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Surjit Singh
Ph.D. Scholar, Department of
Physical Education and Sports
Technology, Sri Guru Granth
Sahib World University,
Fatehgarh Sahib, Punjab,
India

Dr. Bhupinder Singh Ghuman
Professor & Head, Department
of Physical Education and
Sports Technology, Sri Guru
Granth Sahib World
University, Fatehgarh Sahib,
Punjab, India

Corresponding Author:
Surjit Singh
Ph.D. Scholar, Department of
Physical Education and Sports
Technology, Sri Guru Granth
Sahib World University,
Fatehgarh Sahib, Punjab,
India

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Exploring mental toughness and anxiety levels across various track and field athletes

Surjit Singh and Dr. Bhupinder Singh Ghuman

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Abstract

Sport psychology, crucial in enhancing athletic performance, focuses on psychological factors like mental toughness and anxiety among competitive athletes. This study aimed to investigate differences in mental toughness and anxiety levels among male track and field athletes aged 18-25, including sprinters, middle-distance runners, long-distance runners, throwers, and jumpers. A sample of 150 athletes from inter-college championships in Punjab state was analyzed. Results revealed significant differences in mental toughness among athlete categories, with sprinters exhibiting the highest levels. However, no significant differences were found in anxiety levels. These findings highlight the importance of mental toughness in athletic performance and suggest avenues for tailored psychological interventions to optimize athlete training and success.

Keywords: Sport psychology, athletic performance, mental toughness

Introduction

Sport psychology is a distinct branch of psychology that finds immense utility and significance within the domain of competitive sports, characterized by a structured engagement in physical activities. Unlike other contexts such as physical education, leisure, or rehabilitation, competitive sports are driven by a relentless pursuit of triumph and excellence. The primary objective of sport psychology is to enhance athletic performance by equipping sportspeople and athletes with the necessary psychological tools to optimize their performance. Over time, the psychological aspects influencing athletic performance have garnered significant interest from various stakeholders in sports, including athletes, coaches, sports psychologists, exercise scientists, and others involved in the field. Understanding the psychological traits that impact performance is crucial, as each variable contributes uniquely to the overall performance outcome, with some factors exerting a more dominant influence than others.

The field of sports psychology has witnessed rapid development in recent years, acknowledging the indispensable role of sports psychologists as integral members of coaching and healthcare teams. These professionals play a pivotal role in imparting skills that aid athletes in enhancing their learning processes, motor skills, and coping mechanisms to navigate competitive pressures. Furthermore, sports psychologists assist athletes in fine-tuning their awareness levels for optimal performance while effectively managing distractions inherent in the competitive environment. Recognizing the holistic nature of athlete training, psychological training is increasingly integrated into the overall training process, often through collaborative efforts among coaches, sports psychologists, and athletes themselves. However, even coaches with a keen interest can acquire basic psychological skills and impart them to athletes, particularly during practical training sessions.

A positive mentality or mental toughness is identified as a critical factor contributing to success in sports. Elite athletes are required to effectively manage pressure, maintain unwavering self-belief, and avoid distractions to separate themselves from the pack. Research conducted by Graham Jones sheds light on the importance of mental toughness, with super elite athletes demonstrating a significantly higher number of attributes compared to their elite counterparts. This underscores the pivotal role of a positive mindset in achieving success in the competitive arena. Mental toughness, characterized by individual resilience

and confidence, transcends sports and extends to domains such as education and the workplace. Coaches, trainers, and leaders across various fields recognize the value of mental toughness, attributing success to the possession of these qualities.

Anxiety, an emotion marked by inner turmoil and nervous behavior, represents a common challenge faced by athletes. Research in sport psychology delves into the intricacies of competitive anxiety and its correlation with motivational and cognitive variables. By distinguishing between cognitive anxiety, characterized by worry, and somatic anxiety, encompassing physiological responses, researchers aim to provide insights into coping mechanisms for athletes confronting negative emotions. This multidimensional approach to understanding anxiety in sports is rooted in broader psychological conceptualizations and measurement frameworks. It identifies cognitive concerns and physiological responses as key elements contributing to anxiety, highlighting the need for tailored interventions to enable athletes to effectively cope with negative emotional states and perform optimally under pressure.

