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Analyzing mental toughness in u-17 male combat sports athletes: A comparative study of judo and boxing

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Abstract

Background of the study: In applied sport psychology, mental toughness (MT) is one of the most used but misunderstood concept (Goldberg, 1998). It is critical to realise that cultivating mental toughness is a learned skill, that it is crucial for all athletes to master, and that it demands consistent, serious training, just like your physical body does. Sports psychologists have examined MT extensively because of its strong correlation with athletic success and general resilience.

Purpose of the study: The purpose is to compare the levels of mental toughness between U-17 boys in Judo and Boxing, both of whom are combat sports participants. Those students have taken part in the 52nd KVS regional competition.

Method: A total of 50 players are part of 52nd KVS Bhopal regional competition at LNIPE, Gwalior, in India during the academic year 2023-2024. The age of the subjects were ranging from 14-17 years. Among the 50 subjects, there are 25 Judo players and 25 Boxing players. Mental Toughness Comparison was made between Judo and Boxing players. Latest Sports Mental Toughness Questionnaire (Sheard *et al.*, 2009) of Michael Sheard, Jim Golby and Anna van Wersch was administered. The questionnaire consists of 14 statements and three sub scales namely: Confidence, Constancy and Control. T- Test was applied to compare means between the groups. Statistical significance was set at 0.05 levels.

Results: T-Test failed to reveal significant difference on mental toughness (MT) between 52nd KVS Bhopal regional competition Judo and Boxing athletes (p -value=0.529 >.05). No significant differences were found on other sub- scales (confidence, Constancy and control) of mental toughness between Judo & Boxing players.

Conclusion: There were no significant differences on confidence, Constancy, and Control mental toughness 52nd KVS regional boys Judo and Boxing Players. There were no significant variations in confidence, consistency, control, and general mental toughness among 52nd KVS regional boys Judo and Boxing players.

Keywords: Mental toughness (MT), combat sports, sports psychology, judo, boxing

Introduction

One such personal quality that merits more scientific study is mental toughness (MT). For instance, MT has been described as a group of beliefs, attitudes, perceptions, feelings, and behaviours that affect how someone reacts to pressure or stress (Coulter *et al.*, 2010; D. F. Gucciardi & Gordon, 2009; D. Gucciardi & Gordon, 2012; Mallett & Coulter, 2012; Roy *et al.*, 2022) [4, 8, 11, 13, 15]. To identify the factors that aid athletes in developing MT has always been the aim of MT research (Gordon & Gucciardi, 2011; Roy *et al.*, 2022; Slack *et al.*, 2015) [5, 15, 18].

The character traits highlighted by Peterson and Seligman as being indicative of mental toughness include, (Peterson & Seligman, 2004) [14], which include determination (D. F. Gucciardi *et al.*, 2008; Ryba *et al.*, 2009; R. Weinberg *et al.*, 2011) [9, 16, 20], heroism (Ryba *et al.*, 2009) [16], decision (Bull *et al.*, 2005) [1], and self-regulation (D. F. Gucciardi *et al.*, 2008, 2015; Thelwell *et al.*, 2005) [9, 19].

In literature, the value of mental toughness in competitive sports has been discussed (Connaughton *et al.*, 2008) [3] also emphasised how crucial mental toughness is in developing a champion athlete (Gould *et al.*, 2002) [6], Mental toughness was found to be a key factor in improving sports performance after researchers examined the psychological traits of Olympic champions.

Considering the importance of mental toughness, coaches have agreed that mental toughness is a factor that could determine the success of an athlete (Gould *et al.*, 1987)^[7] and it is also seen as an important element that could shape a successful athlete to be a champion.

The relationship between mental state and athlete's physical performance has been for concern for coaches and even for athletes for long time especially with the knowledge that the mental state does have enormous impact on athlete's performance (R. S. Weinberg, 1988)^[21].

