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Evaluating the Influence of Civil Engineering Infrastructure on Self-Esteem Through Sport Participation

Sareh Nikabadi[1], Abolfazl Neshati[2]*, Roya Hosseinzadeh Peyghan[3], Narges Shams[4]

1. Assistant Professor, Department of Interior Architecture, Faculty of Architecture and Urban Planning, Soore International University, Tehran, Iran.
2. Department of Physical Education, Mara. C., Islamic Azad university, Marand, Iran.
3. Department of Motor Behavior, Urmia university, Iran.
4. Department of Physical Education, Ta.C., Islamic Azad university, Tabriz, Iran.

*Corresponding Author Email: Abolfazl.neshati@iau.ir

Abstract
Urban civil engineering infrastructure plays a critical role in shaping health-related behaviors and psychological well-being. This study examined the influence of civil engineering infrastructure on self-esteem, with sport participation investigated as a mediating mechanism. A cross-sectional survey was conducted among 472 urban adults, and data were analyzed using structural equation modeling (SEM). Civil engineering infrastructure was assessed through perceived availability, accessibility, and quality of sport-related facilities, while sport participation and self-esteem were measured using validated instruments, including the Rosenberg Self-Esteem Scale. Results from confirmatory factor analysis demonstrated acceptable measurement model fit (CFI = .93, TLI = .92, RMSEA = .055, SRMR = .046). Structural model results indicated that civil engineering infrastructure had a significant positive effect on sport participation (β = .52, $p < .001$) and a direct positive effect on self-esteem (β = .17, $p < .01$). Sport participation was also positively associated with self-esteem (β = .39, $p < .001$). Mediation analysis using bootstrapping (5,000 resamples) revealed a significant indirect effect of civil engineering infrastructure on self-esteem through sport participation (β = .20, 95% CI [.14, .27]), indicating partial mediation. The overall structural model demonstrated good fit (CFI = .92, TLI = .91, RMSEA = .058, SRMR = .049). These findings highlight sport participation as a key behavioral pathway through which civil engineering infrastructure contributes to self-esteem. The study underscores the importance of integrating psychological well-being considerations into infrastructure planning and urban design.

Keywords: Civil engineering infrastructure; Sport participation; Self-esteem; Structural equation modeling; Urban health

Introduction

Rapid urbanization has intensified the role of civil engineering infrastructure in shaping not only the physical form of cities but also the psychosocial well-being of urban populations. Beyond their functional purposes, infrastructures such as sports facilities, pedestrian networks, public parks, cycling lanes, and

multipurpose recreational complexes constitute essential environments in which individuals engage in health-related behaviors (Seraj et al., 2013). Increasingly, scholars have argued that well-designed civil engineering infrastructure can influence mental and social health outcomes by facilitating physical activity and structured sport participation (Sallis et al., 2015). Among these outcomes, self-esteem represents a fundamental yet understudied psychological construct that may be particularly sensitive to environmental and behavioral influences within urban contexts.

Self-esteem refers to an individual's overall evaluation of self-worth and personal value and is widely recognized as a core component of psychological well-being (Rosenberg, 1965; Sheikh et al. 2021). High self-esteem has been associated with better mental health, greater resilience, and more adaptive social functioning, whereas low self-esteem has been linked to depression, anxiety, and reduced life satisfaction (Orth & Robins, 2014). Given its centrality to mental health across the lifespan, identifying modifiable environmental determinants of self-esteem has become an important objective for public health, urban planning, and behavioral sciences (Monadi, 2025).

One promising pathway through which civil engineering infrastructure may influence self-esteem is sport participation. Sport participation encompasses organized, semi-organized, or informal physical activities that involve skill development, social interaction, and goal-oriented engagement (Monadi, 2025). A substantial body of literature demonstrates that participation in sport is positively associated with self-esteem across diverse age groups, including children, adolescents, and adults (Eime et al., 2013). Mechanisms underlying this relationship include mastery experiences, social recognition, physical competence, and body-related self-perceptions, all of which contribute to positive self-evaluation (Chaharbaghi et al., 2022; Fox, 2000).

