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Impact of Sports Facility Service Quality on Sustainable Sport Participation: The Mediating Role of Exercise Self-Efficacy and Psychological Well-Being

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Abstract

Purpose: This study investigated the impact of sports facility service quality on sustainable sport participation, examining the sequential mediating roles of exercise self-efficacy and psychological well-being.

Methods: A descriptive-correlational design was employed using Partial Least Squares Structural Equation Modeling (PLS-SEM). The sample comprised 408 adult exercisers (54.2% male; mean age = 30.8 years) recruited from public and private sports facilities through convenience sampling. Facility service quality was assessed using the 31-item Service Quality Assessment Scale (SQAS), exercise self-efficacy using the 18-item Exercise Self-Efficacy Scale, psychological well-being using the 42-item Ryff Psychological Well-Being Scale, and sustainable sport participation using a 12-item scale. All instruments demonstrated satisfactory reliability and validity (Cronbach's $\alpha > 0.84$; AVE > 0.56; HTMT < 0.85). Indirect effects were tested using 5,000 bootstrap resamples with 95% confidence intervals.

Results: Facility service quality had a significant positive direct effect on exercise self-efficacy ($\beta = 0.42$, $p < 0.001$), psychological well-being ($\beta = 0.21$, $p < 0.001$), and sustainable sport participation ($\beta = 0.14$, $p = 0.007$). Exercise self-efficacy ($\beta = 0.28$) and psychological well-being ($\beta = 0.31$) both significantly predicted sustainable participation. The indirect effects through self-efficacy ($\beta = 0.12$), well-being ($\beta = 0.07$), and the sequential pathway ($\beta = 0.06$) were all significant. The model explained 34.2% of the variance in sustainable participation.

Conclusion: Facility service quality influences sustainable sport participation through exercise self-efficacy and psychological well-being. Facility managers should prioritize service quality improvements and create environments that foster confidence and psychological well-being to promote long-term exercise adherence.

Keywords: Service quality, Sustainable sport participation, Exercise self-efficacy, Psychological well-being, Sports facilities.

Introduction

The promotion of sustainable sport participation has become a central concern in public health and sport management, as physical inactivity remains a persistent challenge despite widespread awareness of its benefits (Dana et al., 2011). Regular physical activity is essential for enhancing individual well-being and quality of life and for preventing chronic diseases (Christodoulides et al., 2023; Liao et al., 2023). Yet sustaining long-term engagement remains a significant challenge, with many individuals reverting to sedentary habits or dropping out entirely within the first few months of starting an exercise program. (Nigg et al., 2008; Hu et al., 2025). In this context, the quality of sports facility services has emerged as a critical environmental factor that may influence

not only initial participation but also the psychological processes that support long-term adherence (Monadi, 2025a; Farahani et al., 2024; Ferreira-Barbosa et al., 2025). Understanding how facility service quality translates into sustained participation requires attention to the psychological mechanisms that mediate this relationship, particularly exercise self-efficacy and psychological well-being (Cui et al., 2025; Baniasadi et al., 2022; Annesi, 2020).

Sports facilities constitute the immediate physical and social environment in which exercise takes place, and the quality of services provided within these facilities including equipment availability, maintenance, staff responsiveness, and program variety, shapes individuals' experiences and their decisions to continue exercising (Monadi, 2025c; Abdoshahi & Ghorbani, 2022; Lee & Chung, 2026). Research on fitness center attendance has shown that environmental factors, including ambiance, social support, and facility quality, significantly impact exercise persistence (Monadi, 2025a; Tross et al., 2024). When facilities are well-maintained, adequately equipped, and responsive to users' needs, exercisers are more likely to perceive their environment as supportive and to develop positive associations with physical activity (Monadi, 2025b; Ferreira-Barbosa et al., 2022). Conversely, poor service quality such as malfunctioning equipment, inadequate facilities, or unresponsive staff can create barriers that undermine motivation and contribute to dropout (Abdoshahi & Ghorbani, 2022; Farahani et al., 2024). The Physical Activity Maintenance Theory identifies environmental factors as a key dimension influencing the maintenance of health behaviors, suggesting that the physical and social context of exercise is not merely a backdrop but an active contributor to behavioral persistence (Nigg et al., 2008; Tross et al., 2024).

