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**MENTAL TOUGHNESS, EFFICACY OF MINDFULNESS-BASED COGNITIVE THERAPY  
AND PSYCHOSOCIAL ISSUES OF ATHLETES**

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Doctor of Philosophy in Clinical Psychology,

Supervised by: Prof. Dr. Zahid Mahmood



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2019

University Of Management & Technology, Lahore

MENTAL TOUGHNESS, EFFICACY OF MINDFULNESS-BASED COGNITIVE ...  
S. SUBHAN  
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**Mental Toughness, Efficacy of Mindfulness-based Cognitive Therapy and Psychosocial**

**Issues of Athletes**

Sara Subhan

14003166001

Submitted in the partial fulfillment of the requirements for the Degree of Doctor of Philosophy  
in Clinical Psychology, University of Management and Technology, Lahore.

Supervised by: Prof. Dr. Zahid Mahmood



2019

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## ABSTRACT

Cricket can be described as perhaps the most popular sports in Pakistan. However, often there is a wide variation in the performance of the team. This study is aimed at exploring some personality characteristics and psychological factors that might explain the inconsistency in the performance of the players and later provide players an intervention study to reduce the inconsistency in their performance. For this purpose the study was carried out into four stages where the first two stages were based on the development and establishing the psychometric properties of Mental Toughness Scale and Psychosocial Issues Scale for Cricketers. The exploratory and confirmatory factor analysis extracted the four factors of Cricketers Mental toughness, i.e., Resilience, Preparation, Emotional Control and Toughness. Further the factor analysis for Cricketer's Psychosocial Issues depicted the following factors, Interpersonal Relationships, Intrapersonal Relationships and Weakness. The third study tested the main and secondary hypotheses on the sample of 373 male cricketers with the age range of 16-28 ( $M=19.28$ ;  $SD=3.14$ ). The result showed mental toughness as the negative predictor of the psychosocial issues of the athletes. The fourth study was the outcome study based on the A-B-A design that measures the effectiveness of the Mindfulness-based Cognitive Therapy (MbCT) on the athletes. The pre and post comparison depicted the reduction of the perceived psychosocial issues of the athletes with the help of the MbCT. The results were further discussed in the light of its cultural context and future implication regarding the emergence of sport psychology as discipline in Pakistan.

**Keywords:** psychometric properties, mental toughness scale, psychosocial issues scale, sports psychology

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## DEDICATION

I would like to dedicate this work to my (*late*) grandfather who was, is and will always be the source of light in the darkest and toughest days of my life. I am grateful to learn the lessons of determination, honesty and compassion he taught me that helps me to grow.

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## ACKNOWLEDGMENT

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First of all, I would like to thank the University of Management and Technology, Lahore and Institute of Clinical Psychology, UMT for giving me opportunity to conduct and complete this research project.

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I was able to complete this thesis with the support of large number of people. First, among them is *Prof. Dr. Zahid Mahmood*, who supervised me in this project. Prof. Dr. Zahid helped me in conceptualizing Sport Psychology, explained to me the intricacies that I needed to target, suggested solutions to deal with the difficult population focusing on the aim of the project and much more. He was constantly a source of encouragement to make me work on this difficult population and comprehend the ground realities of Sports in Pakistan. This research work would not have been accomplished without his wisdom and critical review on this project.

I would also like to pay my deep regards to *Dr. Sadia Saleem*, Associate Professor and Co-supervisor of this project who always gave discrete and constructive criticism to this project. She continuously provided the moral support that helped overcome the barriers in the project. She was always able to foresee the issues and challenges the project and researcher could experience and assured the completion of this research project.

I am also grateful to all the *faculty and staff members of ICP*, UMT for bearing with me and listening to me during the different phases of the project from time to time. Their presence and making sure that the motivation stays uptight is highly appreciated.

My special thanks to *Ayesha Jabeen & Ayesha Asghar*, for being a cooperative colleague as well as a very good friend throughout this journey.

This journey could be incomplete with the push, motivation, and trust received by my *grandmother* (SafiaKhanam), *parents* (Abdul Subhan & Fatima Subhan), *siblings* (Sadia, Ahmad & Fahad). I am so grateful for the level of understanding shown by my family throughout this learning experience. My humble thanks to the person who was a constant source of encouragement throughout my academic life and at various stages of my life a role model my *aunt* (MubinaRauf).

The data collection of this project was one of the toughest phase but thanks to my *rikshaw driver* it became smooth with his corporation and vigilance. He was a major helpas with his navigation skills I was able to reach all kinds of venues related to this current research.

Last but not the least, I would like to thank and appreciate all *the coaches and cricketers* who are the unsung heroes of Pakistani Domestic and National Cricket Team. The dedication, sportsperson spirit and enthusiasm witnessed while interacting with the Pakistani players is remarkable. I cannot thank enough for the respect and regard shown during this project.

