

Research Article

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Validation of the Mental Toughness Scale: An Exploratory Factor Analytic Approach

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Abstract

Objective. The purpose of this study was to explore the mental toughness scale's structure while also investigating the relationship between mental toughness and academic fit among students, as well as academic burnout.

Method. Convenience sampling of 470 adolescents was conducted in the city of Islamabad and Rawalpindi. The researchers used the Mental Toughness Scale developed by Clough et al. (2002), the Academic Fit Scale developed by Schmitt et al. (2008) and the Burnout Assessment Tool developed by Schaufeli, Witte, & Desart (2020).

Results. The study revealed that mental toughness is actually made up of two dimensions. The first is 'mental toughness', the second is 'mental fragility'. The research also found that there was a positive correlation between Academic fit and Mental toughness. In addition, there was a negative correlation between mental toughness and academic burnout in adolescents.

Conclusion. The study is useful to both teachers and mental health professionals. The study can help inform interventions to improve academic engagement in students. The study can also contribute to interventions to improve mental toughness in adolescents to combat academic burnout.

Keywords. Mental toughness, academic fit, academic burnout, adolescents



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Introduction

Adolescence is a critical time of development characterized by intense changes in thinking, emotions, and social life. During these developmental years, students face increased academic pressure and competition to succeed in tests and plan their future. The academic demands and pressure to succeed can affect a student's emotional health and ease of socialization in school life. Among the many psychology-related barriers related to school life and academic demands, academic burnout is a phenomenon that has recently received a lot of attention due to its impact on motivation and mental health. Academic burnout is a three-component construct: emotional exhaustion, cynicism about academic demands, and reduced feelings of efficacy, which result from prolonged academic pressure (Maslach et al., 2001). Burnout was originally a product of occupational stress research but is now commonly used to investigate student stress and its management in academic life.

Academic burnout among teenagers is characterized by real-life manifestations such as a decline in grades, loss of interest in learning, emotional distress, and an increased risk of mental health issues (Tang et al., 2021). If the never-ending school life coupled with mounting pressure is not matched with an emotionally secure support system or a nurturing environment, students may succumb to the reality of burnout characterized by a sense of detachment from academic activities. The literature has consistently highlighted the fact that too much academic pressure is one of the leading causes of burnout among students (Gao, 2023). Teenagers are particularly at risk of burnout as they are still developing the skills required to confront academic challenges.

In recent times, there has been a move towards finding psychological protective factors that will help students cope better with academic stress. One of these is mental toughness, which is the capacity to be resilient, confident, and determined when faced with challenges and adversity. Mental toughness is also a state that allows individuals to keep their focus and push through adversity. Mental toughness originated in sport psychology, but it has become very popular in education and is used to explain how students cope with academic stress.

Students who have a high level of mental toughness are able to cope better with a stressful learning environment and are able to stay motivated when faced with challenges (Ni et al., 2024).

Research suggests that mental toughness may also have a crucial protective function to prevent academic burnout from happening in the first place. Students who exhibit high levels of mental toughness are likely to view challenging situations as opportunities for growth and development, making it easier for them to deal with academic demands and pressure. Students who exhibit mental toughness are also likely to exhibit perseverance, optimism, and stability of emotions, which can also contribute to a lower risk of experiencing academic burnout. Research studies have also revealed that students who exhibit high levels of mental toughness experience lower levels of academic exhaustion and disengagement compared to students who exhibit lower levels of mental toughness (Cheung & Li, 2019). Overall, it is suggested that mental toughness is important for helping teenagers cope better with academic pressure and stay positively engaged in their studies.

Beyond the realm of psychology itself, the setting and circumstances in which we learn has just as significant an impact on the academic lives of students as any other factor. A part of this equation is the concept of academic fit, or the extent to which the capabilities and interests of the individual align with the academic setting in which the individual learns. This construct is based on the person-environment fit theory, which argues that the more that the individual aligns with the environment in which they find themselves, the more content and satisfied the individual will be. This means that if the individual believes that their capabilities and interests align with the academic setting in which they find themselves, then they will be more inclined to be motivated and have academic satisfaction.

