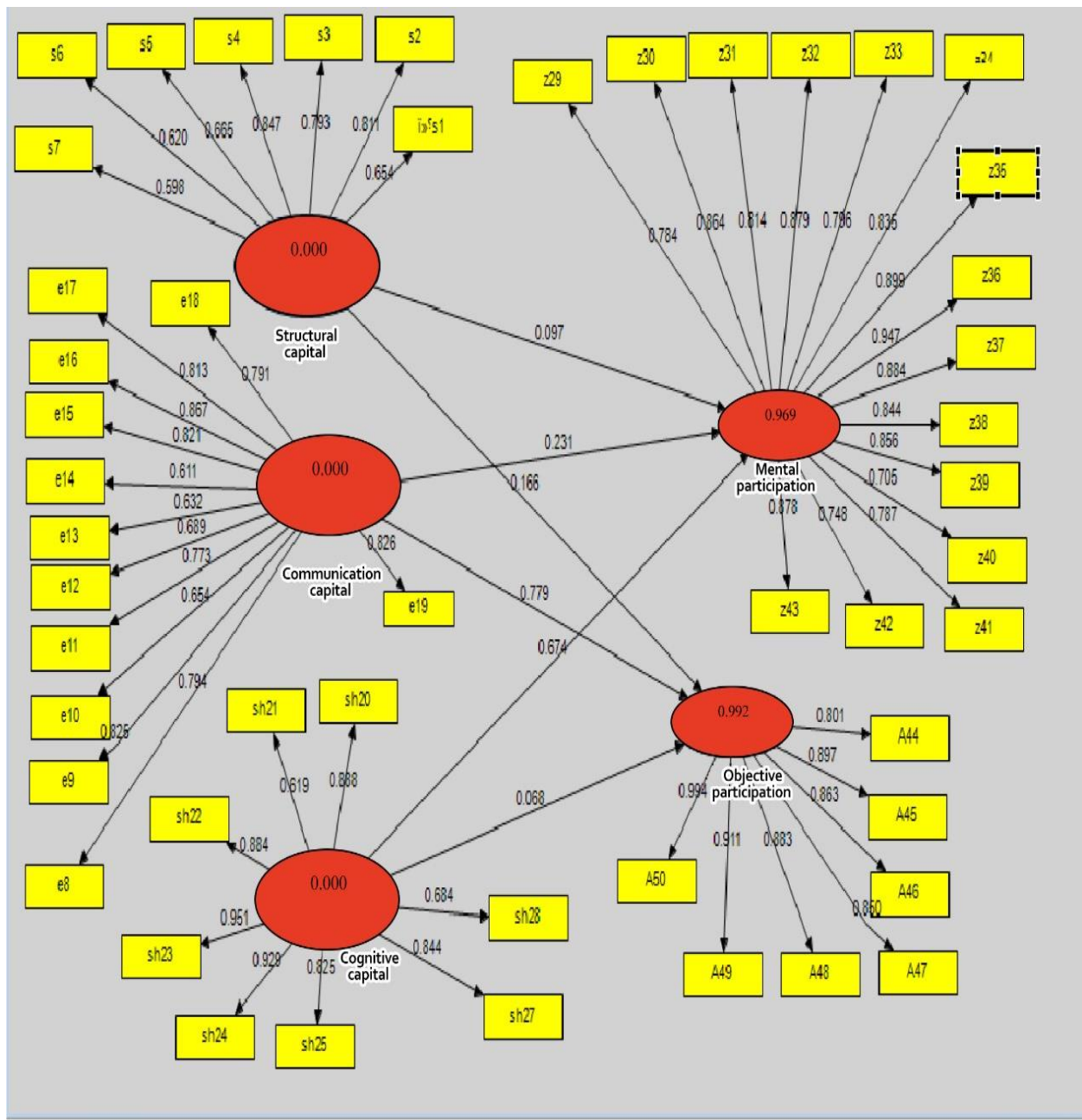
variable	items	Factorial load	T statistics	variable	items	Factorial load	T statistics
Structural capital	S1	0.654	11.683	Subjective development of sports participation	Sh26	0.016	8.717
	S2	0.811	31.992		Sh27	0.844	32.090
	S3	0.793	22.415		Sh28	0.684	8.878
	S4	0.847	32.172		Z29	0.784	14.729
	S5	0.665	10.614		Z30	0.864	32.701
	S6	0.620	7.403		Z31	0.814	24.988
	S7	0.598	5.456		Z32	0.879	35.808
Communication capital	E8	0.794	18.099		Z33	0.796	17.906
	E9	0.825	24.848		Z34	0.835	29.430
	E10	0.654	12.393		Z35	0.899	60.405
	E11	0.773	20.353		Z36	0.947	80.212
	E12	0.689	11.047		Z37	0.884	39.379
	E13	0.632	9.896		Z38	0.844	31.892
	E14	0.611	11.047		Z39	0.856	28.206
	E15	0.821	34.360		Z40	0.705	12.502
	E16	0.867	35.676		Z41	0.787	17.192
	E17	0.813	24.078		Z42	0.748	14.968
Cognitive capital	E18	0.791	18.022	Objective development of sports participation	Z43	0.878	54.410
	E19	0.826	24.353		A44	0.801	18.093
	Sh20	0.888	50.370		A45	0.897	43.579
	Sh21	0.619	10.288		A46	0.863	27.223
	Sh22	0.884	42.388		A47	0.850	23.754
	Sh23	0.951	132.268		A48	0.883	3.0425
	Sh24	0.929	73.661		A49	0.911	60.802
	Sh25	0.825	24.202		A50	0.994	835.989

