

The Role of Psychological Readiness in Competitive Hammer Throw Performance

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Abstract

Psychological readiness is considered one of the key determinants of successful athletic performance, particularly in technically complex track and field events such as the hammer throw. The ability of athletes to effectively manage competitive stress, maintain concentration, regulate emotions, and sustain self-confidence significantly influences the quality of technical execution and competitive outcomes. Despite the growing attention to psychological preparation in modern sports science, limited research has specifically examined its role in competitive hammer throw performance among university athletes.

The purpose of this study was to investigate the influence of psychological readiness on the competitive performance of hammer throw athletes and to identify the psychological factors that contribute most significantly to successful performance during competitions. The research employed a combination of theoretical analysis, pedagogical observation, psychological assessment, and statistical methods. Psychological indicators such as competitive anxiety, self-confidence, emotional stability, concentration, and motivation were evaluated and analyzed in relation to athletes' competitive results.

The findings indicated that athletes with higher levels of psychological readiness demonstrated superior technical consistency, better emotional control, and improved competitive performance. In particular, self-confidence and concentration were identified as the strongest predictors of successful hammer throw results, while elevated levels of competitive anxiety were associated with decreased technical efficiency and performance outcomes. Furthermore, psychological readiness was found to facilitate more effective execution of technical skills under competitive pressure.

The study confirms the importance of integrating psychological preparation into the training process of hammer throw athletes. The results provide theoretical and practical evidence supporting the development of comprehensive psychological training programs aimed at enhancing competitive performance and overall athletic achievement.

Keywords: Hammer throw, psychological readiness, competitive performance, competitive anxiety, self-confidence, concentration, emotional stability, university athletes.

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1. Introduction

In modern sports science, psychological readiness is

increasingly recognized as one of the most important determinants of successful athletic performance. While physical, technical, and tactical preparation remain essential components of sports training, numerous studies have demonstrated that psychological factors often play a decisive role in competitive success. Athletes competing at similar levels of physical and technical preparedness frequently achieve different results due to variations in their psychological state during competition. Consequently, psychological readiness has become an integral part of contemporary athletic training programs.

Track and field athletics includes several technically demanding events that require a combination of physical strength, coordination, speed, and mental stability. Among these events, the hammer throw is considered one of the most complex disciplines because it requires the precise execution of multiple rotational movements under conditions of high physical and psychological stress. Successful performance in the hammer throw depends not only on biomechanical efficiency and physical conditioning but also on the athlete's ability to maintain concentration, control emotions, and perform technical movements accurately under competitive pressure.

Research in sport psychology suggests that psychological factors such as self-confidence, competitive anxiety, emotional stability, motivation, and attentional control significantly influence athletic performance. According to Weinberg and Gould, athletes who demonstrate high levels of psychological readiness are generally more capable of maintaining optimal performance levels during stressful competitive situations. Similarly, Hardy and Jones emphasize that psychological preparation contributes to consistency in technical execution and enhances athletes' ability to cope with competitive demands.

Competitive anxiety represents one of the most frequently studied psychological variables in sports performance research. Moderate levels of anxiety may enhance alertness and motivation; however, excessive anxiety often leads to impaired concentration, muscular tension, and reduced movement efficiency. In technical events such as the hammer throw, where precise coordination and timing are essential, elevated anxiety levels may negatively affect technical execution and ultimately reduce competitive performance.

Self-confidence is another critical psychological component associated with successful athletic achievement. Athletes with strong self-confidence tend to demonstrate greater resilience, better decision-making abilities, and improved emotional control during competitions. In throwing events, self-confidence may positively influence movement fluency and encourage athletes to execute techniques with greater precision and determination.

Concentration and attentional control are also fundamental aspects of psychological readiness. Hammer throw athletes must maintain focus throughout the entire performance process, from pre-throw preparation to the final release phase. Any distraction or lapse in attention may disrupt movement coordination and negatively affect throwing distance. Therefore, the ability to sustain concentration under competitive conditions is considered an essential prerequisite for optimal performance.

Despite the recognized importance of psychological preparation in sport, relatively limited research has specifically examined the relationship between psychological readiness and competitive performance in hammer throw athletes, particularly among university students. Most previous studies have focused on general athletic populations or team sports, leaving a gap in the scientific literature regarding the psychological determinants of performance in throwing events.

Therefore, the present study aims to investigate the role of psychological readiness in competitive hammer throw performance and to identify the psychological factors that most strongly influence athletic success during competitions. The findings are expected to contribute to the development of evidence-based psychological training strategies and provide practical recommendations for coaches, athletes, and sports educators seeking to improve competitive performance through enhanced psychological preparation.

Research Purpose

The purpose of this study was to investigate the role of psychological readiness in competitive hammer throw performance and to determine the extent to which psychological factors influence athletic results during competitions among university athletes.

