Comparing mental toughness: An investigation on elite Indian standing and seated para-thrower athletes

Vikas Singh,[1] Tenzing Norzom Bhutia,[1] Mahendra Kumar Singh,[1] Pawan Bisht,[2] Harish Singh,[1] Cicelia Mohan Thomas[1]

[1]Department of Sport Psychology, Lakshmibai National Institute of Physical Education, Shakti Nagar, Gwalior, M.P.; [2]Physical Education and Sports, Department of Sports, Recreation and Wellness, Symbiosis International (Deemed University), Pune, Maharashtra, India

Abstract

Having psychological advantage that enables athletes to perform at their best regardless of challenges and adversity is what is meant by having mental toughness (MT). In order to better understand the mental toughness of elite Indian standing and sitting para-thrower athletes, this study looked at a variety of mental sub - scales. Elite para-throwers who competed at the international level, consider making up the sample of the current study; which includes a total of nine elite para-throwers [5 Standing Para-throwers (StPT) and 4 Seated Para-throwers (SePT)]. The researcher used the Psychological Performance Inventory (PPI), designed by Loehr, and the Personal Demographic Information form to gather data in order to ascertain the participants' attitudes of mental toughness. An independent T-test with 0.05 significance level was performed for the research's findings, there are no statistical significant difference between the two groups' levels of motivation, self-confidence, ability to control negative energy, attention, visualisation, ability to control positive energy, and attitude control factors of MT. Elite Indian para-thrower athletes' mental toughness is similar in both groups, with no discernible differences.

Introduction

For an athlete, having a winning mindset defines an athlete's identity and his abilities. Athletes in all sports have worked hard to improve their skills and strength. A person's physical make-up and capacity to persevere in trying circumstances are indicators of their strength and stamina.[1] Furthermore, an excellent athlete is distinguished not just by their physical prowess but also by their mental aptitude for concentration, focus, and perseverance. Sports psychologists refer to this concept as "mental toughness." According to Loehr (1982),[2] mentally strong athletes possess qualities including being self-motivated, optimistic, and realistic as well as emotional control, tranquilly, extreme discipline, intense attention, confidence, and independence. The capacity to perform at one's best despite of difficulties or hardship is referred to as mental toughness.[3]

Although the term "mental toughness" is frequently used, there is little research on it in terms of sports psychology.[4,5] In a specific sport, mental toughness is the capacity to keep concentration and remain concentrated during the competition and resist allowing players to be hindered by demands such match situations or circumstances.[6] Mental toughness undoubtedly helps athletes perform better, especially high-performance athletes who have less tolerance for error than other players.[7]

The most essential and well-established elements in obtaining high levels of achievement in athletics are mental ability.[8] Players are put under a lot of stress, both psychologically and physically, because they needed to compete in an elite sport context.[9] Those who are considered legends in any competitive sport have been successful from the moment they began their career. Most renowned athletes broke into sports through universities and they gained their recognition through hard work, dedication, and self-efficacy.[10] This concept is known as mental toughness in sports psychology.[1]

Historically, able-bodied athletes who compete in well-known professional and/or Olympic sports have received the majority of the attention in sport research and advisory services.[11] There isn't much data on how Paralympic competitors use their mental abilities in comparison to their able-bodied counterparts because most studies have been done with non-elite impaired athletes.[12] Despite this, Keogh has noticed an increase in research investigating Paralympic and aspiring Paralympic athletes with disabilities.[13] The importance of mental toughness training for enhancing performance is underappreciated in a sports-loving nation like India with many sports cultures. Research is needed on mental abilities of athletes, particularly in India because we are gaining considerable ground in the Paralympics.[14]

Because India is making significant progress in the Paralympics, there is a need for research on the mental skills of para-players. Therefore, the researcher hypothesises that there will be a substantial difference in MT level between Elite Indian Seated (SePT) and Standing (StPT) Para-Thrower Athletes. This paper's goal is to offer suggestions for coaches and professionals to help them make more informed judgments by highlighting the range of MT

Correspondence: Vikas Singh, Department of Sport Psychology, Lakshmibai National Institute of Physical Education, Shakti Nagar, Gwalior-474002., M.P., India.
Tel.: +91.7748040449.
E-mail: vikassingh_phd394@lnipe.edu.in

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aspects that interact to influence athlete progression at a certain given point in time. We want to properly understand the MT status of the best Indian throwers at currently.

Materials and Methods

Subjects selection of study

Five standing throwers and four seated throwers agreed for the research after signing a consent form. The study's goals were to determine the mental characteristics of para-athletes who represented India at international levels. Age ranges of participants ranged from 20 to 38. Group A was designated for standing throwers, while Group B was designated for seated throwers. The researcher built a Personal Information form to gather demographic data (Table 1).