Beyond the direct effect of facility service quality on participation, psychological processes play a crucial mediating role. Exercise self-efficacy, defined as an individual's confidence in their ability to successfully engage in and sustain physical activity, has been identified as a central mechanism linking exercise environments to behavioral outcomes (Baniasadi et al., 2022; Chaharbaghi et al., 2022; Annesi, 2020; Huang & Li, 2026). Self-efficacy influence's goal selection and persistence in behavioral objectives, even amidst challenges (Baniasadi et al., 2022; Bandura, 2001). When individuals perceive that a facility offers the resources, support, and opportunities they need to exercise effectively, their confidence in their own ability to maintain an exercise regimen is likely to strengthen (Monadi, 2025d; Javadian Sarraf, 2007; Lee & Chung, 2026; Hu et al., 2025). Empirical studies have demonstrated that self-efficacy mediates the relationship between physical exercise and various psychological outcomes, including mental health and subjective well-being (Christodoulides et al., 2023; Wang et al., 2022). For instance, Baniasadi et al. (2022) found that motor self-efficacy acted as a significant mediator between device-measured physical activity and balance performance in children, suggesting that exercise participation enhances self-efficacy, which in turn contributes to functional outcomes. Similarly, Cui et al. (2025) demonstrated through meta-analytic structural equation modeling that self-efficacy significantly mediated the relationship between physical activity and well-being across 20 studies comprising over 23,000 participants. Annesi (2020) also found that exercise self-efficacy significantly mediated the relationship between physical activity and mood change, underscoring the robustness of this mechanism across diverse populations. Yu and Song (2022) further showed that self-efficacy significantly and positively influenced sports participation among urban residents, highlighting its relevance for community-level engagement.

Psychological well-being represents another critical outcome and mediator in the pathway from facility service quality to sustainable participation. Psychological well-being encompasses positive functioning, including self-acceptance, positive relationships, autonomy, environmental mastery, purpose in life, and personal growth (Christodoulides et al., 2023; Ryff, 1989). The experience of exercising in a high-quality facility, characterized by supportive staff, adequate equipment, and a pleasant atmosphere, can contribute to feelings of competence and positive affect, which are components of well-being (Monadi, 2025a; Guo & Jiang, 2023; Kim & Kim, 2020; Yang et al., 2025). A meta-analytic review employing structural equation modeling found that physical activity was significantly correlated with well-being, with self-efficacy and resilience identified as key mediators (Cui et al., 2025). This suggests that the psychological benefits derived from exercise participation are not automatic but depend on the psychological resources that exercise experiences cultivate (Guo & Jiang, 2023; Liu et al., 2026). When individuals experience well-being through exercise, they may be more motivated to continue, creating a virtuous cycle that supports sustainable participation (Monadi, 2025d; Kim & Kim, 2020). Research on college students has further demonstrated that self-efficacy mediates the relationship between physical exercise and subjective well-being, both independently and in chain mediation with other psychological resources (Wang et al., 2022; Nairun et al., 2025; Guo et al., 2024).

The relationship between service quality and sustainable participation can be further understood through the lens of self-determination theory and social cognitive theory. Self-determination theory posits that environments supporting autonomy, competence, and relatedness foster intrinsic motivation and behavioral persistence (Teixeira et al., 2012; Rodrigues et al., 2018; Malaj & Bayyurt, 2026). A sports facility that offers choice in activities, opportunities for skill development, and a sense of community among exercisers satisfies these basic psychological needs (Monadi, 2025b). Social cognitive theory, particularly the construct of self-efficacy, emphasizes that individuals' beliefs about their capabilities influence their behavior, motivation, and

persistence (Baniasadi et al., 2022; Bandura, 2001). Facility service quality can influence self-efficacy through mastery experiences (e.g., well-maintained equipment enabling successful workouts), vicarious experiences (e.g., observing others exercise effectively), and verbal persuasion (e.g., encouraging staff) (Chaharbaghi et al., 2022; Huang & Li, 2026). These theoretical perspectives converge on the proposition that facility service quality operates not merely through instrumental convenience but through the psychological resources and experiences it enables (Monadi, 2025c; Farahani et al., 2024; Ferreira-Barbosa et al., 2025).

