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The role of self-efficacy in team performance: A study on female basketball players

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Abstract
Team effectiveness in sports is determined not only by individual talent but by collective coordination, communication, and mutual support among players. This study explores the impact of self-efficacy on team performance, drawing from Bandura's social learning theory and the concept of collective agency. The research examines the relationship between self-efficacy and tactical performance in female basketball players over a four-month competitive season. Using a pre-test and post-test design, thirty-two female athletes (ages 17-25) participated in structured training programs. Self-efficacy was assessed using the General Self-Efficacy Scale, while tactical performance was evaluated through a modified 3 vs. 3 drills. Bayesian multilevel modeling analyzed changes across the season, accounting for individual differences and group effects. Results indicated no significant variations in self-efficacy scores over time, although an increasing trend in effort was observed. Tactical performance improved based on GPAI scores but remained unchanged when measured using TSAP scores. These findings suggest that while self-efficacy plays a role in maintaining motivation and effort, its direct influence on tactical execution may be limited. Further research is needed to explore the underlying mechanisms linking psychological constructs to team performance outcomes.

Keywords: Female basketball, self-efficacy, team performance, sports psychology

Introduction
A sports team operates as a closely-knit social unit in which achieving goals and successfully executing tasks depend entirely on the collective involvement and coordinated efforts of all its members (Halldorsson *et al.*, 2017) [6]. Each individual within the team plays a crucial role, contributing their unique skills, strengths, and strategies to enhance overall performance. The effectiveness of a team is not solely determined by individual talent but by the seamless collaboration, communication, and mutual support among its players (Day *et al.*, 2004; Edmondson *et al.*, 2007) [3, 4]. Through teamwork, athletes develop a sense of unity, trust, and shared responsibility, all of which are essential for overcoming challenges, strategizing effectively, and ultimately reaching their common objectives (Morgan *et al.*, 2015) [8].

Within this theoretical framework, Bandura expanded upon the core principles of social learning theory by emphasizing not only the role of individual learning through observation, imitation, and modeling but also the broader implications of these processes within group dynamics (Bandura, 2006) [1]. He extended the concept of individual functionality to include collective functionality, highlighting how individuals within a group or society influence and shape each other's behaviors, beliefs, and competencies through shared experiences and social interactions. This expansion of social learning theory underscores the significance of collective agency, where groups, communities, and organizations function as cohesive units to achieve common goals, adapt to challenges, and drive social change (Bridwell-Mitchell, 2016) [2].

From his point of view, a crucial component of effective teamwork lies in the collective belief among team members that their group possesses the necessary skills, coordination, and determination to accomplish shared objectives successfully. This shared confidence fosters a sense of unity, enhances motivation, and encourages cooperation, ultimately contributing to the overall efficiency and performance of the team (Garrison *et al.*, 2010) [5]. When individuals trust in their team's ability to overcome challenges and reach desired outcomes, they are more likely to communicate effectively, support one another, and remain committed to their common mission (Kozlowski & Ilgen, 2006) [7].

This shared belief system significantly contributes to enhancing teamwork, promoting seamless coordination, and improving overall group dynamics. When team members collectively trust in their combined abilities and align their goals, they develop a stronger sense of unity and mutual understanding. This, in turn, leads to more efficient collaboration, better decision-making, and a heightened sense of responsibility toward achieving common objectives. Ultimately, this collective mindset plays a pivotal role in determining the team's overall effectiveness and success, enabling them to function as a well-integrated and cohesive unit (Nahavandi & Aranda, 1994) [9].

Self-efficacy is defined as an individual's perception of their own ability to successfully carry out actions required to achieve specific performance goals (Bandura, 1977, 1986, 1997) [13]. This psychological construct is fundamentally linked to a person's confidence in their capacity to influence and regulate various aspects of their life, including their motivation, behavioral patterns, and interactions within their social environment. Essentially, self-efficacy determines how individuals approach challenges, persist in the face of difficulties, and exert control over situations that impact their personal and professional growth. A strong sense of self-efficacy enables individuals to remain resilient, take on difficult tasks with determination, and believe in their capability to succeed despite obstacles. Conversely, a low level of self-efficacy can result in self-doubt, reduced effort, and avoidance of challenges, ultimately limiting one's potential for achievement (Perrig *et al.*, 2013) [10].

Methods

Study participants: We implemented a pre-test and post-test research design for this study to assess the impact of training on the selected variables. A total of thirty-two female basketball players, ranging in age from 17 to 25 years, were recruited as participants. These athletes were actively involved in two well-structured and recognized youth basketball programs, both of which had a history of competing at the West Zone Inter-University level. The training and competition schedules of these programs were closely monitored by their respective coaching staff to ensure consistency and adherence to standardized training protocols. Both teams followed a structured training regimen, dedicating approximately six hours per week to practice sessions. The training programs of both groups included similar frequencies of tactical and technical drills, ensuring that the intensity and nature of the practice remained comparable between the two teams. The study design and procedures were thoroughly explained to all participating players, highlighting that their involvement in the research was entirely voluntary. Additionally, they were informed that they retained the right to withdraw from the study at any point without facing any consequences. Prior to the commencement of the study, written informed consent was obtained from all players as well as from their parents, ensuring ethical compliance and adherence to research guidelines.

