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**Lakhan Kushwaha**  
Ph.D. Scholar, Department of  
Physical Education and Sports  
Science, University of Delhi,  
Delhi India

**Dr. Sarita Tyagi**  
Professor, Department of  
Physical Education and Sports  
Science, University of Delhi,  
Delhi India

**Corresponding Author:**  
**Lakhan Kushwaha**  
Ph.D. Scholar, Department of  
Physical Education and Sports  
Science, University of Delhi,  
Delhi India

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## A data meaning approach on selected components of psychological performance between male and female badminton players

**Lakhan Kushwaha and Dr. Sarita Tyagi**

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### Abstract

This study aimed to assess Psychological Performance, namely Mental Toughness among Badminton players, considering gender differences with respect to their sport. The sample consisted of 50 participants who were selected based on their representation at the National Level in Badminton. The Psychological Performance Inventory (PPI) questionnaire was administered to measure Mental Toughness Scores for various sub-scales. Independent t-tests were conducted to compare Mental Toughness between Males and Females Badminton Players, with a significance level set at 0.05. The statistical analysis revealed that Females exhibited higher levels of Mental Toughness in Self Confidence, Negative Energy Control, Attention Control and Motivation compared to Males. In some findings, the study revealed insignificant differences for Mental Toughness for Visualization & Imagery Control, Positive Energy Control between Male and Female Badminton Players. These findings confirm that, looking at the present scenario, women are more Mentally Tough than men. It is observed that Women's achieving more Medals, bringing laurels for our country exhibit inspiration to the youth Female Badminton Players, the reason being they showed better Psychological Performance. Therefore, the study showed significantly more Mentally Tough factors for Women than Men's Mental Toughness. The study also suggests, in one factor, Male Badminton Players also showed significantly more developed Attitude Control over Females, the reason being to be more experiencing tournament could be a major factor of the outcome.

**Keywords:** Mental toughness, badminton, psychological performance inventory, self confidence, negative energy control, attention control

### Introduction

Mental toughness describes the capacity of an individual to deal effectively with stressors, pressures and challenges and perform the best of their ability, irrespective of the circumstances in which they find themselves. (Dr. Peter Clough, 2002) <sup>[4]</sup>. The performance in competition depends upon physical and mental skills of one individual which clearly seen in competition arena. Sportsperson feels psychological pressure during match situation due to fear of failure and they become nervous and negative thoughts predominates them. Thus, performance decreases in competition. Many believe that Mental Toughness characteristics are important for success in sport and many coaches view mental toughness as a quality that must be considered in the recruitment of athletes as described by Weinberg, Butt, & Culp (2011) <sup>[17]</sup>. Gould *et al.* (1987) <sup>[19]</sup> expressed that some view mental toughness. The concept of mental toughness in sport has long been explored and developed (A.S. Goldberg, 1998; J.E. Loehr 1986) <sup>[13, 15]</sup>. Both athletes and coaches admitted that at least fifty percent of the success is influenced by psychological factors that are related to mental toughness (J.E. Loehr, 1982; 1986) <sup>[14, 15]</sup>. Cognitive restructuring strategy used in Cognitive Behavioural Therapy assists athletes in locating the root of their stress, comprehending their emotional reactions, and empowering them to respond more positively (Sharma, A., & Prasad, B. K., 2023) <sup>[27]</sup>. Players begin to see challenges as opposed to dangers as a result, leading to an increase in positive feelings and performance satisfaction. Some researchers also who found out that when two teams who share the same strength, skills, and tendency to win, 90% of the determining factor to be the champion depends on the mental aspect.

Mental toughness is the most important psychological attribute in determining success. Mental toughness is a psychological construct that is associated to successful sports performance (Gucciardi, Gordon, & Dimmock, 2009; Crust, 2008; Jones, Hanton, & Connaughton, 2007; Bull, Shambrook, James, & Brooks, 2005; Gould, Diefenbach, & Moffett, 2002) [20, 2, 21, 1, 3]. Clough *et al.* (2002) [4] suggested that mental toughness is a trait that allows individuals to remain relatively unaffected by competition or adversity. Mental Toughness can be considered as a mental skill factor and some research findings have identified, mental skills as a psychological construct that distinguishes between more and less successful performance across several sports; for example, golf (Thomas & Over, 1994) [22], and equestrian, (Meyers *et al.*, 1998) [16]. Mental Toughness and its importance in competitive sports have been documented in literature (Goldberg, 1998; Hodge, 1987; Tunney, 1987; Williams, 1988) [18, 19, 23, 24]. Loehr (1982; 1986) [14, 15] suggested that fifty percent of success in competitions could be attributed to mental toughness in athletes. On similar lines, Gould *et al.* (1987) [19] indicated that coaches felt the importance of being mentally tough in achieving success in sports.

