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Examining the Effectiveness of a Mindfulness-Based Training Program on Achievement Motivation, Self-Confidence, and Sports Performance among Novice Football Students in Iraqi Schools

Husam Abbas. Mashhoot[1], Maryam. Faraeen[2*], Akram. Hoossein Algnabe[3], Hassan. Abdi[4], Zohreh. Meshkati[5]

[1] PhD Student, Department of Physical Education and Sport Sciences, Isfahan (Khorasgan) Branch, Islamic Azad University, Isfahan, Iran
[2] Assistant Professor, Department of Physical Education and Sport Sciences, Khoy Branch, Islamic Azad University, Khoy, Iran
[3] Assistant Professor, Department of Physical Education and Sport Sciences, Qadisiyah University, Iraq
[4] Assistant Professor, Department of Physical Education and Sport Sciences, Shahrood Branch, Islamic Azad University, Shahrood, Iran
[5] Professor, Department of Physical Education and Sport Sciences, Isfahan (Khorasgan) Branch, Islamic Azad University, Isfahan, Iran

*** Corresponding author email address**: Mfaraeen@yahoo.com

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A B S T R A C T

Objective: The purpose of the present study was to examine the impact of a mindfulness-based training program on achievement motivation, self-confidence, and sports performance (shooting, passing, dribbling) among novice football students in Iraqi schools.

Materials and Methods: The research participants were 60 male football players, aged 14 to 16, from the city of Baghdad in 2023–2024, selected through a call for participation and randomly assigned to either a mindfulness training group or a control group. Data were collected using Hermans's (1970) Achievement Motivation Questionnaire, the Moore-Christine tests for dribbling, passing, and shooting skills, and Willy and Knight's (2002) Sports Self-Confidence Questionnaire. The Shapiro-Wilk test was used to check the normal distribution of the data, and Levene's test was used to assess the homogeneity of variances. To analyze the findings, analysis of covariance (ANCOVA) was performed using SPSS statistical software, version 24.

Findings: The results indicated that scores for self-confidence and the skills of shooting, passing, dribbling, as well as achievement motivation, improved in the experimental group compared to the control group. In other words, mindfulness training had a positive and significant effect on self-confidence, shooting, passing, dribbling, and achievement motivation among novice football students in Iraq.

Conclusion: Based on the findings, it can be concluded that mindfulness training plays a crucial role in enhancing skill levels, achievement motivation, and sports self-confidence in Iraqi football novices; therefore, it is recommended that coaches employ mindfulness training to improve performance and increase sports self-confidence and achievement motivation.

Keywords: achievement motivation, mindfulness, self-confidence, skill, football

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1. Introduction

Football coaches and practitioners worldwide believe that football must take root during adolescence. Additionally, the success and growth of football in any country require adherence to a scientific approach (1). A critical issue to consider is that optimal performance in sports results from a combination of technical (technical and tactical), physical (strength and speed), and psychological (anxiety control, self-confidence, and motivation) abilities (2). Football is a team sport characterized by various game situations and specific roles for each player, with success dependent on the individual and collective performance of the players. Football involves numerous simultaneous tasks, even for players without the ball, who constantly perform various skills such as running and positioning relative to teammates and opponents, ball control, passing, dribbling, shooting, and more (3). Given the multitude of tasks, the number of potential choices and decisions players must make during a game is high, requiring advanced psychological skills.

Motor skills essential for successfully controlling passes, dribbling, and shooting at the target are among the fundamental abilities of football players. Passing and shooting skills are recognized as the most critical factors for success or improved performance in team and offensive sports. Therefore, technical and tactical skills are vital for a successful football team (4). Accordingly, each player must possess skill, physiological, and psychological attributes to fulfill their tasks based on the game's conditions and situations.