The first path displays the effect of structural social capital on the subjective development of sports participation of elder lies. In this analysis, path coefficient value is defined as 0.09. Also, the effect of structural social capital on the subjective development of sports participation in elderlies is calculated as significant (2.32). So, it can be inferred that structural social capital has a significant effect on subjective development of elderly's sports participation. Path 2 displays the positive effect of structural social capital on the objective development of elderly's sports participation. In this analysis, path coefficient value was defined as 0.16, also, the effect of structural social capital on the objective development of elderly's sports participation was significant (6.98). So, structural social capital has a significant effect on the objective development of elderly's sports participation. Path 3 displays the positive effect of communicative social capital variable on the subjective development of elderly's

sport participation. In this analysis, path coefficient value between communicative social capital and subjective development of sports participation was 0.23. Also, effect of communication social capital on subjective development of elderly's sport participation was significant (2.71). So, communicative social capital has a significant effect on the subjective development of elderly's sport participation. Additionally, positive effect of cognitive social capital variable on the subjective development of elderly's sport participation is displayed. In the analysis of the hypothesis 5, path coefficient value between cognitive social capital and subjective development of sports participation was 0.67. Also, effect of cognitive social capital variable on subjective development of sport participation was significant (9.98). So, cognitive social capital has a significant effect on the subjective development of sports participation in physically disabled people.

