Mental Toughness and Athletic Coping Strategies in Pakistani University Athletes

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Abstract

The aim of this study was to examine the relationship between mental toughness and athletic coping strategies in Pakistani university athletes. For this purpose, a correlational research design was used and university athletes (*N*=186) were recruited using purposive sampling technique. Data collection was done using self-made demographic sheet, sports mental toughness questionnaire (SMTQ) and athletic coping skills inventory (ACSI). Results were analyzed using Pearson moment correlation and independent sample t-test. Findings of the study revealed significant relationship between mental toughness and athletic coping strategies. All the subscales of mental toughness such as confidence, control and commitment showed significant positive relationship with the subscales of athletic coping strategies such as coping with diversity, coachability, concentration, confidence and achievement motivation, goal setting and mental preparation, peaking under pressure, and freedom from worry. It indicated that higher level of mental toughness is associated with better athletic coping strategies. Findings also indicated mental toughness and athletic coping strategies differ significantly in men and women university athletes. All the subscales of mental toughness also showed significant differences whereas five out of seven scales of athletic coping strategies differ significantly. Men athletes showed higher scores on both mental toughness and athletic coping strategies. This study has important implications for sports psychologists, and coaches in designing psychological interventions to enhance mental toughness, coping skills and performance of athletes.

Keywords: Mental toughness, athletic coping strategies, athletes, sports psychology

Introduction

Sports psychology has played an important part in determining factors that can improve the performance of athletes. Sport psychologists have been helping coaches all around the world to train their athletes in best possible way. Sports psychology examines how an athlete's performance is influenced by various psychological factors and how participation in different sports affects athletes both mentally and physically (Weinberg & Gould, 2010). Now-a-days, college and university students idealize athletes as their heroes. ESPN magazine in a recent issue listed top 20 athletes with most fans following around the world. The list includes eight football players, four tennis athletes and three players who play basketball. With a renowned football player Cristiano Ronaldo topping them all with 111.4 million fans around the world (Gains, 2016). Despite the popularity of sports in Pakistan, little research has been conducted in the field of sports psychology, particularly among university athletes.

Mental toughness is a commonly used psychological concept among sports psychologists, athletes and coaches around the globe and is considered a vital psychological

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characteristic that determines an athlete's success in elite sports (Crust, 2007; Rintaugu et al., 2022; Zhang & Yu, 2025). It is considered to be an umbrella concept, which includes both cognitive and behavioral components (Bull et al., 2005; Gucciardi, 2012). The toughness of an athlete's mental capability is best understood in relation to the level of training undertaken, the type of competition they play, post competition attitudes, and overall conduct on and off the field (Jones et al., 2007). Rintaugu et al. (2022) conducted a study on mental toughness and determined that it is a psychological concept associated with above satisfactory performance in all the areas of life from academics to daily management and other extra and co-curricular activities including sports. Additionally, the study investigated the mental toughness traits of men players participating specifically in sports related to contextual factors such as the athletes' age, playing experience, academic year, and sport choice. The study's findings indicated a significant difference in the following components of mental toughness (MT): athletes with less playing experience scored lower on challenges, emotional control, and life control, while handball players scored higher on life control, emotional control, and confidence in their skills. It was also shown that the type of sport and playing history had an impact on the mental toughness traits of athletes studying in university. Precisely, the findings reported that contextual factors and types of sports play a crucial role in the development of mental toughness of athletes. Bashir et al. (2023) also argued in their research on young adult that the mental toughness is positively correlated with coping that student in university used to deal with the various life situation. Anthony (2018) also focused on the coachability and expectation of the coach from the young athletes. This research finding revealed a positive relationship between coach expectancies and mental toughness. Higher the expectations from the coach more will be the level of mental toughness in the athletes studying inn the educational institutes. Research has consistently reported that athletes with higher mental toughness can cope more effectively and show better decision-making skills as compared to those with lower mental toughness (Bull et al., 2005; Gucciardi, 2017; Jones et al. 2002, 2007; Kalra & Sharma, 2025).

