

The Effectiveness of Mental Toughness Training Ad – Menstren Model in Badminton Sports for Students of SMP Negeri 2 Jambi City

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ABSTRACT

This study aims to determine the effectiveness of mental toughness training using the Ad-Menstren mode on badminton athletes. This study uses an experimental method; in this study, there is one experimental group that is deliberately given treatment. The sample used in this study is the number of Badminton Athletes at SMP 2 Jambi City, totalling 9 students. The initial test data obtained from the initial test of the Ad-Menstren Model Mental Toughness obtained an average of 92.56, while the final test data obtained an average of 100.56. Based on the results of the normality test, the data obtained for the pre-test and post-test significance values were 0.880 and 0.235 > 0.05, respectively. Based on this data analysis, it can be concluded that the pre-test and post-test data are normally distributed. The results of the analysis obtained from the t-test show significant data values of 0.00 < 0.05 and the calculated T value of 3.193 > 1.8331. Based on the results of the analysis data, it can be concluded that there is a significant effect. This study concludes that there is an increase in Mental Toughness Training in Ad-Menstren Mode in Badminton Athletes at SMP Negeri 2, Jambi City.

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- A. Conception and design of the study;
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INTRODUCTION

Sport is a human movement activity using specific techniques. Its implementation includes elements of play, enjoyment, leisure time, and personal satisfaction (Hamidi, 2021). Humans are highly active living creatures. This highly demanding routine must be supported by a balanced psychological and physical condition. This physical and psychological balance can be achieved through human effort through sports and recreational activities aimed at reducing mental stress (refreshing and relaxing). Sport is essentially an educational process that utilizes physical activity to produce holistic changes in an individual's physical, mental, and emotional well-being (Erfayliana, 2015). Sport treats a person as a whole, a total being, rather than merely viewing them as individuals with separate physical and mental qualities.

Sport is also a form of physical activity found in games, competitions, and intensive activities aimed at achieving victory and maximum achievement (Alfajri, 2024). The government has issued Law Number 11 of 2022, Article 1, paragraph 1, concerning Sports. The law explains that "Sports are all activities that involve the mind, body, and spirit in a comprehensive and structured manner to encourage, foster, and develop physical, mental, social, and cultural potential." From this definition of sport, we can understand that sports are crucial for every individual to maintain their health and physical fitness. In addition to providing benefits for health and physical fitness, sports activities can also serve as a means of competition for individual and group achievements in social life (Alfajri, 2024; Amri et al., 2024).

Sports are also crucial for maintaining a fit and healthy life. By exercising, a person will have a strong immune system and be less susceptible to illness. Sport can also foster a positive culture to support the government in building national health and resilience (Alfajri, 2024). One such sport is badminton.

One of the most popular sports, widely known in Indonesia and even around the world, is badminton. Badminton has been a popular sport in Indonesia since ancient times (Aisyah, 2021). For the Indonesian people, badminton is a sport that is very popular among all levels of society, because this sport can be played by children, teenagers, adults, both men and women (Mansur et al., 2020). Badminton is one of the sports included in competitive sports (Subarkah & Marani, Ika, 2020). Badminton can be played in singles, doubles, or mixed doubles (Subarkah & Marani, Ika, 2020). The core equipment used in this game is a racket and a shuttlecock. The implementation begins with a serve, then the shuttlecock is directed crosswise from one player to the opponent. The basic idea in badminton is to try to kill the ball in the opponent's court and try to keep the ball from falling in your own court. Therefore, a badminton athlete must be able to control their own court and defend against attacks from their opponent to avoid being knocked out.

Badminton is one of the most popular sports in the world. It appeals to all age groups. In badminton, basic technical skills are essential for a player to apply these skills with shots that can score points and disrupt the opponent's defense (Farisi, 2018). To acquire good basic technical skills, a player must be supported by several factors, including physical condition and basic technical skills, as well as regular training, among others (Saputra et al., 2020; Sumantri et al., 2024).