The mental toughness of the King Fahd University of Petroleum and Minerals (KFUPM) Judo and Karate teams, as well as the KFUPM Swimming and Track & Field teams, were compared by Rakesh *et al.* in 2012. 26 athletes, ages 18 to 20, which competed for the KFUPM Judo, Karate, Swimming, and Track & Field University teams in 2011–12, were chosen as the study's subjects. They were split into four groups: Judo (N = 6), Karate (N = 5), Swimming (N = 8), and Track & Field (N = 7). The subjects completed the mental toughness questionnaire. The questionnaire comprises six subscales, including Self Confidence, Attention Control, Motivation, Goal Setting, Visual Imagery, and Attitude Control, with 48 statements total. The T-test was used to compare the group means. Analysis of the fundamental areas of mental toughness revealed that there is no significant difference on mental toughness (MT) between KFUPM Judo and Karate teams ($p = .7 > .05$). T-Test also failed to reveal significant difference on MT between KFUPM Swimming and Track & Field teams ($p = .122 > .05$). T-Test revealed significant difference on Self Confidence between KFUPM Swimming and Track & Field teams ($p = .039 < .05$), Track & Field team scored significantly higher on Self Confidence ($M \pm SD = 30.71 \pm 3.7$) than Swimming team ($M \pm SD = 26.1 \pm 4.01$). There were no discernible differences between the Judo & Karate Teams and the Swimming & Track & Field Teams on the other sub-scales of mental toughness (Attention Control, Motivation, Goal Setting, Visual Imagery, and Attitude Control).

Recently, mental toughness has become a crucial psychological concept linked to effective athletic performance (Bull *et al.*, 2005; Clough *et al.*, 2002; D. F. Gucciardi & Gordon, 2009; Jones *et al.*, 2007)^[1, 2, 8, 12]. It has been hypothesised that mental toughness is a trait-like concept that enables people to remain mostly unaffected by pressure or hardship. Mental toughness is a quality frequently linked to effective competition performance.

The study's main objective was to compare the MT levels of U-17 boys who participated in the combat sports of Judo and Boxing. These pupils competed in the 52nd KVS regional championship in Bhopal, and this study also looked at the state of the numerous MT sub-domains between Judo and Boxing. The researcher therefore proposed the following hypothesis: There will be a significant difference in MT level between participants in Judo and Boxing.

As was already indicated, the majority of studies emphasising the value of mental toughness involved and were directed towards athletes. The aim of the current study was to contrast the levels of mental toughness in U-17 boys competing in Judo and Boxing.

Objective of the Study

The purpose is to compare the levels of mental toughness

between U-17 boys in Judo and Boxing, both of whom are combat sports participants. Those students have taken part in the 52nd KVS regional competition.

Materials and Methods

A total of fifty boys athletes were selected as the subjects for the present study. The age of the subjects were ranging from 14-17 years. All the selected subjects represented 52nd KVS Bhopal regional competition at LNIPE, Gwalior, in India during the academic year 2023-2024. Among the 50 subjects, there are 25 Judo players and 25 Boxing players. Comparison was made between Judo and Boxing players. Latest Sports Mental Toughness Questionnaire (Sheard *et al.*, 2009)^[17] of Michael Sheard, Jim Golby and Anna van Wersch was administered. The data was collected during 52nd KVS regional Championship at LNIPE, Gwalior.

Tools

Latest Sports Mental Toughness Questionnaire of Michael Sheard, Jim Golby and Anna van Wersch were administered. The questionnaire consists of 14 statements. These 14 statements are further divided into 3 sub-scales namely; Confidence, Constancy and Control which were designed to measure factors that reflect mental toughness of sports athlete.

Data Analysis

Descriptive statistics were computed for all measures. The data obtained were analyzed with the help of statistical software (SPSS 20 version). The mean, standard deviation along with t test were computed to check the differences between samples mean of Judo and Boxing. The level of statistical significance was set at 0.05 levels.