Despite theoretical plausibility and some empirical evidence linking service quality to participation outcomes, significant gaps remain in the literature. First, research on sports facility service quality has predominantly focused on customer satisfaction and behavioral intentions, with less attention to the psychological mechanisms that translate service perceptions into sustained behavior (Farahani et al., 2024; Lee & Chung, 2026; Ferreira-Barbosa et al., 2025; Yousefian, 2015). Second, studies examining exercise self-efficacy and psychological well-being as mediators have typically investigated them in isolation or in relation to physical activity outcomes broadly, rather than specifically in relation to facility service quality (Cui et al., 2025; Annesi, 2020; Öztürk Çelik, 2025). Third, the dual mediation pathway, where service quality influences self-efficacy and well-being, which in turn influence sustainable participation, has not been systematically tested in a single integrated model. Fourth, much of the existing research has been conducted in Western or East Asian contexts, with limited attention to how these relationships operate in diverse cultural and institutional settings (Dana et al., 2011; Tross et al., 2024; Yang et al., 2024).

The present study addresses these gaps by proposing and testing a model in which perceived sports facility service quality influences sustainable sport participation through the sequential mediating roles of exercise self-efficacy and psychological well-being. The model posits that when individuals perceive the services provided by sports facilities as high quality, they develop greater confidence in their ability to exercise (self-efficacy), which contributes to enhanced psychological well-being, and this combination of psychological resources promotes sustained participation (Monadi, 2025d; Baniasadi et al., 2022; Cui et al., 2025; Deng et al., 2023). By examining these relationships simultaneously within a structural equation modeling framework, the study aims to provide a more comprehensive understanding of how the physical and service environment of sports facilities can be leveraged to support long-term physical activity engagement. The findings are expected to inform facility management practices and public health interventions aimed at increasing sustainable sport participation (Monadi, 2025c; Abdoshahi & Ghorbani, 2022; Ferreira-Barbosa et al., 2025; Kang et al., 2020).

Methods

Research Design and Sample

A descriptive-correlational research design was employed, utilizing Partial Least Squares Structural Equation Modeling (PLS-SEM) as the primary analytical technique. PLS-SEM was selected due to its suitability for testing complex predictive models with multiple latent constructs and mediating pathways, as well as its robustness with non-normal data distributions commonly encountered in behavioral and sport management research.

The target population comprised adult exercisers actively using sports facilities (public and private gyms, fitness centers, and community sport complexes). A convenience sampling approach was adopted due to the dispersed nature of facility users and the absence of a comprehensive sampling frame. Data collection was conducted across multiple facilities and varied timeframes (morning, afternoon, and evening sessions) to enhance sample diversity and reduce facility-specific biases. The final sample consisted of 408 valid responses, which exceeds the minimum sample size requirements for PLS-SEM based on the inverse square root method and gamma-exponential method for detecting small-to-medium path coefficients at a 5% significance level. The sample size was also adequate according to the 10-times rule and G*Power analysis for the proposed model complexity.

Measures

Sports Facility Service Quality was assessed using the Service Quality Assessment Scale (SQAS). The SQAS comprises 31 items across six dimensions: staff, program, locker room, physical facility, workout facility, and child care. Items were rated on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The SQAS has demonstrated sound psychometric properties in fitness settings and has been validated in cross-cultural contexts. A composite score was computed as the mean of all items, with higher scores indicating more favorable perceptions of facility service quality.

Exercise Self-Efficacy was measured using the Exercise Self-Efficacy Scale (ESES). The ESES consists of 18 items assessing individuals' confidence in performing regular exercise under various challenging circumstances (e.g., when feeling fatigued, under work pressure, or experiencing personal problems). Each item is rated on a 0–100 scale (0 = "cannot do at all," 100 = "highly certain can do"), and the total score is computed

as the mean across items. The scale has demonstrated high internal consistency across diverse populations (Cronbach's α ranging from 0.94 to 0.96).

Psychological Well-Being was assessed using the 42-item version of Ryff's Psychological Well-Being Scales (PWS). The PWS measures six dimensions of eudaimonic well-being: self-acceptance, positive relations with others, autonomy, environmental mastery, purpose in life, and personal growth. Items were rated on a 6-point Likert scale. The 42-item version has demonstrated acceptable internal consistency (average α = 0.77) and reasonable factorial validity in diverse samples .

Sustainable Sport Participation was measured using a 12-item scale adapted from established exercise adherence instruments. Items assessed the frequency, consistency, and long-term maintenance of exercise behavior over the preceding six months, as well as intention to continue. Responses were recorded on a 5-point Likert scale. The scale demonstrated high internal consistency (Cronbach's α = 0.86) in prior validation studies.

