

**MENTAL TOUGHNESS AS PREDICTORS OF SPORTS PERFORMANCE  
AMONG UNDERGRADUATE-ATHLETES OF LEAD CITY UNIVERSITY,  
IBADAN**

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**Abstract**

*Mental toughness is considered to be a multifaceted psychological construct, which refers to a collection of psychological characteristics that play a central role in optimal performance. This study examined mental toughness as predictor of sports performance among undergraduate-athletes of Lead City University, Ibadan. Descriptive survey research design was used. Population was all undergraduate-athletes of Lead City University, Ibadan. The sample size was 140 respondents, while purposive and convenience sampling techniques were used. Mental Toughness Questionnaire-48 (MTQ-48) and the Sport Performance Perception Scale (SPPS) were used to collect data. MTQ-48 was adopted while SPPS was modified. Questionnaire were validated and yielded reliability co-efficient of (MTQ-48= 0.86; SPPS= 0.89). The descriptive statistics of frequency counts and percentages were used to analyse demographic data. Inferential statistics of multiple regression was used to analyse the hypotheses. The result of the study revealed that there was a significant joint prediction of mental toughness ( $F_{4,135}=16.709$ ,  $p<0.05$ ) on sports performance. There was a significant relative prediction of mental toughness factors of control ( $\beta=0.292$ ,  $p<0.05$ ) and commitment ( $\beta=-0.211$ ,  $p<0.05$ ); while confidence ( $\beta=0.226$ ,  $p>0.05$ ) and challenge ( $\beta=-0.086$ ,  $p>0.05$ ) were not. The study concluded that there was a significant joint prediction of mental toughness on sports performance among the respondents. There were significant relative prediction of control and commitment, on sports performance among the respondents, while confidence and challenge were not. It was recommended among others that undergraduate-athletes coaches should ensure that athletes' training programmes not only address general mental toughness but the specific components also.*

**Keywords:** *Control, Confidence, Mental Toughness, Sports Performance, Undergraduate-athletes*

### **Introduction**

Undergraduate-athletes may come across a series of emotional states because sports settings are subject to both internal and external factors that can have positive or negative effects on sports performance. Every student-athlete is expected to be able to balance their academic life with athletic life but many at times, student-athletes find it difficult to balance up or cope with these two aspects. Many of the challenges they face include demand from the academic world to get good grades, demand from coaches to excel in sports as well as academic stress (Romine, 2023). Sports performance is a very important and beneficial part of any athlete's development. It is beyond the physical benefits of improved strength, agility and physical appearance (Simon & Bird, 2023).

Sports performance refers to the evaluation and measurement of an athlete's abilities and achievements in sports, which is considered a crucial indicator of an athlete's level of physical exercise and fitness (Mateo-Orcajada, et.al. 2022). It is also defined as observable and temporary behaviours in motor field which are affected by individual and situational factors (İslam & Ahmet, 2023). It is a complex concept that is frequently quantified in sports using different measures including physical, technical, tactical and psychological outcome and process dimensions (Winterbottom & Nilsen, 2024).

Sports performance in a competition is typically assessed through outcome measure. The outcome measure in a competition is subjectively decided based on the style of different movements. Effective performance displayed by an athlete in any human capacity can be linked with their personal attributes and excellent performance is a by-product of many personal attributes, especially in sports (Awosika & Olusola, 2014). Performance can differ greatly depending on how an athlete recognises and copes with pressure and difficulties. Athletes who can perform to their maximum potential are thought to be equipped with a strong mental attitude (Oladejo et al., 2024). It is therefore, essential for athletes to achieve a strong mental attitude in order to perform to their potential in matches and other contexts (Komatsu, et.al. 2021). If psychological state of student-athletes has a significant role on their sports performance, there is the need to develop a strong psychological parameters such as mental toughness in order to cope with challenges they face so as to succeed in both academic and athletic performance because mentally resilient student-athletes will be able to maintain their level of performance in difficult times and can be well equipped to face and overcome challenges.

Mental toughness has been viewed an important predictor of athletic performance (Hsieh et al., 2023). It is a construct related to successful performance in academics, management and sports among other sectors (Rintaugu et al, 2022), one of the psychological factors that is of great importance to student-athletes as well as an essential characteristic of the best athletes, who have better mental resources during performance in sports (Kosirnik, et.al 2022). Mental toughness is considered to be a

multifaceted psychological construct, which refers to a collection of psychological characteristics that play a central role in optimal performance (Torma & Balogh, 2021).