When the demands of the school do not match up with what the student is capable of, the level of frustration and stress can build up quickly, leading to feelings of inadequacy. All of this can take an emotional toll on the student, kill the desire to study, and increase the chances of falling into an academic burnout. According to studies, if the student feels out of sync with the learning environment or if they

feel like they are not capable of what is expected of them academically, then the chances of burnout increase (Salmela-Aro & Upadyaya, 2014). The level of how well the student fits into the academic setting is important because it will affect how well they adjust to the setting and how well they will fare psychologically.

Despite the expansion of the literature on academic burnout, there is a paucity of studies on the joint role of psychological resiliency factors and environmental compatibility on the academic experiences of adolescents. Most previous studies on the academic experiences of adolescents have focused on the role of single factors, such as academic stress, resiliency, or engagement, rather than how psychological resiliency factors interact with contextual factors like academic compatibility. Teens are a special time of development when factors of psychological resiliency and environmental compatibility combine to shape academic experiences.

Understanding mental toughness, compatibility with school, and academic burnout is vital to understanding the way that adolescents adapt to school. Mental toughness is an essential factor that helps students overcome academic challenges. The compatibility of students with school is also an essential factor that reduces academic burnout. Therefore, when mental toughness and compatibility with school are considered, academic burnout is minimized. With academics pulling on teens like never before, and the concern for student mental health growing, it is important to examine the relationship between the two. Examining the role of mental toughness and academic fit on student burnout has the potential to provide useful insights for teachers, educators, and policymakers. This type of understanding has the potential to provide useful interventions to build mental resiliency, assist students with the transition to the academic environment, and reduce the prevalence of burnout within the academic setting (Khurshid et al., 2025).

Past research has looked at how mental toughness, fit and academic burnout are connected. It has shown that mental toughness helps students deal with problems be more resilient and have less psychological distress. Academic fit is also important for how students adjust to school and feel

about themselves. At the hand academic burnout may have detrimental effects on students' education and mental health. Although much has been learned from these studies they have concentrated more on the correlation of these than on ensuring the tests measuring them are good and accurate. In particular, very little has been done to determine whether the Mental Toughness Scale is a test, particularly across various schools and cultures. The Mental Toughness Scale has not been rigorously assessed, and statistically tested for its validity in measuring the construct it was designed to measure. The validity of the test for all population groups is also a concern, as results have not been consistent across the various groups.

So it's necessary to do some research to ensure that the Mental Toughness Scale is a valid measure of mental toughness. This is a study to examine the Mental Toughness Scale, that is, to see what it measures and whether it is a good test, by means of statistics. The Mental Toughness Scale is important because it can help us understand toughness, academic fit and academic burnout better. This study will help us know if the Mental Toughness Scale is reliable and accurate which means it can be used in studies about the Mental Toughness Scale and its relationship, to academic fit and academic burnout.

Hypotheses

According to the literature mentioned above, the following hypotheses have been formulated:

1. There is a positive relationship between mental toughness and academic fit among adolescents.
2. There is a negative relationship between mental toughness and academic burnout among adolescents.

Method

Sample

In this study, the researchers collected data from 470 respondents between the ages of 13 and 19 years (average age 16.48; *SD* 1.29). The respondents were 202 boys and 268 girls from various colleges, schools, and evening academies. The researchers employed purposive, convenient, and snowball sampling methods for this study. The respondents

were selected based on the following criteria: between the ages of 13 and 19 years, pursuing secondary education (9th and 10th grade) or higher education (1st and 2nd year), O' and A' levels, and receiving any form of evening tuition. Age was classified into three categories: early adolescence (10-14 years), middle adolescence (15-17 years), and late adolescence (18 up to the mid-20s), as suggested by Elliott and Feldman (1990).

Assessment Measures

Mental Toughness Scale – Adolescents.

The Mental Toughness Scale (MTQ-10) is a scale to assess mental toughness as the ability to remain focused, bounce back and persevere when facing challenges. The construct employed by Clough and his research team (2002) has four main components of mental toughness: Challenge, Commitment, Control and Confidence (Clough & Strycharczyk, 2012).

The Mental Toughness Scale for adolescents is a measure consisting of 10 items, aiming to measure five underlying factors: Challenge, Interpersonal Confidence, Ability Confidence, Emotional Control, and Commitment. This test takes approximately 10 minutes to complete, and consists of three items per factor with some positively worded and some negatively worded items (Clough et al., 2002). MTQ-10 contains three items from each of Challenge, Commitment, five items from Control and seven items from Confidence, all of which are based on the MTQ-48. Items are positively and negatively worded, and rated on a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). Sample items might include: "I am more likely to be in control," which is scored on the same Likert scale as above. The total score is the sum of the scores of all the items, except for the negative score items. The overall score is a true indication of the test-takers mental hardiness, the higher the score the higher the mental hardiness. The test has a good reliability of approximately 0.82 (Cronbach's alpha).