In summary, sport psychology plays a pivotal role in optimizing athletic performance by addressing psychological factors such as mental toughness and anxiety. Through collaborative efforts among stakeholders, athletes can acquire the necessary skills to navigate the challenges inherent in competitive sports successfully. By fostering a positive mindset and equipping athletes with effective coping mechanisms, sport psychology contributes significantly to enhancing performance and achieving success in the demanding world of competitive sports.

Objectives of the study

1. To find out the differences among different track and field athletes in Mental Toughness.
2. To find out the differences among different track and field athletes in Anxiety level.

Hypotheses of the Study

1. It was hypothesized that there would be significant differences among different track and field athletes in Mental Toughness.
2. It was hypothesized that there would be significant differences among different track and field athletes in

Anxiety level.

Delimitations of the Study

1. The study focused exclusively on male track and field athletes aged between 18-25 years.
2. Specific track and field event categories were delimited, including Sprinters, Middle Distance Runners, Long Distance Runners, Throwers, and Jumpers.
3. The study was restricted to male athletes participating in inter-college athletics championships from various universities in Punjab state.
4. Limited to the examination of selected psychological variables: Mental Toughness and Anxiety.

Limitations of the Study

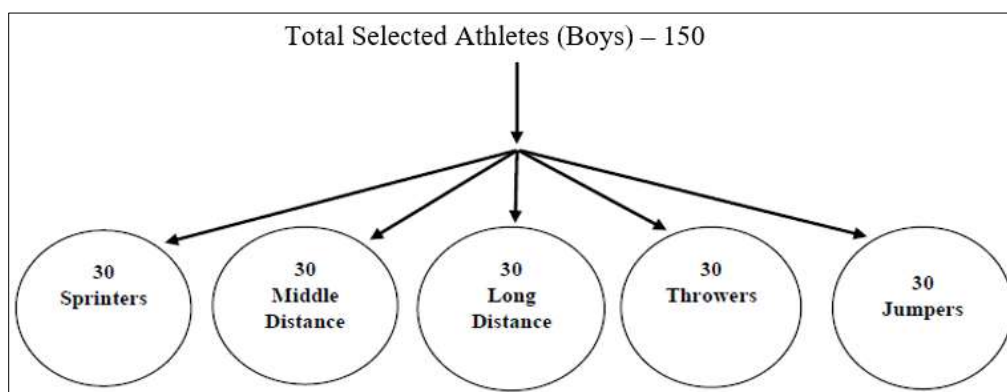
1. Availability of sophisticated devices posed limitations on data collection and analysis precision.
2. Variability in player performance due to factors such as training age, tactics, experiences, and body types may impact study outcomes.
3. External environmental factors like temperature and atmospheric pressure were beyond the researcher's control, potentially affecting study reliability and generalizability.
4. Individual habits such as daily routines and emotional states were acknowledged as limitations due to their variability and challenging regulation in research settings.

Methodology and Procedure

Selection of Subjects

For the purpose of the study, a sum of total one hundred and fifty male athletes (N=150) of five categories were taken i.e. 30 Sprinters, 30 Middle Distance athletes, 30 Long Distance athletes, 30 Throwers and 30 Jumpers who had represented their Colleges for Inter College Championship. The subjects were selected using purposive sampling technique who had currently competed in the championship. Age of the subjects were ranged between 18 to 25 years.

Sample Size of Study: To serve the purpose of the study 150 male athletes (track and field) of 18 to 25 years were selected. The following demographic information of the subjects were obtained for the study.



Selection of the Variables

This study aimed to evaluate the psychological characteristics of Athletics players. Before selecting variables, an extensive literature review was conducted, and discussions were held with experts and the research

supervisor. The selection of variables depended on factors such as the accessibility of analysis techniques, feasibility considerations, the reliability of procedures, and a thorough examination of existing findings. Therefore, considering the study's feasibility, including tool/questionnaire availability

and variable relevance, the following psychological variables were selected.