Coping is a psychological term which refers to utilizing cognitive and behavioral mechanisms to manage internal or external stressors to maintain the equilibrium (Lazarus & Folkman, 1984). In sports, athletic coping skills refers to psychological tools that athletes use to meet the situational and emotional challenges of sports during training or competition (Kalra & Sharma, 2025). Nicholls and Polman (2007) concluded that young competitors were struggling with a variety of stressors such as fulfilling targets for performance, competing under pressure, dealing with injury, and reconciling training and academic commitments. Athletes ought to come up with strategies for coping if they intend to retain their energy, assurance, and emotional wellness. The physical and mental actions a person takes for managing stress are collectively referred to as coping tools. These coping skills include both problem-focused and emotion-focused strategies (Kalra & Sharma, 2025).

Coping has been explained both qualitatively and quantitatively. Researchers have been trying to categorize various coping strategies used by athletes in different sports settings. Moreover, specific athletic coping strategies have been linked with specific internal and/or external variables, such as self-efficacy (Haney & Long, 1995), and positive and negative effect (Ntoumanis et al., 1999). Quantitative measures, athletic coping strategies scale, has also been developed to measure these strategies in athletes (Smith et al., 1995). A qualitative study

showed that athletes use a number of techniques to overcome challenges during play, including (a) thought controlling strategies such as blocking distraction, positive thinking, prayer, perspective taking; (b) task focus strategies such as concentrating on goal; and (c) behavioral and emotion based coping strategies such as following a routine and visualizations (Gould et al., 1993). Athletes may also use distraction, reinterpretation of pain sensations to cope with pain during play (Deroche et al., 2011). Furthermore, Nogueira et al. (2025) reported that the most common coping strategy used among athletes was problem-solving strategies. Also, men athletes used more problem-solving strategies and humor, whereas women athletes used emotional support to cope.

Moreover, professionals and researchers are now starting to understand the association between psychological strength and methods of coping deployed by sportsmen. In accordance to studies, athletes with high psychological resilience are more likely to use adaptive coping mechanisms such as problem-solving coping, threat minimization, optimistic mindset, or seeking support. Their strategies give them the ability to react effectively despite constraint. On another hand, athletes who low psychological resilience would utilize maladaptive strategies such as avoidance-oriented coping, denial, blaming others or wishful thinking which could potentially affect their general well-being as well as their performance (Xiaomei et al., 2024; Yi et al., 2005).

Therefore, it is vital to study mental toughness and athletic coping strategies in Pakistani university athletes as this area is often overlooked as research predominantly focus on national and international athletes. University athletes frequently compete at national level as part of their intervarsity tournaments while simultaneously managing their studies and many eventually progress to play at national and international level. This dual demand increases the importance of examining university athletes as they try to balance sports and academic commitments simultaneously. The present study aims to provide culturally relevant data on mental toughness and athletic coping strategies, as limited research has specifically targeted Pakistani university athletes.

Hypotheses

H1: There is likely to be a significant positive relationship between mental toughness and athletic coping strategies in university athletes.

H2: There is likely to be significant gender differences in terms of mental toughness and athletic coping strategies and its subfactors.

Method

Research Design

The present research used a correlational research design.

Sample and Sampling Strategy

The sample consists of 186 university athletes (men = 106; women = 80) aged between 18 and 25 years (*M*age = 22.77 years, *SD* = 2.55). Purposive sampling strategy was used to collect data from athletes representing a wide range of sports such as football (*n*=50), cricket (*n*=50), hockey (*n*=30), athletics (*n*=28) and badminton (*n*=28). The participants also belonged to both private and public sector universities with 100 participants belonging to private

universities and 86 participants belonging to public universities. These athletes were students of various universities from Lahore, including Government College University, University of the Punjab, Lahore University of Management Sciences, University of Engineering and Technology, Forman Christian College University, University of Lahore, Lahore College for Women University, and Kinnaird College for Women. All athletes had represented their respective universities in various local and national level intervarsity tournaments. Apart from that, most of the athletes had competed in professional sports at either district, provincial or national level. Table 1 depicts the demographic characteristics of the participants.