To be able to play and perform basic badminton techniques, an athlete's physical condition is essential. The quality of an athlete's physical condition determines the quality of their basic techniques and the level of performance they can achieve in matches. Mental toughness, likewise, is a factor that contributes to success in a sporting context. This involves the athlete's ability to maintain performance when faced with difficult situations, cope with competitive pressure, and manage thoughts, emotions, and behavior under potentially stressful conditions (Simandjuntak et al., 2024).

During a match, athletes typically experience pressure influenced by the conditions of their opponents, the field conditions, and the crowd (Farenda et al., 2025; Maulana et

al., 2025). In such situations, effective communication between the coach and athlete is essential, concise, and clear so that the athlete understands the coach's advice and opinions. This communication is fostered through training and coaching to foster and provide guidance on improving the athlete's performance.

Each match presents a different burden. Regional-level competitions often have a lighter burden/pressure than national-level competitions, making it difficult for athletes to cope with the pressure. If this situation persists, it will result in poor performance. According to Ilham (2021), performance in sports and the achievements achieved are heavily influenced by psychological factors. According to Rohmatika, (2021), mental aspects contribute 80% to an athlete's performance, with only 20% coming from other aspects. This is because even excellent physical, technical, and tactical aspects will be compromised if mental strength is not developed.

Athletes with strong mental toughness feel confident that the demands of a given situation can be met with the resources available (Pramono & Priambodo, 2024). More specifically, the term "mental toughness" is widely used to describe a broader concept, namely, an athlete's ability to significantly face challenges in training and competition, to remain resilient (Ilham, 2021).

METHODS

This research was conducted at SMP Negeri 2 Jambi City in May 2025, involving nine badminton athletes as subjects. The method used was an experiment with a One Group Pretest-Posttest Design, in which participants were given a pre-test before treatment and a post-test after treatment. The purpose of this design was to observe changes in athletes' mental toughness levels after receiving a training intervention based on the Treadman Ad-Mesdtern Model.

The research instrument used was a Likert-style mental toughness scale with four response options (SS, S, TS, STS). The model implementation procedure consists of three stages: the Questioning Stage to explore athletes' personal strengths, the Action Stage to implement these strengths in training, and the Internalization Stage to instil positive thinking through motivation and mental reinforcement by coaches. These three stages are expected to increase athletes' self-confidence and mental toughness in facing competition.

RESULTS AND DISCUSSION

Result

The following data description is the result of the measurement of Mental Toughness Ad-Menstren Model Badminton Sports on 9 students of SMP Negeri 2 Jambi City. The data were analyzed using descriptive statistics, including the average value (mean), standard deviation (standard deviation), highest value (maximum), and lowest value (minimum).

Table 1.
Description of Mental Toughness Pre-Test and Post-Test Data

Test Type	N	Minimum	Maximum	Mean	Std. Deviation	Variance
Pretest	9	83	100	92.56	5.364	28.778
Posttest	9	93	113	100.56	6.912	47.778

Based on Table 1 above, the average mental toughness score for students during the pretest was 92.56 with a standard deviation of 5.364, while in the posttest, it increased to 100.56 with a standard deviation of 6.912. The maximum score also increased from 100 to 113, while the minimum score increased from 83 to 93.

This comparison indicates an increase in mental toughness after students participated in the Ad-Menstren Mental Toughness training for 12 sessions. Based on the analysis using IBM SPSS Statistics 23, the Shapiro-Wilk test significance values for the pretest and posttest data were 0.880 and 0.235, respectively, both greater than 0.05. Thus, the research data were found to be normally distributed.

Table 2.
Normality Test Results (Shapiro-Wilk)

Grup	Kolmogorov-Smirnov Statistic	df	Sig.	Shapiro-Wilk Statistic	df	Sig.
Pretest	0.134	9	0.200*	0.968	9	0.880
Posttest	0.256	9	0.092	0.897	9	0.235

Table 3.
Results of the Homogeneity of Variance Test (Levene's Test)

Variable	Levene Statistic	df1	df2	Sig.
Pretest - Posttest	0.427	1	16	0.523

Based on the analysis results in Table 3, a significance value of 0.523 was obtained, which is greater than $\alpha = 0.05$. This indicates that the pretest and posttest data have homogeneous variance. Therefore, it can be concluded that the data meet the homogeneity assumption, allowing a paired sample t-test to be used to test the research hypothesis.

