



Mindfulness intervention in futsal training improves passing accuracy and consistency in extracurricular activities

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Abstract: This study aims to examine the effectiveness of mindfulness intervention in futsal training on improving the accuracy and consistency of passing among extracurricular participants at SD Negeri Kunti, Bungkal Subdistrict, Ponorogo Regency. The method employed was a quasi-experimental design using a pretest-posttest approach. The subjects consisted of 20 students who regularly participated in futsal extracurricular activities. Based on the data analysis of triangle passing skills, the pretest score was 10.35, while the posttest score increased to 13.55. For wall passing skills, the pretest score was 11.95 and increased to 14.50 in the posttest. The significance value for the triangle passing pretest was 0.109 and for the posttest was 0.022. For wall passing, the significance value for the pretest was 0.123 and for the posttest was 0.013. Using a significance level of $\alpha = 0.05$, it can be concluded that the pretest data for both triangle passing and wall passing had significance values greater than 0.05, indicating a normal distribution. However, the posttest data for both triangle passing and wall passing had significance values less than 0.05, indicating a non-normal distribution. Therefore, further inferential analysis was conducted using the non-parametric Wilcoxon signed-rank test. The results showed significant differences between pretest and posttest scores, both in the triangle passing group ($Z = -3.745$; $p = 0.000$) and in the wall passing group ($Z = -3.746$; $p = 0.000$). These findings indicate that mindfulness intervention effectively enhances students' passing performance in terms of both accuracy and consistency.

Keywords: Mindfulness; futsal; passing; extracurricular activities

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INTRODUCTION

Sports require not only technical skills but also solid teamwork to achieve optimal results. One such sport is futsal, which is pursued not only to achieve accomplishments but also to maintain physical fitness (Putra et al., 2025; Selviani et al., 2024). Futsal has become increasingly popular and admired in this era not only among professional athletes but also among the general public, sports communities, and within educational institutions, ranging from elementary schools to universities (Ayubi et al., 2024). In particular, interest in futsal has grown significantly among elementary school (SD) students in recent years. This growing enthusiasm for futsal is further reflected in its inclusion as an extracurricular activity in schools (Faraitody & Ramadhan, 2015).

This study presents a novelty in the integration of the mindfulness approach within the context of technical futsal training at the elementary school level. To date, mindfulness has been predominantly applied in clinical psychology, general education, and professional sports for adults. However, its specific application as an intervention to enhance passing accuracy and consistency in futsal training for elementary school children remains highly limited and has not been extensively explored in scientific research. The study expands the theoretical and practical scope of motor skill learning in sports, emphasizing the significance of cognitive-affective aspects such as focused attention, emotional calmness, and self-awareness qualities cultivated through mindfulness.

This research provides strong justification that psychological, non-technical interventions can significantly improve technical performance, especially in passing, which is a fundamental yet crucial skill in futsal. Therefore, this research not only offers practical contributions for coaches and physical education (PE) teachers in designing more holistic training strategies, but also enriches the body of scientific knowledge in the fields of children's sports psychology, physical education, and mentally oriented sports training. It opens new pathways for interdisciplinary approaches between sports and child developmental psychology, and can serve as a valuable reference for developing more innovative and evidence-based extracurricular training curricula.

Integrating mindfulness into futsal training remains underexplored, particularly in enhancing specific technical components such as passing accuracy and consistency (Vella-Fondacaro & Romano-Smith, 2023). By incorporating mindfulness intervention into futsal

training programs, this study seeks to offer an innovative solution for sports coaching (Indriaswuri et al., 2023). In the future, the findings of this study are expected to assist Physical Education (PE) teachers, coaches, and sports practitioners in designing training strategies based on cognitive psychology that enhance both technical skills and player resilience (Setiawan et al., 2021).

Moreover, this study holds potential to expand the body of literature on the application of self-awareness in team-based sports, an area that has traditionally focused on individual sports. Thus, it presents a practical and urgent contribution to the development of more comprehensive training methods for both amateur and professional futsal players (Asmara et al., 2023).

Previous studies on mindfulness have largely concentrated on individual sports, such as those examining its role in improving futsal players' consistency (Katyal et al., 2023). In contrast, this study focuses on futsal as a team sport, which involves more complex game dynamics and requires coordination and cooperation among players. Earlier research has often explored mindfulness in the context of emotional regulation and focus enhancement, such as studies involving professional tennis players (Potharst et al., 2025). This study is more specific in evaluating the impact of self-awareness on technical skills in futsal, especially on passing accuracy and consistency skills essential for maintaining possession and constructing attacks (Khan et al., 2021).

