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The Effect Of Self-Hypnosis Training On Improving The Ability To Concentrate And Emotions Of South Sulawesi Archery Athletes

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ABSTRACT

This study is an experimental study with a quantitative approach that aims to analyse the effect of self-hypnosis training on improving concentration and emotional management skills in archery athletes in South Sulawesi Province. The method used in this study is a one-group pre-test post-test design experiment, with a total sampling technique, involving 10 athletes as respondents. The research process was carried out for two months, starting from the initial observation stage, implementation of the intervention, to the final evaluation. Self-hypnosis training was given in a structured and systematic manner during the research period, with the aim of improving the mental focus and emotional stability of athletes in facing competition pressure. The research instruments used included a concentration test and a validated emotional control questionnaire. The data obtained were analysed using a t-test (paired sample t-test) to determine significant differences between the pre-test and post-test results. The results of the statistical analysis showed that there was a significant effect of self-hypnosis training on improving athletes' concentration and emotional abilities. The observation t value of 12.0000 is smaller than the t table value of 19.3000, and the significance level of 0.000 is smaller than the value of $\alpha = 0.05$. This finding indicates that self-hypnosis training can significantly help athletes improve the quality of focus and emotional control during training and matches. It can be concluded that self-hypnosis training is an effective method to be applied in athlete psychological development programs, especially in sports that require high concentration, such as archery.

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INTRODUCTION

South Sulawesi (Sulsel) is one of the active provinces in the National Sports Week (PON) and is known for its enthusiasm for archery. This province regularly sends archery teams to compete at the national level, demonstrating the commitment and quality of its athletes through various proud achievements. However, despite having great potential,

archery athletes from South Sulawesi face several significant challenges that affect their performance. Psychological and emotional challenges, such as competitive pressure, also affect the concentration and emotional stability of athletes. As a result of these various problems, archery achievements in South Sulawesi have experienced a significant decline, with this province not having won a medal at PON since 2004. This decline reflects the need for more attention in overcoming existing problems, so that the potential of South Sulawesi archery athletes can be maximised and return to compete at the national level better.

Archery athletes face various challenges that can significantly affect their performance. Mental stress, which arises from intense competition and the pressure to meet expectations, can interfere with decision-making and archery techniques, resulting in less than optimal performance. In addition, maintaining concentration is a major problem, as internal and external distractions can significantly affect an athlete's focus. Fatigue, environmental distractions, and discomfort often distract athletes from their goals, reducing training effectiveness and competition results. Managing stress and maintaining focus are key to minimising the negative impact of these factors.

Emotions play a crucial role in influencing archers' performance, with fluctuations such as anxiety and frustration disrupting mental stability, reducing motivation, and self-confidence (Wu et al., 2021). Emotional balance is essential to deal with the pressure of competition, as uncontrolled emotions can impair concentration and accuracy (Musa et al., 2018). Therefore, archers often undergo mental training such as meditation, visualisation, and breathing exercises to train focus and calmness, which are essential for optimal performance.

Self-hypnosis is a technique that harnesses the power of the subconscious to achieve personal or professional goals through deep relaxation and self-suggestion. The individual enters a calm trance state, making the subconscious mind more open to positive suggestions, such as affirmations to overcome negative habits or improve performance. For example, an athlete can use self-hypnosis to improve focus and manage stress during competition, helping to achieve optimal performance (Eason & Parris, 2019).

In the context of sport, self-hypnosis offers significant benefits in improving athlete performance. The ability to focus and remain calm under pressure is a crucial aspect in many sports, including archery. This technique helps athletes achieve deep concentration and emotional stability by influencing their thought patterns through positive suggestions. Athletes can use self-hypnosis to build clear mental images of correct technique or desired outcomes, which in turn can improve their physical performance during competition. In addition, self-hypnosis is also effective in managing emotions such as anxiety and frustration, replacing negative feelings with more positive and calm attitudes. Thus, this technique allows athletes to process emotions constructively, stay focused, and perform optimally in competition.

