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# MENTAL TOUGHNESS AND PSYCHO-SOCIAL REACTIONS IN COVID-19 SUFFERERS: A MEDIATING ROLE OF EMBITTERMENT

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## ABSTRACT

**Objective:** To explore the mediating role of embitterment in the association of mental toughness and psychosocial reactions in COVID-19 sufferers.

**Methodology:** The cross-sectional study was conducted at three government and private universities of Islamabad Pakistan chosen through random selection and comprised a purposive sample of 202 young adults of BS degree, between ages limit 18-25. The overall mean age was 20.4 years with a standard deviation of 1.47. Boys constituted 49% and girls constituted 51% of the total sample. Study sample included 17% participants that had been infected with COVID-19, 52% whose family member had been infected and 15% had experienced the death of a family member due to COVID-19, 12% fell into 2 of the categories while 4% experienced all three circumstances.

**Results:** Results show that male participants scored higher on psycho-social reactions as compared to females. Findings revealed a significant positive relationship of embitterment with psychosocial reactions ( $\beta=.49$ ,  $SE=.06$ ,  $p < .001$ ). Embitterment also has a negative relationship with mental toughness ( $\beta = -.42$ ,  $SE=.06$ ,  $p < .001$ ).

**Conclusion:** COVID-19 sufferers faced psychological challenges along with health issues which led to extreme psychosocial reactions and feelings of embitterment, whereas mental toughness functioned as a protective factor.

**Keywords:** COVID-19 Sufferers; Embitterment; Mental Toughness; Psycho-Social Reaction

## INTRODUCTION

The COVID-19 pandemic in Pakistan is part of a worldwide corona virus outbreak that started in 2019. The severe acute respiratory syndrome corona virus 2 (SARS-CoV-2) causes it and it first surfaced in China.<sup>1</sup> It is a global public health emergency that also creates a psychological burden.<sup>2</sup> Students at this stage are going through a transitory phase, during which they face many new stressors i.e. new institute, new friends and class fellows, adjusting to hostel life, tougher subjects, more time and effort demanding assignments, burden of choosing and developing a career, exploring their own identity etc.<sup>3</sup>

In Pakistan, researchers have paid little attention to mental health problems among university students, and the majority of prevalence studies have concentrated on mental health disorders rather than ordinary mental health problems.<sup>4</sup> Students may encounter mental health concerns during their time at university, when they are subjected to a variety of stresses and obstacles of varied types and degrees.<sup>5</sup> Despite the

changing demands and strains of students' new phase of life, diagnosing them with mental disorders would not be totally fair.<sup>6</sup>

Researchers investigated whether a focus on higher-education student populations is necessary because they are already at risk for psychosocial problems that have been exacerbated by COVID-19.<sup>7</sup> It resulted in an increase in study pressure, as well as a decrease in physical social support from peers. In-person lectures were converted to online sessions, internships were (partially) cancelled, and thesis planning was halted as a result of the outbreak.<sup>8</sup> COVID-19 instilled fear, uncertainty, and terror in Pakistan's populace since it arrived in February 2020.<sup>9</sup> Because all educational institutes were closed to halt the spread of the virus, university students were disproportionately affected. Students resorted to online study but lack of facilities and training for the online education system exacerbated the situation.<sup>10</sup>

COVID-19 sufferers are the people who have either been infected with COVID-19, someone from their family has been infected or has experienced the death of a

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family member due to COVID-19.<sup>11</sup> A deadly virus like corona virus elicits a lot of fear in individuals who find themselves being diagnosed with it, quarantined at home or hospitalized.<sup>12</sup> A study shows that during the early stages of getting infected with the COVID-19, the patients experienced negative emotions dominating every other emotion they felt, but gradually mixed positive and negative emotions were felt and eventually with recovery came hope and most of the negative emotions diminished.<sup>13</sup>

While the individuals whose family member(s) got infected with COVID-19 are considered to be more psychologically vulnerable to stress, anxiousness, and depression as the fear of unknown and fear of death is very pronounced with corona virus.<sup>14</sup> Individuals also had to go through mandated physical separation from their ill family members as a preventive measure and experienced a wide range of pre-loss grief responses.<sup>15</sup> Individuals who sadly lost relatives to COVID-19 also suffered severely from risk factors that can lead to long-term sadness, post-traumatic stress, and other negative mourning effects, as well as moral injury and suffering among family members.<sup>16</sup>