Criteria for assessment

As the criteria measure to evaluate the hypothesis, Loehr's Psychological Performance Inventory (PPI)-Mental Toughness Questionnaire was used. To assist you in determining your mental strengths and weaknesses, Loehr (1986) created the Psychological Performance Inventory. There are 42 items on this scale, which is constructed on a 5-point Likert Scale "(ALMOST ALWAYS, OFTEN, SOMETIMES, SELDOM, and ALMOST NEVER).

Statistical

Using SPSS version 26, the independent T-test was run to assess the Mental Toughness level score. To test this hypothesis, the significance threshold was set at 0.05.

Results

In Table 2 showing the descriptive statistics on the mental toughness of elite Indian seated (SePT) and standing (StPT) para-thrower athletes regarding the dependent variable i.e. Mental toughness.

Table 3 provides the results of a T-test (equality of mean) to compare the mental toughness of elite Indian para-thrower (seated and standing) athletes. As displayed in Table 3, the p value for each of the sub-scale (i.e. Self-confidence, Negative Energy Control, Attention, Visualization, Motivation, Positive Energy, and Attitude

Table 1. Socio-demographic information of the standing throwers and seated throwers.

Factors	Standing throwers (%)	Seated throwers (%)	Total population (%)
Play Category	5 (55.6)	4 (44.4)	9 (100)
Age			
20-25	1 (11.1)		1 (11.1)
26-30	1 (11.1)	1 (11.1)	2 (22.2)
31-35	2 (22.2)	1 (11.1)	3 (33.3)
36-40	1 (11.1)	2 (22.2)	3(33.3)
Participation Level			
Paralympics	3 (33.3)	2 (22.2)	5 (55.6)
Para-World	1 (11.1)	1 (11.1)	2 (22.2)
Para-Asian	1 (11.1)	1 (11.1)	2 (22.2)

Table 2. Descriptive statistics information of mental toughness level of elite Indian standing and seated para-thrower athletes.

Group Statistics	Athlete	N.	Mean	Std. Deviation	Std. Error Mean
Self-Conference	Standing	5	24.0000	4.52769	2.02485
	Seated	4	22.7500	4.85627	2.42813
Negative Energy Control	Standing	5	20.2000	2.58844	1.15758
	Seated	4	22.7500	5.50000	2.75000
Attention	Standing	5	18.4000	3.36155	1.50333
	Seated	4	22.7500	3.40343	1.70171
Visualization	Standing	5	23.4000	3.57771	1.60000
	Seated	4	23.7500	5.18813	2.59406
Motivation	Standing	5	26.0000	2.23607	1.00000
	Seated	4	26.2500	2.75379	1.37689
Positive Energy	Standing	5	22.8000	3.27109	1.46287
	Seated	4	23.2500	4.78714	2.39357
Attitude Control	Standing	5	24.6000	4.15933	1.86011
	Seated	4	23.0000	3.46410	1.73205

Table 3. T-test (equality of mean) for mental toughness variables between elite Indian standing and seated para-thrower athletes.

		Levene's Test for equality of variances		t-test for Equality of Means				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Self-confidence	Equal variances assumed	0.000	0.987	0.399	7	0.702	1.250	3.133
	Equal variances not assumed			0.395	6.328	0.706	1.250	3.161
Negative Energy Control	Equal variances assumed	3.109	0.121	-0.928	7	0.384	-2.550	2.748
	Equal variances not assumed			-0.855	4.062	0.440	-2.550	2.983
Attention	Equal variances assumed	0.091	0.772	-1.919	7	0.097	-4.350	2.267
	Equal variances not assumed			-1.916	6.528	0.100	-4.350	2.270
Visualization	Equal variances assumed	1.602	0.246	-0.120	7	0.908	-0.350	2.912
	Equal variances not assumed			-0.115	5.157	0.913	-0.350	3.047
Motivation	Equal variances assumed	0.678	0.438	-0.151	7	0.884	-0.250	1.657
	Equal variances not assumed			-0.147	5.791	0.888	-0.250	1.701
Positive Energy	Equal variances assumed	0.490	0.507	-0.168	7	0.871	-0.450	2.677
	Equal variances not assumed			-0.160	5.124	0.879	-0.450	2.805
Attitude Control	Equal variances assumed	0.190	0.676	0.615	7	0.558	1.600	2.600
	Equal variances not assumed			0.630	6.964	0.549	1.600	2.541

Control) is insignificant as p value is (Self-confidence = 0.702, Negative Energy Control = 0.384, Attention = 0.097, Visualization = 0.908, Motivation = 0.884, Positive Energy = 0.871, and Attitude Control =.558) is greater than 0.05. The conclusion that the levels of mental toughness in the two groups are not significantly different follows from the failure of the null hypothesis of equality of group means of the two groups. Additionally, the results at the 0.05 level of testing do not show any differences between elite Indian seated (SePT) and standing (StPT) para-thrower athletes in the subdomains of mental toughness.