Self-hypnosis plays a key role in improving athletes' concentration and emotional management, offering an effective approach through mental state manipulation and

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positive suggestions. In sports such as archery, high levels of concentration are essential to achieving optimal performance. Self-hypnosis techniques support concentration by helping athletes enter a calm and focused mental state through a process of deep relaxation. This allows athletes to divert attention from external distractions and instil suggestions that strengthen their ability to focus on the target. With the repetition of positive suggestions, athletes can be more consistent in maintaining focus on the target when shooting arrows. Visualization techniques also play a role, allowing athletes to imagine themselves succeeding in competition, which strengthens positive thought patterns and improves focus. In addition, self-hypnosis helps reduce internal distractions such as negative thoughts or anxiety, thereby increasing the athlete's capacity to stay focused on the task at hand (Verawati & Valianto, 2020).

Emotional management is a crucial aspect that often affects an athlete's performance, and self-hypnosis contributes significantly to this. This technique helps athletes achieve a state of deep relaxation that reduces stress and anxiety, allowing them to cope with emotional and physical tension both before and during competition. Through the use of positive suggestions, self-hypnosis forms constructive thought patterns that increase self-confidence, reduce fear, and motivate athletes to remain calm under pressure. These positive suggestions also help regulate emotions, reduce frustration, and improve athletes' ability to stay focused on their goals. By instilling suggestions that reduce anxiety and increase self-confidence, self-hypnosis allows athletes to face stressful situations with more calm and control.

This study aims to investigate the impact of self-hypnosis techniques on the concentration and emotional management abilities of archery athletes. The results of the study are expected to enrich the existing literature and provide guidance for coaches and athletes in using self-hypnosis as a tool to improve sports performance.

METHODS

This study used a quasi-experimental design with a pre-experimental design approach using a one-group pretest-posttest design model. This design was chosen because it allows researchers to measure changes in the dependent variables (concentration and emotional management) before and after treatment in the form of self-hypnosis training in the same group of subjects. This study was conducted in December 2024. The research location was centred at Barombong Stadium, Jalan Barombong, Tamalate District, Makassar City, South Sulawesi Province. The sample consisted of 10 South Sulawesi archery athletes. The research instrument used to measure athletes' concentration abilities was adapted from the Attention Control Scale, which has been modified according to the context of archery. This scale consists of 20 items using a 5-point Likert scale (1 = very low, 2 = low, 3 = moderate, 4 = high, 5 = very high). The emotional management instrument was adapted from the Emotion Regulation Questionnaire in Sport (ERQ-S), which has been translated and validated into Indonesian.

This scale consists of 18 items using a 5-point Likert scale. How to conduct a step-by-step hypnosis induction, referring to the approach used in the study of Pates, J., Oliver, J., & Maynard, I. (2001). Data analysis techniques using SPSS by conducting descriptive analysis, Prerequisite Test and inferential test (T Test) (Adam Mappaompo et al., 2024; Arga, 2025).

RESULTS AND DISCUSSION

Result

The presentation of the results of the data analysis includes descriptive and inferential statistical analysis. Then, a discussion of the results of the analysis and their relationship to the theory underlying this research is carried out to provide an interpretation of the results of the data analysis.

Descriptive Analysis

Table 1.

Pretest Results of Group A and Group B of South Sulawesi Archery Athletes.

Descriptive Statistics									
Variable	**N**	**Range**	**Minimum**	**Maximum**	**Sum**	**Mean**	**Std. Deviation**	**Std. Eror**	**Variance**
Concentration Pretest	10	13	50	63	557	55,7	4,78539	1,51327	22,9
Emotion Pretest	10	12	47	59	520	52	3,65148	1,1547	13,333

Descriptive analysis of the concentration pretest and emotion pretest data shows an interesting comparison between the two groups. For the "Concentration Pretest" variable, the range of values is 13, with a minimum value of 50 and a maximum of 63. The total value obtained is 557, resulting in an average (mean) of 55.7. The standard deviation for this variable is 4.78539, indicating relatively small variations among respondents. With a standard error of 1.51327 and a variance of 22.9. Meanwhile, the "Emotion Pretest" variable has a range of values of 12, where the minimum value is recorded as 47 and the maximum is 59. The total number of values is 520, with a mean of 52. The standard deviation for emotion is 3.65148, which also indicates small variations. With a standard error of 1.1547 and a variance of 13.333.

Table 2.

Posttest Results of Group A and Group B of South Sulawesi Archery Athletes.