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## Chapter 1

### Introduction

Sport is an organized competitive activity that gives you a sense of success and failure

and thus has a profound influence in sum of achieved self-respect. Sport not only affect those who actively participates (known as athletes) but also those who associate as spectators who are vicariously involved (also holds a special position) in this field. Sport is the integral part of a healthy society. The relationship of sport with humans shares a long history (Bandyopadhyay, 2007; Lombardo, 2012). It is known to be the symbol of victory and success, and even as spectator or follower of sport the individual identify themselves with their champions. The common man shows great deal of admiration on the performance of their player. People are investing their countless emotions, time and money on sport and have made it a social phenomenon (Brewer, 2009). The individual and society's interaction in the context of sport success of player possess many intricacies of human's dynamic nature (Cohen, 2016).

These intricacies and complications of sport could be comprehended after understanding the role of various bio-psycho-social factors contributing in the field of sport (Sandardos& Chambers, 2019). Initially, the stakeholders needs to recognize the purpose of sport, which is to compete a healthy game with the opponent. We can observe playful behavior in animals, from birth they engage themselves in playing activity where the purpose is not to hurt or harm anyone but just to engage in stimulated activity. This biological instinct of human is highly influenced by the culture where it's develop and grow (Baker, et al, 2019). This expansions and progression in sport has changed its types, norms, rules. The socio cultural change in sport has also helped the individual to explore their social identities and figure out how to associate themselves with their reality (Deci & Ryan, 2000;

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Schinke, et al, 2017). Therefore, Coakley (2015) says that the time keeps on changing made sport a serious profession that once was just a hobby.

Over a period of time sport has changed in all aspects ( Baker & Horton, 2004; Brasch, 1970; Lombardo, 2012). The physical activities of yesteryears has taken professional shape in its understanding, concepts, rules, psychology and management. The pre-historic times gave glimpse of sport as the wildest activity where based on religious rituals game revolved around the survival of players and their nations. Over the course of several decades, as the social, political and cultural changes took place, sport earned an absolutely distinct position in the world cultures. Gardner and Moore (2006) examined in former times wars were fought in the battlefield, and now it has taken place in the stadiums, especially when the opponent teams share brutal history of their respective countries. The failure in one match is enough to flare up wrath among the people. On the other hand, success of the respective team is shared by the whole nation. (Vamlew, 2013).

The overwhelming status of sport is becoming more commercialized, industrialized and influenced by the social media. People see their players as celebrities and heroes of their nation when they are in stadium. This massive popularity is pushing players to meet the high international standards for maintaining their peak performance (Mahmood, 2010). The records are not any longer broken with huge numbers instead the defeat is declared on millisecond difference and few miss hits. The excellence in physical performance of mankind is touching the skies and now the demands from sportsperson is to show consistent peak performance in the variety of individual games (like; tennis, squash) and team sport (like; cricket, football, and hockey) (Cohen, 2016).

The continued rise in the standard of performance in sport created ever increasing pressure for athletes. The players need to meet the perfection in their performance, consistently in front of massive audience contributes in the physical and psychological distress of players.

Once the sport was known to be the territory of players not viewers, but over the past decades the trends have changed. Unlike the past, now billions of people are just spectators of

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sport around the globe. It is safe to say that the stress has direct relation with viewership of the respective sport (Scherer & Rowe, 2014).

In order to cope with this ever-increasing pressure to perform better the players have to push themselves to the extreme of their physical strength. Players are in general becoming more health conscious, the diet and constant exercises help them to raise the standard of sportsperson living thus now, they tend to work harder. In some cases, they need to achieve these fitness in sport performance is enhancing their level of stress can also hamper their performance (Schinke, et al, 2016).

In order to manage the increasing pressure to stay physically fit and healthy as sportsperson that eventually help the player to outdo the opponents on the ground. The players now have to endure in extensive physical training and practice. As a result of these intense training, the players are, therefore able to achieve physical toughness and surpass their performance as the competition gets tougher. However, Griffith (1925) argued, that physical training only, is not enough, players also require psychological strength that help in manifesting perseverance, resilience, determination, self-confidence and motivation. A strong mind and body connection helps them to maximize their potential during their competitive match...

## Implications of the Current Research

This study is a ground breaking project in the profession of sport, which will open doors for its stakeholders, i.e., players, coaches, managers and followers. Sport have a very special place in the culture of Pakistan especially cricket, immense emotions are invested in this game by the nation. Therefore, this study could become the first platform for the Sport Psychology emergence. The psychological assessment of Pakistan cricketers (individual and team) playing at the domestic, national or international level highlights the areas that need to be improved and polished. As well as the strengths as *Mental toughness* explain the strength of the Pakistani cricketers. This build a comprehensive assessment protocol that shows the

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strengths and weakness of the players. Also, comprehensive counselling strategies established for the players.