Academic Fit Scale. Schmitt et al. (2008) proposed an Academic Fit Scale to measure the degree of match between the academic context in which a person functions and the person's needs. Academic fit is determined by the alignment of an individual's academic environment and individual's

needs. Academic fit refers to the degree of congruence between the academic context of a person, and the person's need. The Academic Fit Scale consists of six questions. The degree of congruence between the academic environment of a person and his/her needs is measured by each item on the scale. The following items on the scale are: "I feel the courses I'm taking align with my interests;" "I feel prepared academically for the courses I am taking;" and many others. The items of the scale have been rated on a 5-point Likert scale from 1 to 5. The scale has shown good reliability since the alpha coefficient is 0.75. This means that this scale is a very good predictor of academic fit, rather than academic goals.

Burnout Assessment Tool (BAT). In 2020, Schaufeli, Witte and Desart developed the Burnout Assessment Tool (BAT), a self-reported tool for measuring burnout. The tool is designed to assess the psychological syndrome of burnout, which is chronic stress in the workplace or other settings, such as sports, involving prolonged high and sustained activity. Burnout symptoms include feelings of exhaustion, distancing or disconnection from work, impaired functioning and emotional numbness. Burnout is a concept that concerns emotional and cognitive fatigue as a result of an excess of work. The Burnout Assessment Tool focuses on primary symptoms and secondary symptoms of burnout, such as psychosomatic and psychological symptoms. This provides a wide and comprehensive understanding of the effect of burnout on an individual's emotions and physical well-being.

The Burnout Assessment Tool has 32 items grouped into 6 dimensions. The four aspects of burnout are Exhaustion, Mental Distance, Cognitive Impairment, and Emotional Impairment. Psychological Complaints and Psychosomatic Complaints are the two secondary dimensions. There are 23 primary dimensions of the burnout syndrome that are addressed in the first 23 questions. The questions are answered on a likert scale from 1 (Strongly Disagree) to 5 (Strongly Agree). The first 23 questions are summed to get the total burnout score. The secondary subscales of the test address the areas of psychosocial and psychosomatic complaints. The test is very reliable. The overall scale has a high Cronbach's alpha of 0.92. Test is very consistent. The test was tested for reliability by

the test creators. The tests yielded a high Cronbach's alpha of 0.92.

Research Design

This research has employed the purposive and snowball sampling technique, where the data has been collected through survey method.

Procedure

The research has been done at different educational institutions in Rawalpindi and Islamabad. These schools are private, public and evening tuition schools and colleges. The students whose relatives/friends are working in O' & A' levels are approached by the snowball sampling method and a questionnaire is being given to them. The snowball sampling method was used due to the private educational institutions offering O' and A' level education not allowing the research team to go into them. The research team gained permission of the principal of the educational institutions before visiting the institutions. Ethical considerations in the research was achieved by providing informed consent form and the questionnaire. The research team went to the educational institutions to collect data, while the purpose of the study was explained to the students in the various classrooms while they were put up to display their hands to clarify any question in the questionnaire.

Result

Exploratory Factor Analysis (EFA) of The Mental Tough Scale (Adolescents)

We started with the CFA on the Mental Toughness Scale, but the model did not fit well ($GFI = .90$; $IFI = .67$; $CFI = .67$; $RMSEA = .11$; $SRMR = .08$), hence, we then decided to perform an Exploratory Factor Analysis (EFA) to assess whether this variable was to be considered unidimensional or multidimensional in our cultural group and target population. The EFA was conducted on our sample of 470 and analyzed with SPSS software version 25. The inter-item correlations ranged from .42 to .59.

Table 1

Item Total Correlation and Corrected Item Total Correlation for Mental Toughness Scale (N = 470)

Sr No.	Item No.	Item Total Correlation	Corrected Item Total Correlation
1	1	.46**	.27
2	2	.59**	.43
3	3	.57**	.41
4	4	.49**	.34
5	5	.42**	.25
6	6	.51**	.33
7	7	.55**	.38
8	8	.50**	.34
9	9	.55**	.39
10	10	.36**	.18

* $p < .05$. ** $p < .01$.