Descriptive Statistics									
Variable	**N**	**Range**	**Minimum**	**Maximum**	**Sum**	**Mean**	**Std. Deviation**	**Std. Eror**	**Variance**
Concentration Pretest	10	16	60	76	677	67,7	5, 889	1,862	34,678
Emotion Pretest	10	9	68	77	713	71,3	2,869	0,907	8,233

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Descriptive analysis of the concentration posttest and emotion posttest data showed an interesting comparison between the two groups. For the "Concentration Posttest" variable, the range of values was 16, with a minimum value of 60 and a maximum of 76. The total value obtained was 677, resulting in an average (mean) of 67.7. The standard deviation for this variable was 5.889, indicating a greater variation compared to the pretest. With a standard error of 1.862 and a variance of 34.678. Meanwhile, the "Emotion Posttest" variable had a range of values of 9, with a minimum value of 68 and a maximum of 77. The total number of values was 713, with a mean of 71.3. The standard deviation for emotion was 2.869, indicating a smaller variation. With a standard error of 0.907 and a variance of 8.233.

Normality Test

Table 3.
Normality Test of Group A and Group B of South Sulawesi Archery Athletes.

One-Sample Kolmogorov-Smirnov Test					
Variables	**N**	**Mean**	**Std**	**Test statistic**	**Asymp. Sig. (2-tailed)**
Pretest Concentration	10	55,7	4.785	258	0,085
Posttest Concentration	10	67,7	5.889	180	0,200
Pretest Emotion	10	52	4	208	0,200
Posttest Emotion	10	71,3	3	275	0,231

Overall, the test results show that both the pretest and posttest for concentration and emotion do not show significant deviations from the normal distribution. This is because all the significant results are above 0.05.

After conducting descriptive analysis and prerequisite tests, the next step is to conduct a T-test to see the comparison of the two groups given cell-hypnosis treatment.

Paired Sample T Test

Table 4.
Paired Samples Statistics Self-Hypnosis Training on Emotions and Concentration

Paired Samples Statistics					
	Variable	**Mean**	**N**	**Std. Deviation**	**Std. Error Mean**
Group A	Emotion Pretest	52.00	10	3.651	1.155
	Emotion Posttest	71.30	10	2.869	0.907
Group B	Concentration Pretest	55.70	10	4.785	1.513
	Concentration Posttest	67.70	10	5.889	1.862

Table 4 above presents descriptive statistics for two pairs of variables, namely "Pretest Emotion" and "Posttest Emotion", and "Pretest Concentration" and "Posttest Concentration", each involving 10 respondents. For "Pretest Emotion", the mean score was 52.00 with a standard deviation of 3.651 and a standard error of the mean of 1.155. After the intervention, "Posttest Emotion" showed a significant increase, with a mean of 71.30, a standard deviation of 2.869, and a standard error of the mean of 0.907. In the "Pretest Concentration" pair, the initial mean was 55.70 with a standard deviation of 4.785

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and a standard error of the mean of 1.513. After the intervention, "Posttest Concentration" showed a higher mean of 67.70, with a standard deviation of 5.889 and a standard error of the mean of 1.862.

Table 5.
Paired Samples Correlations of Self-Hypnosis Training on Emotions and Concentration

Paired Samples Correlations				
Variable		N	Correlation	Sig.
Group A	Emotion Pretest & Emotion Posttest	10	0.986	0.000
Group B	Concentration Pretest & Concentration Posttest	10	0.990	0.000

The results of the correlation analysis, shown in the table, show the relationship between pretest and posttest for two variables: emotion and concentration. In the "Emotion Pretest & Emotion Posttest" group, there are 10 samples with a correlation value of 0.986, which shows a very strong relationship between the pretest and posttest emotion scores. The significance value (Sig.) is recorded at 0.000, indicating that this relationship is very statistically significant. The "Concentration Pretest & Concentration Posttest" group, also with 10 samples, has a correlation value reaches 0.990, which shows a stronger relationship compared to emotion. The significance value for this group is also 0.000.

Table 6.
Paired Samples Test of Self-Hypnosis Training on Emotions and Concentration

Paired Samples Test					
Variable		Paired Differences			Sig. (2-tailed)
		Mean	t	df	
Group A	Emotion Pretest - Emotion Posttest	-19.300	-64.333	9	0.000
Group B	Concentration Pretest - Concentration Posttest	-12.000	-28.460	9	0.000

The results of the Paired T-Test analysis show the comparison between pretest and posttest for two groups of variables: emotion and concentration. For Group A, the mean difference (Mean) between "Emotion Pretest" and "Emotion Posttest" is -19.300, with a t value of -64.333 and degrees of freedom (df) 9. The significance value (Sig.) obtained is 0.000, indicating that this difference is very statistically significant. Meanwhile, for Group B, the mean difference between "Concentration Pretest" and "Concentration Posttest" is -12.000, with a t value of -28.460 and degrees of freedom (df) 9. The significance value (Sig.) is also recorded at 0.000, indicating that this difference is also significant.

