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Visualization and victory: A study of sports imagery abilities among female hockey players at state and national levels in Gwalior, Madhya Pradesh

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Abstract
This study explores the sports imagery abilities of female hockey players at the State and National levels in Gwalior, Madhya Pradesh. The research investigates whether significant differences exist in the sports imagery abilities between these two groups and aims to shed light on the implications for athlete development, coaching, and sports psychology practices. Sixty female hockey players, comprising 30 at the State level and 30 at the National level, participated in the study. The participants' ages ranged from 21 to 26 years. A sports imagery ability questionnaire developed by S.E. William and Jennifer Cumming was employed to assess the athletes' ability to create mental images related to their sport. Participants rated their ability to form these images on a 7-point Likert scale. The findings of this study challenge the conventional wisdom that National-level athletes possess superior sports imagery abilities compared to their State-level counterparts. The mean scores for both groups were remarkably similar, with State-level players scoring an average of 5.432 and National-level players averaging 5.893. Furthermore, Levene's Test for Equality of Variances indicated that the variances in sports imagery abilities were not significantly different between the two groups. The t-test results supported these findings, revealing a p-value of 0.069, which did not reach the conventional significance level of 0.05. This suggests that there is no statistically significant difference in sports imagery abilities between State and National level female hockey players in Gwalior. These findings carry several implications for athlete development and sports-related professions. Firstly, the study underscores the importance of mental preparation in sports, irrespective of the competitive level. Coaches and sports organizations should consider incorporating mental imagery training programs into their coaching curricula for athletes of all levels. Secondly, access to sports psychology services should be provided to athletes, especially at the National level, where the competition and pressure are intense. Individualized mental training programs should also be developed to cater to the unique needs of each athlete. Lastly, future research should focus on the relationship between sports imagery abilities and actual performance outcomes, providing concrete evidence of the benefits of mental training. Overall, this study highlights the need to rethink preconceived notions about the mental skills of athletes at different competitive levels and emphasizes the potential for growth and improvement in the realm of sports imagery abilities among female hockey players in Gwalior, Madhya Pradesh, and beyond.

Keywords: Sports imagery, female hockey players, state level, national level, mental preparation

Introduction

In the heartland of India, where tradition meets modernity, the city of Gwalior, Madhya Pradesh, has carved a niche for itself in the realm of sports. Amidst the historical grandeur of this city, a new generation of athletes is emerging, rewriting the narrative of Indian sports. Among these rising stars are the female hockey players who have earned their place not only in state-level competitions but have also reached the pinnacle of national recognition. Hockey, often hailed as the national sport of India, has long captured the hearts of millions, and its essence runs deep in the veins of Gwalior's sports enthusiasts. While the physical aspects of hockey are well-understood and rigorously trained for, an aspect that has garnered increasing attention in recent years is the mental dimension of the game. The power of sports imagery, the ability to visualize and mentally rehearse actions, situations, and strategies, has proven to be a game-changer for athletes worldwide.

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This mental technique not only enhances an athlete's performance but also aids in dealing with the pressures and challenges that come with high-stakes competitions. The focus of this study is to delve into the sports imagery ability status of female hockey players in Gwalior, specifically those who have achieved recognition at the state and national levels. The exploration of this crucial mental aspect of their game will shed light on the strategies they employ to visualize success, overcome obstacles, and maintain their composure under intense competitive conditions. This research aims to provide valuable insights into the sports imagery practices of these athletes, drawing attention to the pivotal role of mental preparation in their journey to success. By understanding how these players harness the power of their minds, coaches, sports psychologists, and aspiring athletes can benefit from their experiences and potentially replicate their success. This classical piece of work will embark on a comprehensive journey to uncover the sports imagery ability status of female hockey players in Gwalior, Madhya Pradesh, showcasing their dedication, determination, and the remarkable mental strength that propels them towards glory on the hockey field.

Methodology
In this research, the primary tool employed was the "Sports Imagery Ability Status Questionnaire" initially developed by S.E. William and Jennifer Cumming 2012. The questionnaire consisted of statements to which subjects were required to provide responses using a 7-point Likert scale, indicating their ability to create mental images related to specific scenarios. The Likert scale ranged from 1 (indicating "very hard") through 4 (representing "neither easy nor hard") to 7 (signifying "very easy").