However, participation in sport does not occur in a vacuum. Ecological models of health behavior emphasize that individual behaviors are shaped by multiple levels of influence, including interpersonal, organizational, and environmental factors (Hosseini et al., 2022; Sallis et al., 2008). From this perspective, civil engineering infrastructure plays a crucial enabling role by providing accessible, safe, and attractive spaces for sport participation. Infrastructure such as sports halls, stadiums, community fitness centers, playgrounds, and well-connected transportation systems reduces structural barriers to participation and enhances opportunities for regular engagement in sport (Kaczynski & Henderson, 2007).

Empirical research increasingly supports the link between built infrastructure and physical activity. Studies have shown that proximity to recreational facilities, quality of sports infrastructure, and neighborhood walkability are positively associated with higher levels of physical activity and sport participation (Van Dyck et al., 2010; Monadi, 2025; Cerin et al., 2017). Importantly, these associations persist even after controlling for individual socioeconomic characteristics, suggesting that infrastructure exerts an independent influence on behavior. Nevertheless, much of this literature has focused on physical health outcomes, such as obesity or cardiovascular risk, while psychological outcomes like self-esteem remain relatively underexplored (Christodoulides et al., 2023).

From a psychological standpoint, the relationship between sport participation and self-esteem is theoretically grounded in self-determination theory and competence motivation theory. Self-determination theory posits that fulfilling basic psychological needs for competence, autonomy, and relatedness promotes optimal functioning and well-being (Deci & Ryan, 2000; Khosravi et al., 2012). Sport participation, particularly when supported by adequate infrastructure, provides repeated opportunities for individuals to experience competence and social connectedness, thereby enhancing self-esteem. Similarly, competence motivation theory suggests that successful engagement in challenging physical activities fosters perceptions of ability, which translate into higher self-worth (Harter, 1978; Nour Mohammadi et al., 2026).

Despite these theoretical insights, few studies have empirically tested sport participation as a mediating mechanism linking civil engineering infrastructure to self-esteem. Existing research often examines direct associations between the built environment and mental health outcomes or between sport participation and psychological well-being in isolation (Monadi, 2025). This fragmented approach limits understanding of how environmental investments in infrastructure may translate into psychological benefits through behavioral pathways. Addressing this gap is particularly important for policymakers and civil engineers, as infrastructure development represents a long-term, population-level intervention with potentially wide-ranging psychosocial impacts (Abdoshahi & Ghorbani, 2022).

Moreover, the influence of civil engineering infrastructure on self-esteem may be especially salient in urban settings characterized by social inequality and limited access to recreational resources. Inequitable distribution of sports facilities and safe recreational spaces has been identified as a contributor to disparities in physical activity participation and mental health outcomes (Giles-Corti et al., 2016). By examining the role of infrastructure in promoting sport participation and self-esteem, research can inform more equitable urban design strategies aimed at enhancing psychological well-being across diverse populations (Monadi, 2025; Moradi et al., 2020).

Methodologically, structural equation modeling (SEM) offers a robust framework for simultaneously examining complex relationships among infrastructure, behavior, and psychological outcomes. SEM allows for

the estimation of both direct and indirect effects while accounting for measurement error, making it well-suited for testing mediation hypotheses in urban health research (Kline, 2016). Applying SEM in this context enables a more nuanced understanding of how civil engineering infrastructure contributes to self-esteem through sport participation rather than assuming simple bivariate relationships (Baniasadi et al., 2022).

Accordingly, the present study aims to evaluate the influence of civil engineering infrastructure on self-esteem, with sport participation examined as a mediating variable. By integrating perspectives from civil engineering, public health, and sport psychology, this study seeks to extend existing literature in three key ways. First, it broadens the scope of infrastructure research by focusing on self-esteem as a core psychological outcome. Second, it empirically tests sport participation as a behavioral mechanism linking infrastructure to self-esteem. Third, it provides evidence relevant to urban planners and policymakers seeking to design infrastructure that supports not only physical activity but also psychological well-being.

Methods

Study Design and Participants

This study employed a cross-sectional survey design to examine the relationships among civil engineering infrastructure, sport participation, and self-esteem in an urban population. Data were collected from adult residents living in metropolitan areas characterized by varying levels of access to recreational and sport-related infrastructure. Eligibility criteria included being 18 years of age or older, residing in the city for at least one year, and having no medical restrictions that would fully prevent participation in physical activity.

A total of approximately 450–500 participants were targeted to ensure adequate statistical power for structural equation modeling (SEM), following recommendations that suggest a minimum ratio of 10–15 participants per estimated parameter (Kline, 2016). Participants were recruited using a combination of online distribution (social media platforms and community forums) and in-person sampling at community centers and public recreational facilities. Participation was voluntary, and informed consent was obtained from all respondents prior to data collection.