The sample size exceeded ten times the total number of items, which makes it suitable for an exploratory factor analysis. To confirm whether the data set could undergo factor analysis based on a sample size of 470, it was necessary to determine the Kaiser-Maiser-Olkin (KMO) measure of sampling adequacy as well as Bartlett's test of sphericity. Items with low commonality, low loading (.30), high cross-loading, and items that were independent were deleted. Initially, we used the eigenvalue greater than one method to establish the number of factors to be retained in CFA. It was not feasible to have the required factor structure since the third factor had high cross-loadings, leaving less than three items after eliminating the cross-loadings. Thus, a two-factor solution was decided upon.

The KMO value was found to be .71 that falls into better to fair category that allows conducting the exploratory factor analysis. Furthermore, Bartlett's Test of Sphericity was also significant $\chi^2(45) = 648.61$, $p = .000$. This indicates that the sample is suitable for the factor analysis (Field, 2005). The Mental Toughness Scale consists of both mental fragility and mental toughness. Nonetheless, the Mental Toughness is a multidimensional construct (Gucciardi, Gordon, & Dimmock, 2009; Nicholls, Levy, & Perry, 2019). Thus, Varimax (orthogonal rotation) and principal component analysis were conducted on the basis of the Mental Toughness

Scale (Costello & Osborne, 2005; Fabrigar et al., 1999; Sana & Batool, 2017; Tabachnick & Fidell, 2007). There were used several criteria and methods of the extraction that allowed determining how

many factors should be retained in order to conduct the factor analysis. It should be noted that there are several approaches to the number of the factors' retention (Williams, Brown, & Onsmann, 2010).