## Methodology

### Selection of the subjects

In order to fulfil the objectives of the study, a total of 50 participants were carefully selected from the prestigious Lakshmi Bai National Institute of Physical Education (LNIFE) in Gwalior, Madhya Pradesh. The participants consisted of 50 state-level Badminton players, with 25 Males and 25 Females. The selection of these individuals was done with great attention to ensure a diverse and representative sample. The age range of the participants was set between 18 and 25 years, ensuring a relatively homogeneous group in terms of age. By including both male and female participants from the sport, we aimed to capture a broad perspective and account for potential gender-based differences in the study's findings. Additionally, focusing on state-level athletes ensured a certain level of expertise and proficiency in their respective sport, making them suitable candidates for the study.

### Procedure

The Psychological Performance Inventory (PPI) questionnaire was the instrument utilised for the study's goal of examining Mental toughness. The subjects had given their response to 42 statements of the questionnaire related to Mental Toughness with 7 sub-scales. The test monitored the Mental Toughness of the athletes for their respective sport. There was no time limit provided for the response and instructions were clearly given before filling the questionnaire.

### Statistical Technique

First, normality assumption of data was checked by Kolmogorov Smirnov (Das & Jhajharia, 2022b) [8] and Shapiro-Wilk test (Das *et al.*, 2023) [25]. The assumptions of normality were not violated, thus parametric test was implemented (Das & Jhajharia, 2022a) [7], to compare between gender independent 't' test was applied with the help of SPSS Version 26.

## Result

**Table 1:** General Characteristics of the subjects

| Game      | Gender | N  | Age (Mean±SD) |
|-----------|--------|----|---------------|
| Badminton | Male   | 25 | 20±4.2        |
|           | Female | 25 | 19±3.5        |

Table 1 represent the general characteristics of the subjects and this table revealed the mean and standard deviation of age.

**Table 2:** Mean Comparison of Self Confidence of Male and Female (independent t-test)

| Game      | Gender | N  | Mean  | SD   | Sig    |
|-----------|--------|----|-------|------|--------|
| Badminton | Male   | 25 | 23.28 | 1.86 | 0.019* |
|           | Female | 25 | 24.72 | 2.30 |        |

\*Significant at 0.05 Level of Significance

\*\*Significant at 0.01 Level of Significance

Table 2 represent the mean difference of Self Confidence between male and female in their respective game and this table revealed that there was significant difference between male and female as the p-value is less than 0.05.

**Table 3:** Mean Comparison of Negative Energy Control of Male and Female (independent t-test)

| Game      | Gender | N  | Mean  | SD   | Sig    |
|-----------|--------|----|-------|------|--------|
| Badminton | Male   | 25 | 23.96 | 1.79 | 0.020* |
|           | Female | 25 | 25.24 | 1.96 |        |

\*Significant at 0.05 Level of Significance

\*\*Significant at 0.01 Level of Significance

Table 3 represent the mean difference of Negative Energy Control between male and female in their respective game and this table revealed that there was significant difference between male and female as the p-value is less than 0.05.

**Table 4:** Mean Comparison of Attention Control of Male and Female (independent t-test)

| Game      | Gender | N  | Mean  | SD   | Sig     |
|-----------|--------|----|-------|------|---------|
| Badminton | Male   | 25 | 23.36 | 1.97 | 0.005** |
|           | Female | 25 | 24.96 | 1.83 |         |

\*Significant at 0.05 Level of Significance

\*\*Significant at 0.01 Level of Significance

Table 4 represent the mean difference of Attention Control between male and female in their respective game and this table revealed that there was significant difference between male and female as the p-value is less than 0.01.

**Table 5:** Mean Comparison of Visual & Imagery Control of Male and Female (independent t-test)

| Game      | Gender | N  | Mean  | SD   | Sig   |
|-----------|--------|----|-------|------|-------|
| Badminton | Male   | 25 | 23.68 | 2.09 | 0.712 |
|           | Female | 25 | 23.48 | 1.68 |       |

\*Significant at 0.05 Level of Significance

\*\*Significant at 0.01 Level of Significance

Table 5 represent the mean difference of Visual & Imagery Control between male and female in their respective game and this table revealed that there was no significant difference between male and female as the p-value is more than 0.05.

**Table 6:** Mean Comparison of Motivation of Male and Female (independent t-test)

| Game      | Gender | N  | Mean  | SD   | Sig    |
|-----------|--------|----|-------|------|--------|
| Badminton | Male   | 25 | 23.96 | 1.94 | 0.033* |
|           | Female | 25 | 25.12 | 1.78 |        |

\*Significant at 0.05 Level of Significance

\*\*Significant at 0.01 Level of Significance

Table 6 represent the mean difference of Motivation between male and female in their respective game and this table revealed that there was significant difference between male and female as the p-value is less than 0.05.