Arousal is one of the most critical psychological factors influencing the success and progress of athletes. During physical activity, arousal helps athletes focus entirely on the task at hand (5). Among adolescent football players, achievement motivation—a specific type of motivation in sports psychology—is particularly important. It is defined as successfully completing a challenging task, mastering it, overcoming difficulties, competing with others, enhancing talents, and boosting self-esteem (6). Achievement motivation refers to the drive to achieve excellence, which individuals acquire and which forms the foundation for success in recreational and competitive activities (7). It is an individual and social standard that athletes draw upon to solve challenges they face, serving as a hallmark of successful individuals (8, 9).

Self-confidence is another unique psychological trait athletes need to cope with the high demands and pressure of competitive sports, achieving success and improving performance (10). Sports self-confidence refers to the belief or degree of certainty individuals have in their abilities to succeed in sports activities (11). Research indicates that successful athletes exhibit higher self-confidence than their less successful counterparts (12, 13). An individual's self-confidence depends on their feelings about themselves—a form of attitude that enables them to maintain a realistic and positive view of themselves, trust their abilities, and feel in control of their performance (Heidari et al., 2020).

A defining characteristic of successful athletes is their ability to optimize psychological skills to achieve peak performance and withstand the pressure they experience (14). One way to optimize psychological skills is through mindfulness training. Mindfulness exercises focus on regulating attention and awareness. Interest in mindfulness has grown across all areas of psychology, including sports, training, and performance, leading to the development of mindfulness-based performance enhancement programs (MSPE) for athletes and coaches. These programs have significant potential to improve competitive performance by addressing traditional psychological limitations. Research shows that mindfulness training can promote psychological well-being, enhance enjoyment in sports, and boost self-efficacy (15). Additionally, using mental or psychological skills helps athletes better cope with competitive challenges and pressures (16). Ajilchi et al. (2019) demonstrated that mindfulness exercises play a significant role in facilitating performance and accuracy in basketball shooting (17). Similarly, Samadi et al. (2022) found that mindfulness-based interventions positively affected self-confidence, cognitive anxiety, and physical anxiety in adolescent shooters (18). Bull et al. (2005) also revealed that cricket players with better mental skills exhibited higher self-confidence than other athletes (19). However, Costalupes (2018) reported that mindfulness training had no effect on improving self-confidence (20).

Most studies in this field have focused on adults and professional athletes, with limited research addressing children and adolescents. The psychological stress resulting from years of war and deprivation in Iraq, the valuable role of football in reducing stress, increasing happiness and health, and subsequently contributing to the social and cultural development of Iraqi society highlight the importance of psychological readiness for enhancing mental skills. Moreover, the conflicting research findings on the impact of mindfulness training on self-confidence and the existing research gap regarding its effectiveness in

adolescence underscore the necessity of studies in this area. Therefore, the present study aimed to examine the effectiveness of a mindfulness-based training program on achievement motivation, self-confidence, and sports performance among novice football students in Iraqi schools.

2. Methods and Materials

2.1 Study Design and Participants

This study employed a quasi-experimental design with a pretest-posttest format, involving an experimental group and a control group. The statistical population included all male football players aged 14 to 16 in Baghdad during 2023–2024. Sampling was conducted purposively and based on inclusion and exclusion criteria. Inclusion criteria were being aged 14 to 16, having at least one year of experience in club-level football, and being in good general health as assessed by Goldberg's General Health Questionnaire (2006). Exclusion criteria included unwillingness to continue participation, potential injuries, and absence from more than two sessions of the training protocol. From the volunteers, 60 participants were selected based on the General Health Questionnaire (2006) and randomly assigned to experimental and control groups. Initially, all participants underwent a pretest. The experimental group participated in ten mindfulness training sessions, while the control group engaged in routine activities. A posttest was administered to all participants at the end of the program.

2.2 Measures

Hermans's (1970) Sports Achievement Motivation Questionnaire: This questionnaire consists of 29 items designed around nine characteristics. The items are presented as incomplete sentences, scored on a scale of 1 to 4, with total scores ranging from 29 to 116. Higher scores (above the mean) indicate high achievement motivation, while lower scores (below the mean) signify low achievement motivation. Hermans validated the content through item correlation coefficients, ranging from 0.30 to 0.57. The reliability of the questionnaire was confirmed with a Cronbach's alpha coefficient and test-retest reliability (after three weeks) of 0.84 (14, 21). In the present study, content validity was confirmed by seven experts, and reliability, as assessed by Cronbach's alpha, ranged from 0.79 to 0.90.