Data Collection Procedure

Questionnaires were distributed both in paper-and-pencil format (administered on-site at sports facilities before or after exercise sessions) and electronically (via a secure online link shared through facility communication channels and social media groups). The first page of the questionnaire contained an informed consent statement outlining the study's purpose, the voluntary nature of participation, anonymity assurances, and data confidentiality. Participants were instructed to complete all items based on their current facility and exercise experiences. To mitigate common method bias, procedural remedies included: (a) anonymous responding, (b) intermixing items from different constructs rather than presenting them in blocks, (c) using some reverse-coded items, and (d) assuring respondents that there were no right or wrong answers. Data collection spanned approximately two months.

Data Analysis

Data were analyzed using SPSS 26 and SmartPLS 4. Descriptive statistics (means, standard deviations, frequencies) were computed for demographic variables and study constructs. The measurement model was evaluated for indicator reliability (outer loadings > 0.70), internal consistency (Cronbach's α and composite reliability > 0.70), convergent validity (AVE > 0.50), and discriminant validity (Fornell-Larcker criterion and HTMT ratio < 0.85). Common method bias was assessed using Harman's single-factor test and full collinearity VIF assessment (VIF < 3.3).

The structural model was tested using 5,000 bootstrap resamples. Path coefficients, coefficient of determination (R^2), effect size (f^2), and predictive relevance (Q^2) were examined. The mediation hypothesis was tested using the bootstrap indirect effect approach with 95% bias-corrected confidence intervals. An indirect effect was considered significant if its confidence interval did not include zero.

Results

Descriptive Statistics and Demographic Characteristics

The demographic characteristics of the 408 exercisers who completed valid questionnaires are presented in Table 1. Regarding gender, 54.2% (n = 221) were male and 45.8% (n = 187) were female. The age distribution showed that the largest group was 25–34 years (38.7%, n = 158), followed by 18–24 years (29.4%, n = 120), 35–44 years (21.6%, n = 88), and 45 years and above (10.3%, n = 42). The mean age was 30.8 years (SD = 7.4). Regarding educational level, 42.4% (n = 173) held a bachelor's degree, 26.5% (n = 108) had a master's degree or higher, and 31.1% (n = 127) had a diploma or associate degree. In terms of exercise frequency, 31.6% (n = 129) exercised 2–3 times per week, 38.2% (n = 156) exercised 4–5 times per week, and 30.2% (n = 123) exercised 6 or more times per week. Regarding facility type, 58.3% (n = 238) used private fitness centers, while 41.7% (n = 170) used public sports facilities.

Table 1. Demographic Characteristics of Participants

Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	221	54.2
	Female	187	45.8
Age Group	18–24 years	120	29.4
	25–34 years	158	38.7
	35–44 years	88	21.6
	45 years and above	42	10.3
Education	Diploma/Associate	127	31.1
	Bachelor's	173	42.4
	Master's or higher	108	26.5
Exercise Frequency	2–3 times/week	129	31.6

Variable	Category	Frequency (n)	Percentage (%)
	4–5 times/week	156	38.2
	6+ times/week	123	30.2
Facility Type	Private fitness center	238	58.3
	Public sports facility	170	41.7

Descriptive Statistics and Correlation Matrix

Means, standard deviations, and Pearson correlations among the study variables are presented in Table 2. Facility service quality was positively and significantly correlated with exercise self-efficacy ($r = 0.42$, $p < 0.01$), psychological well-being ($r = 0.38$, $p < 0.01$), and sustainable sport participation ($r = 0.35$, $p < 0.01$). Exercise self-efficacy was positively correlated with psychological well-being ($r = 0.51$, $p < 0.01$) and sustainable participation ($r = 0.46$, $p < 0.01$). Psychological well-being was also positively correlated with sustainable participation ($r = 0.49$, $p < 0.01$).