**Table 7:** Mean Comparison of Positive Energy Control of Male and Female (independent t-test)

| Game      | Gender | N  | Mean  | SD   | Sig   |
|-----------|--------|----|-------|------|-------|
| Badminton | Male   | 25 | 23.80 | 1.82 | 0.175 |
|           | Female | 25 | 23.04 | 2.07 |       |

\*Significant at 0.05 Level of Significance

\*\*Significant at 0.01 Level of Significance

Table 7 represent the mean difference of Positive Energy Control between male and female in their respective game and this table revealed that there was no significant difference between male and female as the p-value is more than 0.05.

**Table 8:** Mean Comparison of Attitude Control of Male and Female (independent t-test)

| Game      | Gender | N  | Mean  | SD   | Sig   |
|-----------|--------|----|-------|------|-------|
| Badminton | Male   | 25 | 25.16 | 1.77 | 0.046 |
|           | Female | 25 | 24.12 | 1.81 |       |

Table 8 represent the mean difference of Attitude Control between male and female in their respective game and this table revealed that there was significant difference between male and female as the p-value is less than 0.05.

## Discussion

The results of the statistical analysis revealed a noteworthy finding, indicating that Females exhibit a higher Mental Toughness ability compared to Males, and there is a significant difference found between male and female Badminton players in their Psychological Performance for Self Confidence, Negative Energy Control, Attention Control, Motivation and Attitude Control where except Attitude Control, in all other factors Females exhibit better Mental Toughness. In Attitude Control males showed better over Female badminton Players.

Connaughton *et al.* (2008)<sup>[5]</sup> and Mohammad *et al.* (2009)<sup>[28]</sup> stated that motivation level helped the players to achieve their best and affected their mental toughness. Olympic champions may be characterized by several attributes including confidence, motivation, perseverance, focus, and commitment (Durand-Bush, & Sal-mela, 2002; Gould *et al.*, 2002)<sup>[29, 31]</sup>. Connaughton *et al.* (2007)<sup>[5]</sup> Goal setting determines successful performance (Weinberg & Weigand, 1993; Weinberg, 2011)<sup>[30, 17]</sup>. Mental toughness appears to be multidimensional and most often associated with unshakeable self-belief, the ability to re-bounce after failures, persistence, or refusal to quit, coping effectively with adversity and pressure, and retaining concentration in the face of many potential distractions.

## Conclusion

The findings of the study indicated that Female exhibit a higher Mental Toughness compared to Male. This heightened vulnerability can be attributed to the way girls employ thought control strategies and engage in metacognitive beliefs, which ultimately contribute to higher achievement of mental stability and develops better cognition. Looking at the present scenario, examples like P.V Sindhu, Saina Nehwal have undergone achieving Medals and bringing laurels for our nation, which also develops an inspiration to the youth, especially Females. Based on the outcomes of this research, it is reasonable that girls would benefit from acquiring knowledge about success stories based on true events. Furthermore, the difference could be justified for the upliftment of Women's badminton in upcoming times.

**Conflicts of Interest:** Authors declare no Conflicts of Interest

## References

1. Bull S, Shambrook C, James W, Brooks J. To-towards an understanding of mental toughness in elite Eng-lish cricketers. *Journal of Applied Sport Psychology*. 2005;17:209-227.
2. Crust L. A review and conceptual re-examination of mental toughness: Implications for 17 future researchers. *Personality and Individual Differences*. 2008;45(7):576-583.
3. Gould D, Dieffenbach K, Moffett A. Psychological characteristics and their development in Olympic champions. *Journal of applied sport psychology*. 2002;14(3):172-204.
4. Clough PJ, Earle K, Sewell D. Mental Toughness: The Concept and Its Measurement. In I. Cockerill (Ed.), *Solutions in Sport Psychology*. London: Thomson, 2002, 32-43.
5. Connaughton D, Hanton S, Jones G. A framework of mental toughness in the world's best performers. *The Sport Psychologist*. 2007;21(2):243-264.
6. Sharma A, Purashwani P. Relationship between selected psychological variables among trainees of combat sports. *Journal of Sports Science and Nutrition*. 2021;2(1):01-03.
7. Das R, Jhajharia B. Association between physical fitness and BMI among school going male children. *Journal of Sports Science and Nutrition*. 2022a;2:111-114. <https://doi.org/10.33545/27077012.2021.v2.i1b.45>
8. Das R, Jhajharia B. Correlation between latent myofascial trigger point and peak torque production of lower limb muscles on sports person. *Journal of Physical Education and Sport*. 2022b;22(9):2224-2230. <https://doi.org/10.7752/jpes.2022.09283>
9. Das R, Jhajharia B, Ciocan VC, Majumdar I, Sharma A. The Relationship Between Latent Myofascial Trigger Point and Range of Motion of Knee Flexor and Extensor Muscles. *Physical Education Theory and Methodology*. 2023;23(2):192-198. <https://doi.org/10.17309/tmfv.2023.2.06>
10. Sharma A, Prasad BK. Effect of VMBR Training on Psychological Dimensions of Anxiety and Mental Toughness of Table Tennis Players. *Physical Education Theory and Methodology*. 2023;23(1):28-34.