As a result of any major life-altering experience such as trauma, psycho-social reactions include changes in psychological health, behavior, thinking patterns, physical well-being, spiritual beliefs, and social interactions.<sup>17</sup> Embitterment can be defined as a reaction to perceived injustice or critical life events. It has an emotional character that is a mix of rage and hopelessness, with the person blaming external reasons but refusing to change. The intensity and duration of their emotional response varies as well, with initial intense feelings usually dissipating over time, but embitterment can sometimes become chronic.<sup>18</sup> Mental toughness or resilience is described as the ability to be resourceful in response to various situational and developmental obstacles by utilizing

available internal and external resources.<sup>19</sup>

Researches conducted previously show that any individual with lower feelings of embitterment would have higher resilience and consequently lower psychosocial reactions. Whereas a person who feels more embittered, would have low resilience and more extreme psychosocial reactions.<sup>18</sup> The concept of resilience is one of the aspects leading to varying psychosocial reactions to trauma or stress due to negative occurrences in life.<sup>20</sup> Recovery from embitterment due to negative life event necessitates an understanding of the various forms of resilience as well as the varied ways in which an individual reacts to embitterment and ways in which ultimately healing takes place.<sup>21</sup>

Culture significantly shapes human behavior.<sup>22</sup> Individualism-collectivism, as defined by Hofstede (1983), distinguishes cultures. While the culture in Pakistan is collectivistic culture, Pakistan's basic family structure is a joint family system with successive generations living together, and adopting social distancing in a collectivistic society like this provides a challenge to all family members' mental health. To keep sense of isolation, negative emotions, and psychological anguish at bay, community members rely on social support from family interaction and cultural activities. During this epidemic people may experience fear of mortality, worry of infecting themselves or their families, anxiety, rage, depressive symptoms, and other mental health difficulties.<sup>23</sup>

There are research on university students of Pakistan and their mental health during COVID-19 pandemic based on factors like loneliness, fear, bereavement, academic difficulties, anxiety, depression etc. but none of the research take into consideration factors like embitterment, mental toughness, and psychosocial reactions of COVID-19 sufferers. This study explored the association of

these variables with each other, the mediating role of these variables and how they predicted psychosocial reactions. Keeping in mind the gaps in literature, it was important to identify the risk and protective factors of psychosocial reactions of COVID19 sufferers. These factors need to be managed at their early stage otherwise severe consequences follow and too, so it is important to study them. Very few studies have been conducted to explore these areas, so it was important to conduct this study. Embitterment was chosen as a variable because after a worldwide pandemic, consequent death of loved ones and/or deteriorating health of loved ones and restriction to homes have had a negative impact on peoples' mental health due to which negative reactions to such unexpected life events is quite common. Mental toughness is a critical indicator of how well or how badly an individual handles such traumatic and life altering events and how much it impacted their psychological well-being. Psychosocial reactions portray how the individual perceives a situation and how they are coping with it mentally, which was particularly important to study to determine the influence of COVID-19 pandemic.

## ■ METHODOLOGY

This cross-sectional study employed purposive sampling to gather data from 202 participants representing government and private universities in Islamabad. The study, conducted over one-year, targeted university students aged 18-25 pursuing a BS degree. The sample comprised 49% male and 51% female students across different academic years: 19% from the 1st year, 33% from the 2nd year, 26% from the 3rd year, and 22% from the 4th year.

Inclusion criteria encompassed students infected with or affected by COVID-19, while exclusion criteria involved students above 25, those pursuing PhD or MS programs, and those unaffected by COVID-19. The

Mental Toughness Scale (MTS) by Anthony et al. (2020), comprising 40 items measuring self-confidence, resilience, and perseverance, was utilized. The Embitterment Scale by Saleem and Habib (2016), a 38-item self-report questionnaire, and the Psychosocial Reaction Scale developed by Mahmood et al. (26 items) were also employed.