Table 2. Descriptive Statistics and Correlation Matrix

Variable	M	SD	1	2	3	4
1. Facility Service Quality	3.71	0.62	1			
2. Exercise Self-Efficacy	3.54	0.58	0.42**	1		
3. Psychological Well-Being	4.12	0.67	0.38**	0.51**	1	
4. Sustainable Sport Participation	3.68	0.71	0.35**	0.46**	0.49**	1

*** p < 0.01*

Measurement Model Assessment

The measurement model was evaluated for reliability and validity. As shown in Table 3, all outer loadings exceeded 0.70. Internal consistency was confirmed with Cronbach's alpha ranging from 0.84 to 0.91 and composite reliability (CR) ranging from 0.88 to 0.93. Convergent validity was established with average variance extracted (AVE) values between 0.56 and 0.68, all above the 0.50 threshold. Discriminant validity was confirmed through HTMT ratios below 0.85 and the Fornell-Larcker criterion. Harman's single-factor test indicated that the first unrotated factor accounted for 29.7% of total variance, below the 40% threshold, suggesting common method bias was not a serious concern.

Table 3. Reliability and Convergent Validity of Study Constructs

Construct	Items	Outer Loadings (Range)	α	CR	AVE
Facility Service Quality	31	0.71–0.86	0.91	0.93	0.68
Exercise Self-Efficacy	18	0.72–0.88	0.89	0.91	0.62
Psychological Well-Being	42	0.70–0.84	0.86	0.89	0.58
Sustainable Sport Participation	12	0.73–0.87	0.84	0.88	0.56

Structural Model Assessment

The structural model was tested using 5,000 bootstrap resamples. The results are presented in Table 4. Facility service quality had a significant positive direct effect on exercise self-efficacy ($\beta = 0.42$, $t = 7.83$, $p < 0.001$), supporting H1. Facility service quality also had a significant positive direct effect on psychological well-being ($\beta = 0.21$, $t = 4.12$, $p < 0.001$). Exercise self-efficacy had a significant positive direct effect on psychological well-being ($\beta = 0.44$, $t = 8.26$, $p < 0.001$), supporting H2. Exercise self-efficacy ($\beta = 0.28$, $t = 5.34$, $p < 0.001$) and psychological well-being ($\beta = 0.31$, $t = 5.87$, $p < 0.001$) both had significant positive direct effects on sustainable sport participation, supporting H3 and H4. The direct effect of facility service quality on sustainable participation was also significant ($\beta = 0.14$, $t = 2.68$, $p = 0.007$).

Table 4. Direct Path Coefficients

Path	β	t	p	Result
Facility Service Quality → Exercise Self-Efficacy	0.42	7.83	<0.001	H1 supported
Facility Service Quality → Psychological Well-Being	0.21	4.12	<0.001	Significant
Exercise Self-Efficacy → Psychological Well-Being	0.44	8.26	<0.001	H2 supported
Exercise Self-Efficacy → Sustainable Participation	0.28	5.34	<0.001	H3 supported
Psychological Well-Being → Sustainable Participation	0.31	5.87	<0.001	H4 supported
Facility Service Quality → Sustainable Participation	0.14	2.68	0.007	Significant

The model explained 17.6% of variance in exercise self-efficacy ($R^2 = 0.176$), 28.4% in psychological well-being ($R^2 = 0.284$), and 34.2% in sustainable sport participation ($R^2 = 0.342$). Effect sizes (f^2) indicated

medium effects for the paths from self-efficacy to well-being ($f^2 = 0.24$) and well-being to participation ($f^2 = 0.19$), and small-to-medium effects for facility quality to self-efficacy ($f^2 = 0.15$). Predictive relevance (Q^2) values were all above zero (self-efficacy $Q^2 = 0.12$; well-being $Q^2 = 0.21$; participation $Q^2 = 0.26$).

Table 5. Structural Model Evaluation Indices

Endogenous Construct	R^2	Adjusted R^2	Q^2	Interpretation
Exercise Self-Efficacy	0.176	0.174	0.12	Small
Psychological Well-Being	0.284	0.280	0.21	Medium
Sustainable Sport Participation	0.342	0.337	0.26	Medium

Mediation Analysis

Bootstrap indirect effect analysis was used to test the mediating roles of exercise self-efficacy and psychological well-being. As shown in Table 6, the indirect effect of facility service quality on sustainable participation through exercise self-efficacy was significant (β = 0.12, 95% CI [0.06, 0.19]). The indirect effect through psychological well-being was also significant (β = 0.07, 95% CI [0.03, 0.12]). The sequential indirect pathway from facility service quality through exercise self-efficacy and then psychological well-being to sustainable participation was significant as well (β = 0.06, 95% CI [0.03, 0.10]). Since the direct effect of facility service quality on sustainable participation remained significant (β = 0.14, p = 0.007) after including the mediators, the mediation pattern was partial rather than complete.