Mental toughness has been defined generally as a superior ability to cope better than the opponents with the many demands and related pressures that occur at the highest level in sport (Kosirnik, et al. 2022). It is a superior ability to cope better than the opponents with the many demands and related pressures that occur at the highest level in sport (Adegbesan, 2008). It is the ability of athletes to cope more effectively than their competitors with potential challenges that may arise in training and competitive environments; to possess determination, focus and self-control in high-pressure situations (Hsieh et.al., 2023). The potential benefits of mental toughness on sports performance generally and that mentally tough individuals are more resilient within stressful situations cannot be over-emphasised. Conversely, a lack of mental toughness is often attributed to failure in sports or at least considered a partial causal explanation of defeat (Ahmet et al., 2023). According to (Turhan et.al, 2023) individuals with high mental toughness, particularly with task–goal orientation, experience improved task performance.

Over the decades, researchers have used mental toughness measures to examine its relationship with athletic performance but with only mixed results (Hsieh et.al. 2023). Some found a significant relationship between mental toughness and athletic performance (e.g., Jones & Parker, 2019; Morais & Gomes, 2019). Likewise, results of Hsieh, et.al. (2023) confirm that mental toughness has a significant effect on athletic performance. Mental regression analysis results indicated mental toughness as a predictor of sports results/performance level according to Guszowska and Wójcik, (2021).

In contrast, some studies failed to support the “mental toughness-athletic performance relationship” (e.g., Brace et al., 2020; Cowden, 2016). Although some qualitative studies (Gould et.al., 1987; Gould et.al., 2002) contend that elite athletes ranked mental toughness as one of the most important psychological factors linked to successful performance, it is difficult to generalise the results for all athletes. Furthermore, some researchers examined the mental toughness/athletic performance relationship mix athletic performance with non-sports performance, such as the repetitions and weights that an exerciser has lifted or a runner’s distance and time. Study of Newland, Newton, Finch, Harbke and Podlog, (2013) failed to find significant correlations between the total mental toughness index and basketball performance index, the researchers found that mental toughness was its predictor but only in men. Similarly, Nor et.al. (2024) revealed significantly low levels of mental toughness across all subscales and demonstrated a weak positive correlation between mental toughness and sports performance perception respondents.

Different researchers have proposed different models of mental toughness according to their perception. For instance, (Sheard, 2009) proposed the 3C model, approached mental toughness as a relatively constant property consisting of 3 factors: control, constancy and confidence. Clough et al., (2002) proposed 4C of mental toughness to comprise control, confidence, commitment and challenge. This study, however, was built on view of mental toughness, which is composed of control,

confidence, commitment and challenge (Clough et al., 2002). Control designates the degree to which an individual believes they have influence over their life. It is taking care of processes to ensure effective performance and even though the outcome is ultimately uncontrollable, by controlling the processes the athlete is likely to be successful.

Confidence or self-confidence, on the other hand, has a major role in how athletes perform. Confidence is defined as, the belief that one can successfully perform a desired behaviour. Challenge refers to the extent that individuals perceive barriers and tests as opportunities for self-development. Challenge is associated with performing well in challenging situations. Commitment, on the other hand is viewed as the psychological state underlying athletes' persistence in sports over time (Caruzzo et.al. 2021). The importance of mental toughness in determining the winner in a sports competition cannot be underestimated for its significant contribution to enhancement of sports performance. Therefore, this study investigated mental toughness as predictor of sports performance among undergraduate-athletes of Lead City University, Ibadan.

### **Statement of the Problem**

Sports settings are subject to both internal and external factors that can exert positive or negative influences on performance. Undergraduate-athletes may encounter a range of emotional states, which may impart their performance. It is, thus, imperative that they are able to face challenges. With mental toughness, undergraduate-athletes may be able to achieve optimal sports performance. Some researchers have, however, suggested that athletes' skills or physical abilities may be stronger determinants of successful performance and it is likely that mental toughness is less relevant during competitive engagements in which competitors' physical abilities and skill levels are unbalanced, while some have contrary opinions. In addition, studies have established evidence to support the relationship between mental toughness and sports performance. Whereas, others have also found evidence that mentally tough athletes do not always perform better or compete at a higher levels nor do mentally tough athletes always see greater improvements in their skills and abilities.

Mental toughness is a desirable characteristic among student-athletes as they need to undergo hard training, face tough competition and combine athletic skills with their academic efforts. In the same vein, the issue of mental toughness has not been discussed in researches, especially, among undergraduate-athletes of Lead City University, Ibadan. That is, there is a dearth of research on mental toughness and sports performance among undergraduate-athletes of Lead City University, Ibadan. Therefore, study investigated mental toughness as predictor of sports performance among undergraduate-athletes of Lead City University, Ibadan.

### **Purpose and Objectives**

The aim of this study was to investigate mental toughness as predictor of sports performance among undergraduate-athletes of Lead City University, Ibadan. The objectives were to:

- i. establish the joint prediction of mental toughness (control, confidence, commitment and challenge) on sports performance among undergraduate-athletes athletes of Lead City University, Ibadan.
- ii. ascertain the relative prediction of control, confidence, commitment and challenge on sports performance among undergraduate-athletes athletes of Lead City University, Ibadan.