Willy and Knight's (2002) Sports Confidence Inventory (SCI): This 14-item questionnaire comprises three subscales: physical and training confidence (5 items), cognitive efficiency confidence (5 items), and resilience confidence (4 items), evaluated on a 7-point Likert scale. Iranmanesh et al. (2014) reported a Cronbach's alpha of 0.90 for overall sports confidence, 0.86 for physical and training confidence, 0.80 for cognitive efficiency confidence, and 0.84 for resilience confidence (21).

Moore-Christine Passing Test: Two cones placed approximately one meter apart were connected with a 135 cm horizontal rope to create a goal. Three cones were positioned at angles of 45 degrees and 90 degrees relative to the goal line, with all cones 15 meters from the goal. Participants performed four passes from each cone (12 passes in total). Each correct pass was awarded one point, with the total score being the sum of the 12 passes.

Dribbling Test: Participants stood 9 meters from the first cone. Upon command, they ran toward the cones, spaced 1.8 meters apart, and zigzagged through them at speed, returning to the starting line. Scoring was based on the time (in seconds) measured from the first cone to the last cone and stepping over the ball.

Moore-Christine Shooting Test: A football goal was divided into equal sections using two ropes. From the goalpost, 120 cm sections were marked and subdivided into smaller 120 cm diameter sections. A 16-meter line marked the shooting point, where participants took 16 shots at fixed balls. Scoring was as follows: 10 points for shots through the target, 4 points for shots through another target, 1 point for balls hitting the circle, and 0 points for rolling balls through the target. The final score was the sum of points from 16 shots.

2.3 Intervention

The mindfulness-based training intervention was designed to enhance achievement motivation, self-confidence, and sports performance among novice football players. Rooted in the principles of mindfulness, the program aimed to cultivate present-moment awareness, self-regulation, and emotional resilience, essential attributes for improving both psychological and physical aspects of sports performance. Over ten structured sessions, the intervention incorporated breathing exercises, body scanning, mindful movements, and focused attention practices to foster self-awareness, reduce mental distractions, and enhance cognitive and emotional control. Each session was carefully

tailored to integrate mindfulness into the participants' daily routines and sports activities, emphasizing practical application and reflection. This structured approach was expected to empower young athletes to overcome mental barriers, optimize skill execution, and develop a sustainable mindset for personal and athletic growth (22, 23).

Session 1:

The session began with an introduction to mindfulness, explaining its concept and the purpose of the program to participants. The session covered planning mindfulness exercises and integrating them into daily life, with a focus on parental involvement and the use of daily mindfulness journals. Participants were introduced to mindfulness postures, including sitting on a chair, lying down, cross-legged sitting, full lotus posture, and appropriate hand positions. Homework was assigned to practice these postures and document their experiences.

Session 2:

The session included a discussion about participants' initial mindfulness experiences, followed by instruction and practice of mindful breathing and abdominal breathing techniques. A glitter jar activity was used to illustrate the difference between a cluttered and a calm mind. Homework was provided to reinforce these techniques.

Session 3:

Participants shared their mindfulness experiences from the previous week. The session included a review of mindful breathing techniques and an introduction to body scanning exercises. Mindful awareness of the present moment was taught through a water glass exercise. Homework was assigned to practice these skills.

Session 4:

The session focused on reinforcing foundational breathing exercises, specifically relaxation breathing techniques. Participants also engaged in mindful movements, incorporating awareness into their physical actions. Homework was assigned for continued practice at home.

Session 5:

Participants practiced basic breathing techniques and discussed their mindfulness experiences. The session introduced mindfulness related to the five senses, including mindful eating, listening, touching, smelling, and seeing. Homework was provided to encourage participants to apply these practices in daily activities.