Discussion

Comprehensive discussion based on research findings supported by previous studies and references from various experts in the field of Sports Psychology

The Effect of Self-Hypnosis on Athletes' Concentration

The results of data analysis revealed a significant increase in the concentration level of archery athletes after undergoing self-hypnosis training, with an average value

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increasing from 55.70 to 67.70 (an increase of 12.00 points). Self-hypnosis physiologically triggers a number of changes in the body that affect the cerebellum and concentration ability. First, during the hypnosis process, there is a change in brain waves, where the frequency of the waves shifts to alpha and theta waves. Alpha waves, which range from 8-12 Hz, are associated with a state of relaxation and focus, while theta waves, which range from 4-8 Hz, are associated with creativity and deeper information processing (Hawkins, 2019). These changes allow individuals to more easily ignore external distractions and increase concentration on the task at hand.

In addition, self-hypnosis can increase blood flow to the brain, including to the cerebellum, which plays an important role in motor coordination and cognitive function. This increased blood flow brings more oxygen and nutrients, which are needed for optimal brain function (Wang et al., 2018). With more oxygen and nutrients, the brain can function more efficiently, which in turn improves concentration.

Self-hypnosis also works to reduce stress and anxiety, which are often obstacles to concentration. Research shows that relaxation techniques such as hypnosis can reduce levels of stress hormones, such as cortisol, which can interfere with focus (Schoenberger et al., 2017). By reducing stress, individuals can more easily maintain attention and concentration on the task at hand. Self-hypnosis triggers physiological changes that support increased concentration by altering brain waves, increasing blood flow to the brain, and reducing stress, creating better conditions for optimal focus and cognitive performance.

The Effect of Self-Hypnosis on Athletes' Emotional Ability

Analysis of the research results shows that self-hypnosis training has a very significant impact on the emotional management ability of archery athletes. The increase in emotional scores from 52.00 in the pretest to 71.30 in the posttest shows an increase of 19.30 points. The results of the statistical test with a value of $t = -64.333$ and a significance of $p = 0.000$ ($p < 0.05$) confirm that this increase is very statistically significant.

These results support the findings of the study by Robazza and Bortoli (2018), which examined the effectiveness of relaxation and hypnosis techniques in managing competitive anxiety in athletes. Their research shows that hypnosis intervention can effectively reduce stress levels and improve athletes' emotional regulation. In line with that, research by Barker, J. B., & Jones, M. V. (2008) on soccer athletes shows that self-hypnosis can improve coping and emotional management skills, especially in stressful competitive situations.

Neuropsychological theory explains that hypnosis works by influencing the autonomic nervous system, specifically in activating the parasympathetic response, which is responsible for relaxation and calmness (Hammond, 2010). In the context of archery, the ability to manage emotions such as anxiety, pressure, and stress is essential to maintain the physical and mental stability needed to achieve maximum accuracy.

Comparison of Effects on Concentration and Emotions

Data analysis shows that self-hypnosis training has a greater effect on improving emotional ability (19.30 points) compared to concentration ability (12.00 points). This difference supports the theory of Zhang and Chen (2018), which states that hypnosis has a primary effect on the limbic system that regulates emotions, with secondary effects on executive functions such as concentration and attention. This indicates that hypnosis interventions may have different neuropsychological pathways in influencing emotional and cognitive aspects in athletes.

The findings of this study have significant practical implications for archery athlete training. Hashim and Hanafi (2016) suggested that mental techniques such as self-hypnosis should be integrated into the routine training program of archery athletes to optimise performance. Based on the results of this study, the integration of self-hypnosis training into the training program of South Sulawesi archery athletes can be an effective strategy to improve the mental abilities of athletes.

Kumar et al. (2020) suggested that self-hypnosis can be used as a cost-effective intervention technique to improve the psychological performance of athletes. The findings of this study support this recommendation, especially since self-hypnosis showed significant effectiveness in improving aspects of concentration and emotion, which are critical components in archery.