Research Objectives

To achieve the research purpose, the following objectives were established:

1. To analyze the theoretical and scientific foundations of psychological readiness in sports performance.
2. To identify the main psychological factors influencing competitive hammer throw performance.
3. To assess the levels of competitive anxiety, self-confidence, concentration, emotional stability, and motivation among university hammer throw athletes.
4. To examine the relationship between psychological readiness indicators and competitive performance outcomes.
5. To determine the psychological factors that contribute most significantly to successful hammer throw performance during competitions.
6. To develop practical recommendations for improving psychological preparation in hammer throw training programs.

Research Hypothesis

It was hypothesized that athletes demonstrating higher levels of psychological readiness would achieve significantly better competitive performance in hammer throw events than athletes with lower levels of psychological readiness. Furthermore, it was assumed that self-confidence, concentration, and emotional stability would positively correlate with performance outcomes, whereas excessive competitive anxiety would negatively affect technical execution and throwing distance.

2. Methods

This study employed a mixed-method research design combining theoretical analysis, psychological assessment, pedagogical observation, and statistical analysis to investigate the role of psychological readiness in competitive hammer throw performance.

Participants

The study involved 30 university athletes specializing in hammer throw events from higher education institutions. The participants were aged between 18 and 23 years and had a minimum of two years of athletics training experience. All athletes voluntarily agreed to participate in the study and were informed about the research procedures.

Psychological Assessment

The psychological readiness of the athletes was evaluated using standardized psychological assessment methods commonly applied in sports psychology research. The following psychological variables were examined:

1. Competitive anxiety
2. Self-confidence
3. Concentration ability
4. Emotional stability
5. Motivation for achievement

Data were collected approximately one week prior to official competitions to ensure accurate assessment of athletes' psychological states before competitive participation.

Pedagogical Observation

Pedagogical observations were conducted during training sessions and competitions. Athletes' behavioral responses, emotional reactions, concentration levels, and technical performance consistency were systematically monitored and recorded.

Performance Evaluation

Competitive performance was assessed using official hammer throw results obtained during university-level competitions. The best valid throw achieved by each athlete was included in the analysis.

Psychological Characteristics of University Hammer Throw Athletes Prior to Competition

Table 1.

Psychological Variable	Mean (M)	SD
Self-confidence	8.1	0.72

Concentration	7.8	0.69
Motivation	8.4	0.63
Emotional Stability	7.5	0.81
Competitive Anxiety	5.9	0.88

Statistical Analysis

The collected data were processed using descriptive and inferential statistical methods. Mean values (M), standard deviations (SD), and percentage distributions were calculated. Pearson correlation analysis was used to determine relationships between psychological readiness indicators and competitive performance outcomes. Statistical significance was accepted at the $p < 0.05$ level.

Ethical Considerations

The study was conducted in accordance with ethical principles for research involving human participants. Participation was voluntary, confidentiality was maintained, and all collected data were used exclusively for scientific purposes.

3. Results

The analysis of psychological readiness indicators

revealed noticeable differences among university hammer throw athletes prior to competition. The highest mean score was observed for motivation ($M = 8.4 \pm 0.63$), followed by self-confidence ($M = 8.1 \pm 0.72$) and concentration ($M = 7.8 \pm 0.69$). Emotional stability demonstrated a moderate level ($M = 7.5 \pm 0.81$), while competitive anxiety showed the lowest mean value ($M = 5.9 \pm 0.88$).

The results suggest that the majority of athletes demonstrated relatively high levels of psychological readiness before competition. However, individual differences in psychological characteristics were evident, indicating that psychological preparation may influence competitive performance outcomes.

To determine the relationship between psychological readiness and competitive performance, Pearson correlation analysis was conducted. The findings are presented in Table 2.

Correlation Between Psychological Readiness Variables and Competitive Hammer Throw Performance

Table 2.

Psychological Variable	Correlation Coefficient (r)	Significance Level (p)
Self-confidence	0.78	<0.05
Concentration	0.74	<0.05
Emotional Stability	0.69	<0.05
Motivation	0.65	<0.05
Competitive Anxiety	-0.61	<0.05

The correlation analysis demonstrated significant relationships between psychological readiness variables and competitive hammer throw performance. Self-confidence showed the strongest positive correlation with performance outcomes ($r = 0.78$, $p < 0.05$), indicating that athletes with higher confidence levels tended to achieve better throwing results.

Concentration also demonstrated a strong positive relationship with performance ($r = 0.74$, $p < 0.05$). Athletes who maintained greater attentional control during competition were more likely to perform technical movements effectively and achieve superior results.

Emotional stability ($r = 0.69$) and motivation ($r = 0.65$) were positively associated with competitive performance, suggesting that psychological resilience and achievement-oriented attitudes contribute to successful execution of hammer throw techniques under competitive conditions.