Table 1

Demographic Characteristics of Participants (N=186)

Variables	Men	Women	Total
	n (%)	*n* (%)	*N* (%)
Gender	106(56)	80(44)	186
Age			
18-20	41(54)	35(46)	76(41)
Above 20	70(64)	40(36)	110(59)
Type of Sports			
Football	27(54)	23(46)	50(27)
Cricket,	26(52)	24(48)	50(27)
Hockey,	16(53)	14(47)	30(16)
Athletics	20(71)	8(29)	28(15)
Badminton	17(61)	11(39)	28(15)
University			
Private	57(57)	43(43)	100(54)
Public	49(57)	37(43)	86(46)

Assessment Measures

Sports Mental Toughness Questionnaire (Sherard et al., 2009)

The scale consists of 14 items and has 3 subscales which are "confidence", "constancy" and "control". Confidence is a six-item subscale whereas constancy and control are four item subscales each. It is a 4-point Likert scale having 1 to 4 answer ranges. With 0 being not at all and 3 being all the time. Items 1-8 are positively scored whereas items 9 to 14 are reverse scored (Sheard et al., 2009). The scale established the Cronbach's Alpha of .74.

Athletic Coping Skills Inventory (Smith et al., 1995)

The athletic coping skills inventory is a 4-point Likert with 28 items ranging from 0 = never 1 = sometimes 2 = often and 3 = always. The scale has seven subscales each focusing on different elements of athletic coping required to perform well in tough environment. The items 3, 7, 10, 12, 19 and 23 are negatively scored whereas rests of the items are positively scored (Smith et al., 1995) The Cronbach's alpha of ACSI in present research was α= .82

Procedure

Prior to the data collection, athletes and coaches were informed about the study and permission was taken with the help of consent form. Special permission from various universities was also taken in order to collect the data. The participants were informed about the nature of the research and only willing athletes were made part of the research. The participants were presented with two questionnaires, one for mental toughness and one for athletic coping strategies respectively. The participants were assisted if they find any difficulty regarding answering the questionnaires. The questionnaires were filled in a quiet environment so that external stressors don't affect the responses. Furthermore, the participants were told to fill the form within the given time and don't think too much on any question as taking too much time on a question can also affect the response.

Ethical Considerations

- Ethical approval to conduct this research was given by the ethical board of the department.
- Participants were well informed about the purpose of the research.
- Permission to use research scale was taken from the original authors.

Results

Analysis of the data was done using SPSS. Mean, standard deviation and reliability of mental toughness and athletic coping strategies and their subscales was calculated before applying the statistical analysis. Pearson product moment correlation was used to assess the relationship between mental toughness and athletic coping strategies. Additionally, independent sample t-test was used to compare the means of mental toughness and athletic coping strategies between men and women athletes.

Table 2

Mean, Standard Deviation and Reliability of Study Variables

Variables	*M*	*SD*	Range	Cronbach α
Mental Toughness	41.2	5.8	1.9-2.8	.74
Confidence	15.3	4.1	2.1-3.0	.74
Control	17.3	6.9	2.0-2.6	.60
Commitment	20.0	4.8	1.8-2.5	.53
Athletic Coping Strategies	55.5	10.4	3.0-3.7	.82
Coping with adversity	11.2	3.5	1.7-2.4	.51
Coachability	5.4	1.9	2.9-3.2	.53
Concentration	7.6	2.6	3.0-3.7	.47
Achievement motivation	17.1	8.5	3.1-4.0	.34
Goal setting and mental preparation	14.0	6.0	2.8-3.4	.60
Peaking under pressure	18.2	9.1	1.8-2.8	.66
Freedom from worry	12.6	5.8	2.1-2.9	.61

Table 2 illustrates the mean, standard deviation and reliability of the mental toughness, athletic coping strategies and their subscales. Reliability of mental toughness is .74 whereas athletic coping strategies show reliability of .82. The subscales of mental toughness and coping also established adequate reliability.