11. Das R, Singh V, Jhajharia B, Das P. The Perception of Students Toward E-Learning Versus Traditional Classroom Learning. *School of Positive Psychology*. 2022;6:7198-7206.
12. Das R, Jhajharia B. Association between physical fitness and BMI among school going male children. *Journal of Sports Science and Nutrition*. 2022;2:111-114. <https://doi.org/10.33545/27077012.2021.v2.i1b.45>
13. Goldberg AS. *Sports slump: 10 steps to mental toughness and peak performance champion*, IL: Human kinetics; c1998.
14. Loehr JE. *Athletic excellence: Mental toughness training for sports*. Forum Publishing Company; c1982.
15. Loehr JE. *Mental toughness training for sports: achieving athletic excellence*. Lexington, Mass.; United States: Stephen Greene Press; c1986.
16. Meyers MC, Bourgeois AE, LeUnes A, Murray NG. Mood and psychological skills of elite and sub-elite equestrian athletes. *Journal of Sport Behavior*. 1998;22:399-409.
17. Robert Weinberg, Joanne Butt & Briana Culp. Coaches' views of mental toughness and how it is built, *International Journal of Sport and Exercise Psychology*. 2011;9(2):156-172.  
DOI: 10.1080/1612197X.2011.567106
18. Goldberg AS. *Sport slump busting: 10 steps to mental toughness and peak performance*. Champaign, IL: Human Kinetics; c1998.
19. Gould D, Hodge K, Peterson K, Petlichkoff L. Psychological foundations of coaching: Similarities and differences among intercollegiate wrestling coaches. *Sport Psychologist*; c1987.
20. Gucciardi DF, Gordon S, Dimmock JA. Advancing mental toughness research and theory using personal construct psychology. *International Review of Sport and Exercise Psychology*. 2009;2(1):54-72.
21. Jones G, Hanton S, Connaughton D. A framework of mental toughness in the world's best performers. *The Sport Psychologist*. 2007;21:243-264.
22. Thomas PR, Over R. Psychological and psycho-motor skills associated with performance in golf. *The Sport Psychologist*. 1994;8:73-86.
23. Tunney J. Thoughts on the line, mental toughness: Biceps for the mind. *Soccer Journal*. 1987;32:49-50.
24. Williams RM. The U.S. open character test: good strokes help. But the most individualistic of sports is ultimately a mental game. *Psychology Today*. 1988;22:60-62.
25. Das R, Singh V, Rajpurohit R, Bhutia T, Bisht P. Sports Psychology: Exploring the Origins, Development, and Increasing Demands in Sports and Exercise Sciences. *The International Journal of Indian Psychology*. 2023;11:1322-1334. <https://doi.org/10.25215/1102.142>
26. Das R, Jhajharia B, Das K. Prediction Model of Success and Failure in Football Competitions Prediction Model of Success and Failure in Football. *International Journal of Research Pedagogy and Technology in Education & Movement Sciences*, 2022, 12.  
<https://doi.org/10.55968/uniaca.2022.11.2.3>
27. Sharma A, Yadav N. The influence of high-intensity interval training on the health-related physical fitness components of children who are currently enrolled in school. *Journal of Sports Science and Nutrition*. 2023;10:229-232.  
<https://doi.org/10.22271/kheljournal.2023.v10.i3d.2950>
28. Dehpour AA, Ebrahimzadeh MA, Fazel NS, Mohammad NS. Antioxidant activity of the methanol extract of *Ferula assafoetida* and its essential oil composition. *Grasas y aceites*. 2009 Sep 30;60(4):405-412.
29. Durand-Bush N, Salmela JH. The Development and Maintenance of Expert Athletic Performance: Perceptions of World and Olympic Champions. *Journal of Applied Sport Psychology*. 2002;14:154-171.
30. Weinberg R, Burton D, Yukelson D, Weigand D. Goal setting in competitive sport: An exploratory investigation of practices of collegiate athletes. *The Sport Psychologist*. 1993 Sep 1;7(3):275-289.