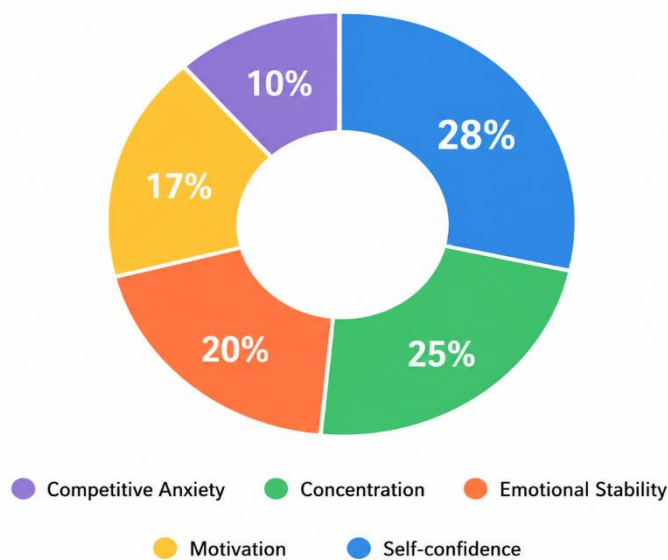
In contrast, competitive anxiety exhibited a significant negative correlation with performance ($r = -0.61$, $p < 0.05$). Higher levels of anxiety were associated with reduced throwing distances and lower competitive effectiveness. This finding supports previous research indicating that excessive psychological stress may

interfere with technical execution and motor coordination during athletic competitions.

Psychological Readiness Components Influencing Competitive Hammer Throw Performance

Figure 1.

Psychological readiness components
Relative contribution of psychological factors to competitive hammer throw performance.



The figure illustrates the relative contribution of psychological factors to competitive hammer throw performance among university athletes. Self-confidence demonstrated the highest contribution (28%), indicating its dominant role in successful technical execution and competitive achievement. Concentration accounted for 25% of the overall influence, emphasizing the importance of attentional control during competition.

Emotional stability (20%) and motivation (17%) also showed substantial contributions to performance outcomes. Competitive anxiety represented 10% of the overall influence and was negatively associated with athletic performance. The results suggest that psychological readiness is a multidimensional construct composed of several interrelated factors that collectively determine success in competitive hammer throw events.

Comparison of Competitive Performance According to Psychological Readiness Levels

Table 3.

Indicator	High Psychological Readiness Group (n=15)	Low Psychological Readiness Group (n=15)	Difference (%)
Self-confidence	8.8 ± 0.54	6.9 ± 0.71	27.5
Concentration	8.5 ± 0.61	6.8 ± 0.74	25.0
Emotional Stability	8.1 ± 0.65	6.4 ± 0.77	26.6
Motivation	8.9 ± 0.58	7.2 ± 0.69	23.6
Competitive Anxiety	4.7 ± 0.71	7.1 ± 0.82	-33.8
Hammer Throw Performance (m)	52.6 ± 2.8	45.3 ± 3.1	16.1

The comparison between athletes with high and low levels of psychological readiness revealed substantial differences in competitive performance. Athletes classified within the high psychological readiness group demonstrated superior scores in self-confidence, concentration, emotional stability, and motivation. In contrast, athletes with lower psychological readiness exhibited significantly higher levels of competitive anxiety.

The greatest difference was observed in competitive anxiety, where athletes in the low-readiness group reported considerably higher anxiety levels. Furthermore, the high-readiness group achieved significantly better hammer throw results (52.6 ± 2.8 m) compared to the low-readiness group (45.3 ± 3.1 m). These findings indicate that psychological readiness contributes directly to competitive success and may be considered an important predictor of hammer throw performance.

4. Conclusion

The present study investigated the role of psychological readiness in competitive hammer throw performance among university athletes. The findings demonstrated that psychological factors significantly influence athletic achievement and should be considered essential components of comprehensive athlete preparation programs. The results revealed that self-confidence, concentration, emotional stability, and motivation were positively associated with competitive performance, whereas competitive anxiety showed a significant negative relationship with throwing outcomes. Among all examined variables, self-confidence emerged as the strongest predictor of successful hammer throw performance.

The comparison of athletes with different levels of psychological readiness further confirmed that psychologically prepared athletes achieved superior competitive results. Higher levels of confidence, concentration, and emotional stability were accompanied by greater throwing distances and improved technical consistency during competition. The study also demonstrated that excessive competitive anxiety may negatively affect technical execution and overall performance by disrupting attentional focus and increasing emotional tension. Therefore, effective psychological preparation strategies should be integrated into the training process to minimize the adverse effects

of competitive stress.

From a practical perspective, coaches and sport educators are encouraged to implement psychological skills training programs that include confidence-building techniques, concentration exercises, emotional regulation strategies, mental imagery, and stress-management interventions. Such approaches may contribute to enhanced competitive performance and long-term athletic development.

In conclusion, psychological readiness represents a critical determinant of competitive success in hammer throw athletes. The integration of psychological preparation into athletic training programs may significantly improve performance outcomes and support the development of more resilient and successful competitors.

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