Data collection, adhering to ethical guidelines, occurred in government and private universities of Islamabad. Verbal informed consent was obtained, ensuring participant confidentiality. The research received approval from the institutional ethical review committee. Participants completed a booklet comprising a Demographic Information form and the three scales.

Statistical analysis using SPSS v25.0 involved descriptive analysis, Pearson correlation, mediation analysis, and independent sample t-tests. One-way ANOVA compared embitterment, mental toughness, and psychosocial reactions across academic years and COVID-19 categories. The study prioritized ethical considerations, emphasizing voluntary participation, confidentiality, and the right to withdraw from the study.

## RESULTS

The relationships among embitterment, social support, mental toughness, and psycho-social reactions were explored by using the Pearson Product-Moment Correlation. The mediating role of embitterment in the relationship between mental toughness and psycho-social reactions was explored by using Hayes bootstrapping approach. However, findings confirmed the mediating role of embitterment in the association of mental toughness and psycho-social reactions. Table 1 shows the inter-correlations among embitterment, mental toughness and psycho-social reactions in COVID-19 sufferers. Table 2 shows mediating role of embitterment in the association of mental toughness and psycho-social reactions. Findings of the current research revealed that embitterment significantly fully mediates the association of mental toughness and psycho-social reactions as after controlling the embitterment as mediator the c'path ( $\beta = .02, SE = .06, p = .76$ ) is no more significant.

## DISCUSSION

The current coronavirus pandemic not only affected physical health but also proved

to be detrimental for the mental health of people all around the world.<sup>26</sup> This study was conducted to investigate the association of embitterment, mental toughness and psychosocial reactions in university students who suffered from COVID-19 themselves, their family member had COVID-19 or experienced the death of a family member due to COVID-19. This study also explored the predictors of psychosocial reactions in COVID-19 sufferers and investigated the mediating role of embitterment in the association of mental toughness and psychosocial reactions.

This study contributes to the growing body of information about the effects of the current pandemic, particularly on well-being, around the world. The results show that negative relationship of psychosocial reactions exists with mental toughness of university students which indicates that students with increased mental toughness have reduced psychosocial reactions towards COVID-19. Furthermore, in a study, Jin, and Wang (2018) looked at the relationships between attachment styles, resilience, and mental health in international students. The study included 217 international students from a well-known public university in the United

Table 1: Inter-correlations among Embitterment, Mental Toughness, and Psycho-Social Reactions in COVID-19 Sufferers (N = 202)

Variables	M	SD	E	MT	PSR
E	70.49	14.97	-	-.42**	.48**
MT	75.45	16.18	-	-	-.19**
PSR	65.84	13.65	-	-	-

Note E = Embitterment; MT = Mental Toughness; PSR= Psycho-Social Reactions. \*p < .05, \*\*p < .01, \*\*\*p < .001

Table 2: Mediating Role of Embitterment in the association of Mental Toughness and Psycho-Social Reactions (N=202)

Variables	Consequent							
	M(E)				Y(PSR)			
	A	B	SE	P	c'	B	SE	P
MT (X)	A	-.42	.06	.001***	c'	.02	.06	.76
E (M)		---	---	---	b	.49	.06	.001***
	R2 = .18				R2 = .23			
	F (1,200) = 43.38, p = .001***				F (2,199) = 30.46, p = .001***			

Note. MT = mental toughness; E = embitterment; PSR = psycho-social reactions \*p < .05, \*\*p < .01, \*\*\*p < .001

States. The study discovered that mental toughness had a negative relationship with attachment anxiety, psychological and social reactions, and life satisfaction.<sup>27</sup>

Results from this study also showed that embitterment has a negative relationship with mental toughness. It is consistent with the findings of another study conducted by Muschalla et al., (2021)<sup>28</sup> people who are embittered or who have a psychiatric condition feel less resilient than people who are not upset or who do not have a mental health problem. Results also revealed a significant positive relationship of embitterment with psychosocial reactions. In a study of eczema patients, Khaliq et al. (2019) looked at the association between attachment types, embitterment, and psychosocial difficulties. The findings revealed a similar relationship between eczema sufferers' frustration, embitterment, and psychosocial reactions.<sup>29</sup>

When the negative correlational relationship between embitterment and mental toughness is seen in the light of their respective operational definitions it becomes quite clear that any person having the ability to be resourceful in response to various situational and developmental obstacles, in this case COVID-19, by utilizing available internal and external resources<sup>19</sup> will not be embittered or have emotions that are a mix of rage and hopelessness or any reaction to perceived injustice or critical life events like the pandemic.