- Mental toughness (Rebound Ability)
- Anxiety

Analysis of data and interpretation of results

The main aim of the research was to examine a range of psychological variables among male athletes engaged in diverse track and field disciplines, encompassing sprinters, middle-distance runners, long-distance runners, throwers, and jumpers. Data collection followed the study's protocol and underwent statistical analysis. The study outcomes have been condensed into tables and depicted through corresponding figures.

Table 1: Mean and Standard Deviation Results with regard to Rebound Ability sub-variable of Mental Toughness among Male Athletes of different categories of events i.e. Sprinters, Middle Distance, Long Distance, Throwers & Jumpers

Group	N	Mean	Std. Deviation	Std. Error
Sprinters	30	4.167	1.0199	.1862
Middle distance athletes	30	4.300	1.1492	.2098
Long Distance athletes	30	3.533	1.2794	.2336
Throwers	30	3.700	1.2360	.2257
Jumpers	30	4.000	1.2318	.2249
Total	150	3.940	1.2053	.0984

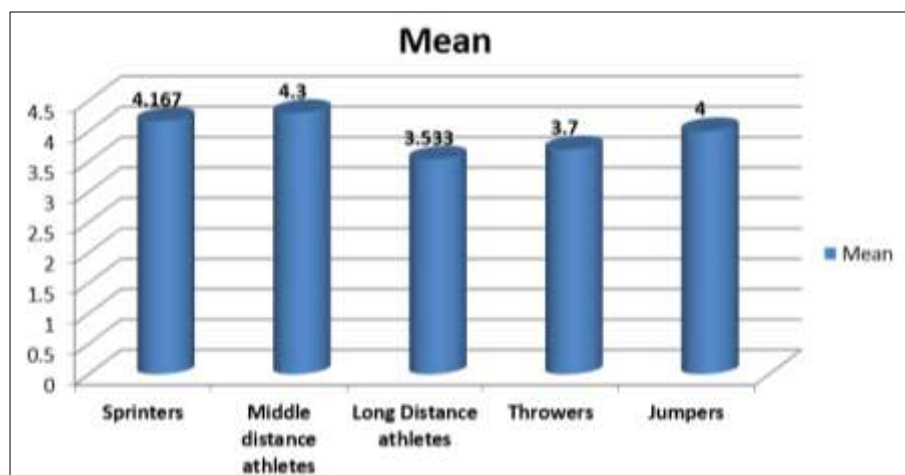


Fig 1: Graphical Representation of mean scores with regard to the Rebound ability sub-variable of mental toughness among male athletes of different categories of events i.e. Sprinters, Middle distance, Long Distance, Throwers & Jumpers

Table 3: Mean and Standard deviation results with regard to Somatic Trait Anxiety sub-variable of Sport Anxiety Scale among male athletes of different categories of events i.e. Sprinters, Middle distance, Long Distance, Throwers & Jumpers

Group	N	Mean	Std. Deviation	Std. Error
Sprinters	30	16.9000	4.20468	.76767
Middle distance athletes	30	17.1333	5.36099	.97878
Long Distance athletes	30	18.4333	5.86447	1.07070
Throwers	30	17.4000	5.08954	.92922
Jumpers	30	18.0667	5.10533	.93210
Total	150	17.5867	5.11635	.41775

Table 3 shows the Mean and SD values of Somatic Trait Anxiety sub-variable of Sport Anxiety Scale among male athletes of different categories of events i.e. Sprinters, Middle distance, Long Distance, Throwers & Jumpers were 11.6000±2.31338, 12.5333±2.87358, 13.1667±3.21723, 12.6667±3.31489 and 14.3667±2.84645 respectively.

Table 1 shows the Mean and SD values of Rebound ability sub-variable of mental toughness among male athletes of different categories of events i.e. Sprinters, Middle distance, Long Distance, Throwers & Jumpers were 4.167±1.0199, 4.300±1.1492, 3.533±1.2794, 3.700±1.2360 and 4.000±1.2318 respectively.