Figure 1

Path coefficient and factor loads

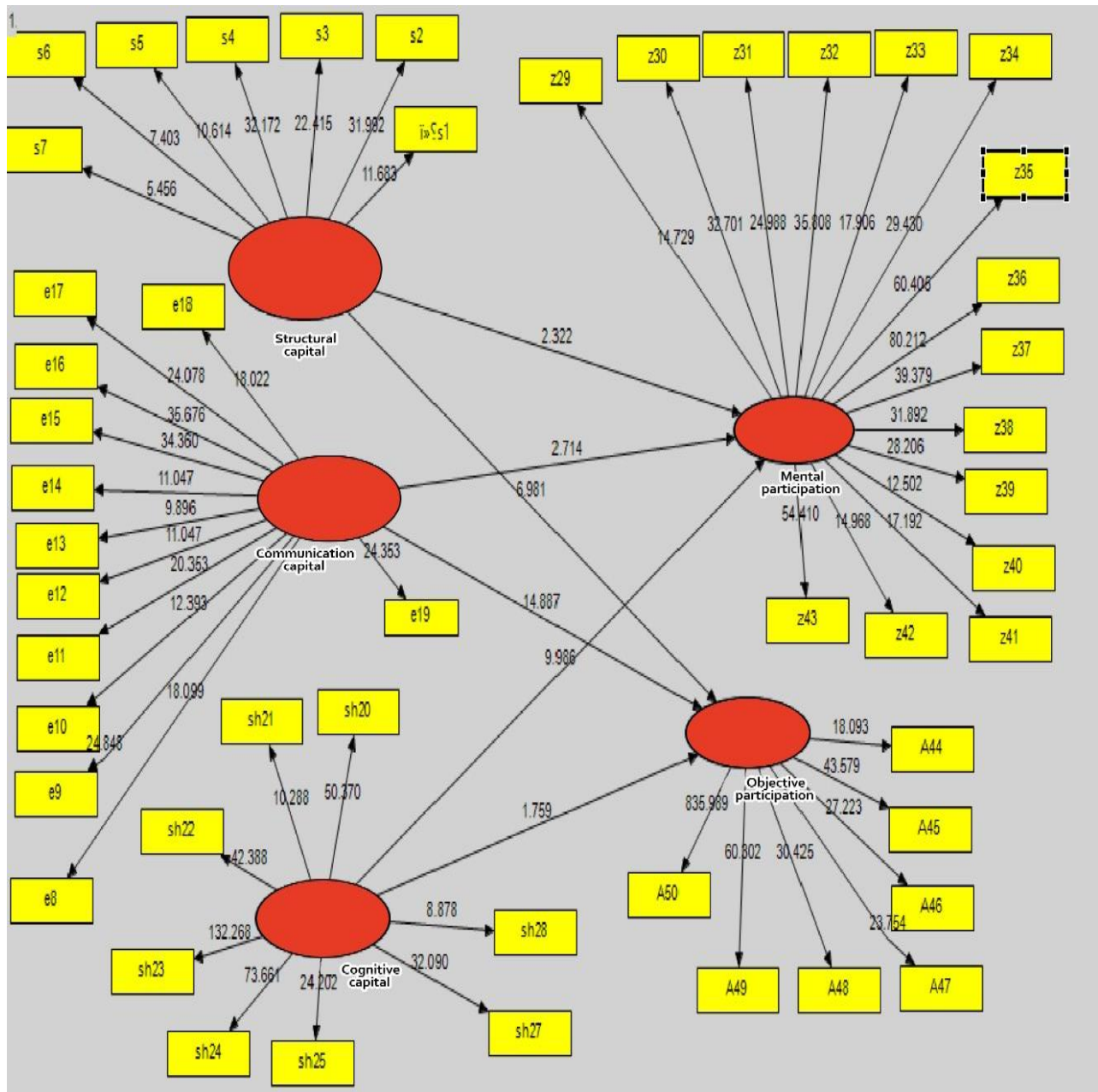


In addition, it can be found that variables including structural social capital communicative social capital and cognitive social capital totally account for 96 and 99 percent

of changes in the subjective and objective developments of sports participation respectively. In other word R^2 value (explained variance) in this model is 96 and 99 percent.

Figure 2

Significant amount of coefficients



GOF (Goodness of Fit) criterion is related to the general part of structural equation models that is, author after studying the fitness of measurement and structural parts of its general model can control the fitness of the general part. This criterion is calculated according to the following formula:

$$Gof = \sqrt{\text{Communalities} \times R^2}$$

Where communalities is the sign of mean value of common values of each construct and R^2 also is the mean value of the explained variance of the endogenous constructs of the model. Authors in partial least squares (PLS) presented 3 values of 0.01, 0.25 and 0.36 as weak, average and strong values for GOF. In the following table, GOF value related to the structural model of the research is calculated where GOF criterion for general model fitness is 0.88 indicating very strong fitness for the model.