Discussion

Badminton is a very popular sport in Indonesia and has become part of the national identity. The success of Indonesian badminton athletes on the international stage makes this sport not only a form of entertainment but also a means of building character, fighting spirit, and national pride. Badminton can be played by various groups, children, teenagers, and adults, both men and women and can be played in singles, doubles, or mixed doubles.

In badminton, an athlete is not only required to possess strong technical and physical skills, but also must possess high levels of mental toughness. Mental toughness is crucial because in competition situations, athletes often face complex pressures, whether from opponents, court conditions, or the influence of spectators. This pressure

can affect an athlete's concentration, confidence, and emotional stability. Therefore, effective communication between coaches and athletes is essential so that strategies, advice, and corrections can be received quickly, clearly, and constructively.

A good coaching process will foster productive two-way communication and foster trust between coach and athlete. Through a well-planned training process, coaches can help athletes develop mental toughness, enabling them to remain focused, patient, and optimistic in the face of stressful situations. This aligns with Zeiger's (2018) opinion, which states that athletes with high mental toughness will have the confidence to overcome the demands and pressures that arise in certain situations using their available resources. Meanwhile, Liew (2020) emphasized that mental toughness is a crucial skill that enables athletes to withstand, recover, and adapt to pressure, both in training and competition.

Based on the research results, the average mental toughness score of students in the pretest was 92.56 with a standard deviation of 5.364, while in the posttest, it increased to 100.56 with a standard deviation of 6.912. This increase in scores indicates that after participating in the Ad-Menstren Mental Toughness Training Model, the students experienced improved abilities in managing psychological stress, maintaining focus, and demonstrating greater self-confidence during badminton.

The t-test results showed a significance value of 0.00 (<0.05) and a calculated t of $3.193 > t_{table} 1.8331$, indicating a significant difference between the pre-test and post-test results. Therefore, it can be concluded that the Ad-Menstren Mental Toughness Training Model is effective in improving the mental toughness of badminton athletes at SMP Negeri 2, Jambi City.

Theoretically, these results support the view that mental toughness can be developed through systematic and structured training. The Ad-Menstren Model emphasizes adaptation, motivation, focus, and emotional control, which are repeated throughout the training process. This approach allows athletes to practice dealing with stress through realistic simulations of competition conditions, thus improving their mental preparedness for real matches. Furthermore, improving mental toughness is also influenced by internal factors such as intrinsic motivation, commitment to training, and the desire to achieve. In the context of physical education in schools, this training model also has the potential to help students develop social and emotional skills, such as cooperation, discipline, and responsibility. This aligns with the goals of sports education, which emphasize not only physical aspects and technical skills but also character and personality development in students.

Therefore, the results of this study reinforce the view that developing mental toughness is an integral part of developing sports achievement. Ad-Menstren training can be used as an alternative learning model and mental development for young athletes in schools, particularly in badminton. Through targeted training, students not only become mentally resilient but also demonstrate more consistent and positive performance in both training and matches.

CONCLUSION

Based on the data analysis and discussion, it can be concluded that the Ad-Menstren Mental Toughness Training Model for Badminton significantly improved the mental toughness of students at SMP Negeri 2 Jambi City. This is evidenced by the increase in the average score from 92.56 in the pretest to 100.56 in the posttest. The t-test results showed a significance value of 0.00 (<0.05) and a calculated t-value of 3.193 $>$ t-table of 1.8331.

Therefore, it can be concluded that the Ad-Menstren Mental Toughness Training Model has proven effective in improving the mental toughness of junior high school badminton athletes. This training not only strengthens psychological aspects such as focus, self-confidence, and emotional control, but also contributes to increasing students' readiness to face the pressures of competition.

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