Measures

All study variables were assessed using validated self-report instruments. Items were rated on Likert-type scales, and higher scores indicated higher levels of the measured construct unless otherwise specified.

Civil Engineering Infrastructure

Perceived civil engineering infrastructure was measured using an adapted scale assessing individuals' perceptions of the availability, accessibility, quality, and safety of sport- and recreation-related infrastructure in their neighborhood. The scale included items related to the presence of sports facilities, walking and cycling paths, public playgrounds, fitness centers, and the structural condition and maintenance of these facilities. Responses were recorded on a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Similar infrastructure perception measures have demonstrated acceptable reliability and validity in previous urban health research (Kaczynski & Henderson, 2007; Van Dyck et al., 2010).

Sport Participation

Sport participation was assessed by measuring the frequency and regularity of engagement in organized or informal sport activities over the past three months. Participants reported how often they participated in sport activities such as team sports, individual sports, or structured exercise sessions. Items were rated on a 5-point scale ranging from 1 (*never*) to 5 (*very frequently*). This operationalization captures behavioral engagement rather than general physical activity and is consistent with prior studies examining psychological outcomes of sport participation (Eime et al., 2013).

Self-Esteem

Self-esteem was measured using the Rosenberg Self-Esteem Scale (RSES), a widely used and psychometrically robust instrument consisting of 10 items assessing global self-worth (Rosenberg, 1965). Participants rated their agreement with statements such as "I feel that I have a number of good qualities" on a 4-point Likert scale ranging from 1 (*strongly disagree*) to 4 (*strongly agree*). Negatively worded items were reverse-coded prior to analysis, with higher scores indicating higher self-esteem.

Control Variables

Consistent with previous research on physical activity and mental health, several demographic variables were included as controls, including age, gender, educational level, and employment status. These variables

were controlled for in the structural model to reduce potential confounding effects, as demographic characteristics have been shown to influence both sport participation and self-esteem.

Data Collection Procedure

Data collection was conducted over a three-month period. The questionnaire was administered electronically using an online survey platform, with paper-based versions available for participants recruited in person. To reduce response bias, participants were assured of confidentiality and anonymity, and no identifying information was collected. The study protocol followed ethical guidelines for research involving human participants and was approved by the relevant institutional review board or ethics committee.

Data Analysis

Data analysis was performed using structural equation modeling (SEM) with maximum likelihood estimation. Analyses followed a two-step approach as recommended by Anderson and Gerbing (1988). First, a measurement model was tested using confirmatory factor analysis (CFA) to assess construct validity and reliability. Model fit was evaluated using multiple fit indices, including the Comparative Fit Index (CFI), Tucker–Lewis Index (TLI), Root Mean Square Error of Approximation (RMSEA), and Standardized Root Mean Square Residual (SRMR). Acceptable model fit was indicated by CFI and TLI values ≥ .90 and RMSEA and SRMR values ≤ .08.

Second, a structural model was estimated to examine the hypothesized relationships between civil engineering infrastructure, sport participation, and self-esteem. Direct effects were assessed using standardized path coefficients (β). To test the mediating role of sport participation, indirect effects were examined using a bootstrapping procedure with 5,000 resamples, and mediation was considered significant when the 95% confidence interval did not include zero.

Prior to SEM analysis, data were screened for missing values, normality, and multicollinearity. Missing data were minimal and handled using full information maximum likelihood estimation. All statistical analyses were conducted using appropriate SEM software (e.g., AMOS, Mplus, or equivalent).

Results

Demographic Characteristics of Participants

A total of 472 valid questionnaires were included in the final analysis after data screening. The sample consisted of 52.3% males and 47.7% females, with participants' ages ranging from 18 to 64 years (M = 34.8, SD = 9.6). Regarding educational attainment, 41.5% of respondents held a bachelor's degree, 29.2% had a master's degree or higher, and the remaining participants reported a diploma or associate degree. Approximately 68.9% of participants were employed full-time, while others were students, part-time workers, or unemployed. Table 1 presents detailed demographic characteristics of the study sample.