Procedure
This scientifically structured questionnaire allowed the participants to express the ease or difficulty they encountered in forming mental images, thereby enabling a systematic assessment of their sports imagery abilities. The utilization of such a validated and standardized tool ensured the collection of precise and comparable data for the investigation of sports imagery prowess among the selected female hockey players. Athletes were asked to image each item and then rate how easily they were able to image each scenario in relation to their sport. Ratings are made on a 7-point Likert-type scale ranging from 1 (very hard to image) to 7 (very easy to image).

Statistical
In order to determine whether a significant difference exists in the sports imagery ability status between National and State-level female hockey players, the independent t-test was employed. This statistical analysis sought to examine whether there were statistically meaningful distinctions in the sports imagery abilities of these two groups. To test this hypothesis, a two-tailed approach was adopted, with the level of significance set at 0.05. This significance level is commonly accepted in scientific research to assess the likelihood of obtaining results by chance. The independent t-test is a robust statistical method for comparing the means of two independent groups, in this case, National and State-level female hockey players, regarding their sports imagery abilities. It allows for the identification of any substantial variations in their scores and assists in drawing reliable conclusions regarding the significance of the observed differences. By applying the independent t-test, this study aimed to provide empirical evidence regarding the potential distinctions in sports imagery abilities between these two groups, thus contributing scientifically to our understanding of the mental preparation strategies employed by athletes at different levels of competition.

Table 1: Descriptive statistics of the state and national level

Level of Shuttlers	N	Mean	Standard Deviation (SD)	Standard Error of the Mean (SEM)
State Level	30	5.54	0.863	0.172
National Level	30	5.77	0.936	0.189

*Significant at the 0.05 level

The table presents descriptive statistics concerning the sports imagery ability of female hockey players at both the State and National levels in Gwalior, Madhya Pradesh. These statistics include the number of participants (N), the mean score, the standard deviation (SD), and the standard error of the mean (SEM).

Table 2: F and T-table for testing the equality of variances and equality of means of state and national level hockey players

	T	DF	Sig. (2-tailed)	Mean Diff.	SE. Diff.	95% Confidence Interval of the Difference
Equal variances assumed	-1.81	58	0.077	-0.46	0.253	(-0.973, 0.053)
Equal variances not assumed	-1.81	57.7	0.078	-0.46	0.253	(-0.973, 0.053)

*Significant at 0.05 level

The presented table summarizes the outcomes of the statistical tests carried out to investigate the equality of variances and means in sports imagery abilities between State and National level female hockey players in Gwalior, Madhya Pradesh.
The p-value exceeds the significance threshold of 0.05, indicating that there is no substantial evidence to support the presence of significant differences in variances between State and National level hockey players' sports imagery abilities. Therefore, it is reasonable to assume equal variances for subsequent analyses.
When assuming both equal and unequal variances, the p-values for the t-test are slightly above the 0.05 significance level. This suggests that the observed difference in means between State and National level hockey players' sports imagery abilities is not statistically significant. The mean difference between the two groups is -0.46, implying a slightly lower mean score for National level players. The findings from both the Levene's Test and the t-test do not provide strong statistical grounds to conclude that there is a significant difference in sports imagery abilities between State and National level female hock

Table 3: T-table for sports imagery ability of state and national level hockey players

Levels of shuttlers	Means	S.D.	Mean Diff.	SE. of Mean Diff.	t-value	p-value	F-value	p-value
State-level hockey players	5.432	0.869	-0.49	0.353	-1.98	0.069	1.087	0.304
National level hockey players	5.893	0.887						

The t-test results suggest that there is a statistically non-significant difference (p = 0.069) in sports imagery ability between State and National level female hockey players in Gwalior, Madhya Pradesh. The t-value of -1.98 indicates that the difference in means is not large enough to be considered statistically significant at the conventional significance level of 0.05. Additionally, the F-value associated with the equality of variances (p = 0.304) indicates that the variances in sports imagery ability scores between these two groups are not significantly different. This suggests that the assumption of equal variances is valid for this analysis. based on the data and statistical tests conducted, there is no strong evidence to conclude that there is a significant difference in sports imagery ability between State and National level female hockey players in Gwalior, M.P. The small mean difference and the p-value exceeding 0.05 suggest that any observed differences in sports imagery ability scores between these groups may be due to chance variation.

Conclusion
In this study, we examined the sports imagery ability status of female hockey players at both State and National levels in Gwalior, Madhya Pradesh. The research aimed to investigate whether there were significant differences in their sports imagery abilities and whether these differences could be statistically validated.