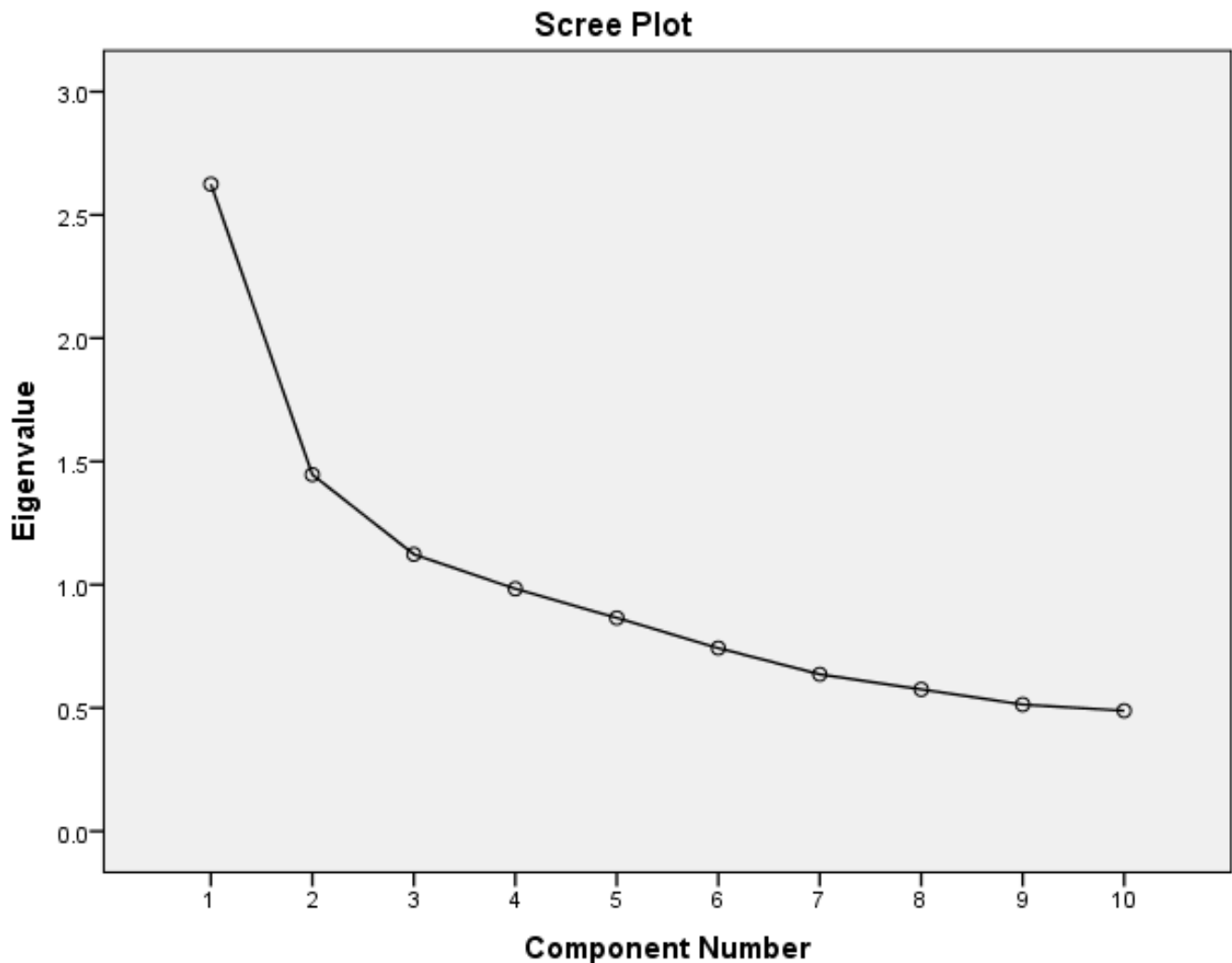


Figure 1
Scree plot for Factors Extraction

This is demonstrated by Figure 1, which depicts the use of the scree plot technique to extract factors. The principle of choosing factors lies in the eigenvalue of the factors chosen, which has to be greater than 1. Based on this principle, two factors were used to explain the concept of mental

toughness in the current population sample. Two factors explained 40.71% of the variation in the 10 items selected. Initially, three factors were used; however, some of the items were seen to have high cross-loading, whereas one had low loading.

Table 2*Two-Factor Solution using Principal Component Extraction with Varimax (N = 470)*

Sr.no.	Items	Factors	
		I	II
1	1	.09	.60
2	2	.67	.17
3	3	.67	.12
4	4	.12	.62
5	5	-.00	.62
6	6	.70	-.04
7	7	.73	-.01
8	8	.18	.58
9	9	.48	.29
10	10	-.00	.46
Eigen Value		2.62	1.44
Variance explained (%)		26.24	14.46
Cumulative Variance explained (%)		26.24	40.71

Note. Boldface letters indicate high factor loadings on a particular factor. Factor I = Mental Fragility; Factor II = Mental Toughness

As can be seen from Table 2 above, the factor loadings of each item on the specified factor are more than 0.40. Even though the factor loadings of items 9 and 10 are 0.48 and 0.46, respectively, it is decided to retain the two items due to the fact that they have factor loadings above 0.45. There are at least three items whose factor loadings are above 0.40 on each factor. The SMEs were asked to give their opinion about the extracted factors through assessing the content validity of the factors.

Labelling of Factors. Three SMEs with a qualification of a PhD were consulted: one with a qualification in English, two with a qualification in Psychology, one being a psychometrician. The researcher was added to the committee, and the SMEs were tasked with giving the factors a name by identifying the underlying traits that the questions had in common, identifying any questions that were conceptually faulty (based on statistical value) or irrelevant. No questions were identified as conceptually faulty within the group that the researcher was allocated to work with. The decision was made by census, giving Factor I the name *Mental Fragility*, Factor II the name *Mental Toughness*.

However, when looking at the item content in light of these two factors, it became apparent that

there is a better factor structure in the case being analyzed. The items concerning mental fragility made up the first factor, whereas the items relating to optimism, self-control, and good self-concept comprised the second factor, thus creating mental toughness. It has been noted from this study that it is possible to compute a total score as well as subscale scores for each of the two factors identified using EFA.

The items under Mental Fragility were items 2, 3, 6, 7, and 9, while the items under Mental Toughness were items 1, 4, 5, 8, and 10. The final questionnaire was composed of 10 items, with a rating scale of 1 to 5, where 1 corresponds to strongly disagree and 5 corresponds to strongly agree, according to the Likert Scale rating method. Mental fragility is the ability to feel anxious during critical moments, being overwhelmed by stiff competition, and feeling less capable than others (Lin et al., 2017). A range of scores for the overall scale ranges from 5 to 25, and a higher score reflects an increased capacity for coping with stressful conditions. Mental toughness, on the contrary, is defined as an ability to remain composed, concentrate, and overcome difficulties despite the presence of any obstacles due to lack of disruption caused by stress (Clough

et al., 2002). A range of scores for the overall scale is identical, ranging from 5 to 25, and a higher score indicates a greater capacity to resist, bounce back, and succeed under pressure, stress, or adversities. Composite and subscale scoring may be used to calculate overall scores from testing. In composite scoring, items from the negatively worded section of Mental Fragility are reverse-scored, which leads