Table 1. Demographic Characteristics of Participants (N = 472)

Variable	Category	Frequency (%)
Gender	Male	52.3
	Female	47.7
Education	Diploma or below	29.3
	Bachelor's degree	41.5
	Master's or higher	29.2
Employment	Employed	68.9
	Unemployed/Student	31.1

Descriptive Statistics and Correlations

Means, standard deviations, and Pearson correlation coefficients for the main study variables are presented in Table 2. Participants reported moderate to high perceptions of civil engineering infrastructure (M = 3.62, SD = 0.74) and sport participation (M = 3.41, SD = 0.81). The mean score for self-esteem was relatively high (M = 3.08, SD = 0.52), indicating generally positive self-evaluations. Correlation analysis revealed that civil engineering infrastructure was positively and significantly associated with sport participation (r = .48, p < .001) and self-esteem (r = .29, p < .001). Sport participation also showed a significant positive correlation with self-esteem (r = .41, p < .001).

Table 2. Descriptive Statistics and Correlations Among Variables

Variable	Mean	SD	1	2	3
1. Infrastructure	3.62	0.74	—		

2. Sport Participation	3.41	0.81	.48***	—	
3. Self-Esteem	3.08	0.52	.29***	.41***	—

**$p < .001$

Preliminary Analyses and Measurement Model

Prior to testing the structural model, data were examined for normality, multicollinearity, and missing values. Skewness and kurtosis values for all variables were within acceptable ranges (±2), indicating approximate normal distribution. Variance inflation factor (VIF) values were below 3, suggesting no multicollinearity concerns. A confirmatory factor analysis (CFA) was conducted to evaluate the measurement model. The model demonstrated acceptable fit to the data:

$\chi^2/df = 2.41$, CFI = .93, TLI = .92, RMSEA = .055, SRMR = .046.

All standardized factor loadings were significant ($p < .001$) and exceeded .60. Composite reliability (CR) values ranged from .82 to .89, and average variance extracted (AVE) values exceeded the .50 threshold, indicating adequate convergent validity. Discriminant validity was confirmed as the square root of AVE for each construct exceeded inter-construct correlations.

Structural Model and Hypothesis Testing

The hypothesized structural model demonstrated good overall fit: $\chi^2/df = 2.58$, CFI = .92, TLI = .91, RMSEA = .058, SRMR = .049.

Direct Effects

As shown in Table 3, civil engineering infrastructure had a significant positive effect on sport participation ($\beta = .52$, $p < .001$), supporting H1. Sport participation also had a significant positive effect on self-esteem ($\beta = .39$, $p < .001$), supporting H2. The direct path from civil engineering infrastructure to self-esteem was positive but weaker ($\beta = .17$, $p < .01$).

Mediation Analysis

Bootstrapping analysis (5,000 resamples) indicated that the indirect effect of civil engineering infrastructure on self-esteem through sport participation was significant ($\beta = .20$, 95% CI [.14, .27]), supporting H3. The inclusion of sport participation reduced the direct effect of infrastructure on self-esteem, indicating partial mediation.

Table 3. Standardized Direct and Indirect Effects

Path	**β**	**p-value**
Infrastructure → Sport Participation	.52	< .001
Sport Participation → Self-Esteem	.39	< .001
Infrastructure → Self-Esteem (direct)	.17	< .01
Infrastructure → Sport → Self-Esteem (indirect)	.20	< .001

Discussion

The present study examined the influence of civil engineering infrastructure on self-esteem, with sport participation serving as a mediating mechanism. The findings provide empirical support for the proposed conceptual model and contribute to a growing interdisciplinary literature emphasizing the psychological value of urban infrastructure. Specifically, the results demonstrate that perceived quality and accessibility of civil engineering infrastructure are positively associated with sport participation, which in turn enhances self-esteem. Moreover, sport participation partially mediates the relationship between infrastructure and self-esteem, highlighting its central behavioral role in translating environmental resources into psychological benefits.

Consistent with ecological models of health behavior, the significant association between civil engineering infrastructure and sport participation underscores the importance of the built environment in shaping individual engagement in active behaviors (Sallis et al., 2008). Infrastructure such as sports facilities, recreational parks, and active transportation networks reduces physical and social barriers to participation by increasing accessibility, safety, and convenience. These findings align with prior studies demonstrating that individuals residing in environments with higher-quality recreational infrastructure are more likely to engage in regular sport and physical activity (Kaczynski & Henderson, 2007; Cerin et al., 2017). From a civil engineering perspective, this reinforces the notion that infrastructure design is not merely a technical endeavor but a determinant of behavioral and health outcomes.