As well as, according to the needs of players comprehensive plan could be develop that help them to groom themselves professionally and excel in their field. Therefore, the current project will benefit to study the psychological aspects of other sports such as, hockey, football, tennis, and many more in Pakistan.

### **Aims**

- To determine the relationship of Mental Toughness and Psychosocial Issues in the Athletes.
- To find out the efficacy of Mindfulness-based Cognitive Therapy in enhancing Mental Toughness in the Athletes.

### **Objectives**

- To develop a valid and reliable scale that measures Mental Toughness in Athletes.
- To develop a valid and reliable scale that measures Athlete's Psychosocial Issues.
- To find out the relationship of Mental Toughness and Psychosocial Issues in the Athletes.
- To find out the effectiveness of Mindfulness-based Cognitive Therapy in the athletes.

### **Operational Definition of the Key Variables**

Following are the operational definitions of the study proposed by the researcher:

*Mindfulness-based Cognitive Therapy* is defined as “the awareness that emerges through paying attention on purpose and nonjudgmentally to the unfolding of experience moment by moment” (Kabat-Zinn, 2003).

*Mental Toughness* is defined as “the reaction of a player that enables him or her to call upon inner abilities, skills and strength to deal with the demands of an adverse situation” (Gucciardi & Gordan, 2009).

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*Psychosocial Issues* is defined “any thought, behavior or situation that adversely affects optimal functioning of the athlete” (Nieman, 2002).

*Athlete* is defined as “a cricketer represents an institute/club at competitions” (Coakley,2015).

## Chapter 2

### Literature Review

Sport has always been the most vital and integral part of every society. The field of sport

emerged and developed under the influence of people and culture. Therefore, the sporting activities around the globe strongly reflects the individual's interests and the social world of their culture (Coakley, 2015). This dynamic connection between sports and culture stimulated and encouraged human being to express their desires, aspirations, thrives, motives and needs in the most constructive way. Athletes while playing express their hunger to win; manifests the complexity of personal desires, i.e., recognition, liberation, power, and control. This attitude further lead them to make sport a social and political phenomenon where athletes fight wars in the stadium (Mahmood, 2010). Hence, these psychosocial deep and complex interactions existing from the birth of human being is making sport the most powerful expression (Phillips, 2006).

Sport, the deeply rooted social phenomenon of every culture owns long history that helped this field to evolve into a serious profession that once was a wild way to defeat the competitor (William & Straub, 2001). The glimpses of shifting sands in sport gave a complete understanding about the present day sport. The liner and progressive history of sport illustrate the evolution of physical activities shaped on the cultural meaning that was generated on the life experiences of the humans (Coakley & Donnelly, 2009). Sport had shown great deal of variation in time and place, in the yesteryears, sport also known as, physical activities were conceptualized as the survival value of religious beliefs and values in a specific culture.

Guttman (2000) explained that centuries ago physical abilities were used for hunting to gratify the basic needs of humans, protect, rule and control others for social recognition. The religious rituals promote in the pacifying the gods and rituals were actually based on numerous physical activities that nowadays served a symbolic meaning in the form of organized sport

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where we appease the athletes and players as gods. Therefore, the societal belief system, structure and relations help in shaping and reshaping the sport.

Coakley and Donnelly (2009) comprehensively explained the concept of sport in the ancient Greece (1000 B.C. to 100 B.C.) is predominantly revolved around the religious rituals and beliefs. The wealthy Greek families usually took participation in these activities that were mostly festivals under the shadow of numerous religious practices. The games in that period were mostly comprised of wrestling, boxing, long jumping, but the nature of these games were wild and violent; serious physical injuries even death had taken place in these festivals. To acknowledge and continue the legacy of Greek gods an organized form of festival was emerged, known as, Olympia; where continents participant in competition of several indoor and outdoor sports. A huge number of countries around the globe is witnessed in this event that is held in the legacy of the Greek gods' festivities (Kidd, 1984).

Baker (1988) explained that the massive popularity of Olympia gave it a political status, the winning was glamorized by associating it with the monetary rewards. The high profiled people indulge and train the physically strong slaves that represent their country or state on the ground. The festivals that were celebrated as leisure activity were evolved into an organized profession. But, these statues failed to train athletes socially the physical toughness was not making the athletes a strong socially civilized person of society. Due to the aggressive behaviors of the athletes the reputation became that athletes are the most uncivilized and uneducated people.

### **Rationale of the Study**

Pakistani athletes experience great deal of fluctuation in their performance and show inconsistency in their performance. There are number of psychosocial factor that contribute in hampering the athletes performance and by identifying them we can highlight the areas where athletes need more skills for their better performance. Strong psychological skills like mental

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toughness made athletes able to reach to their optimal functioning. Hence, measure mental toughness and identifying psychosocial issues are very essential in this current study.