Session 6:

The session included practicing four-count breathing exercises and mindfulness related to emotions through the "I Feel" game. Participants were encouraged to explore and document their emotional awareness as part of their homework.

Session 7:

The session reviewed mindfulness practices from previous sessions, including mindful breathing and mindfulness of the five senses. Participants practiced mindfulness in nature and mindfulness in relationships, emphasizing how these practices can enhance social and environmental awareness. Homework was assigned for further application.

Session 8:

This session revisited foundational breathing and body scanning exercises. Participants practiced mindfulness of thoughts through the "Tree Meditation" and documented their mindfulness experiences in journals. Homework was assigned to sustain these practices.

Session 9:

Participants practiced foundational relaxation breathing and engaged in mindfulness of objects, focusing on observing and interacting with a specific object mindfully. The session also revisited mindfulness in relationships, and homework was provided to deepen these practices.

Session 10:

The final session reviewed all mindfulness practices covered in previous sessions. Participants engaged in "Loving-Kindness Meditation" and practiced integrating mindfulness into daily activities. Homework was assigned to encourage sustained application of mindfulness in their routines.

2.4 Data Analysis

Data were analyzed using descriptive and inferential statistics. The Shapiro-Wilk test was applied to assess the normality of data distribution, and Levene's test was used to evaluate the homogeneity of variances. The homogeneity of the variance-covariance matrix was verified. Given the fulfillment of assumptions, analysis of covariance (ANCOVA) was performed at a significance level of 0.05 using SPSS software version 24.

3. Results

Table 1 presents descriptive information regarding the age, height, weight, and football experience of participants in both groups.

Table 1. Descriptive statistics for age, height, weight, and football experience in the experimental and control groups.

Variable	Group	Minimum	Maximum	Mean	Standard Deviation
Age (years)	Control	14	16	14.93	0.70
	Experimental	14	16	14.86	0.83
Height (cm)	Control	158	180	170.40	4.88
	Experimental	155	181	168.73	6.43
Weight (kg)	Control	47	76	62.85	7.46
	Experimental	50	72	62.84	6.96
Football experience (years)	Control	4	7	5.46	0.91
	Experimental	3	7	5.13	1.06

According to the data in Table 1, the two groups were approximately equivalent in terms of age, height, and weight. The Shapiro-Wilk test was used to examine the normality of the data. The test results were not significant for any of the study variables ($p > .05$), indicating that all variables followed a normal distribution, allowing for parametric analysis.

Table 2 displays the pretest and posttest scores for the dependent variables in both groups. To examine differences between the posttest scores of the two groups, an analysis of covariance (ANCOVA) was performed. The assumptions of ANCOVA, including the normality of data distribution, homogeneity of variances, parallel regression slopes, and homogeneity of the variance-covariance matrix, were assessed and found to be satisfied.

Table 2. Descriptive statistics for dependent variables with ANCOVA results.

Variable	Group	Pretest (Mean ± SD)	Posttest (Mean ± SD)	F Value	p Value	Eta Squared
Achievement motivation	Control	56.40 ± 4.88	55.33 ± 4.92	565.94	$p < .001$	0.95
	Experimental	55.00 ± 5.09	87.60 ± 2.99			
Self-confidence	Control	57.06 ± 2.18	57.33 ± 2.05	269.10	$p < .001$	0.90
	Experimental	58.66 ± 3.77	70.60 ± 2.32			
Shooting skill	Control	30.20 ± 2.30	30.26 ± 1.79	169.66	$p < .001$	0.86
	Experimental	28.60 ± 1.63	35.20 ± 1.32			
Passing skill	Control	7.86 ± 0.91	7.80 ± 0.77	310.68	$p < .001$	0.92
	Experimental	8.26 ± 1.11	13.06 ± 0.70			
Dribbling skill	Control	57.26 ± 1.86	57.20 ± 2.17	164.38	$p < .001$	0.85
	Experimental	8.66 ± 4.60	47.86 ± 2.44			

As shown in Table 2, the results of the ANCOVA revealed significant differences between the posttest scores of the two groups for all examined variables after controlling for the pretest scores ($p < .001$). These findings indicate the effectiveness of the mindfulness-based training intervention on the measured variables. In other words, the mindfulness training improved achievement motivation, self-confidence, and sports performance among novice football students in Iraq.