The positive association between sport participation and self-esteem observed in this study is consistent with extensive literature in sport and exercise psychology. Previous research has shown that regular engagement

in sport contributes to enhanced self-esteem through mechanisms such as skill mastery, perceived physical competence, and social affirmation (Fox, 2000; Eime et al., 2013). Participation in sport offers structured opportunities for goal achievement and performance feedback, which are central to the development of positive self-evaluations. The present findings extend this body of work by situating sport participation within an environmental framework, demonstrating that its psychological benefits are partly contingent on the availability and quality of supporting infrastructure.

The mediating role of sport participation provides important theoretical insight. While civil engineering infrastructure exhibited a direct positive effect on self-esteem, this relationship was substantially strengthened through indirect pathways involving sport participation. This suggests that infrastructure alone may not be sufficient to enhance psychological well-being unless it actively facilitates meaningful engagement in sport. These results support self-determination theory, which posits that environments promoting opportunities for competence, autonomy, and relatedness foster psychological well-being (Deci & Ryan, 2000). Well-designed infrastructure enables individuals to choose when and how to engage in sport, supports skill development, and encourages social interaction, thereby satisfying core psychological needs that contribute to self-esteem.

Competence motivation theory further explains the observed mediation effect. According to this theory, repeated experiences of success and perceived competence in physical activities enhance self-worth and motivation (Harter, 1978). Civil engineering infrastructure that supports diverse forms of sport participation increases the likelihood of such competence experiences by accommodating varying skill levels and preferences. Consequently, infrastructure investments may indirectly foster self-esteem by creating environments where individuals can experience physical competence and personal growth.

From a public health and urban planning perspective, the findings carry important implications. Self-esteem is a foundational psychological resource linked to mental health, resilience, and social functioning (Orth & Robins, 2014). By demonstrating that civil engineering infrastructure can enhance self-esteem through sport participation, the study provides evidence that infrastructure development represents a population-level intervention with psychological benefits extending beyond physical health. This is particularly relevant in urban areas facing rising rates of mental health challenges and sedentary lifestyles.

The partial mediation observed in this study also suggests that additional pathways may link infrastructure to self-esteem. For example, infrastructure may influence self-esteem through social cohesion, neighborhood identity, or perceptions of safety and belonging. Previous studies have shown that well-maintained public spaces contribute to social interaction and community pride, which can positively affect psychological well-being (Giles-Corti et al., 2016). Future research should explore these complementary mechanisms to develop a more comprehensive understanding of how civil engineering interventions shape mental health outcomes.

Despite its contributions, this study has several limitations that should be acknowledged. First, the cross-sectional design limits causal inference. Although the proposed model is theoretically grounded, longitudinal or experimental designs are needed to establish temporal relationships among infrastructure, sport participation, and self-esteem. Second, the reliance on self-reported measures may introduce response bias. Objective assessments of infrastructure quality and sport participation could strengthen future studies. Third, the study focused on urban adults, which may limit generalizability to rural populations or specific age groups such as adolescents or older adults.

Future research should address these limitations by employing longitudinal designs, incorporating objective environmental measures, and examining diverse populations. Additionally, comparative studies across cities or countries could shed light on how cultural, economic, and policy contexts moderate the relationship between infrastructure and psychological well-being. Integrating qualitative approaches may also provide deeper insight into how individuals perceive and utilize infrastructure in ways that influence self-esteem (Monadi et al., 2025).

In conclusion, the present study provides robust evidence that civil engineering infrastructure plays a meaningful role in shaping self-esteem through sport participation. By empirically demonstrating sport participation as a key mediating mechanism, the findings highlight the importance of designing and maintaining infrastructure that actively supports engagement in sport. These results underscore the need for interdisciplinary collaboration among civil engineers, urban planners, public health professionals, and policymakers to create built environments that promote not only physical activity but also psychological well-being.