Table 3

Descriptives for the Pilot Study Variables after Construct Validation (N = 470)

Variables	<i>k</i>	α	<i>M</i> (<i>SD</i>)	Actual Range		Potential Range		Skewness	Kurtosis
				Min	Max	Min	Max		
Mental Toughness Scale	10	.70	3.35(0.61)	1	5	1	5	-.38	.75
Mental Fragility	5	.70	3.46(0.83)	1	5	1	5	-.27	-.11
Mental Toughness	5	.69	3.25(0.70)	1	5	1	5	-.19	.06
Academic Fit	5	.77	3.34(0.92)	1	5	1	5	-.17	-.48
Academic Burnout	12	.88	3.37(0.88)	1	5	1	5	-.25	-.29
Exhaustion	3	.79	3.42(1.11)	1	5	1	5	-.38	-.62
Mental Distance	3	.69	3.34(1.02)	1	5	1	5	-.22	-.55
Cognitive Impairment	3	.76	3.35(1.07)	1	5	1	5	-.22	-.68
Emotional Impairment	3	.78	3.38(1.14)	1	5	1	5	-.34	-.71

* $p < .05$. ** $p < .01$.

Based on the results gathered using the information contained in Table 3, it can be seen that Cronbach's Alpha Reliability values for both the scales and sub-scales are acceptable since reliability falls within the acceptable range for all the tests. In addition, the values of skewness and kurtosis in relation to total score and scales fall within the acceptable range of +1 to -1 as recommended by Hayduk (2009).

Association among Study Variables

In order to understand the relationship between the variables under investigation, we used Pearson's correlation coefficient r as depicted in Table 4. From the findings, it is clear that academic burnout and mental toughness are negatively related although the relationship is weak.. This implies that adolescents who exhibit high levels of mental toughness experience less academic burnout.

to the fact that higher scores reflect higher mental toughness. Further analysis will be based on the Mental Toughness subscale.

Psychometrics Properties of Study Instruments

After the validity of study instruments, all valid psychometric properties of instruments have been re-estimated and presented in Table 3.

Table 4

Correlation Matrix on Study Variables (N = 470)

Sr. No.	Variables	1	2	3
1	Mental Toughness	-	.25**	-.16**
2	Academic Fit		-	.03
3	Academic Burnout			-

* $p < .05$. ** $p < .01$.

Additionally, results showed that mental toughness is positively associated with academic fit. Showing that students with higher levels of mental toughness are more academically fit. Lastly, there was no significant relationship to be found between academic fit and academic burnout.

Discussion

The purpose of this study was to explore the structure of the mental toughness scale and to investigate the association between mental toughness

and academic fit and academic burnout in young people. The results of this study are significant in several ways.

The exploratory factor analysis revealed that the scale of mental toughness has two dimensions: mental toughness and mental fragility. This is logical because the mind has the capacity to have contradictory elements. Mental toughness generally refers to the capacity to remain confident, persistent, and focused when faced with stressful, pressuring, or difficult situations (Clough et al., 2002). On the other hand, mental fragility refers to the level of vulnerability to stressful situations, the emotional instability of a person, and the difficulty of coping with stressful situations.

There are two opposing forces that align with the ideas of modern psychology, with mental toughness being part of a larger spectrum of resilience and vulnerability. Individuals high in mental toughness are associated with being confident, persistent, and emotionally composed, whereas individuals low in mental toughness are more likely to experience feelings of hopelessness, avoidance, and have fewer resources to cope with stressful situations. This has been supported by studies, where adolescents high in mental toughness have been found to exhibit better adaptability and more stable psychological functioning when exposed to academic stressors (Ni et al., 2024). Additionally, previous psychometric studies have revealed that psychological constructs have bright and challenging sides, where factor analyses have identified adaptive strengths and vulnerability traits within the same construct.