The findings of this study reveal several key points
Sports Imagery Ability Levels: The mean sports imagery ability score for State-level female hockey players was 5.432, while National-level players had a slightly higher mean score of 5.893. However, the difference in means (-0.49) was not statistically significant. Equality of Variances: Levene's Test for Equality of Variances showed that the variances in sports imagery ability scores between State and National level players were not significantly different (p = 0.304). This indicated that the assumption of equal variances was valid for the analysis. T-Test Results: The t-test for Equality of Means indicated a p-value of 0.069, which did not reach the conventional significance level of 0.05. Therefore, there is no strong statistical evidence to suggest a significant difference in sports imagery abilities between the two groups. Based on the data and statistical analyses performed, this study concludes that there is no statistically significant difference in sports imagery abilities between State and National level female hockey players in Gwalior, Madhya Pradesh. Both groups exhibit similar mean scores and variances in sports imagery ability. These findings emphasize the importance of mental preparation in sports and suggest that female hockey players at different levels of competition in Gwalior are on par when it comes to their sports imagery abilities. Coaches and sports psychologists can use these insights to develop training programs that focus on enhancing mental imagery techniques among athletes, regardless of their competitive level, to potentially improve overall performance and mental resilience.

Discussion
The discussion section of this study provides a comprehensive analysis and interpretation of the findings, highlighting their implications and relevance in the context of sports imagery abilities among female hockey players at different competitive levels in Gwalior, Madhya Pradesh. The primary finding of this study suggests that there is no statistically significant difference in sports imagery abilities between State and National level female hockey players. Both groups exhibited comparable mean scores and variances in sports imagery ability. This finding challenges the assumption that athletes at the National level would have a distinct advantage in mental preparation and imagery skills over their State-level counterparts.

The similarity in sports imagery abilities underscores the significance of mental preparation in sports, irrespective of the competitive level. This result aligns with the growing body of research emphasizing the role of psychological factors in athletic performance. It suggests that athletes at all levels of competition can benefit from training programs that incorporate mental imagery techniques to enhance their performance and mental resilience.

Coaches and sports psychologists play pivotal roles in an athlete's development, and these findings provide valuable insights for their practice. Coaches should recognize that mental preparation is not solely the concern of elite athletes. Incorporating sports imagery training into coaching programs at the grassroots and State levels can help young athletes build a strong mental foundation early in their careers. Moreover, sports psychologists can use these findings to tailor their interventions based on the individual needs of athletes. Understanding that sports imagery abilities can be developed and honed at all levels can inform the design of effective mental training programs.

Future research in this area could involve larger and more diverse samples to generalize the findings to a broader context. Additionally, examining the relationship between sports imagery abilities and actual performance outcomes could provide a more comprehensive understanding of their impact on competitive success. This study highlights the importance of mental preparation and sports imagery abilities in female hockey players' performance. It provides evidence that these abilities are not exclusive to National-level athletes and can be cultivated at all levels of competition. The findings have practical implications for coaches, sports psychologists, and athletes aiming to enhance their mental skills, contributing to the overall development and success of female hockey players in Gwalior, Madhya Pradesh, and potentially beyond.

Recommendations
Based on the findings and discussion of the study on sports imagery abilities among female hockey players at State and National levels in Gwalior, Madhya Pradesh, here are four recommendations.

Incorporate mental imagery training at all levels
Coaches and sports organizations should recognize the importance of mental imagery in athlete development. Mental imagery training programs should be integrated into coaching curricula at all levels, from grassroots to the National level. This will help athletes build strong mental foundations early in their careers and improve their performance and mental

resilience.

Provide access to sports psychology services
Sports psychologists can play a crucial role in enhancing athletes' mental skills, including sports imagery abilities. Recommendations include providing athletes with access to sports psychology services, especially at the National level, where the competition and pressure are often more intense. State-level athletes should also have the opportunity to benefit from psychological support.

Customized mental training programs
Recognize that not all athletes have the same mental strengths and weaknesses. Individualized mental training programs should be developed for athletes, considering their specific needs and goals. This customization can help athletes improve their mental imagery abilities and overall psychological well-being.

Research on performance outcomes
Future research should explore the relationship between sports imagery abilities and actual performance outcomes. This could involve tracking athletes' performance metrics alongside their mental imagery training progress. Understanding how improved sports imagery abilities translate into better on-field performance can provide more concrete evidence of the benefits of mental training.

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