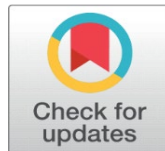# A CROSS-SECTIONAL RESEARCH ON THE MENTAL TOUGHNESS OF RACKET GAMES AND COMBAT SPORTS PLAYERS

Maninder Singh [1], Dr. Manjit Kaur [2]

[1] Research Scholar, Sant Baba Bhag Singh University, Khiala, Padhiana, Jalandhar, India
[2] Assistant Professor, Sant Baba Bhag Singh University, Village: Khiala, Padhiana, Jalandhar, India

## ABSTRACT

The purpose if this study was to determine the difference of Mental Toughness of Racket Games and Combat Sports Players. A total of three hundred male participants (N=300), aged 18 to 25, from universities in the northern region of India, were involved in the study. Additionally, these participants were divided into the following groups: Group: A: Racket Games (N1=150) and Group B: Combat Sports (N2=150). The current investigation employed the independent t-test. In hypothesis testing, 0.05 was used as the significance criterion. Self-Confidence: No significant variance difference (p = .871), so "Equal variances assumed" is used. The t-test is not significant (p = .625), indicating no meaningful difference in self-confidence. Motivation: No significant variance difference (p = .535), so "Equal variances assumed" is used. The t-test is not significant (p = .111), indicating no significant difference in motivation between the groups. Attention Control: No significant variance difference (p = .502), so "Equal variances assumed" is used. The t-test is not significant (p = .547), suggesting no meaningful difference in attention control. Goal Setting: No significant variance difference (p = .525), so "Equal variances assumed" is used. The t-test is not significant (p = .699), indicating no significant difference in goal-setting ability. Visual and Imagery Control: No significant variance difference (p = .428), so "Equal variances assumed" is used. The t-test is not significant (p = .273), suggesting no meaningful difference in visual and imagery control. Attitude Control: No significant variance difference (p = .811), so "Equal variances assumed" is used. The t-test is not significant (p = .119), indicating no meaningful difference in attitude control. Mental Toughness Total: No significant variance difference (p = .678), so "Equal variances assumed" is used. The t-test is not significant (p = .835), suggesting no significant difference in overall mental toughness.

**Keywords:** Mental Toughness, Racket Games, Combat Sports, Players

## 1. INTRODUCTION

Psychological resilience, commonly termed mental toughness, has emerged as a critical construct with wide-ranging relevance in sports, academics, military operations, and organizational leadership. Contemporary studies have expanded its scope, revealing its significance beyond athletic achievement to include educational attainment (St Clair-Thompson et al., 2015), combat readiness (Gucciardi et al., 2016), and executive effectiveness (Crust & Clough, 2011). Among existing conceptual models, the 4Cs framework provides a structured approach by characterizing mental toughness through four core pillars: emotional regulation (Control), task persistence (Commitment), adversity reframing (Challenge), and self-assurance (Confidence) (Clough et al., 2002). Academic discourse reflects varied conceptualizations, with some researchers emphasizing attributes like sustained effort, cognitive flexibility, and belief in personal capabilities (Jones et al., 2007). This theoretical divergence has sparked ongoing debate regarding the fundamental nature of mental toughness - whether it represents a stable personality characteristic or a malleable

competency that can be systematically developed through targeted interventions (Gucciardi, 2017). Empirical evidence consistently links mental toughness development with superior affect modulation, sustained task engagement, and adaptive stress responses, all of which contribute significantly to performance outcomes and psychological durability (Mahoney et al., 2014).

## 2. SELECTION OF SUBJECTS

A total of three hundred male participants (N=300), aged 18 to 25, from universities in the northern region of India, were involved in the study. Additionally, these participants were divided into the following groups: Group: A: Racket Games (N1=150) and Group B: Combat Sports (N2=150).

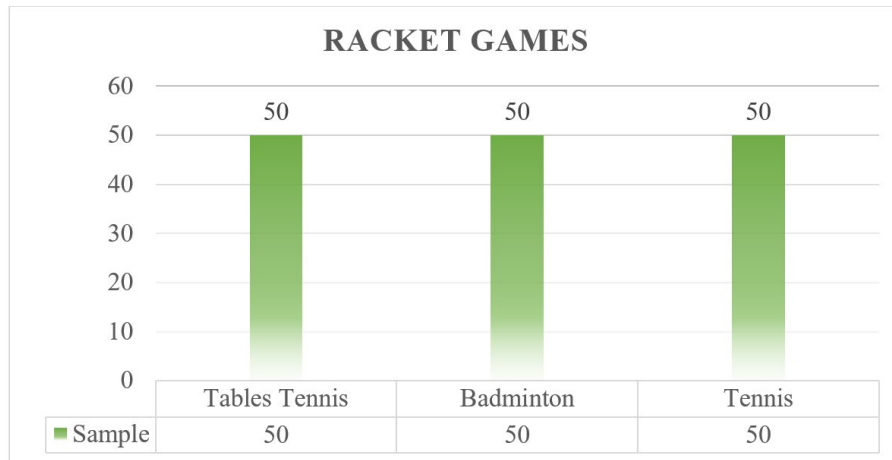| Sr. No. | Games/Sports | Sample |
|---|---|---|
| [Racket Games; $N_1$=150] | | |
| 1. | Tables Tennis | 50 |
| 2. | Badminton | 50 |
| 3. | Tennis | 50 |
| [Combat Sports; $N_2$=150] | | |
| 1. | Boxing | 50 |
| 2. | Judo | 50 |
| 3. | Taekwondo | 50 |