4. Discussion and Conclusion

The purpose of this study was to examine the effectiveness of a mindfulness-based training program on achievement motivation, self-confidence, and sports performance among novice football students in Iraq. The results indicated that mindfulness training had a positive and significant impact on achievement motivation. Achievement motivation is of particular importance in sports psychology and appears to influence various behaviors, thoughts, and emotions, such as activity choice, goal pursuit, and perseverance in the face of failure (Ives et al., 2020). Mindfulness helps individuals shift from unconscious to conscious processing, enhancing motivational performance. By fostering self-awareness, mindfulness interventions enable athletes to recognize their strengths and weaknesses, evaluate their abilities, develop a sense of competence, and identify opportunities for growth, thereby boosting achievement motivation. During training, athletes learn to focus on the present moment rather than involuntary thoughts that cause mental distraction. This increased focus leads to greater self-awareness, improved learning, persistence, motivation, and ultimately enhanced achievement motivation (24).

The findings also demonstrated that mindfulness training positively and significantly improved shooting, passing, and dribbling skills among novice football students in Iraq. These results align with previous studies (22, 23, 25), which found that mindfulness training positively affects sports performance. However, the findings diverge from some studies (26, 27). The discrepancy could be attributed to the age group of participants (18–23 years old) and the type of sports examined (track and field, golf, and endurance events).

From a neuropsychological perspective, mindfulness training can induce cellular, molecular, and neural changes in different brain regions. These changes include reduced activity in the amygdala and thalamus, which decreases emotional arousal, and increased body awareness through enhanced insula and prefrontal cortex activity. Additionally, body scans in mindfulness training engage the basal ganglia, promoting coordination and regulation of memory, body self-concept, learning, and skill control (28). Athletes with higher mindfulness levels tend to focus better on their sport, experience greater enjoyment, and are more motivated to engage in training (29).

The study also found that mindfulness training significantly and positively impacted self-confidence among novice football students. These results are consistent with previous research (15, 18, 19), but they contradict findings by Costalupes (2018), which showed no improvement in self-confidence from mindfulness training (20). The discrepancy may be due to the shorter intervention period and the initial self-confidence levels of participants in their study.

Mindful awareness of the present moment and acceptance of current conditions increase self-efficacy, enhance task focus, and create an intrinsic sense of enjoyment. This state, considered an optimal psychological condition, aligns the mind and body, eliminating negative thoughts, worries, and doubts (30). Theoretically, mindfulness-based interventions can shift the locus of control from external stimuli to metacognitive strategies and internal attention, encouraging individuals to pay closer attention to their internal feelings (31). Athletes equipped with psychological skills perform better during training and competition, and their successful experiences likely enhance self-confidence (32). Moreover, mindfulness training significantly improves mindfulness, acceptance, mental toughness, performance, anxiety reduction, and consequently self-confidence (15).

Based on these findings, it is recommended that coaches implement regular mindfulness training to prevent negative thoughts among athletes, thereby enhancing their self-confidence and achievement motivation. Additionally, coaches should use mindfulness training to improve athletes' focus on the present moment, increase self-awareness, foster learning, and enhance skill execution.

Authors' Contributions

H. A. M. conceptualized the study and designed the mindfulness-based training program. M. F. contributed to data collection and performed the statistical analysis. A. H. A. and H. A. provided expertise on sports performance assessment, while Z. M. assisted in interpreting the results and drafting the manuscript. All authors contributed to reviewing and revising the manuscript, and approved the final version for submission.

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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Ethics Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants. This article is derived from the first author's doctoral dissertation.

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