Overall, this research offers a novel contribution by focusing on futsal and technical variables such as passing accuracy and consistency (Priyambada et al., 2025). It introduces a new approach that integrates mindfulness into triangle passing and wall passing drills. This not only provides academic contributions to the field of sports psychology but also offers PE teachers and futsal coaches scientific references for developing broader, evidence-based training programs (Lobemato & Nugraheningsih, 2023). The focus on mindfulness intervention in passing skill training is expected to enhance players' passing accuracy and consistency (Andrade de Sousa et al., 2023). Therefore, this research has the potential to enrich the literature and offer valuable insights into how mindfulness can improve technical performance in futsal (Gandrapu & Rakesh, 2024).

MATERIAL AND METHODS

This study employed an experimental method to determine the impact of a treatment on a situation and to examine the influence of the independent variable on the dependent variable. The research design used was a *One Group Pretest-Posttest Design*. To obtain results, a pretest was conducted prior to treatment. After the pretest, the participants received the treatment, followed by a posttest. The outcomes were then analyzed to determine whether there was an improvement or decline between the pretest and posttest scores (Sugiyono, 2018). The population of this study consisted of all active students participating in futsal extracurricular activities at SD Negeri Kunti, Bungkal Subdistrict, totaling 20 students. Considering the relatively small population size and its feasibility for full coverage, this study employed a total sampling technique (Suharsimi, 2018), meaning that the entire population was used as the research sample. Thus, the total sample consisted of 20 students, with the expectation that the mindfulness intervention in futsal training would enhance the accuracy and consistency of passing in the extracurricular program.

Initial data collection began with a pretest, in which players were tested on triangle passing skills. Each player took turns performing triangle passes from a distance of 5 meters within a 1-minute time frame, and the number of accurate passes was recorded. Subsequently, players performed wall passes, where they were given 30 seconds to pass the ball against a wall from a distance of 2.5 meters, and the number of successful passes was noted (Wibowo et al., 2024). Following the pretest and the collection of baseline data, the players underwent a mindfulness treatment using the STOP technique (Stop – Take a deep breath – Observe – Proceed). This method was applied to help maintain the players' mental readiness, emotional regulation, concentration, and focus. It was expected that this intervention would enhance their performance during the posttest.

The posttest was conducted after the mindfulness treatment using the same procedures as the pretest. Players performed triangle passes from a distance of 5 meters within 1 minute, and the number of accurate passes was recorded. Then, they performed wall passes from a distance of 2.5 meters within 30 seconds, and the results were documented (Jhon Mark Fidel Turnip, 2020). The data analysis technique was conducted systematically. This study used SPSS 25 (Statistical Package for the Social Sciences) as the statistical tool. The first step was to test for data normality using the Kolmogorov-Smirnov Test. If the data were normally distributed,

a paired sample t-test would be used. However, if the data were not normally distributed, the analysis would proceed using the non-parametric Wilcoxon Signed-Rank Test. The results were then analyzed and described accordingly (Gosselin, 2024).

RESULTS

This study was conducted on students at SD Negeri Kunti, Bungkal Subdistrict, Ponorogo Regency, who participated in extracurricular futsal activities. The total number of participants was 20 students. The first step in this research was conducting a pretest to obtain baseline data. Following this, the students received a treatment over eight sessions, which introduced mindfulness practices and training focused on the accuracy and consistency of triangle passes and wall passes. After completing the eight treatment sessions, a posttest was administered to evaluate the impact of the intervention. The data collected from the pretest and posttest were analyzed using SPSS 25 (Statistical Package for the Social Sciences). Prior to conducting the main analysis, a normality test was performed.

The results of the normality test indicated that some of the data were not normally distributed. Therefore, the researcher employed the One-Sample Kolmogorov-Smirnov Test to assess the significance of the differences between pretest and posttest results. Based on the outcome of this statistical test, the following results were obtained:

Table 1 Kolmogorov-Smirnov normality

	Pretest triangle	Posttest triangle	Pretest wall	Posttest wall
Mean	10.35	13.55	11.95	14.50

The results of the Kolmogorov-Smirnov normality test indicate that there was an increase in the mean scores for passing skills both in the triangle passing and wall passing categories after the application of mindfulness-based training. In the triangle passing skill, the mean pretest score was 10.35, which increased to 13.55 in the posttest. Similarly, for the wall passing skill, the mean pretest score was 11.95, which rose to 14.50 in the posttest, indicating a noticeable improvement following the intervention. However, the significance values (Asymp. Sig.) for the normality tests varied across the groups, for triangle passing, the pretest had a significance value of 0.109, while the posttest had a significance of 0.022. For wall passing, the

pretest yielded a significance of 0.123, and the posttest showed a significance of 0.013. Using a standard significance threshold of $\alpha = 0.05$, it can be concluded that, the pretest data for both triangle passing and wall passing had p-values greater than 0.05, indicating that the data were normally distributed. In contrast, the posttest data for both passing types had p-values less than 0.05, suggesting that the data were not normally distributed. Therefore, only part of the data met the assumption of normality. Given this result, the appropriate approach for further inferential analysis is to employ non-parametric statistical tests as an alternative to parametric methods.