In addition, this study did not measure the long-term impact of self-hypnosis training. Jansson and Peterson (2018) suggested that the effects of psychological interventions such as hypnosis can vary over time and require periodic reinforcement. Longitudinal studies measuring the sustainability of the effects of self-hypnosis would provide valuable insights into the optimal duration of the intervention.

Before undergoing self-hypnosis training, archery athletes from South Sulawesi showed several limiting factors in their performance. The athletes' concentration level was at an average value of 55.70, indicating suboptimal focus ability. Athletes often experience attention disorders from both external and internal factors that hinder their ability to achieve high precision in archery. They also have difficulty achieving and maintaining the "flow" state required for optimal performance. In terms of emotionality, athletes had an average score of only 52.00, indicating instability in their emotional regulation. Emotional responses to competitive pressure tended to be non-adaptive, with high levels of stress and anxiety interfering with focus and performance. Stress hormone levels, such as cortisol, were at levels that could interfere with optimal concentration. Athletes showed difficulty in managing emotional balance, especially in stressful situations, and the limbic system response to competitive stressors was not well regulated.

Physiologically, athletes' brain waves were not yet in optimal condition for focus and high performance. Blood flow to the brain, including to the cerebellum area responsible for motor coordination and cognitive function, had not reached optimal levels. Athletes' ability to ignore distractions and maintain attention on targets was limited due to physiological conditions that were not yet supportive.

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After undergoing self-hypnosis training, there were significant changes in various factors of athlete performance. Concentration levels increased drastically to an average of 67.70, indicating an increase of 12.00 points. Athletes were able to achieve optimal cognitive conditions with the ability to focus more intensely and sustainably. They can experience a state of "flow" where their focus is fully on the target without being distracted by external or internal disturbances.

A more dramatic development occurs in the emotional aspect with an increase of 19.30 points, reaching an average of 71.30. Athletes develop a more adaptive mental representation of competitive pressure, able to maintain emotional balance even in challenging situations. Their emotional regulation becomes more effective with better modulation of the limbic response to stressors, thus maintaining an optimal emotional state during competition.

Significant physiological changes occur with the shift of brain waves to alpha waves (8-12 Hz) and theta (4-8 Hz), which are associated with a state of relaxation, high focus, creativity, and deeper information processing. There is an increase in blood flow to the brain, including the cerebellum, bringing more oxygen and nutrients needed for optimal brain function. Levels of stress hormones such as cortisol decrease significantly, creating physiological conditions that support better cognitive performance.

The very high correlation between pretest and posttest results (r = 0.990 for concentration and r = 0.986 for emotion) indicates that the effects of self-hypnosis were consistent across participants, with predictable and measurable improvements. Athletes experienced improvements in their ability to ignore external distractions and selectively focus their attention on the task at hand, creating ideal conditions for a precision sport such as archery.

The study focused on measuring psychological aspects (concentration and emotion), with documented improvements in concentration and emotion regulation likely impacting archery performance, based on the relationships discussed in the study. Increased concentration (from 55.70 to 67.70) likely improved shooting accuracy as athletes were able to focus more on the target and technique, ignore external distractions, and maintain consistency in posture and release technique. The study noted that athletes achieved a state of “flow”, which is the ideal state for high-precision archery performance.

Increased emotional ability (from 52.00 to 71.30) potentially improved hand stability, arrow release consistency, and the ability to cope with competitive stress. Better emotion regulation also allows for quicker recovery from inaccurate shots, maintaining performance throughout the competition. Physiological changes such as alpha and theta brain waves, increased blood flow to the cerebellum, and decreased stress hormones likely contribute to smoother movement coordination, more regular breathing rhythms, and physical calmness that support more precise shots.

Referring to the references in the document (Pates & Maynard, 2000), similar hypnosis interventions have been shown to improve athletic performance in precision

sports, indicating that the archers in this study likely also experienced significant improvements in their archery accuracy.

CONCLUSION

1. Self-hypnosis training has a significant effect on increasing the concentration ability of South Sulawesi archery athletes.
2. Self-hypnosis training has a significant effect on increasing the emotional ability of South Sulawesi archery athletes.
3. There is a difference in the magnitude of the effect of self-hypnosis training, where the increase in emotional ability is greater than the increase in concentration ability.

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