The rationale of the study is to assess and identify the problems of athletes. To find the empirical and solid evidences related in this field. The construct of mental toughness that is widely used in the sport world and various psychometric scales are established to measure the mental toughness across sports. Whereas, all the scales developed on mental toughness are influenced by the individualistic culture factor that help in developing and manifesting the mental toughness during the tough situations of sport. Whereas, as reported earlier Pakistani players that are living in collectivistic culture and the stressors of players in Pakistan are widely different from the stressor of other cultures. As well as, the manifestation of the mental toughness also varies from sport to sport and culture to culture. Therefore, the development of mental toughness scale is essential that depict the indigenous based knowledge of mental toughness in Pakistani cricketer.

In Pakistan, this area was unfocused regarding research and there are not enough empirical findings on this field currently present. The athletes are the one of the ignored populations of Pakistan who's psychological and social issues need to be addressed. Athletes are not aware of controlling their overwhelming emotions and are least bothered on the psychological health...

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## Chapter 3

### Research Methodology

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This chapter is presenting the systematic steps that how the study was carried out and to find out the answers of research questions. This study was divided into two parts that are as follows:

1. Study I was aimed to find out the relationship between the mental toughness and psychosocial issues of Pakistani cricketers. Hence, the objectives were:
  - a. To explore the expression of mental toughness of Pakistani domestic cricketer's and also to identify the expression of their psychosocial issues.
  - b. Develop the scale on Pakistani domestic cricketer's mental toughness and psychosocial issues.
  - c. Establish psychometric properties of both developed scale.
  - d. Determine the relationship between mental toughness and psychosocial problems of the Pakistani domestic cricketers.
2. Study II was to find out the effectiveness of Mindfulness-based Cognitive Therapy (MbCT) (Segal, Williams, & Teasdale, 2012) to enhance participant's psychological skills and to reduce the psychosocial issues cricketer's experience during their game.

Therefore, the objectives here were:

- a. First pre-assessment was carried out with the help of developed scale that helped in identifying cricketers who experience severe psychosocial issues during their match.
- b. After identification selected participants were provided with the training on Mindfulness-based Cognitive Therapy (MbCT).



- c. After proving the selected participants with the training post assessment was carried out with the help of developed scale to find out the effectiveness of Mindfulness based Cognitive Therapy (MbCT).

### **Research Design**

The research design of this study was a mixed methods research design in which both the qualitative and quantitative methods were used to collect and further analyse the data. This approach provides a depth and breadth of information that provide better understanding in answering the research question of current project (Creswell & Clark, 2011).

d.

### **Setting**

The research setting selected to carry out current study was the sports complex and cricket clubs of Lahore. The cricket clubs and complexes were selected on the basis of their cricket activities and training provided to the cricketer. All cricket clubs and complex were registered under Pakistan Cricket Board (PCB) and they take active part in the domestic cricket of Pakistan. The crickets are getting continuous training under their respective coach and getting opportunities to play cricket at the national level with all the regions and districts of Pakistan. The structure of the setting was based on a ground that is maintained as a cricket ground, also for improving batting and bowling skills the net was also set for players. A changing room facility was also provided to the players where they can also place their cricket kit.

e.

### **Ethical Considerations**

All the ethical considerations were taken into account first by taking the Institute Research Board (IRB) approval on the research. The Institute Graduate Committee (IGC), School Graduate Committee (SGC) and Board of Advance Studies Research (BASAR) of university approved the project (Appendix A). After the approval of the research permission from the local cricket clubs that were registered from the Pakistan Cricket Board (PCB) and playing at the district, national and international level was taken (Appendix, E). The authorities of cricket club were given a brief introduction about the research significance and its implication. The purpose, relevance and applicability of the current study was explained to the authorities of the cricket clubs and

further permission was taken to participate in the project. The cricket clubs that allowed to conduct the study were approached and the athletes were explained individually about the importance and utility of the project. Further, the willingness of the athlete's participation were sorted by each player individually. The athletes given the assurance of confidentiality that the given information would only be used for research purpose. The identity of the athlete will not be disclosed during the research project. If athlete felt any discomfort during their participation in the study were allowed to leave the testing procedure. The interested participants after completing the testing were debriefed and interviewed to clarify the ambiguities of the athlete. The whole project is documented and was written under the guideline of the American Psychological Association (APA, 2010).The first aim of the research was to find out the relationship between the mental toughness and psychosocial issues of the athletes. To achieve this aim three studies were conducted systematically...

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## Chapter 4

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### Results

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This chapter is highlighting the findings of this study with the help of descriptive and inferential statistical analysis. These analyses are testing the main and secondary hypotheses of this study. The results are reported in following four sections.