Table 3

Results of Pearson Moment Correlation Analysis between Mental Toughness and Athletic Coping Strategies in University Athletes

	M	*SD*	1	2	3	4	5	6	7	8	9	10	11	12
1	41.2	5.8	-											
2	55.5	10.4	.72***	-										
3	15.3	4.1	.65**	.51**	-									
4	17.3	6.9	.68**	.48**	47**	-								
5	20.0	4.8	.60**	.51**	.36**	.30**	-							
6	11.2	3.5	.70**	.58**	.57**	.57**	.30**	-						
7	5.4	1.9	.58**	.43**	.42**	.59**	.39**	.45**	-					
8	7.6	2.6	.63**	.54**	.47**	.45**	.34**	.53**	.36**	-				
9	17.1	8.5	.64**	.59**	.57**	.51**	.27**	.54**	.38**	.45**	-			
10	14.0	6.0	.56**	.61**	.49**	.61**	.64**	.58**	.40**	.38**	.45**	-		
11	18.2	9.1	.58**	.63**	.78***	.77***	.38**	.62**	.36**	.48**	.45**	.45**	-	
12	12.6	5.8	.62**	.45**	,34**	,27*	.38**	.35*	.25*	.21*	.27*	.32*	.25*	-

Note. 1= Mental Toughness, 2= Athletic Coping Strategies, 3=Constancy, 4= Control, 5 = Commitment, 6 = Coping with Adversity, 7 = Coachability, 8 = Concentration, 9 = Achievement Motivation, 10 = Goal setting and Preparation, 11 = Peaking Under Pressure, 12 = Freedom from Worry

**p<.05, **p<.01, ***p<.001*

The results of Pearson product moment correlation revealed significant positive correlation between the mental toughness and athletic coping strategies. This showed that university athletes with higher mental toughness depicts better athletic coping strategies as compare to athletes with lower mental toughness. In terms of factors, the correlation analysis revealed that constancy and control factors of mental toughness showed strong significant correlation with peaking under pressure. This shows that athletes with higher constancy and control over them perform better under stress and remain composed when face any adversity in sports. The factor commitment showed moderate significant correlation with goal setting and preparation. Similarly, moderate significant correlation was established between first two factors of mental toughness with concentration and achievement motivation factors of athletic coping strategies.

Table 4 contains the results of independent sample t-test. The t-test reveals significant differences between men (*M* = 42.7; *SD* = 5.7) and women (*M*= 39.1; *SD*= 5.2) university athletes in terms of mental toughness. Significant differences were also found in men (*M*=58.1; *SD*=9.9) and women (*M*= 51.7; *SD*= 9.9) athletes in terms of athletic coping strategies. Men scored higher in both mental toughness and athletic coping strategies. All three subscales of mental toughness showed significant differences between men and women athletes whereas five out of seven subscales of athletic coping strategies showed significant difference between genders. The subscale “coachability” and “freedom from worry” showed no significant difference between men and women university athletes.

Table 4

Mean Difference of Men and Women Athletes in Terms of Study Variables

Variables	Men		Women				
	M	*SD*	*M*	*SD*	*t*(178)	*p*	*Cohen's d*
Mental toughness	42.7	5.7	39.1	5.2	4.3	.001	.66
Confidence	18.4	3.2	16.9	3.3	3.1	.001	.46
Constancy	13.6	2.0	12.6	2.2	3.1	.001	.47
Control	10.6	2.3	9.5	2.3	2.9	.001	.47
Athletic coping strategies	58.1	9.9	51.7	9.9	4.2	.001	.64
Coping with adversity	8.4	1.9	7.3	2.3	3.1	.001	.52
Coachability	9.3	2.2	8.7	2.2	1.6	.134	.30
Concentration	8.1	1.9	7.4	2.1	2.2	.001	.35
Confidence and achievement motivation	8.8	1.8	7.5	2.2	4.4	.001	.65
Goal setting and mental preparation	8.4	2.4	7.5	2.2	2.6	.001	.39
Peaking under pressure	8.2	2.3	7.1	2.7	2.9	.001	.44
Freedom from worry	6.6	2.7	5.9	2.2	1.7	.324	.28

Note. Men (*n*=80), Women (*n*=106)