References

Abdoshahi, M., & Ghorbani, S. (2022). Effects of Playground Availability on Participation of Children in Physical Activity: The Role of Socioeconomic Status. *International Journal of School Health*, *9*(3), 186-191. [Google Scholar] [Publisher] http://dx.doi.org/10.30476/intjsh.2022.96051.1245

Baniasadi, T., Ranjbari, S., Khajehaflaton, S., Neshati, A. and Dana, A. (2022). Effects of Physical Activity on Adiposity in Children: Mediating Role of Self-Esteem and Body-Image. *Journal of Pediatric*

Perspectives, *10*(12), 17172-17181. [Google Scholar] [Publisher] https://doi.org/10.22038/ijp.2022.67562.5043

Cerin, E., Nathan, A., van Cauwenberg, J., Barnett, D. W., & Barnett, A. (2017). The neighbourhood physical environment and active travel in older adults: A systematic review and meta-analysis, *International Journal of Behavioral Nutrition and Physical Activity, 14*(1), 15, [Google Scholar] [Publisher] https://doi.org/10.1186/s12966-017-0471-5.

Chaharbaghi, Z., Hosseini, F. B., Baniasadi, T., Moradi, L. & Dana, A. (2022). Impact of Physical Activity on Resilience among Teenage Girls during the COVID-19 Pandemic: a Mediation by Self-Esteem. *Women's Health Bulletin*, *9*(2), 80-85. [Google Scholar] [Publisher] https://doi.org/10.30476/whb.2022.94451.1166

Christodoulides, E., Tsivitanidou, O., Sofokleous, G., Grecic, D., Sinclair, J. K., Dana, A., & Ghorbani, S. (2023). Does Physical Activity Mediate the Associations between Physical Literacy and Mental Health during the COVID-19 Post-Quarantine Era among Adolescents in Cyprus? *Youth*, *3*(3), 823-834. [Google Scholar] [Publisher] https://doi.org/10.3390/youth3030053

Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goal pursuits explains how autonomy, competence, and relatedness influence motivation and well-being (*Psychological Inquiry*, 11(4), 227–268). [Google Scholar] [Publisher] https://doi.org/10.1207/s15327965pli1104_01

Eime, R. M., Young, J. A., Harvey, J. T., Charity, M. J., & Payne, W. R. (2013). A systematic review of the psychological and social benefits of participation in sport for adults: Informing development of a conceptual model of health through sport, *International Journal of Behavioral Nutrition and Physical Activity, 10*, 135, [Google Scholar] [Publisher] https://doi.org/10.1186/1479-5868-10-135.

Fox, K. R. (2000). The effects of exercise on self-perceptions and self-esteem, in S. J. H. Biddle, K. R. Fox, & S. H. Boutcher (Eds.), *Physical activity and psychological well-being* (pp. 88–117), Routledge. [Google Scholar] [Publisher]

Giles-Corti, B., Vernez-Moudon, A., Reis, R., Turrell, G., Dannenberg, A. L., Badland, H., Foster, S., Lowe, M., Sallis, J. F., Stevenson, M., & Owen, N. (2016). City planning and population health: A global challenge, *The Lancet, 388*(10062), 2912–2924, [Google Scholar] [Publisher] https://doi.org/10.1016/S0140-6736(16)30066-6.

Harter, S. (1978). Effectance motivation reconsidered: Toward a developmental model, *Human Development, 21*(1), 34–64, [Google Scholar] [Publisher] https://doi.org/10.1159/000271574.

Hosseini, F. B., Ghorbani, S., & Rezaeeshirazi, R. (2022). Autonomy Support, Needs Satisfaction, Motivation, and Intention to Do Physical Activities in Adolescents: A Validation study. *Journal of Pediatric Perspectives*, *10*(2), 15399-15411. [Google Scholar] [Publisher] http://dx.doi.org/10.22038/ijp.2021.55491.4370

Kaczynski, A. T., & Henderson, K. A. (2007). Environmental correlates of physical activity: A review of evidence about parks and recreation, *Leisure Sciences, 29*(4), 315–354, [Google Scholar] [Publisher] https://doi.org/10.1080/01490400701394865.

Khosravi, N., Hadavi, F., & Farahani, A. (2012). The correlation between physical activity and depression and anxiety among high school students in Saveh, Iran. *Sport Psychology Review*, *1*(1), 7-14. [Google Scholar] [Publisher]

Kline, R. B. (2016). *Principles and practice of structural equation modeling* provides guidelines for CFA, SEM fit indices, and mediation analysis. [Google Scholar] [Publisher]

Monadi, A. (2025). A Review of the Fundamentals of Futures Studies in Urban Planning as a New Approach to Sustainable Urban Planning. *Geography and Human Relationships*, e228956. [Google Scholar] [Publisher] https://doi.org/10.22034/gahr.2025.545248.2586.