Procedure: For this study, we utilized the General Self-Efficacy Scale (GES) developed by Dr. Schwarzer and Dr. Jerusalem (1995) [14] to assess self-efficacy levels among participants. In this scale, lower scores on the dimensions of initiative and persistence reflect higher levels of self-efficacy, while effort scores serve as a direct indicator of positive self-efficacy traits. To obtain an overall measure of self-efficacy, we calculated a composite score by summing the individual effort scores and incorporating the reversed scores of initiatives and persistence. The evaluation of tactical performance was conducted through a structured 3 vs. 3 basketball drill, lasting for a duration of 10 minutes, performed within a designated middle-court area. A key modification to standard basketball regulations was introduced in this exercise, requiring players to exit beyond the three-point line upon regaining ball possession. This adjustment ensured a more dynamic and strategic style of play. The entire session was recorded using a video camera to facilitate further analysis. Additionally, the reliability of video-based observational assessment was verified in advance by a trained observer, ensuring consistency and accuracy in performance evaluation.

Statistical analysis

The study utilized Bayesian multilevel modeling to analyze changes in tactical performance and self-efficacy among adolescent female basketball players over a four-month competitive season. The hierarchical structure accounted for repeated measures nested within individual athletes, with time (pre-season vs. end-season) as a population-level effect and player differences as group effects. Additional analysis explored potential group effects based on age (under 13 vs. under 15) and maturity status (early vs. average/late maturers), but no significant variation was found. To assess the contributions of age, training experience, and self-efficacy to tactical performance, all variables were standardized using z-scores, facilitating model interpretation and computational efficiency. Model selection was guided by the Widely Available Information Criterion (WAIC), and Bayesian estimation was conducted using Markov Chain Monte Carlo (MCMC) simulations with Hamiltonian Monte Carlo and the No-U-Turn Sampler in Stan, implemented via the brms package in R.

Results

The study analyzed descriptive statistics and uncertainty estimates for the total sample and different age groups, noting that three players had not reached menarche. Bayesian multilevel modeling was used to assess changes in tactical performance and self-efficacy over a four-month competitive season in female adolescent basketball players. While no significant changes in self-efficacy factors or overall scores were found between pre- and post-season, there was a noticeable trend of improvement in effort. Tactical performance showed improvement based on GPAI scores but remained unchanged when measured using TSAP scores. Additionally, no significant differences were observed between players based on age group or maturity status.

Table 1: Descriptive statistics

	All samples (n=32)	U21 (n=16)	U25 (n=16)
Chronological Age, Years	23.3 (23.1 to 23.6)	20.6 (20.4 to 20.98)	24.0 (23.8 to 24.2)
Age of Menarche, Years[a]	21.3 (21.0 to 21.7)	18.7 (18.3 to 19.2)	21.8 (21.4 to 22.3)
Years of Sports Experience	4.6 (4.2 to 5.0)	4.6 (4.1 to 5.0)	4.7 (4.2 to 5.1)
TSAP[b]	16.6 (15.1 to 17.8)	16.5 (14.6 to 18.2)	16.7 (14.9 to 18.4)
GPAI[c]	0.55 (0.54 to 0.56)	0.54 (0.53 to 0.56)	0.56 (0.54 to 0.59)
Initiative[d]	1.57 (1.41 to 1.74)	1.50 (1.27 to 1.71)	1.64 (1.43 to 1.86)
Effort	4.19 (4.10 to 4.31)	4.19 (4.02 to 4.31)	4.20 (4.08 to 4.32)
Persistence[d]	2.48 (2.30 to 2.65)	2.55 (2.34 to 2.79)	2.40 (2.15 to 2.63)
Self-Efficacy Score	10.3 (9.82 to 10.5)	10.2 (9.9 to 10.6)	10.3 (9.69 to 10.7)

Note: [a]Based on 29 players, as 3 players did not attend the Menarche; [b]Team Perfromance Assessment Instrument; [c]Game Performance Asesssment Instrument; [d]Lower scores indicate the higher SE in these variables

Table 2: Changes across 4-months for self-efficacy among female basketball players

	Self-efficacy				Tactical Performance	
	Initiative	Effort	Persistence	SE score	GPAI[a]	TSAP[b]
Population-level effects (95% credible intervals)						
Intercept	1.50 (1.26 to 1.73)	4.11 (3.98 to 4.24)	2.51 (2.26 to 2.76)		0.54 (0.52 to 0.56)	16.91 (14.85 to 18.97)
Change after 4-months	0.16 (-0.16 to 0.48)	0.17 (-0.04 to 0.36)	-0.07 (-0.39 to 0.26)	0.2 (-0.7 to 0.9)	0.03 (0.01 to 0.05)	-1.61 (-4.26 to 1.01)
Group-level effects (95% credible intervals)						
Level 1 SD	0.64 (0.52 to 0.78)	0.31 (0.17 to 0.43)	0.63 (0.49 to 0.78)	1.3 (0.9 to 1.7)	0.05 (0.04 to 0.06)	5.01 (3.69 to 6.45)
Level 2 SD						
Intercept	0.17 (0.02 to 0.41)	0.16 (0.02 to 0.34)	0.29 (0.03 to 0.56)	0.6 (0.0 to 1.1)	0.05 (0.04 to 0.07)	2.16 (0.07 to 4.80)
Change after 4-months	—	0.29 (0.03 to 0.53)	—	0.6 (0.0 to 1.3)		

Note: [a]Team Performance Assessment Instrument; [b]Game Performance Assessment Improvement.

