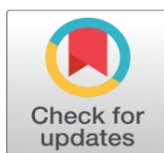


STUDY ON MENTAL RESILIENCE OF HILL AND VALLEY BADMINTON PLAYERS: A PARAMETRIC APPROACH

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ABSTRACT

Purpose: The purpose of this study is to assess the mental resilience among the badminton players from the hill and valley districts of Manipur.

Methodology: A purposive sampling method was employed to collect a sample of 60 male badminton players, 30 each from the Hill (age: 20.83±2.29) and Valley (age: 19.2±3.25) districts of Manipur, India respectively. Participating subjects must be male only and the age should be between 18 to 23 years and belong to various districts of Manipur. The level of participation of the players should be at least state-level tournament. The Mental Toughness Questionnaire, developed by Dr. Alan Goldberg (1998), was utilized to assess mental resilience of the selected players. Descriptive statistics were calculated, and independent t-tests were conducted to compare mental toughness between hill and valley badminton players ($p \leq 0.05$) after ensuring parametric assumptions were met. All analyses were performed using SPSS version 20.0.

Results and conclusion: The result showed insignificant difference between hill and valley badminton players on overall mental toughness with $p=0.11$ ($p>0.05$) and calculated $t=1.64$ which is lesser than the tabulated value $t=2.00$. According to the result of the study, there was insignificant difference found in overall mental toughness between the hill and valley badminton players. Additionally, the valley players have slightly higher mental toughness level than the hill players but statistically no significant difference was found.

Keywords: Badminton, Hill Districts Valley Districts, Mental Resilience/Toughness and Manipur

1. INTRODUCTION

Mental toughness is a highly valued psychological construct in the pursuit of excellence, yet it remains one of the most misunderstood concepts despite its widespread use (Jones et al., 2002). This crucial characteristic is essential for achieving success and happiness across various life domains. In sports, mental toughness is a term frequently used by athletes, coaches, and sports psychologists to describe the psychological factors that distinguish winners from losers (Gucciardi et al., 2017; Kapur & Fernandes, 2023).

Each psychological variable uniquely contributes to sports performance, with some variables being more relevant to specific sports. For athletes, mental toughness and flow state are essential prerequisites for success. Research by Gucciardi et al. (2008) supports the idea that mental toughness distinguishes physically talented athletes from great ones. However, Bull et al. (2005) noted that mental toughness can vary across individuals, sports, and situations. The mental state of an athlete significantly impacts their competitive performance, as mental tension can lead to physical

tension. Uncontrolled emotions can result in increased physiological arousal, such as heightened heart rate and respiration, which can negatively affect performance (Loehr et al., 1992).

Badminton is a demanding sport that requires a combination of physical conditioning, mental toughness, technical skill, and tactical efficiency. To excel, players need excellent coordination, reflexes, and a blend of aerobic and anaerobic abilities, along with the energy, mental soundness, and physical strength to perform at their best.

Geographically, the people in Manipur inhabited the Hill and valley districts of the state. The hills are occupied by the tribals, and the valley is occupied by the non-tribals (Meiteis). As compared to the valley districts, the hilly district remained undeveloped and lacked basic infrastructure and services like healthcare facilities, sports facilities, educational institutions, public distribution systems, transportation, etc. The Valley districts of Manipur are among the most developed districts in Northeast India

1.1. OBJECTIVE OF THE STUDY

The primary objective of this study was to examine and compare the mental resilience levels of badminton players from hill and valley districts in Manipur, India, with a focus on identifying potential differences.

2. METHODOLOGY

2.1. PARTICIPANTS AND PROCEDURE

- 1) **Subjects:** A purposive sampling method was employed to collect a sample of 60 male badminton players, 30 each from the Hill (age: 20.83 ± 2.29) and Valley (age: 19.2 ± 3.25) districts of Manipur, India, respectively.

Table 1 Details of the selected group

Sl.no	Group	Sample
1	Hill District	30
2	Valley District	30

- 2) **Inclusion Criteria:** Participating subjects must be male only, and the age should be between 18 and 23 years, and they must belong to various districts of Manipur. The level of participation of the players should be at least a state-level tournament.
- 3) **Procedure:** Permission to conduct the study was obtained not only from the subjects but also from each trainer/coach and the head of the institutions. Subjects were selected based on meeting the criteria. The investigator provided information about the research content and the questionnaire survey. Subjects were given a consent form and an evaluation form to complete. Any questions or doubts regarding the questionnaire were clarified by the investigator

2.2. MEASUREMENT TOOLS

The Mental Toughness Questionnaire, developed by Dr. Alan Goldberg (1998), was utilized to assess the mental resilience of the selected players. This 30-item questionnaire evaluates mental toughness across five key areas: rebound ability, pressure handling, concentration, confidence, and motivation. Participants responded with either "true" or "false" to each item, selecting only one option. The questionnaire's design makes it suitable for the selected age group.

2.3. STATISTICAL ANALYSIS

A comprehensive statistical analysis was conducted, commencing with the calculation of descriptive statistics (mean, standard deviation, skewness, kurtosis, standard error of skewness, and standard error of kurtosis) for all measures. Following data screening to ensure parametric assumptions were met, independent t-tests were employed to investigate differences in mental toughness between hill and valley badminton players. A significance level of $p \leq 0.05$ was adopted. All statistical procedures were executed using SPSS version 20.0.

3. RESULTS

Descriptive statistics for the mental toughness questionnaire responses are presented in Table 2. Given the normal distribution of the data, as indicated by skewness and kurtosis measures, parametric statistics were deemed suitable. The results of the independent t-test are displayed in Table 3.