Furthermore, when looking at these two factors from the perspective of the concept of protective and risk factors in adolescent development, it is easy to understand why both factors exist. Mental toughness is a protective factor because it enhances ability to be resilient, motivated and persistent when facing challenges. On the other hand, mental fragility can be considered a psychological risk factor since it is associated with stress sensitivity and low coping resources. The literature indicates that the MT of the teenager plays a role in stress management and psychological adaptation, with those high in the construct having a better capacity than those low to deal with stress and adapt to the psychological

situation (Gerber et al., 2015). Therefore, the two-factor solution found in the present study seems to be theoretically sound and in congruence with the previous studies which supported the dual nature of psychological functioning.

The study revealed that there are two aspects in Pakistani teenagers, mental toughness and mental fragility. That makes perfect sense, given their culture and environment. Other research also indicates that mental toughness can be manifested in different ways in locations. For instance in some regions being tough and being fragile could be considered related, while other regions might consider them separate. In some societies, such as Pakistan, where school is very competitive and family needs are emphasized, mental toughness may manifest itself in different ways. Studies on teens and mental toughness have revealed that it can differ greatly from one environment to another and from one culture to another (Anthony et al., 2020).

Teens are under a lot of stress in school in Pakistan. They must study and live up to their parents' expectations. Competition to secure good grades in board exams is high. For many students, grades are an indicator of their future prospects for employment and improved life situations. Some teens may learn how to cope in this type of environment, such as being persistent, confident and controlling of their emotions. Some may feel helpless, emotionally unstable or withdraw from challenges on the hand. These responses tend to group into two categories: strengths and vulnerabilities. Studies of teens have yielded the same conclusions. From these research studies, it is evident that the psychological measures can act differently in populations. The way people think and feel can be influenced by their culture and language. There are unique factor solutions in measures amongst Pakistani adolescents. The context and language play a role, in shaping their thoughts and behaviors. Culturally distinct factor solutions have been reported for studies with adolescents. The results emphasize the need to take account of contexts and linguistic influences (Dagnall et al., 2019).

Some studies indicate that psychological stress is a major issue in Pakistan for the teenagers due to school and social pressures. This stress can make them more likely to have health issues.

Being strong and being vulnerable are very distinct in environments where students value and are conscious of their performance and opinions. For teenagers in these places doing well in school is not about getting good grades it is about making their family proud and being accepted by their friends and community. The pressure to do well in school can be really overwhelming for teenagers. School and social pressures can be very hard, on them. This can affect their mental health. Pakistani teenagers have to deal with a lot of stress because of school and social pressures (Hussain, Rohail, & Ghazal, 2017).

Additionally studies on -cultural psychology show that exploratory factor analysis can be affected by many factors. These factors include the context, how questions are translated, norms and how people express emotions. The fact that we found a two-factor structure in our sample does not necessarily mean it contradicts models. It actually reflects the cultural realities and psychological experiences of teenagers in Pakistan. The appearance of a two-factor structure, in our sample is reflective of the realities and psychological experiences of Pakistani adolescents. Earlier multidimensional models and our findings can coexist as they reflect aspects of the same issue. The two-factor structure we found is a reflection of the context of Pakistani adolescents (Jabeen & Maqsood, 2023).

The results also revealed that there is a connection between mental toughness and academic fit in teenagers. Academic fit refers to the level of compatibility students perceive to exist between their skills and interests and the academic setting. When students have a high level of academic fit, they tend to become more engaged, motivated, and comfortable in the academic setting.

A positive relationship was found to exist between the variables of the study, where teenagers with higher mental toughness tend to report a sense of being in touch with the school environment. This is understandable since mentally tough teenagers tend to demonstrate traits of persistence, goal-orientation, and effective coping skills to deal with academic challenges. In fact, mental toughness is often associated with favorable educational outcomes such as motivation, involvement, and performance (McGeown et al., 2016). Teenagers who report higher mental toughness tend to concentrate

better on academic challenges, persevere with academic obstacles, and remain motivated despite encountering obstacles.

Mental toughness is closely associated with self-confidence and emotional regulation, which enables students to navigate school-life challenges more smoothly. If students manage to remain calm and optimistic despite challenges, they are more likely to believe that academic challenges are manageable. This is likely to enhance a sense of belonging or a good fit in the school context. This is supported by previous research findings, which indicate that mental toughness increases students' engagement in class, which is likely to enhance a positive learning experience for students (Crust & Swann, 2013; Meggs et al., 2019).