### **Hypotheses**

The following null hypotheses were tested at a 0.05 level of significance:

1. There is no significant joint prediction of mental toughness (control, confidence, commitment and challenge) on sports performance among undergraduate-athletes athletes of Lead City University, Ibadan.
2. There is no significant relative prediction of (control, confidence, commitment and challenge) on sports performance among undergraduate-athletes athletes of Lead City University, Ibadan.

### **Methodology**

This study employed a descriptive survey research design. The population for this study consisted of all male and female undergraduate-athletes of Lead City University, Ibadan. The sample for this study was one hundred and forty selected through convenience sampling technique. Respondents were from 100 – 500 levels, they were from different sports.

Questionnaire was used for gathering information in this study. Mental Toughness Questionnaire-48 (MTQ-48) by (Konter et al., 2020) and the Sports Performance Perception Scale (SPPS) by Adam, Ferguson, Mosewich and Kowalski (2023). The questionnaire was divided into three (A-C). Section A got information on demographic data of the student-athletes, such as gender, age, level of study, type of sports. Section B was MTQ-48, which was used to gather information on mental toughness. It comprises four sub-dimensions: control, confidence, commitment and challenge. The 4-point Likert-type scale consists of 48 items with each sub-scale having 12 items. The participants rated the extent to which they agree with each of items on a 4-point Likert scale (strongly agree to strongly disagree). Scores were calculated for the subcomponents of mental toughness and an overall mental toughness score was also computed. The higher scores indicated higher levels of each domain of mental toughness. This instrument demonstrated acceptable internal consistency ( $\alpha = 0.86$ ) which aligned with the previous validation studies by James, Marshal and Myers, 2020 and ( $\alpha = 0.70$ ) by Oladejo, et al., 2024.

In Section C, the Sports Performance Perception Scale was used to measure athletes' self-reported performance across five dimensions: athlete development, mastery and improvement, strategy and preparedness, recovery and injury prevention, and psychosocial skills. The questionnaire can be used by athletes participating in any sport. Responses range from 1 (almost never) to 7 (almost always) for the original copy, with higher mean scores for each subscale and overall global scores representing higher sport performance perceptions level. This study, however, modified the responses to 4 Likert rating of Almost Always (AA) Always (A) Never (N) Almost Never (AN). The results of initial psychometric assessments support that

the SPSS is multidimensional and aligned with the intended conceptual model; and has acceptable reliability Cronbach alpha of 0.89 – .94 (Konter et.al., 2020). Meanwhile, the Sport Performance Perceptions Scale (SPSS) had 0.89 in this study.

**Data Analysis**

The completed and retrieved questionnaires were collated, coded and analysed with descriptive statistics of frequency counts and percentage for the demographic data of the respondents. Inferential statistics of Multiple Regression (R) was used to analyse the hypotheses, which were tested at 0.05 level of significance.

**Results**

**Table 1: Demographic Characteristics of the Respondents (n=140)**

<b>Variable</b>	<b>Categories</b>	<b>Frequency</b>	<b>Percentage (%)</b>
<b>Gender</b>	Male	80	57.1
	Female	60	42.9
<b>Age</b>	16-18 years	45	32.1
	19-21 years	49	35.0
	22-24 years	40	28.6
	25-27 years	3	2.1
	28-30 years	3	2.1
	<b>Level</b>	100 Level	39
	200 Level	34	24.3
	300 Level	40	28.6
	400 Level	18	12.9
	500 Level	9	6.4
<b>Sports Type</b>	Athletics	13	9.3
	Basketball	39	27.9
	Badminton	19	13.6
	Chess	11	7.9
	Football	30	21.4
	Scrabble	4	2.9
	Swimming	9	6.4
	Squash	4	2.9
	Table Tennis	8	5.7
	Volleyball	3	2.1

**Source:** Field Survey, 2025

Table 1 reveals that most of the respondents 80(57.1%) were male. It can be seen that majority of the respondents 49(35.0%) were within the age range of 19-21 years. The table shows that most of respondents 40 (28.6%) were in 300 level, while basketball players 39(27.9%) were the most respondents, while volleyball players 3(2.1%) were the least respondents.