Discussion

Only a relatively small amount of quantitative research has been conducted specifically on para athletes competing at the highest levels and the psychological factors that make them successful in sports. This is more crucial in parasports because participants must be mentally as well as physically prepared. Therefore, the purpose of this study was to compare the MT of Elite Indian Standing and Seated Para-thrower athletes and to identify any noticeable differences between them in terms of the various sub-scales of mental toughness.

Utilizing Loehr's Psychological Performance Inventory, the MT attitudes of the Para-throwers were evaluated (PPI). The data were analysed using the T-test, with a significant level of 0.05 used to determine whether there were any relationships between the variables. The study's results show that there are no statistically significant differences in the two groups' motivation levels, levels of self-confidence, ability to manage negative energy, attention, ability to visualise, ability to control positive energy, and ability to control attitude. Better cognitive and motor performance is associated with higher levels of mental toughness,[15] and great athletes were more mentally tough than inferior level performers.[16] The study's conclusions can be used by coaches and trainers to help para-athletes develop their mental toughness so they can train for and compete in top-tier competitions. Additionally, past research indicates that mental toughness may be a crucial component of success and that mentally strong athletes are better equipped to maintain a positive attitude while competing,[17] deal with critiques, defeat, and unsatisfactory results,[18] recover from adversity,[19] accept their actions as their own responsibility,[20] and maintain composure under pressure.[21] A positive correlation between athletic performance and the MT subcomponents of focus, anxiety control, and confidence has also been identified.[21] The body of research demonstrates unequivocally that mental toughness is crucial for elite athletic performance. They all agree that MT is an essential psychological quality for success in sports. More concrete evidence than competitive criteria for the impact of MT on athletic performance was provided by several of these research, which used sport-specific performance metrics to objectively evaluate performance[21]. There aren't many quantitative studies that look at the mental toughness of para-athletes, however sports like football (soccer),[22] and endurance athletes demonstrate higher mental toughness.[23] The findings of the current research on mental toughness for para-throwers are supported by other studies that suggest that mental toughness components are allegedly stronger in people who can sustain physical activity for longer periods of time. Athletes with greater MT levels have been shown to actually accomplish more or produce better quality.[24]

The research of mental toughness has evolved with the implementation of more scientifically rigorous methodologies, although there are still some restrictions and fundamental explanations that should be taken into account.[25] It is evident that both qualitative and quantitative approaches have been used to study mental toughness, but there are also disagreements and agreements in terms of basic concepts and assessments. [22,23,] Unwavering self-belief, resilience, tenacity, and refusal to give up are the traits that most significantly contribute to mental toughness.[25] Having a good sense of how to handle pressures and difficulties as well as the ability to focus despite interruptions are other qualities. A majority of hereditary factors, as well as those that may be learnt, experienced, and influenced by one's environment, are suggested to be the predictors of mental toughness in the present body of research.[23,] Greater MT has been repeatedly linked to better performance in both cognitively and motor tasks, and top athletes are found to have higher levels of mental toughness than less accomplished individuals.[26,25] It is crucial to highlight that this study's restriction to elite athletes in the field of athletics, notably throwing events, may have had an impact on the findings. Since there haven't been many studies that specifically focus on elite athletes in the nation, generalising these findings may have been influenced by this. The socioeconomic position, way of life, training regimen, and type of exercise that the subjects engaged in, as well as those factors, could have affected the study's findings (throwing).

The MT level between Elite Indian Standing and Seated Para-Thrower Athletes was successfully determined by this investigation as a pilot study. The findings suggest that additional investigation is required to ascertain how effectively the demands of other population groups are met (for example- para-shooters, para-swimmers,). Future research should concentrate on other sports and different genders. Future studies should focus on additional psychological factors including self-esteem, anxiety, stress, and locus of control, and others, to see if they enhance other skill- and performance-related factors that are as important in sports.

Conclusions

According to the results of the study, there was no statistically significant difference in MT (also in sub-domain of MT) between elite Indian standing and seated para-thrower athletes, which could be due to the fact that they are all elite athletes, with MT ultimately contributing to improved performance.

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