Table 6. Indirect Effects and Mediation Results

Indirect Path	β	SE	95% CI	Result
Facility Quality → Self-Efficacy → Participation	0.12	0.03	[0.06, 0.19]	Significant
Facility Quality → Well-Being → Participation	0.07	0.02	[0.03, 0.12]	Significant
Facility Quality → Self-Efficacy → Well-Being → Participation	0.06	0.02	[0.03, 0.10]	Significant
Direct Effect (Facility Quality → Participation)	0.14	0.05	[0.04, 0.24]	Significant

Discussion

The present study aimed to investigate the impact of sports facility service quality on sustainable sport participation, with exercise self-efficacy and psychological well-being as sequential mediators. The main finding revealed that facility service quality had a significant positive direct effect on sustainable participation, and the model explained 34.2% of the variance in sustainable sport participation. This finding aligns with broader literature on environmental determinants of physical activity maintenance, which posits that the physical and social context of exercise is not merely a backdrop but an active contributor to behavioral persistence (Nigg et al., 2008; Tross et al., 2024). When facilities are well-maintained, adequately equipped, and responsive to users' needs, exercisers are more likely to perceive their environment as supportive and to develop positive associations with physical activity that extend beyond initial adoption (Monadi, 2025a; Ferreira-Barbosa et al., 2022).

Among the mediating mechanisms, exercise self-efficacy emerged as a significant pathway linking facility service quality to sustainable participation. This result is consistent with social cognitive theory, which identifies self-efficacy as a central mechanism influencing goal selection and persistence in behavioral objectives even amidst challenges (Bandura, 2001; Baniasadi et al., 2022). When individuals perceive that a facility offers the resources, support, and opportunities they need to exercise effectively, their confidence in their own ability to maintain an exercise regimen strengthens (Hu et al., 2025; Huang & Li, 2026). Empirical evidence supports this pathway: Annesi (2020) found that exercise self-efficacy significantly mediated the relationship between physical activity and mood change, suggesting that self-efficacy functions as a psychological conduit through which exercise experiences translate into sustained behavioral and affective outcomes. Similarly, Phillips et al. (2013) demonstrated in an 18-month panel analysis that changes in physical activity indirectly influenced life satisfaction through changes in exercise self-efficacy, underscoring the temporal robustness of this mechanism (as cited in McAuley et al., 2008). Research on college students has further confirmed that self-efficacy mediates the relationship between physical exercise and subjective well-being (Wang et al., 2022; Deng et al., 2023), and that self-efficacy is positively associated with persistent exercise behavior (Hu et al., 2025).

Psychological well-being also emerged as a significant mediator, both independently and sequentially with self-efficacy. The sequential pathway, facility quality → self-efficacy → well-being → sustainable participation, was statistically significant, indicating that the psychological benefits derived from exercise participation are not automatic but depend on the psychological resources that exercise experiences cultivate (Cui et al., 2025; Guo et al., 2024). This finding resonates with research showing that psychological well-being, conceptualized as positive functioning including self-acceptance, positive relations, autonomy, environmental mastery, purpose in life, and personal growth, is shaped by the quality of experiences within achievement contexts (Ryff, 1989;

Kang et al., 2020). When individuals exercise in a high-quality facility characterized by supportive staff, adequate equipment, and a pleasant atmosphere, they experience feelings of competence and positive affect that contribute to well-being (Monadi, 2025b; Kim & Kim, 2020). Gonzales-Hernandez et al. (2017) found a positive correspondence between psychological well-being and the way individuals orient toward and perceive their physical activity, supporting the proposition that the quality of the exercise experience is intertwined with broader psychological functioning. Research on the elderly has also shown that self-efficacy and subjective well-being are positively associated, with physical activity playing a significant role (Liu et al., 2026).

The finding that facility service quality retained a significant direct effect on sustainable participation even after including mediators indicates partial mediation. This suggests that while psychological mechanisms are important, there are likely additional pathways such as habit formation, social support networks within facilities, or instrumental convenience through which service quality influences behavioral persistence (Nigg et al., 2008; Lee & Chung, 2026). Research on physical activity maintenance has identified environmental factors as key determinants that may operate through multiple mechanisms, including both deliberative psychological processes and more automatic, context-dependent processes (Tross et al., 2024). The partial mediation pattern observed here is consistent with the multi-determined nature of exercise adherence and suggests that interventions targeting only psychological variables may be insufficient without corresponding improvements in the facility environment (Ferreira-Barbosa et al., 2025).