Table 5

GOF Criterion

Variable	Explained variance	Communality Common values	GOF
Structural capital	-	0.712	0.885
Communication capital	-	0.758	
Cognitive capital	-	0.828	
Subjective development	0.96	0.834	
Objective development	0.99	0.885	

4. Discussion and Conclusion

The findings of this study provide compelling evidence that various dimensions of social capital—structural, communicative, and cognitive—significantly influence both the subjective and objective development of sport participation among elderly women. Using structural equation modeling, the results demonstrate that cognitive social capital had the highest effect size on subjective sport participation, followed by communicative and structural social capital. This suggests that the psychological and value-based components of social networks—such as shared norms, collective trust, and perceived support—play a central role in encouraging elderly women to engage in recreational and physical activity programs.

The strong influence of cognitive social capital on the subjective development of sport participation among elderly women aligns with previous studies emphasizing the mediating role of shared perceptions, trust, and psychological capital in promoting physical engagement. In particular, (Xu & Zhao, 2022) found that cognitive social capital indirectly enhanced the realization of mutual assistance programs among the elderly by boosting psychological resilience. Similarly, (Afrashteh et al., 2022) reported that a sense of meaning in life and self-perceived well-being, mediated by social capital and reduced loneliness, significantly reduced depression and death anxiety in elderly populations. In our study, the cognitive dimension's high path coefficient (0.67) and significance level ($T = 9.98$) reflect how values such as trust, belonging, and collective norms generate inner motivation and a positive mental framework for sport participation. These findings underscore the importance of fostering shared community beliefs and empowering elderly women to feel psychologically aligned with collective wellness goals.

The communicative social capital also showed a statistically significant relationship with subjective sport

participation (path coefficient = 0.23; $T = 2.71$), reinforcing the idea that interpersonal interactions and informational exchanges directly impact behavioral intentions. This is in line with (Yang, 2018), who observed that elderly individuals with strong social communication networks reported higher physical activity levels and quality of life. Likewise, (Fenton et al., 2023) highlighted how sporting brand communities on social media foster trust and shared identity, which translates into real-world engagement. Our study corroborates these findings in the elderly demographic, showing that the more elderly women engage in communication-rich environments—be it family circles, community events, or senior clubs—the more likely they are to subjectively identify with, and participate in, physical activities. Informational trust and relational embeddedness appear to play crucial roles in reducing perceived barriers to participation.

The structural social capital, while demonstrating a relatively smaller effect size on subjective sport participation (path coefficient = 0.09; $T = 2.32$), was still statistically significant. Moreover, its influence on the objective development of sport participation was substantial (path coefficient = 0.16; $T = 6.98$). This result is consistent with findings by (Ke & et al., 2019), who reported that elderly Chinese adults embedded in community organizations exhibited better physical health due to increased engagement in structured activities. (Ghadimi & Asadi, 2016) similarly emphasized that formal institutional involvement—such as sports clubs, NGOs, or neighborhood associations—provides the infrastructural support required to facilitate sustained participation. Our results affirm that structural social capital serves as a gateway mechanism for elderly women to overcome logistical constraints and integrate sport into their routine lives, particularly in environments where social services and transport access are unevenly distributed.

In analyzing the integrated effects of all three dimensions of social capital, it is significant to note the high explanatory power of the model, with R^2 values of 0.96 and 0.99 for

subjective and objective developments of sport participation, respectively. This indicates that social capital alone explains nearly all the variance in sport engagement among this population, highlighting its centrality in any intervention targeting elderly wellness. These results support (Adedeji & et al., 2019), who found that both cognitive and structural social capital were strong predictors of quality of life in Sub-Saharan African migrants—a group often facing isolation and marginalization similar to elderly women in Iran. Likewise, (Gao et al., 2018) illustrated that access to diverse social resources significantly improved life satisfaction and health outcomes in urban Chinese elders. Thus, interventions aimed at expanding sport participation among elderly women must not overlook the systemic and social scaffolding provided by social capital.