#### Section 1: Sample Description of Main Study

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This section is describing the sample characteristics of this study through mean, standard deviation, frequencies and its percentages.

#### Section 2: Psychometric Properties of the Scales

This section is reporting the psychometric properties of two developed scale, i.e., The Psychosocial Issues of Cricketers (PSIC) and The Cricket Mental Toughness Scale (CMTS). The reliability and validity of these two scales are also presented in this section.

#### Section 3: Testing of Main Hypotheses

This section is presenting the results of those statistical analyses that are testing the main hypotheses of this study.

#### Section 4: Testing of Secondary Hypotheses

This section is dealing with those statistical analyses that are testing the secondary hypotheses that were based on the demographic variables effect on the dependent variables of this study.

**Table 4.1**

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*Mean and Standard Deviation of the Demographic Variables of Participants (N=373)*

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Demographic Variable	<i>M</i>	<i>SD</i>
Age	19.35	3.35
Year of experience	4.45	2.96

*Note.* This table demonstrates the demographic variables of participants.

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•The word *Note* should be Italic but not bold.  
•Table notes clarify information in the table body.

As shown in Table 4.1, the result indicated that on average the cricketer's age is 19

with the average experience of playing cricket is 4 years.

**Table 4.2**

*Frequency and Percentages of the Demographic Variables of Participants (N=373)*

Demographic Variables	<i>f</i>	%
<b>Age</b>		
16-18	207	55
19 and above	166	45
<b>Year of Experience</b>		
2-4	214	57
5-10	159	43
<b>Game Level</b>		
Under-19	246	66
First Class	127	34
<b>Game Position</b>		
Batsmen	133	35
Bowler	83	22
All-rounder	157	42
<b>Education</b>		
Illiterate	27	07
Matriculation	151	41
Intermediate	112	30
Graduate	83	22

*Note.* *f*=frequency, %=percentag

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 •The word *Note* should be Italic but not bold.  
 •Table notes clarify information in the table body.  
 •Sub headings repeat on second page of table.

Table 4.2 shows the sample of male cricketers were falling under the age range of 16-18 who have 1-4 years' experience of playing cricket at domestic and national level. Mostly cricketers are under-19 players as compared to first class. It is also shown in results that there is maximum number of frequency of cricketer's position as batsmen and then as all-rounder, whereas, less numbers of bowlers was reported in the study. In terms of education, mostly cricketers are qualified till matriculation and very few are illiterate.

### Confirmatory Factor Analysis

The confirmatory factor analysis was carried out through AMOS (Arbuckle, 2006) to find out the precision of the Cricket Mental Toughness Scale (CMTS) and Cricketer's Psychosocial Issues Scale (CPIS) with the acceptable psychometric properties. The three stages acknowledged by Lonsdale, Hodge, and Rose (2008) were considered while performing CFA. The few specifications were kept in mind while conducting the CFA on the sample of 198 male cricketers. All three stages load the items in its respective extracted factors generated in Exploratory Factor Analysis (EFA). The factors will correlated with each other whereas, the error terms will not be uncorrelated from each other (Gucciardi & Gordon, 2009). The confirmatory factor analysis was carried out in the following three stages:

1. In the stage one the confirmatory factor analysis was carried out separately on each factor of the Cricketers Mental Toughness Scale (CMTS) and Cricketer's
2. Psychosocial Issues Scale (CPIS). The result of this phase was that the items were appropriate and can be retained as latent variable for the next phase.
3. Each factor of the CMTS and CPIS was correlated with each other and for deleting the item it was check if the items show standardised residual greater than 2, error term of item correlate with another item, if there are low factor loading items or if modification indices suggested an item cross load on latent variable.
4. Now, in the final stage the Cricketers Mental Toughness Scale and Cricketer's