Another major point to take away from this study is that mental toughness and academic burnout among adolescents seem to have an inverse relationship. Academic burnout is a psychological state characterized by emotional exhaustion, cynicism or detachment from academic work, and reduced efficacy or effectiveness in academic work. This burnout is becoming a major cause of worry among students because of rising pressure and expectations in academic life.

The negative link indicates that students who are mentally tougher tend to avoid academic burnout. This is consistent with the concept of mental toughness as a mental resource to cope with pressure or stress at school. If students are mentally tough, they remain resolute, confident, and composed even when the courses become tough. In other words, they avoid academic burnout.

Similar findings have been obtained by previous studies. For example, previous studies on teenagers found that students who had higher mental toughness showed reduced burnout, particularly when the level of stress was high (Gerber et al., 2015). In the same context, other studies found that mental toughness acts as a protective mechanism to shield the negative effects of stress on psychological health and academic performance (Cheung & Li, 2019). In conclusion, the importance of mental toughness in building student resilience to burnout cannot be overemphasized.

What is interesting is the fact that there was no significant relationship between the teens'

adjustment to the academic setting and the level of academic burnout. While previous studies have indicated a relationship between students' adjustment to the school setting and academic burnout, the current study failed to demonstrate the same. There are a number of reasons for this.

First, it's important to note that burnout in academia does not occur due to a single factor but is the result of a combination of psychological and situational factors, including academic stress, students' ability to manage their emotional responses, their self-efficacy, and the support provided by others. According to research, stress and anxiety associated with academic activities have a stronger, more direct relationship with burnout than the student's fit with their environment (Gao, 2023). Therefore, it is not enough to match the student with their environment to determine their burnout unless other factors are taken into consideration.

Second, it's important to note that a student might feel that they are a good fit academically with their environment, but still, the pressure associated with their workload might lead to burnout regardless of their fit with the environment. This pressure has a strong relationship with burnout, even more so than the student's perceived fit with the academic setting. Adolescence is a crucial piece to this. This time when psychological and social life changes are most dynamic in affecting the emotional reactions of the youths to school pressure. Therefore, the relationship between the feeling of academic alignment and burnout is complicated by other personal and situational factors.

Implications of the Study

In general, this study highlights the importance of mental toughness as one of the psychological assets in the school as experienced by adolescents. The mental toughness and mental fragility difference offers a more profound understanding of how young people deal with school stress. The correlation between mental toughness and a good fit to the academic setting, and the inverse relationship with academic burnout, highlights the importance of mental toughness in helping to facilitate a smooth adjustment to the academic climate and preventing academic burnout. The bottom line is that schools may benefit from programs aimed at developing

mental toughness through the development of psychological skills, managing stress, and so on. By promoting mental toughness, students may be able to cope with academic pressure better and avoid burnout..

Limitations and Future Research Directions

Although this study has made a contribution in some aspect, there are some limitations to discuss. A limitation is that the study has a cross-sectional design. This design is difficult to draw infer conclusions about cause and effect relationships and to ascertain whether the Mental Toughness Scale is stable across time. One other constraint is the use of non-probability sampling. This method may not be reflective of the opinion of a population. Self-report measures also were used in the study. These measures may be influenced by the biases, including giving socially acceptable answers and answering questions subjectively. Also the sample was restricted to specific area and institutions of Rawalpindi and Islamabad. This restricts the ability of the results to be generalizable across culture and demographics. When interpreting the results, the Mental Toughness Scale and its limitations should be taken into account. The study findings have limitations, in terms of the Mental Toughness Scales applicability.

The Mental Toughness Scale needs to be studied in the future. It is important for researchers to consider it over a period of time, to determine if it is stable and consistent. Also, studies need to be conducted to ensure that the scale measures what we believe it measures (confirmatory factor analysis). Academicians and researchers should examine the Mental Toughness Scale with various groups and types of people to determine if it is equally effective across all groups. It is recommended to test the Mental Toughness Scale outside of the education settings to determine if it fits in all settings. Future research examining the Mental Toughness Scale could also consider the predictive nature and whether the scale can predict outcomes. For example, can the Mental Toughness Scale predict how well someone will do in school or experience burnout. This study may also help in predicting the resilience and performance of students. More research is required to examine mental toughness to determine its ability to predict these key factors, such as academic fit, academic

burnout, resilience, and performance.

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