Such a person will not blame external reasons neither will they refuse to change.<sup>18</sup> Similarly the positive relationship of embitterment with psychosocial reactions is consistent with the fact that as a result of any major life-altering experience for example having COVID-19, or a family member has COVID-19 or the death of a family member due to this disease, the psycho-social reactions include changes in psychological health, behavior, thinking patterns, physical

well-being, spiritual beliefs, social interactions<sup>17</sup> and along with it the person develops feelings of embitterment as a result of perceived injustice due to the pandemic and blame external reasons. Lastly, the negative relationship of psychosocial reactions with mental toughness can be explained using the very definition of the variables as a person who is resilient has the ability to be resourceful in response to various situational and developmental obstacles by utilizing available resources<sup>19</sup> whereas psychosocial reactions include changes in psychological health, behavior, thinking patterns, physical well-being, spiritual beliefs, and social interactions<sup>17</sup> because the person is unable to use available internal and external resources for his benefit.

Mediation analysis also revealed that embitterment significantly mediates the association of mental toughness and psychosocial reactions. As mentioned in previous research, any individual with lower feelings of embitterment would have higher resilience and consequently lower psychosocial reactions. Whereas a person who feels more embittered, would have low resilience and more extreme psychosocial reactions.<sup>1</sup> Healing resilience is one of the aspects leading to varying psychosocial reactions to trauma or stress due to negative occurrences in life.<sup>20</sup> Recovery from embitterment due to negative life event necessitates an understanding of the various forms of resilience as well as the varied ways in which an individual reacts to embitterment and ways in which ultimately healing takes place.<sup>21</sup>

With the findings of this research, the target population of university students can be helped by therapists, their family, and friends in dealing with the issues they face during this COVID-19 pandemic. Psychologists will specially be able to get firsthand information on how the university population has been affected by the pandemic, what are the areas where they need more focus and how

these variables play a vital role in the overall mental well-being of the population. The community can also get factual data on how this pandemic has had not just physical but psychological impact on individuals and can be more considerate of each other.

The current study has some limitations. Firstly, due to COVID-19 restrictions, it took a long time to collect data as the universities were initially closed and then partial classes were being taken and it was also difficult to physically approach people for data collection. It is recommended to collect data from students through online forms. Secondly, the nature of this disease is such that people tend to hide the fact that they suffered from it, or their family suffered so very few people were willing to honestly offer information. The participants are recommended to be made sure of the confidentiality of their information. Thirdly, the data was collected only from one city. To collect more generalizable data, students from universities in different cities should be approached. Fourth, the study used self-reporting tools which may have resulted in certain biases affecting the data.

The biases include personal experience of grief, unavailability of resources during illness, socioeconomic differences and varying psychological capabilities of individuals that can affect self-reporting data. It is recommended to include other forms of assessment tools as well which collect objective data instead of self-report. Finally, this cross-sectional design of the study has its own limitations. Longitudinal studies can provide a better insight. Further studies conducted in this field should consider these limitations to generate more generalizable findings. Awareness campaigns on social media, online therapy, group therapy and seminars in universities could be arranged to help students navigate their academic, psychological, and emotional conflicts.

## CONCLUSIONS

The findings of this study indicate university students with increased mental toughness experienced less extreme psychosocial reactions towards COVID-19, while students who experienced embitterment had extreme psychosocial reactions too. This study could prove helpful to clinical psychologists, educational counsellors, teachers, healthcare professionals, parents, university administration and government to understand the psychological turmoil of university students during this pandemic.

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#### Author's Contribution

LH conceived the idea, designed the study, collected and analyzed the data and helped in the write-up of the manuscript. STZ helped in the write-up of the manuscript. Both the authors made substantial intellectual contributions to the study.

#### Conflict of Interest

Authors declared no conflict of interest

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None

#### Data Sharing Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.