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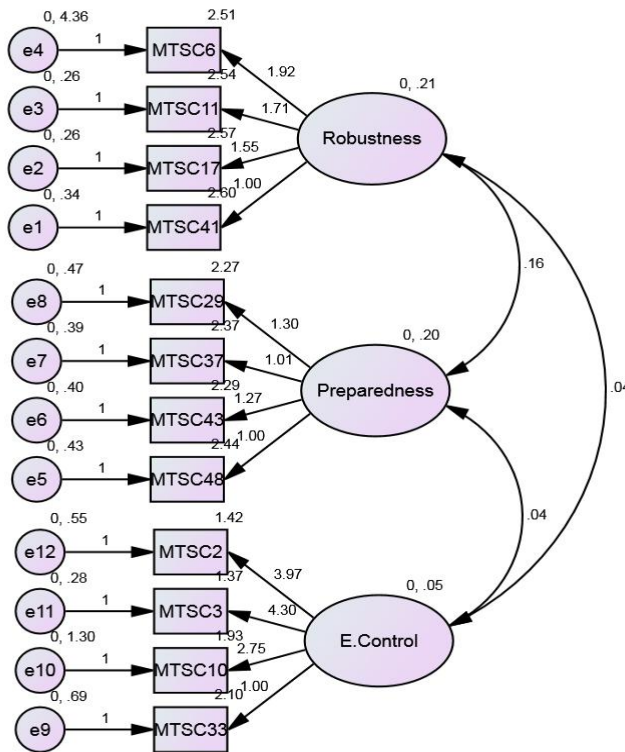
5. Psychosocial Issue Scale is evaluated with the help of indices that depict the model fit of the scale. The chi-square goodness of fit is used that explain the absolute fit of the proposed model with the help of covariance matrix. Because the sample is sensitive to size and distribution the chi-square and degree of freedom is taken to control the sensitivity of the sample. The four incremental fit indices were used to analyses the model fit. The goodness-of-fit- index (GFI) is based on a ratio of the sum of the squared discrepancies between the observed and population variance. The Tucker-Lewis Index (TLI) indicates the amount of improvement in fit over a baseline model, adjusted to the number of degrees of freedom in the model. Finally, the last incremental index used in this research was the comparative fit index (CFI), which measures improvement in fit of the hypothesized model compared with a completely independent model. The mean discrepancy between the observed covariance and those implied by the model per degree of freedom was evaluated using the root mean square error of approximation (RMSEA), and the confidence interval associated with the RMSEA, as an index of stability in other samples. A value of .05 or lower indicates a good fit, and values less than .08 are interpreted as a reasonable fit.

**Figure 4.1**

*The Confirmatory Factor Analysis of the Cricketer's Mental Toughness Scale (CMTS)*

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Note. Cricketer's mental toughness scale are shown in framing scores.

Figure 4.1 shows the confirmatory factor analysis of the Cricketer's mental toughness scale...

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In the text, refer to every figure by its number.

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## Summary of Results

The results showed interesting findings and summary of the results are as follows:

- The mean age range of the 373 male cricketers was 19.35 ( $SD= 3.35$ ) and the mean of cricketer's experience of playing cricket was 4.45 ( $SD= 2.96$ ).
- The percentage of under-19 players was 66% and first class cricketers were 34%. The sample have 133 batsmen, 83 bowlers and 157 all-rounder where 07% were illiterate, 41% completed matriculation, 30% intermediate and 22% completed their graduation.
- Based on these sample characteristics first on 175 sample the scale of mental toughness was developed on 38 items and exploratory factor analysis yielded three factors named as Robustness, Self-Preparedness and Emotional Control.
- Further the confirmatory factor analysis was carried out in the sample of 198 that gave a refine and precise factor structure of the developed scale on 12 items having same above mentioned 3 factors.
- For psychometric properties the concurrent and discriminant validity, internal consistency of the scale, test-retest and split half reliability was established.
- The second scale that was on measuring the psychosocial issues of cricketers was developed on 46 items. The exploratory factor analysis extracted 3 factors named as Interpersonal Problems, Intrapersonal Problems, and Weakness.
- The confirmatory factor analysis was carried out in the sample of 198 that gave a refine and precise factor structure of the developed scale on 18 items having same above mentioned 3 factors.

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## Chapter 5

### Discussion

Sport as discipline is becoming the identity of people as well as its culture and with the new status earning it is trying to push boundaries of human abilities both mentally and physically to achieve the excellence in sport. In Pakistani culture the game that became the identity and passion of people is Cricket. This team sport is experiencing inconsistency at International level from past a decade. Whereas, the constant changes in international cricket making this sport more demanding and tough in nature. Pakistani cricketers are supposed to stay both physically and mentally tough before, during and after their game. The trainers and coaches equip players with the physical toughness through training and practice but, unfortunately the players failed to transfer the training and learning in the pressured situation of matches. Hence, the researchers in past decade explored rigorously the positive psychology multidimensional construct mental toughness...

### Conclusion

Mental toughness is considered to be one of the core ingredients of performance in cricket, for it helps the players to attain, as well as, sustain their peak performance. The elements of mental toughness are developed and manifested in accordance to the culture to which the players belong. The current study offers preliminary findings on one of this complex constructs, mental toughness, explored for first time in the context of Pakistani cricketers. The identification of this scale will specify the attributes of mental toughness particularly related to the cricket context that will help in devising the tailor made skills to enhance mental toughness in cricketers. Stakeholders of Pakistani cricket, players, and administrative can bring improvement in their training programs that will certainly enhance mental toughness in cricketers. Also the sport psychology discipline will find platform for future researches in this field. This will give support to future researches in the field of sport...