**Table 2: Summary of Regression Analysis Showing the Joint Prediction of Mental Toughness on Sports Performance**

R=0. 575						
R <sup>2</sup> =0. 331						
Adj. R <sup>2</sup> =0.311						
Std. Error=9.72300						
Model	Sum of Squares	df	Mean Square	F	Sig. (p value)	Remark
Regression	6318.486	4	1579.621	16.709	0.000	Significant
Residual	12762.450	135	94.537			
Total	19080.936	139				

**Source:** Field Survey, 2025

It can be seen from table 2, the linear combination of mental toughness of control, confidence, commitment and challenge was significant on sports performance among undergraduate-athletes of Lead City University, Ibadan ( $F_{(4,135)}=16.709$ ,  $p<0.05$ ). The result yielded a coefficient of multiple regression of (R) 0.575 and multiple R-square of 0.331. The result further revealed that adjusted  $R^2=0.311$ ; indicating that about 31.1% of variance was accounted for by the independent variables. This means that, there was a moderate significant joint prediction of (control, confidence, commitment and challenge) on sports performance among undergraduate-athletes athletes of Lead City University, Ibadan. The null hypothesis was therefore rejected.

**Hypothesis 2:** There is no significant relative prediction of control, confidence, commitment and challenge on sports performance among undergraduate-athletes athletes of Lead City University, Ibadan.

**Table 3: Summary of Regression Analysis Showing the Relative Prediction of Mental Toughness on Sports Performance**

Model	Unstandardized Coefficients		Standardized Coefficients		Sig.	Remark
	B	Std. Error	Beta	T		
(Constant)	39.320	8.983		4.377	.000	
Control	.836	.276	.292	3.035	.003	Significant
Confidence	.522	.273	.226	1.913	.058	Not Significant
Commitment	.492	.268	.211	1.838	.006	Significant
Challenge	-.203	.259	-.086	-.783	.435	Not Significant

**Source:** Field Survey, 2025

Table 3 shows control, confidence, commitment and challenge, the unstandardized regression weight (B), the standardized error of estimate (SEB), the standardized coefficient, the t-ratio and the level at which the t-ratio was significant. As indicated in this table, control ( $\beta=0.292$ ,  $p<0.05$ ) and commitment ( $\beta=0.211$ ,  $p<0.05$ ) independently tested significant on sports performance among undergraduate-athletes

of Lead City University, Ibadan, while confidence ( $\beta=0.226$ ,  $p<0.05$ ) and challenge ( $\beta=0.435$ ,  $p<0.05$ ) were not. This means that there was a significant relative prediction of control and commitment on sports performance among undergraduate-athletes athletes of Lead City University, Ibadan, while confidence and challenge were not. The null hypothesis which stated that there was a significant relative prediction of confidence and commitment on sports performance among undergraduate-athletes athletes of Lead City University, Ibadan was therefore rejected.

### **Discussion of Findings**

The finding of this study in hypothesis one revealed that there was a significant joint prediction of mental toughness (control, confidence, commitment and challenge) on sports performance among undergraduate-athletes athletes of Lead City University, Ibadan. The result further revealed that about 31.1% of variance was accounted for by the independent variables. This means that, there was a significant joint prediction of mental toughness (control, confidence, commitment and challenge) on sports performance among undergraduate-athletes of Lead City University, Ibadan.

The finding of this study was in agreement with the study of Jones & Parker, 2019; Morais & Gomes, 2019, which found a significant relationship between mental toughness and athletic performance. Results of Hsieh, et al. (2023) confirm that mental toughness has a significant effect on athletic performance. Likewise, mental regression analysis results indicated mental toughness as a predictor of sports results/performance level according to Guskowska and Wójcik, (2021).

It was, however, in contrast, with studies of Brace, et al., 2020; Cowden, 2016 that failed to support the mental toughness and athletic performance relationship. Likewise which did not confirm the relationship between mental toughness and performance in alpine skiing. Another study failed to find significant correlations between the total mental toughness index and basketball performance index, the researchers found that mental toughness was its predictor but only in men (Newland, et al., 2013).

In hypothesis two, it was indicated in that control and commitment independently tested significant on sports performance among undergraduate-athletes of Lead City University, Ibadan; while confidence and challenge were not. This means that there was significant relative prediction of control, and commitment on sports performance among undergraduate-athletes of Lead City University, Ibadan; while confidence and challenge were not. The finding of this present study on challenge aligned a previous study which established that handball players had higher scores on most of the components of mental toughness except for the components of challenge and interpersonal confidence<sup>6</sup>. Similarly, Nor et al. (2024) revealed significantly low levels of mental toughness across all subscales and demonstrated a weak positive correlation between mental toughness and sports performance perception respondents.

## Conclusion

Conclusion was made that there was a significant joint prediction of mental toughness (control, confidence, commitment and challenge) on sports performance among undergraduate-athletes of Lead City University, Ibadan. It was established that there was a significant relative prediction of control and commitment on sports performance among undergraduate-athletes of Lead City University, Ibadan while confidence and challenge were not.

## Recommendations

Based on the findings of this study, the following recommendations were made:

1. Athletes should work on the specific components with weakest development, particularly the confidence and challenge dimensions.
2. Coaches should ensure that athletes' training programmes not only address general mental toughness but the specific components also.
3. Coaches should implement autonomous environments where their athletes can stay motivated

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