Additionally, the gendered dimension of sport participation must be acknowledged. Studies by (Deaner et al., 2016) and (Stoyel et al., 2021) demonstrated that women face more sociocultural and motivational barriers to engaging in sport than men, despite expressing interest. In our context, elderly women with higher levels of social capital—especially cognitive and communicative—appear to overcome these barriers by internalizing positive norms, gaining encouragement, and accessing enabling environments. This reflects the theory that social capital, particularly its cognitive and relational forms, plays a compensatory role in buffering gender-based constraints.

The results also resonate with local Iranian studies. For instance, (Sharifi et al., 2022) found that social and spiritual capital reduced depression through the mediating role of death anxiety, emphasizing the holistic nature of social relationships in Iranian culture. Likewise, (khodaparast et al., 2020) showed a direct correlation between sport participation and social capital among elderly men in Lahijan, supporting the generalizability of our findings within gendered subgroups. Moreover, (Kalashi et al., 2020) highlighted the link between social capital indicators and general health, validating the broader health-related implications of our model.

The interplay between social capital and health is further supported by (Lee et al., 2020), who examined the relationships between chronic health conditions, health status, and social capital in Australia. The study concluded that higher social capital led to better physical and mental health, especially in older adults. Our findings extend this insight by emphasizing that sport participation—facilitated by social capital—is not only a behavioral outcome but a protective factor against mental health deterioration in

elderly women. Indeed, consistent engagement in physical activity supported by social relationships appears to serve both preventive and therapeutic functions.

Furthermore, the present study highlights that subjective development of sport participation—encompassing interest, willingness, and emotional engagement—is not merely a precursor to objective participation but a core outcome in itself. As (Nikkhah et al., 2017) emphasized, quality of life is intricately tied to subjective perceptions, and merely counting physical engagement without understanding the psychological dimensions would present an incomplete picture. Our study enriches this understanding by suggesting that programs which target elderly women should prioritize mental readiness, enjoyment, and shared meaning—elements deeply rooted in cognitive and communicative social capital.

5. Suggestions and Limitations

Despite its contributions, this study is not without limitations. First, the research is cross-sectional in nature, which limits causal inference. The relationships between social capital and sport participation, though statistically significant, should be interpreted as associations rather than definitive cause-effect links. Second, the sample was drawn exclusively from elderly women in Lahijan, Iran, and may not be representative of broader or more diverse populations. Additionally, responses relied on self-reported data, which may be subject to memory biases, social desirability effects, or misunderstanding of questionnaire items. Another limitation relates to the possible underreporting of sport participation due to cultural constraints or perceptions around what constitutes "acceptable" activities for elderly women. Finally, mental state and cognitive health during questionnaire completion may have varied among participants, potentially influencing the accuracy of responses.

Future studies should consider employing longitudinal designs to assess how changes in social capital over time influence patterns of sport participation. Additionally, researchers could explore gender comparisons in more detail to assess whether social capital operates differently for elderly men versus women. Comparative studies across urban and rural regions may also reveal important contextual differences. Another promising direction involves integrating qualitative methods—such as in-depth interviews—to capture the lived experiences of elderly women regarding social inclusion and physical activity.

Finally, future research should examine the moderating or mediating roles of variables such as economic status, education level, or digital literacy in the relationship between social capital and sport participation.

To enhance elderly women's participation in sport, policymakers and community leaders should design inclusive, community-based sport programs that actively build cognitive and communicative social capital. This may include peer-support initiatives, intergenerational sport events, and culturally sensitive educational campaigns. Establishing safe, accessible spaces for sport that are tailored to elderly women's physical capacities and social preferences will increase participation and sustainability. Additionally, local governments should collaborate with media, health agencies, and NGOs to normalize sport as a valuable, enjoyable, and socially rewarding activity for older women. Empowering elderly women through targeted leadership roles within sport clubs or health groups can also catalyze long-term community engagement and health benefits.

Authors' Contributions

All authors have contributed significantly to the research process and the development of the manuscript.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

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Declaration of Interest

The authors report no conflict of interest.

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Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

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