### Limitation and Recommendations

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The limitation and recommendation of the study identified in the current project were as followed:

- The gender of the participants in the current study were only males because the psychosocial issues and mental toughness of the women cricketers were vary drastically from the men perspective. A separate two scales for women cricketers were developing that was becoming too ambitious for the current project. Therefore, only men were targeted in the sample. Therefore, in the upcoming research project it is recommended to investigate the psychological issues and toughness of women in sport of Pakistan.
- The sample size of the current project is small and largely representing one province and few districts and this could be targeted by working on the cricketers from different districts to represent across sub-cultures.
- For future it is also recommended to find out the gender difference in terms of the psychosocial problems and mental toughness of female cricket players.
- The sample size for illustrating the mindfulness-based cognitive therapy effectiveness is small and in future researcher it is recommended to add more participants and add control groups to highlight the importance of the psychological training in sports...

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•Arrange it alphabetically.  
•Double-space all entries.

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•The title of the newspaper is in italic title case.  
•Include the URL of the article at the end of the reference.

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•Title of journal is in Italic.

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•If a journal article has a DOI, include the DOI in the reference.

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•Book title is in Italic

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Book title and subtitle is in Italic

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- Commented [SA84]:** •Edited Book chapter reference.
- Commented [SA85]:** •Conference presentation reference.  
 •Provide the names of the presenters in the author element of the reference.  
 •Describe the presentation in square brackets after the title.  
 •Name the meeting and its location.
- Commented [SA86]:** •Edited Book chapter reference with edition information.
- Commented [SA87]:** •Journal article reference with hyphenated surname.
- Commented [SA88]:** •Unpublished dissertation reference.  
 •When a dissertation is unpublished, include the description “[Unpublished doctoral dissertation]” in square brackets after the dissertation title.
- Commented [SA89]:** •Unpublished thesis reference.  
 •When a thesis is unpublished, include the description “[Unpublished master's thesis]” in square brackets after the thesis title.
- Commented [SA90]:** •Reference of Republished book.  
 •Provide the year of the republication in the main date element of the reference.  
 •Provide the year of original publication at the end of the reference in parentheses after the words “Original work published.”  
 •Both publication years appear in the in-text citation, separated with a slash, with the earlier year first.

## APPENDICES

### Appendix A MbCT Training Manual for Cricketers



Minutes of 18<sup>th</sup> Meeting of  
Board of Advanced Studies and Research (BASAR)  
(Held on November 28, 2015 at 12:30 a.m.)

**Agenda Item 1: Tilawat-e-Qur'an-e-Majeed**

1.1. The meeting commenced with recitation of few verses from the Holy Quran.

**Agenda Item 2: Opening Remarks by Chairman**

2.1. The Chairman extended warm welcome to all the members for attending the meeting. He stated that UMT now has good faculty, sizeable students in diversified academic programs with growing facilities and resources, which are primarily structured to meet the challenges of research output excellence.

2.2. The Chairman expressed satisfaction on the progress made by the Cohort system. However, he stressed that this is just the beginning and within the next academic year the objective should be to further develop the Cohort system so that the workload management of the faculty may be continuously improved.

2.3. The Chairman expressed his desire to further reduce the workload of Lecturers from 7 courses to 6 for an academic year. The same number of courses may be given to Assistant Professors and Associate Professors as well. However, for Professors the course load may be reduced to 4 courses only. The Chairman said this shall be further reviewed in Deans' Committee Meeting.

2.4. The Chairman shared his vision for the research initiatives in the University. He said that the faculty members should keep the relevance and application of the research topics in to consideration. The focus should be on the usefulness of research topics not just for the addition to the body of knowledge but also for the society and humanity at large and the future career direction of the scholar. The research output should be generally practical in light of our local/national conditions and help solve real time issues and problems.

2.5. The Chairman also shared his vision for the PhD programs of UMT. He expressed that in the long term the goal is to make PhD programs free of tuition fees, and

Page 1 of 6

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•If a paper has more than one appendix then write e.g., "Appendix A", "Appendix B".  
•Place the appendix label and title in bold and centered on separate lines at the top of the page.  
•Use title case for the appendix label and title.

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## Appendix B Permission Letter



**University of Management and Technology**  
**Institute of Clinical Psychology**  
*We train professionals*



**Director:**

**Prof. Dr. Zahid Mahmood**

*M.A. (PU), Ph. D (Lon.), A.F.B.P.S. C. PSYCHOL*

*Date: 09-12-2015*

To

\_\_\_\_\_

\_\_\_\_\_

Dear Sir,

**Re: Permission for Data Collection**

Ms. Sara Subhan Participant 14003166001 is the student of PhD Clinical Psychology (Session 2014–2017) in the Institute of Clinical Psychology, University of Management and Technology, Lahore. She is doing her research project Mental Toughness, Efficacy of Mindfulness based Cognitive Therapy and Psychosocial Issues of Athletes. I would be grateful if you would allow her to collect the data from coaches and cricketers. She will explain to you the aims of her research project. It is assured that this information will only be used for research purpose.