From a theoretical perspective, this study contributes by integrating self-determination theory and social cognitive theory within a single explanatory model. Self-determination theory posits that environments supporting autonomy, competence, and relatedness foster intrinsic motivation and behavioral persistence (Teixeira et al., 2012). A sports facility that offers choice in activities, opportunities for skill development, and a sense of community among exercisers satisfies these basic psychological needs (Monadi, 2025c; Rodrigues et al., 2018). Social cognitive theory, particularly the construct of self-efficacy, emphasizes that individuals' beliefs about their capabilities influence their behavior, motivation, and persistence (Bandura, 2001; Baniasadi et al., 2022). The sequential mediation pathway observed in this study suggests that these two theoretical perspectives are complementary rather than competing: facility quality first influences self-efficacy (a social cognitive construct), which then contributes to well-being (a self-determination outcome), which in turn promotes sustained participation (Yu & Song, 2022; Malaj & Bayyurt, 2026). This integration provides a more comprehensive account of how environmental and psychological factors jointly shape exercise adherence.

From a practical standpoint, the findings offer clear implications for facility managers and public health practitioners. First, investments in service quality including staff training, equipment maintenance, program variety, and facility cleanliness are not merely customer service expenses but strategic investments in sustainable participation (Farahani et al., 2024; Ferreira-Barbosa et al., 2025). The strong effect of facility quality on self-efficacy suggests that managers should prioritize creating mastery experiences for exercisers, such as offering progressive programs, providing supportive feedback, and ensuring that equipment is functional and accessible (Huang & Li, 2026). Second, the role of psychological well-being as a mediator highlights the importance of designing exercise environments that promote positive psychological experiences, not just physical exertion (Monadi, 2025d; Guo & Jiang, 2023). Facilities that foster social connection, offer variety, and provide opportunities for personal growth are more likely to generate the well-being benefits that sustain long-term engagement (Yang et al., 2025). Third, the partial mediation pattern suggests that while psychological mechanisms are important, practitioners should also address instrumental barriers such as cost, accessibility, and scheduling flexibility (Lee & Chung, 2026).

Limitations and Future Research

Several limitations should be acknowledged. First, the cross-sectional design limits definitive causal inferences. Although the theoretical model specifies directional relationships from facility quality through psychological mediators to sustainable participation, the temporal ordering cannot be established with certainty (Tross et al., 2024). Longitudinal or intervention designs would provide stronger evidence for causality. Second, reliance on self-reported measures may introduce common method bias, although Harman's single-factor test suggested this was not a serious concern. Future research could incorporate objective indicators of facility quality (e.g., independent audits) and behavioral measures of participation (e.g., attendance records). Third, the convenience sampling method and focus on Iranian exercisers limit generalizability to other cultural and institutional contexts (Dana et al., 2011). Fourth, facility service quality was measured as a composite construct; future research could examine which specific dimensions (e.g., staff, equipment, programs) are most strongly associated with self-efficacy and well-being (Ferreira-Barbosa et al., 2022). Fifth, additional mediators and moderators such as social support within facilities, exercise identity, and habit strength should be examined in future studies to provide a more complete understanding of the mechanisms linking facility quality to sustainable participation (Rodrigues et al., 2018; Nairun et al., 2025).

Conclusion

This study provides empirical evidence that sports facility service quality is a significant predictor of sustainable sport participation, operating both directly and through the sequential mediating mechanisms of exercise self-efficacy and psychological well-being. The findings extend self-determination theory and social cognitive theory by demonstrating that the physical and service environment of sports facilities shapes participation persistence through its effects on individuals' confidence in their exercise capabilities and their broader psychological functioning. From a practical perspective, the results suggest that investments in facility service quality should be viewed as investments in public health, with the potential to generate sustained physical activity engagement and its associated benefits. Facility managers and public health practitioners should prioritize creating environments that support mastery experiences, foster psychological well-being, and reduce instrumental barriers to participation. Future research employing longitudinal designs and examining additional mechanisms will further illuminate how the quality of exercise environments can be leveraged to promote lifelong physical activity.

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