Discussion

The primary aim of this study was to explore the relationship between mental toughness and athletic coping strategies of university athletes. The results showed that mental toughness has a significant relationship with athletic coping strategies of athletes. The results are similar to the previous findings by Nicholls et al. (2008). The results of this study further revealed moderate but significant relationship between all the subscales of mental toughness and Athletic Coping Strategies in university athletes. Researchers suggest that athletes with higher mental toughness can cope better as compared to athletes with low mental toughness (Jones et al., 2007) but these studies failed to outline which specific athletic coping strategies are used by athletes with higher mental toughness. The results of current study suggest that athletes with higher confidence level are better at coping with adversity, overcoming pressure and they are more achievement motivated. Similarly, athletes who show constancy in their performance are better with goal setting and mental preparation and they also share a healthy relationship with their coaches. Furthermore, athletes with more control have better concentration level and they show less signs of worry. Interestingly, in this research, all the subscales of mental toughness positively correlated with all the subscales of athletic coping strategies. In contrary to that, previous findings suggest that higher mental toughness show negative association with avoidance athletic coping strategies (Nicholls et al., 2008).

The secondary aim of this study was to explore the gender differences between university athletes in terms of mental toughness and athletic coping strategies. Gender differences between men and women athletes are hypothesized but little research has been done to find empirical evidences (Crust, 2008). To check the differences between men and women university athletes, independent sample t-test was used to see the gender difference with mental

toughness, athletic coping strategies and their subscales. This study found significant gender differences in mental toughness and total athletic coping strategies, with men scoring high on both. All three subscales of mental toughness also showed significant differences. Whereas when we talk about the subscales of athletic coping strategies, five out of seven subscales of athletic coping strategies showed significant differences whereas no difference was found between subscales "freedom from worry" and "coachability". Previous studies suggest that men athletes were found to use more task-orientated coping strategies and problem-focused athletic coping strategies (Nogueira et al., 2025; Philippe et al., 2004) as compared to female athletes (Yoo, 2001).

Conclusion

The current study was designed to explore the relationship between mental toughness and athletic coping strategies of university athletes. Results revealed that the mental toughness and athletic coping strategies showed significant positive correlation. The study further examines the gender differences between the men and women university athletes. Mental toughness and athletic coping strategies differ significantly in men and women university athletes. All the subscales of mental toughness also showed significant differences whereas five out of seven scales of athletic coping strategies differ significantly.

Limitations and Recommendations

One of the limitations of the current research was non-availability of the sample due which sample size of the research was small. Secondly, this study only included athletes from the specific universities in Lahore due to which the results of the study cannot be generalize to the overall population. Quantitative method has been used in this research. Qualitative or mix method research would have given a better insight. The data collection was a lengthy and time-consuming process. Another limitation of this examination is that mental toughness and athletic coping strategies were measured through self-report questionnaires. Furthermore, that correlational research design has been utilized as a part of this investigation, implying that cause and effect relationship can't be determined between the factors. Experimental examination is required to build up direction or causation between the two variables. For instance, if athletes can increase their mental toughness through mental skill training as suggested by Sheard and Golby (2006) can increase their athletic coping strategies or vice versa. Therefore, it will be beneficial to conduct experimental and longitudinal studies to see the influence of mental toughness on coping and vice versa. Longitudinal research should be conducted with larger sample and diverse population such as college athletes and school sports students.

Implications

The findings of this research can be beneficial in a number of ways. This study specifically aimed to get an insight on the relationship of mental toughness and athletic coping strategies in university athletes. This study shows implications for sports psychologist, athletes and their coaches. By analyzing the mental toughness of an athlete, coaches can alter or modify the factors which are affecting the performance of athletes. From the findings of the study, it

is suggested that coaches should focus on the psychological aspects of athletes along with physical factors. Universities and professional teams should hire sports psychologists in order to improve the performance of their athletes. These sports psychologists will play a crucial role in determining an athlete's mental capabilities so that deficits can be ameliorated by using appropriate techniques. Sports psychology courses should be introduced for coaches and players. This will help them to have a better insight about the psychological factors and how to improve them. Team coaches should learn how to observe various psychological factors i.e. mental toughness, coping, motivation, determination, confidence etc. This can be done by learning how to use various measurement scales. In this way, in the absence of sports psychologist, coaches can easily work on the psychological development of their athletes. Since every player differ psychologically from one another, it will also be beneficial for coaches to work on each player individually. The application-based research conducted by the sports psychologists will also identify cultural differences.

Author Declarations

Conflict of interest

There is no conflict of interest between authors.

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