Table 2 Wilcoxon Signed-Rank Test

postestPtriangle pretestPtriangle	postestPwall pretestPwall
-3.745 ^b	-3.746 ^b
.000	.000

Based on the results of the Wilcoxon Signed-Rank Test, the analysis yielded a significance value (Asymp. Sig. 2-tailed) of 0.000 for both comparisons: between pretest and posttest scores in triangle passing, and between pretest and posttest scores in wall passing. The Z-values were -3.745 and -3.746, respectively. Since the significance values are less than 0.05, this indicates that there is a statistically significant difference between the pretest and posttest results in both groups. In other words, both the triangle passing and wall passing drills enhanced through mindfulness -based interventions have proven to significantly improve performance. These findings support the research hypothesis, suggesting that the intervention had a meaningful effect on increasing the accuracy and consistency of passing. The improvement in mean scores from pretest to posttest, as shown in Table 3 (Wilcoxon Signed-Rank Test), further reinforces the conclusion that the training program was effective in developing fundamental passing skills among students participating in futsal extracurricular activities at SD Negeri Kunti, Bungkal Sub-district, Ponorogo Regency.

DISCUSSION

The results of this study demonstrate that the application of a mindfulness-based intervention in futsal training significantly improved the accuracy and consistency of passing skills among elementary school students participating in extracurricular activities. Specifically, the findings revealed a noticeable increase in the mean scores for both triangle passing (from

10.35 to 13.55) and wall passing (from 11.95 to 14.50) after eight sessions of mindfulness-integrated training. Research on the application of mindfulness in the context of sports has been conducted by various scholars, particularly at the level of professional athletes and higher education. For instance, a study by Josefsson et al. (2017) demonstrated that mindfulness-based interventions (MBIs) can enhance emotional regulation, focus, and athletic performance across a range of sports disciplines. These findings align with those of Bernier et al. (2009), who asserted that mindfulness plays a significant role in improving concentration and decision-making in competitive sports. In the context of physical education, Sanger and Dorjee (2016) found that the application of mindfulness among secondary school students was effective in increasing learning engagement, reducing stress levels, and improving social relationships during team sports activities. However, most of these studies remain focused on general psychological aspects and have yet to specifically examine the impact of mindfulness on fundamental technical skills such as passing in futsal.

Meanwhile, studies on passing skills in futsal have predominantly concentrated on technical and physical approaches. For example, Subekti (2019) reported that repetitive technical training improved passing accuracy, yet failed to consider the psychological dimensions of players, such as attention and self-awareness. Furthermore, research on team cooperation in futsal has generally been approached from sociological or tactical perspectives, rather than through mindfulness-based self-awareness interventions.

Therefore, there remains a gap in the existing literature regarding the integration of mindfulness as an intervention to enhance technical skills and team cooperation in futsal, particularly among elementary and secondary school students. This study seeks to address that gap and contribute to a deeper understanding of how cognitive and affective approaches can influence technical performance and team dynamics in school-based extracurricular sports activities. Future research is recommended to include larger and more diverse samples, implement longitudinal designs, and utilize control groups to validate the effectiveness of mindfulness-based interventions in sports. Additionally, incorporating qualitative data such as interviews or observation could provide richer insights into how mindfulness affects players' focus, motivation, and emotional responses during training and competition.

CONCLUSION

Based on the statistical analysis using the Wilcoxon Signed-Rank Test, the results indicated a significant difference between the pretest and posttest scores for both the triangle passing and wall passing groups, with Z-values of -3.745 and -3.746, respectively. The p-values were below 0.05, confirming that the differences observed were statistically significant. These findings demonstrate that futsal training combined with mindfulness intervention had a positive impact on improving passing skills. Specifically, the integration of mindfulness practices into the training sessions enhanced both the accuracy and consistency of the players' passes. It can thus be concluded that the mindfulness-based intervention was effective in improving the technical performance of elementary school students participating in futsal extracurricular activities at SD Negeri Kunti, Bungkal District, Ponorogo Regency. The application of the mindfulness approach enabled the students to be more focused, calm, and aware during each passing movement, which in turn led to a significant improvement in their performance.

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