Results

Table 1: Mean and Standard Deviation of 52nd KVS Regional Judo and Boxing Players

Sub Scale	Judo Player N-25		Boxing Player N-25	
	Mean	SD	Mean	SD
Confidence	16.84	2.54	17.16	1.88
Constancy	12.64	2.32	13.14	1.78
Control	10.96	2.89	11.00	2.16
Overall MT	40.44	5.07	41.28	4.24

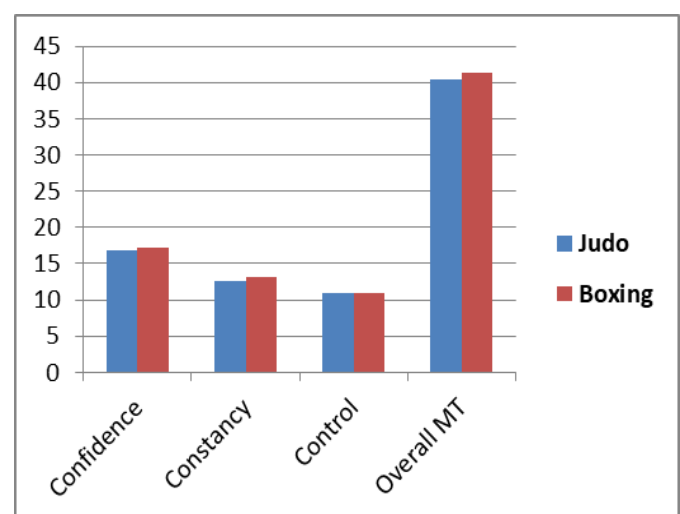


Fig 1: Mean Score of Judo and Boxing Players

Table 2: Comparison of Mental Toughness between 52nd KVS regional boys Judo and Boxing Players

Sub Scale	t-value	df	p-value
Confidence	-.505	48	.616
Constancy	-.818	48	.417
Control	-.055	48	.956
Overall MT	-.635	48	.529

Results from table 2 analysis showed the following**Confidence**

In the 52nd KVS regional boys' judo and boxing players, an independence T test with a P-value of 0.616.0>0.05 failed to find any statistically significant differences in confidence.

Constancy

The 52nd KVS regional boys' boxing and judo players did not exhibit any statistically significant differences on consistency, with a P-value of 0.417 being greater than 0.05.

Control

In the 52nd KVS regional boys boxing and judo players, the independence T test failed to find any statistically significant differences in consistency (P-value=0.956>0.05).

Overall Mental toughness

The 52nd KVS regional boys' boxing and judo players did not significantly differ in their overall mental toughness (MT), determined by the independence T test (P-value=0.529 >.05).

Discussions

No significant difference was found on Overall Mental Toughness and on all the sub scales between Judo and Boxing players of 52nd KVS regional boys. This could be largely due the similar nature of both sports. A similar study was conducted on mental toughness of the King Fahd University of Petroleum and Minerals (KFUPM) Judo and Karate teams, as well as the KFUPM Swimming and Track & Field teams, were compared by Rakesh *et al.* in 2012. 26 athletes, ages 18 to 20, which competed for the KFUPM Judo, Karate, Swimming, and Track & Field University teams in 2011–12, were chosen as the study's subjects. They were split into four groups: Judo (N = 6), Karate (N = 5), Swimming (N = 8), and Track & Field (N = 7). The subjects completed the mental toughness questionnaire. The questionnaire comprises six subscales, including Self Confidence, Attention Control, Motivation, Goal Setting, Visual Imagery, and Attitude Control, with 48 statements total. The T-test was used to compare the group means. Analysis of the fundamental areas of mental toughness revealed that there is no significant difference on mental toughness (MT) between KFUPM Judo and Karate teams ($p = .7 > .05$). T-Test also failed to reveal significant difference on MT between KFUPM Swimming and Track & Field teams ($p = .122 > .05$). T-Test revealed significant difference on Self Confidence between KFUPM Swimming and Track & Field teams ($p = .039 < .05$), Track & Field team scored significantly higher on Self Confidence ($M \pm SD = 30.71 \pm 3.7$) than Swimming team ($M \pm SD = 26.1 \pm 4.01$). There were no discernible differences between the Judo & Karate Teams and the Swimming & Track & Field Teams on the other sub-scales of mental toughness (Attention Control, Motivation, Goal Setting, Visual Imagery, and Attitude Control). In the same way, significant difference was not found on overall mental toughness and on all its sub scales (Confidence, Constancy and Control) between 52nd

KVS regional boys Judo and Boxing Players.

Conclusion

1. There were no significant differences on confidence, Constancy, and Control mental toughness 52nd KVS regional boys Judo and Boxing Players.
2. There were no significant variations in confidence, consistency, control, and general mental toughness among 52nd KVS regional boys Judo and Boxing players.

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