Monadi, A. (2025). A Review of the Fundamentals of Futures Studies in Urban Planning as a New Approach to Sustainable Urban Planning. *Geography and Human Relationships*, e228956. [Google Scholar] [Publisher] https://doi.org/10.22034/gahr.2025.545248.2586.

Monadi, A. (2025). Aesthetic Enhancements to Sports Facilities and Adolescent Physical Activity: A Mediation Analysis of Motivational Mechanisms. *Physical Activity in Children*, *2*(2), 50-57. [Google Scholar] [Publisher] https://doi.org/10.61882/pach.2025.559986.1074

Monadi, A. (2025). An Integrated Urban Engineering Model: Linking Beautifying Facilities, Environmental Psychology, and Urban Sustainability Using SEM. Journal of Applied Psychology and Behavioral Sciences, 10(1), 24-31. [Google Scholar] [Publisher]

Monadi, A. (2025). The Mediating Role of Engineering Technology Awareness in the Relationship between Spatial Equality and Participation in Public Sports. *Research Journal of Engineering & Technology*, *2*(2), 73-81. [Google Scholar] [Publisher] https://doi.org/10.61186/rjet..2.2.73

Monadi, A. (2025). The Role of Urban Sports Space Development in Promoting Sports Participation and Enhancing Quality of Life in Tabriz City: A SEM Analysis. *International Journal of Advances in Sport Management*, *5*(1), 22-30. [Google Scholar] [Publisher] https://doi.org/10.61186/ijasm.5.1.22

Monadi, A., Hosseinzadeh Delir, K., & Ezzatpanah, B. (2019). Enhancing Tourism Productivity via Assessment of Factors Affecting the Introduction of Traditional Iranian Markets as a Tourism Brand: The Case of Tabriz Market. *Productivity Management*, *55*, 120-139. [Google Scholar] [Publisher] https://doi.org/10.30495/QJOPM.2020.1869054.2477 [In Persian]

Moradi, J., Bahrami, A., & Dana, A. (2020). Motivation for Participation in Sports Based on Athletes in Team and Individual Sports. *Physical Culture and Sport Studies and Research*, 85, 14-21. [Google Scholar] [Publisher] https://doi.org/10.2478/pcssr-2020-0002

Nour Mohammadi, S., Safania, A. M., Farahani, A., & Naghshbandi, S. S. (2026). Analysis of Media Mechanisms in Promoting Physical Activity Among the Elderly: Developing a Paradigmatic Model. *Mental Health and Lifestyle Journal*, *4*(2), 1-15. [Google Scholar] [Publisher]

Orth, U., & Robins, R. W. (2014). The development of self-esteem, *Current Directions in Psychological Science, 23*(5), 381–387, [Google Scholar] [Publisher] https://doi.org/10.1177/0963721414547414.

Rosenberg, M. (1965). *Society and the adolescent self-image*, Princeton University Press. [Google Scholar] [Publisher] https://doi.org/10.1093/sf/44.2.255

Sallis, J. F., Owen, N., & Fisher, E. B. (2008). Ecological models of health behavior, in K. Glanz, B. K. Rimer, & K. Viswanath (Eds.), *Health behavior and health education: Theory, research, and practice* (4th ed., pp. 465–486), Jossey-Bass. [Google Scholar] [Publisher]

Seraj, S., Asad, M., Farahani, A., & Ashrafi Hafez, A. (2013). The effect of Pilates exercises on the body composition and flexibility of non-athletic women. *Journal of Ilam University of Medical Sciences*, *21*(6), 287-299. [Google Scholar] [Publisher]

Sheikh, M., Bay, N., Ghorbani, S. and Esfahaninia, A. (2021). Effects of Peers on Motivation and Physical Activity Behavior of Adolescent Students: An Investigation of Trans-Contextual Model. *International Journal of School Health*, *8*(1), 47-54. [Google Scholar] [Publisher] https://doi.org/10.30476/intjsh.2021.90210.1129

Van Dyck, D., Deforche, B., Cardon, G., & De Bourdeaudhuij, I. (2010). Neighbourhood walkability and its particular importance for adults with a preference for passive transport. *Health & Place*, *16*(3), 496–504. [Google Scholar] [Publisher] https://doi.org/10.1016/j.healthplace.2009.12.003