**Figure 1** The visual representation of the selection of participants concerning Racket Games.
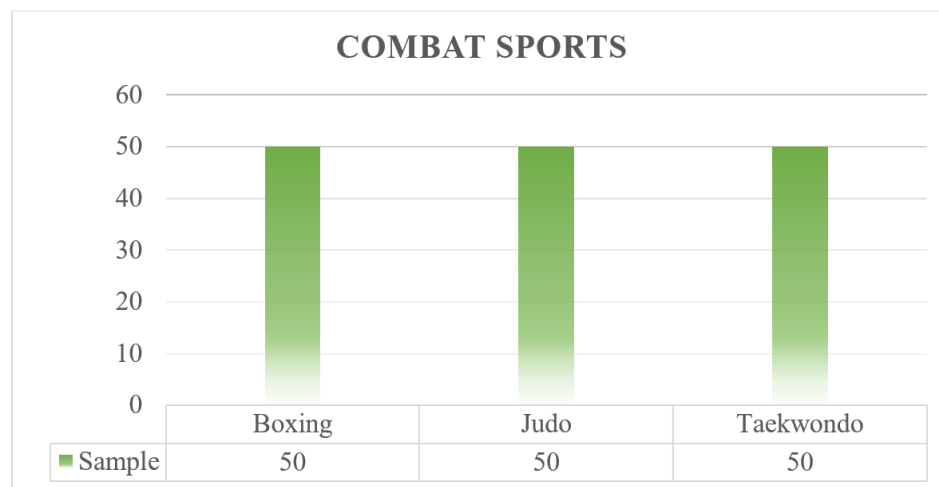


**Figure 2** The visual representation of the selection of participants concerning Combat Sports.

## 3. SELECTION OF VARIABLES

**Mental Toughness:**

Self Confidence

Motivation

Attention Control

Goal Setting

Visual and Imagery Control

Attitude Control

**Figure 3** Illustration of Data Collection.

# 4. STATISTICAL TECHNIQUES

The current investigation employed the independent t-test. In hypothesis testing, 0.05 was used as the significance criterion.

# 5. RESULTS

**Table 1** Comparison of Mental Toughness Between Groups Using Independent Samples T-Test.

| | | 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 | 95% Confidence Interval of the Difference | | |
| | | | | | | | | | Lower | Upper | |
| Self Confidence | Equal variances assumed | .026 | .871 | -.489 | 298 | .625 | -.22667 | .46351 | -1.13883 | .68549 | |
| | Equal variances not assumed | | | -.489 | 297.998 | .625 | -.22667 | .46351 | -1.13883 | .68549 | |
| Motivation | Equal variances assumed | .385 | .535 | 1.600 | 298 | .111 | .87333 | .54574 | -.20066 | 1.94733 | |
| | Equal variances not assumed | | | 1.600 | 296.519 | .111 | .87333 | .54574 | -.20068 | 1.94735 | |
| Attention Control | Equal variances assumed | .452 | .502 | .603 | 298 | .547 | .33333 | .55290 | -.75475 | 1.42141 | |
| | Equal variances not assumed | | | .603 | 297.752 | .547 | .33333 | .55290 | -.75475 | 1.42142 | |
| Goal Setting | Equal variances assumed | .405 | .525 | -.387 | 298 | .699 | -.18000 | .46490 | -1.09490 | .73490 | |
| | Equal variances not assumed | | | -.387 | 297.544 | .699 | -.18000 | .46490 | -1.09491 | .73491 | |

*Independent Samples Test*

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Visual and Imagery Control | Equal variances assumed | .630 | .428 | -1.098 | 298 | .273 | -.45333 | .41279 | -1.26568 | .35901 |
| | Equal variances not assumed | | | -1.098 | 297.094 | .273 | -.45333 | .41279 | -1.26569 | .35902 |
| Attitude Control | Equal variances assumed | .057 | .811 | -1.565 | 298 | .119 | -.59333 | .37901 | -1.33920 | .15254 |
| | Equal variances not assumed | | | -1.565 | 297.943 | .119 | -.59333 | .37901 | -1.33921 | .15254 |
| Mental Toughness Total | Equal variances assumed | .173 | .678 | -.208 | 298 | .835 | -.24667 | 1.18658 | -2.58180 | 2.08847 |
| | Equal variances not assumed | | | -.208 | 297.760 | .835 | -.24667 | 1.18658 | -2.58181 | 2.08848 |

### 1) Self-Confidence

No significant variance difference (p = .871), so "Equal variances assumed" is used.

The t-test is not significant (p = .625), indicating no meaningful difference in self-confidence.

### 2) Motivation

No significant variance difference (p = .535), so "Equal variances assumed" is used.

The t-test is not significant (p = .111), indicating no significant difference in motivation between the groups.

### 3) Attention Control

No significant variance difference (p = .502), so "Equal variances assumed" is used.

The t-test is not significant (p = .547), suggesting no meaningful difference in attention control.

### 4) Goal Setting

No significant variance difference (p = .525), so "Equal variances assumed" is used.

The t-test is not significant (p = .699), indicating no significant difference in goal-setting ability.

### 5) Visual and Imagery Control

No significant variance difference (p = .428), so "Equal variances assumed" is used.

The t-test is not significant (p = .273), suggesting no meaningful difference in visual and imagery control.

### 6) Attitude Control

No significant variance difference (p = .811), so "Equal variances assumed" is used.

The t-test is not significant (p = .119), indicating no meaningful difference in attitude control.

### 7) Mental Toughness Total

No significant variance difference (p = .678), so "Equal variances assumed" is used.

The t-test is not significant (p = .835), suggesting no significant difference in overall mental toughness.

## CONFLICT OF INTERESTS

None.

## ACKNOWLEDGMENTS

None.

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