Table 2: Analysis of Variance (ANOVA) results with regard to Rebound ability sub-variable of Mental Toughness among male athletes of different categories of events i.e. Sprinters, Middle distance, Long Distance, Throwers & Jumpers

Group	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	12.227	4	3.057	2.170	.075
Within Groups	204.233	145	1.409		
Total	216.460	149			

F value at 0.05 (2.422)

It is evident from table 2 that the results of Analysis of Variance (ANOVA) among five different categories of male athletes i.e. Sprinters, Middle distance, Long Distance, Throwers & Jumpers with regard to the Rebound ability sub-variable of mental toughness were found to be statistically insignificant ($p>0.05$). Since the obtained “F” ratio 2.170 (2.422) was found statistically insignificant. The graphical representation of responses has been exhibited in figure 1.

Table 4: Analysis of Variance (ANOVA) results with regard to Somatic Trait Anxiety sub-variable of Sport Anxiety Scale among male athletes of different categories of events i.e. Sprinters, Middle distance, Long Distance, Throwers & Jumpers

Group	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	49.773	4	12.443	.469	.759
Within Groups	3850.600	145	26.556		
Total	3900.373	149			

F value at 0.05 (2.422)

It is evident from table 4 that the results of Analysis of Variance (ANOVA) among five different categories of male athletes i.e. Sprinters, Middle distance, Long Distance, Throwers & Jumpers with regard to the Somatic Trait Anxiety sub-variable of Sport Anxiety Scale were found to be statistically insignificant ($p>0.05$). Since the obtained “F” ratio .469 (2.422) was found statistically insignificant. The graphical representation of responses has been exhibited in figure 2.

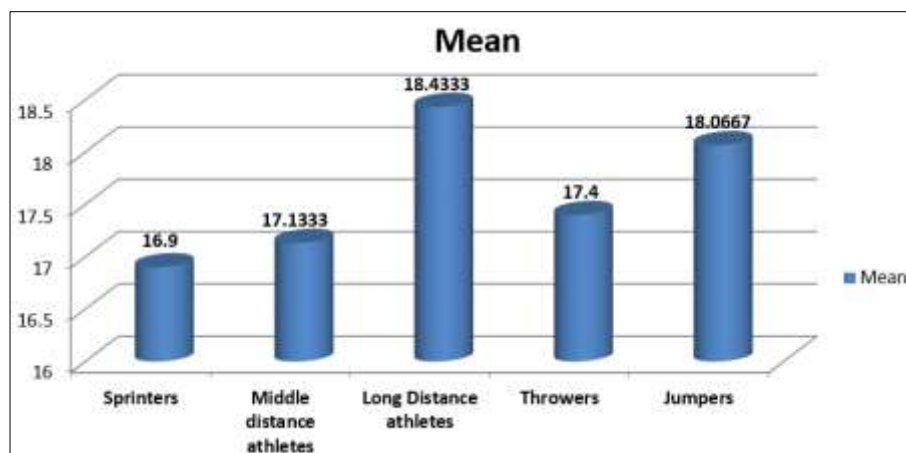


Fig 2: Graphical Representation of mean scores with regard to the Somatic Trait Anxiety sub-variable of Sport Anxiety Scale among male athletes of different categories of events i.e. Sprinters, Middle distance, Long Distance, Throwers & Jumpers

Discussion and Conclusion

Findings of the study

- 1. Mental Toughness:** The analysis revealed a statistically significant difference ($p < 0.05$) among five categories of male athletes (Sprinters, Middle distance, Long Distance, Throwers & Jumpers) in terms of mental toughness. Sprinters exhibited the highest level of mental toughness compared to other athletes.
- 2. Anxiety:** The analysis showed no statistically significant difference ($p > 0.05$) among the five categories of male athletes regarding anxiety levels. However, Long Distance athletes displayed lower anxiety levels compared to others.

Discussion of Hypotheses

The hypotheses of the present study states

1. There will be significant differences among different track and field athletes in terms of Mental Toughness.
2. There will be significant differences among different track and field athletes in terms of Anxiety levels.

Conclusion

Within the limitations of the present study the following conclusions were drawn.

1. Significant differences were observed among track and field male athletes (Sprinters, Middle distance, Long Distance, Throwers, and Jumpers) in terms of mental toughness.
2. No significant differences were found among track and field male athletes in terms of anxiety levels.

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