Thanking you in anticipation.

Yours sincerely,



Supervisor,

Prof. Dr. Zahid Mahmood

**Director, ICP, UMT, Lahore**

## Appendix C

### Additional guidelines from APA Publication Manual (7<sup>th</sup> ed.)

#### In text Citations

- The introduction to the digital era in libraries, created the need to computerize most of the operations. Technology has changed the way traditional librarians used to do work (E. Johnson, 2001; L. Johnson, 1998).
- This doesn't mean that traditional libraries will stop existing, Johnson (2001; as cited in Smith, 2003) argued that traditional libraries as buildings will continue to exist for many years and support the digital libraries.
- Holden-Lund (1988) examined effects of a guided imagery intervention on surgical stress and wound healing in group of 24 patients. Holde-Lund concluded that the imagery was practiced continually in a group context.
- In its currents state, progressive muscle relaxation is often paired with relaxation training and described with a relaxation framework (see Freebird Meditations, 2012, for more).
- Nowadays, the advent of technology in libraries and the usage of digital material have changed librarians' technology skills (American Psychological Association, 2017).
- Jones (1998) study found the following:
 

Students often had difficulty using library, especially when it was their first time to visit the library. This difficulty could be attributed to the fact that many students dishearten and they avoid the library use. It is the time when library staff help them and introduce their services for the better use of library. (p. 199).
- Researchers have studied how people talk to them:

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**Commented [SA94]:** •Secondary source citation. If you use a source that was cited in another source, name the original source with the following word "as cited in".

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 •40 words or more as block quotations.  
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 •40 words or more as block quotations.  
 •Start a block quotation on a new line and indent 0.5" the whole block from the left margin.

Students often had difficulty using library, especially when it was their first time to visit the library. This difficulty could be attributed to the fact that many students dishearten and they avoid the library use. It is the time when library staff help and introduce their services for the better use of library. (Jones, 1998, p. 199).

- Guided imagery and relaxation techniques have been found to “reduce distress and allow the immune system to function more effectively” (Trakhtenberg, 2008, p.850).
- Lange (1982) underscored two such benefits by showing (a) the role of the group psychotherapy leader and (b) the benefits achieved by social comparison of guided imagery.
- Rausch et al. (2006) exposed a group of 387 college students to 20 min of either meditation.

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•Fewer than 40 words, add quotation marks around the words

**Commented [SA102]:** •Lettered list in text body

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**Commented [SA104]: Magazine article reference**  
•If the magazine article does not have a DOI but does have a URL, include the URL of the article at the end of the reference.

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Duckworth, A. L., Quirk, A., Gallop, R., Hoyle, R. H., Kelly, D. R., & Matthews, M. D. (2019).

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Kushilevitz, E., & Malkin, T. (Eds.). (2016). *Lecture notes in computer science: Vol. 9562. Theory of*



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BedeneL, A.-L., Jourdan, L., & Biernacki, C. (2019). Probability estimation by an adapted genetic algorithm in web insurance. In R. Battiti, M. Brunato, I. Kotsireas, & P. Pardalos (Eds.), *Lecture notes in computer science: Vol. 11353. Learning and intelligent*.

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Harvard University. (2019, August 28). *Soft robotic gripper for jellyfish* [Video]. YouTube.

<https://www.youtube.com/watch?v=guRoWTYfxMs>

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- Use the name of the account that uploaded the video as the author.
- Provide the specific date on which the video was uploaded.
- Italicize the title of the video.
- Include the description “[Video]” in square brackets after the title.
- Provide the site name (YouTube) and URL of the video.

Walker, A. (n.d.). *Playlists* [YouTube channel]. YouTube. Retrieved October 8, 2019, from

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- Italicize the title of the channel.
- Include the description “[YouTube channel]” in square brackets after the title.
- Provide a retrieval date because the content is subject to change over time and is not archived

National Park Service. (n.d.). *Home* [Facebook page]. Facebook. Retrieved January 12, 2020, from

<https://www.facebook.com/nationalparkservice/>

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- Use the name associated with the account as the name in the reference.
- Provide the specific date of the post.
- Provide the first 20 words of the post as the title

Ouellette, J. (2019, November 15). Physicists capture first footage of quantum knots

unravelling in superfluid. *Ars Technica*. <https://arstechnica.com/science/2019/11/study-you-can-tie-a-quantum-knot-in-a-superfluid-but-it-will-soon-untie-itself/>

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- Use the page title in the reference (e.g., “Home,” “About,” “Reviews”).
- Include the notation “[Facebook page]” in square brackets.
- Provide a retrieval date and URL.

**Commented [SA115]: Blog post reference.**

- Italicize the name of the blog, the same as you would a journal title.