The analysis of tactical performance indicators revealed that while chronological age, years of formal training, and self-efficacy were considered, the improvements in GPAI scores after four months of season exposure were at least moderate. However, the contribution of formal training experience to GPAI scores was small to trivial. In contrast, players with more training experience had higher TSAP scores, but these scores remained unchanged after the competitive season. Additionally, no relationship was found between self-efficacy scores and either GPAI or TSAP scores.

Discussion

The study examined changes in tactical performance and self-efficacy among female adolescent basketball players over a four-month competitive season using Bayesian multilevel modeling. It assessed the influence of age, training experience, and self-efficacy on tactical scores. The sample showed an advanced maturity status, with an average menarcheal age of 21.3 years, slightly earlier than global averages. Self-efficacy scores varied significantly among players at baseline but remained relatively stable throughout the season. Although self-efficacy is often linked to technical performance and game participation, this study did not find a strong correlation. The researchers acknowledged the challenge of accurately measuring game participation over the season but emphasized the importance of fostering a positive training environment for self-efficacy development.

Tactical performance results were mixed, with GPAI scores improving over the season, while TSAP scores remained unchanged across age groups and menarcheal status. This discrepancy may be due to methodological differences between the two assessment tools, which have previously faced reliability concerns (Santos *et al.*, 2016) [12]. Both GPAI and TSAP align with game-based learning approaches, which promote athlete-centered skill development (Pill *et al.*, 2023) [11]. The study found that tactical performance was influenced by accumulated training experience, with more experienced players scoring higher. Future research should further investigate the role of training experience in tactical development and the sensitivity of assessment tools like TSAP and GPAI.

References

1. Bandura A. Toward a psychology of human agency. Perspect Psychol Sci. 2006;1(2):164-180. https://doi.org/10.1111/j.1745-6916.2006.00011.x
2. Bridwell-Mitchell EN. Collaborative institutional agency: How peer learning in communities of practice enables and inhibits micro-institutional change. Organ Stud. 2016;37(2):161-192. https://doi.org/10.1177/0170840615593589
3. Day DV, Gronn P, Salas E. Leadership capacity in teams. Leadersh Q. 2004;15(6):857-880. https://doi.org/10.1016/j.leaqua.2004.09.001
4. Edmondson AC, Dillon JR, Roloff KS. Three perspectives on team learning: Outcome improvement, task mastery, and group process. Acad Manag Ann. 2007;1(1):269-314. https://doi.org/10.5465/078559811
5. Garrison G, Wakefield RL, Xu X, Kim SH. Globally distributed teams: The effect of diversity on trust, cohesion and individual performance. ACM SIGMIS Database. 2010;41(3):27-48. https://doi.org/10.1145/1851175.1851178
6. Halldorsson V, Thorlindsson T, Katovich MA. Teamwork in sport: A sociological analysis. Sport Soc. 2017;20(9):1281-1296. https://doi.org/10.1080/17430437.2017.1284798
7. Kozlowski SWJ, Ilgen DR. Enhancing the effectiveness of work groups and teams. Psychol Sci Public Interest. 2006;7(3):77-124. https://doi.org/10.1111/j.1529-1006.2006.00030.x
8. Morgan PBC, Fletcher D, Sarkar M. Understanding team resilience in the world's best athletes: A case

study of a rugby union World Cup-winning team. Psychol Sport Exerc. 2015;16:91-100. https://doi.org/10.1016/j.psychsport.2014.08.007
9. Nahavandi A, Aranda E. Restructuring teams for the re-engineered organization. Acad Manag Perspect. 1994;8(4):58-68. https://doi.org/10.5465/ame.1994.9412071704
10. Perrig WJ, Grob A, Flammer A, editors. Control of human behavior, mental processes, and consciousness: Essays in honor of the 60th birthday of August Flammer. Taylor & Francis, 2013.
11. Pill S, Griffin L, Gambles EA. Teaching games and sport for understanding. 1st ed. Routledge, 2023. https://doi.org/10.4324/9781003298298
12. Santos RBD, Mendes RS, Dias GNF, Coelho ES. Avaliação da performance em jogos desportivos - GPAI E TSAP. Conexões. 2016;14(2):137. https://doi.org/10.20396/conex.v14i2.8646042
13. Bandura A. Self-efficacy: toward a unifying theory of behavioral change. Psychological review. 1977 Mar;84(2):191.
14. Schwarzer R. Förderung von Selbstwirksamkeit bei Schülern und Lehrern; 1995.