Table 2 Descriptive statistics of mental resilience of hill and valley badminton players

Group	R	Min	Max	M	SD	Skewness			Kurtosis		
						Stat	SE	z-score	Stat	SE	z-score
Hill District	13	13	26	19.1	2.68	0.28	0.43	0.65	0.59	0.83	0.71
Valley District	10	15	25	20.2	2.48	0.29	0.43	0.67	-0.17	0.83	-0.20

R= Range, Min.= Minimum, Max.= Maximum, M=Mean, SD= Standard Deviation, Stat= Statistic, SE=Standard Error.

Table 2 above shows that the range, minimum, maximum, mean, and standard deviation of the hill district were 13, 13, 26, 19.10, and 2.68, and for the valley district were 10, 15, 25, 20.20, and 2.48, respectively.

And, for testing the normality of the data, skewness and kurtosis (descriptive statistics) have been performed as shown in Table 2. Since the z-scores for the hill district and the valley district (0.65 and 0.67) are between -2 and 2, the skewness is not statistically significant. The distribution is likely approximately symmetric.

The skewness value of 0.28 and 0.29 suggests a slight positive skew, but it's not significant given the standard error. The distribution is likely close to normal in terms of skewness.

Further, Table 2 shows the z-score (0.71) for the hill district is between -2 and 2, the kurtosis value is not significantly different from that of a normal distribution (which has a kurtosis of 3, but often excess kurtosis is reported where 0 represents normal. However, given that the value 0.59 is likely an excess kurtosis value (kurtosis - 3), it would indicate a platykurtic distribution, but not significantly different from a normal distribution, given the standard error.

The kurtosis value suggests a distribution that is slightly platykurtic (less peaked and thinner tails than a normal distribution), but given the standard error, it's not statistically significant, and the distribution can be treated as approximately normal.

And, since the z-score (-0.20) for the valley district is between -2 and 2, the kurtosis value is not significantly different from that of a normal distribution (assuming excess kurtosis, where 0 represents normal). The negative kurtosis value (-0.17) indicates a slightly platykurtic distribution (less peaked and thinner tails than a normal distribution), but the difference is not statistically significant.

The distribution is likely approximately normal in terms of kurtosis, with a slight tendency towards being platykurtic, but the deviation from normality is not significant

The results pertaining to significant difference, if any, between hill and valley badminton players were assessed using the independent t-test, and the results are presented in Table 3.

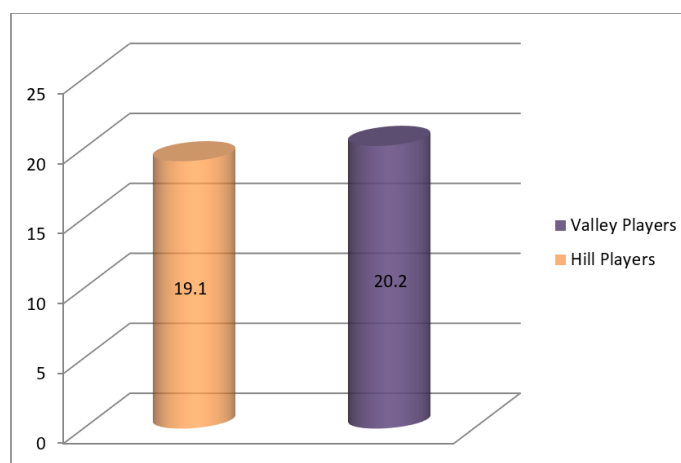
Table 3 Comparative statistics of Hill and Valley badminton players on overall mental toughness

Group	N	M	SD	MD	SEM	t-ratio	p-value
Hill District	30	19.1	2.68	1.10	0.67	1.64	0.11
Valley District	30	20.2	2.48				

Significant at the 0.05 level of Confidence (2-tailed), $t(58)=2.00$.

The result showed an insignificant difference between hill and valley badminton players on overall mental toughness with $p=0.11$ ($p>0.05$) and calculated $t=1.64$, which is less than the tabulated value $t=2.00$.

Figure 1 The graphical representation of mean comparison between Hill and Valley badminton players on overall mental toughness



4. DISCUSSION

The purpose of the present study was to examine and compare the mental resilience levels of badminton players from hill and valley districts in Manipur. As the result from the table 3 of this study shows that insignificant difference have been observed on overall mental toughness between the hill and valley badminton players. This finding may be due to the players sharing similar backgrounds, including being from the same state, following comparable training schedules, having similar dietary habits and economic status, and participating in the same state-level tournaments. The finding of the above results may be due to the motivational drive; mentioned by Kuan (2007). Studies have shown that mental toughness is a critical factor in athletic performance, with research by Mohammad, Omar, and Abu (2009) finding high levels of mental toughness in Malaysian professional football players. Similarly, Gould et al. (1987) emphasized the importance of mental toughness in determining athletic success and achieving champion status. The results are consistent with prior studies, including Bandura (1986), which linked motivation to enhanced athletic performance, and Kruger (2010), which identified key psychological skills distinguishing successful from less successful athletes.

5. CONCLUSION

According to the result of the study, there was insignificant difference found in overall mental toughness between the hill and valley badminton players. Additionally, the valley players have slightly higher mental toughness level than the hill players but statistically no significant difference was found. As Manipur is renowned as a sports powerhouse in India, it is imperative for policymakers to prioritize the development of badminton in the state, leveraging the innate potential of its people to achieve excellence in the sport.

Finally, this study can be recommended for future use, and future researchers are encouraged to use these research results as a reference for their research.

CONFLICT OF INTERESTS

None.

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