ROLE OF PSYCHOLOGICAL FLEXIBILITY ON COVID-19 ASSOCIATED DISTRESS

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Abstract

**Introduction:** Psychological distress caused by the COVID-19 pandemic has raised formidable questions about its impact on public health. The concept of COVID Stress Syndrome has been suggested (Taylor, 2020b) whose symptomology includes fear responses related to the dangerousness of the virus, socio-economic concerns, traumatic stress, and compulsive checking behaviors. Psychological flexibility has been studied widely from a clinical lens. However, the association of psychological flexibility has not been assessed with COVID-19 associated distress factors in an Indian sample.

**Aim:** The study aimed to assess the role of psychological flexibility on COVID-19 associated distress.

**Method:** A single group correlational study design was utilized. The sample consisted of 510 young adults (aged 18-40 years). Participants were approached using purposive sampling, across India, and data were collected online. Tools used were Acceptance and Action Questionnaire-II (AAQ-II), and the COVID Stress Scales (CSS).

**Results:** Results suggested a significant positive correlation between psychological inflexibility and COVID-19 associated distress (r = 0.407, p < 0.01). A significant positive correlation was also found between psychological inflexibility and CSS components of danger (r = 0.384, p < 0.01), contamination (r = 0.376, p < 0.01), socioeconomic concerns (r = 0.316, p < 0.01), xenophobia (r = 0.155, p < 0.01), traumatic Stress (r = 0.325, p < 0.01), and compulsive checking (r = 0.330, p < 0.01), respectively. Overall regression model fit for psychological inflexibility and COVID-19 associated distress was found to be significant (R^2 = 0.166, p < 0.05).

**Conclusion:** Higher levels of psychological inflexibility predicted higher levels of COVID-19 associated distress. Among the different domains of COVID-19 associated distress, psychological inflexibility was found to have the highest impact and contribution towards distress associated with dangerousness of the virus. The findings of this study can be used to build on the existing correlates to consolidate the diagnostic characteristics of COVID Stress Syndrome.

**Keywords:** Psychological Inflexibility, COVID-19 pandemic, Mental Health, Psychological Distress, India.

INTRODUCTION

The unprecedented outbreak of the SARS-CoV-2 coronavirus not only posed a serious threat to physical health, but also rendered adverse effects on the mental health of individuals worldwide. India, which has the second largest population in the world, entails many psychosocial disparities associated with socio-economic status, educational attainment, employment and financial opportunities, along with inaccessibility of mental health professionals or facilities. Most studies conducted during previous epidemics revealed that anxiety is an important behavioral precedent. It often motivates an individual to practice health seeking behaviors (Taylor, 2019). However, disproportionate levels of anxiety can cause an individual to engage in counter-productive behaviors such as hoarding food and other essential items in a state of panic or rushing to any medical practitioner or hospital due to misconceiving minor signs of common ailment as symptoms of an infection (Asmundson & Taylor, 2020a, 2020b; Taylor, 2019). Additionally, those with pre-existing anxiety disorders are more vulnerable towards developing COVID Stress Syndrome as compared to those with other mental health conditions, as it has been postulated that individuals with a pre-existing anxiety condition may respond with higher sensitivity and fear response due to excessive media exposure of the virus. Beginning with faulty coping and a lack of social capital due to social isolation, all these factors can markedly predispose an individual to experience heightened danger and contamination fears, which essentially constitutes the COVID Stress Syndrome (Asmundson, et al, 2020; Xiao, et al, 2020).

According to Hayes, et al. (2006), psychological flexibility forms an integral tenet of Acceptance and Commitment therapy (ACT). It proposes that the way an individual thinks or speaks to him/herself about an event, directly influences their behavior. From the ACT point of view, psychopathology is not the direct result of unhelpful emotions and actions, but due to a need to shun, repress, or control personal events and experiences (Hayes, 1987). Paradoxically, all attempts at experiential avoidance in a given context, eventually lead to increased intensity and frequency of psychological distress, yet individuals continue to engage in this exercise.
due to its immediate benefit of short-lived relief from distressing emotions, which then essentially form an endless loop (Hayes et al., 1996; Sloan, 2004, Wenzlaff & Wegner, 2000).

It has been observed that an individual's level of psychological flexibility influences their selective ways of coping, however, it also tends to be distinct from coping, as often confused with. For this purpose, McCracken, et al., (2021) assessed the role of psychological flexibility on COVID-19 induced depression, anxiety and insomnia. Consisting of 1102 participants, the results of their study yielded a significant predictive relationship between psychological inflexibility and COVID-19 induced symptoms of anxiety, depression and insomnia. Ahmadabadi, et al., (2020) assessed 381 participants from Iran on COVID-19 associated anxiety, experiential avoidance and their attitude towards seeking professional psychological help. The results revealed a significant positive relationship between COVID-19 associated anxiety and experiential avoidance, such that experiential avoidance was significantly able to predict 21% of the sample's anxiety levels. In the Indian context, Dubey, Podder, & Pandey (2020) reported in their study that those individuals who had excellent levels of knowledge about COVID-19 were found to be the least anxious and depressed, along with having increased levels of mindfulness as compared to those with fair and poor levels of knowledge, with significantly high levels of psychological inflexibility. In order to understand the psychological factors that could influence the level of COVID-19 related distress in individuals, Ojalehto, et al., (2021) assessed 518 respondents from an American public university who reported having some form of an anxiety disorder. The results highlighted that those with increased scores on contamination induced obsessive-compulsive symptoms possessed higher levels of COVID-19 related anxiety. Body-vigilance and anxiety sensitivity were found to be significant predictors of higher COVID-19 related anxiety, as increased anxiety regarding one's normal bodily sensations can lead to misinterpretations, which could induce COVID-19 related anxiety. Mertens, et al., (2020), in their study examined the effect of fear of coronavirus on the general population. Results yielded that intolerance of uncertainty, health anxiety, and proclivity towards worry, increased exposure to news and other forms of social media for information related of coronavirus, as well as heightened perceived threat for themselves and their significant others, were found to be independent predictors of developing fear of coronavirus. Most studies on COVID-19 related psychological distress have quantified the distress in terms of anxiety and depressive symptoms. However, no Indian study till date has assessed COVID-19 associated factors in relation with psychological flexibility that could contribute towards psychological distress. Hence, the aim of the present study was to examine the role and impact of psychological flexibility on COVID-19 associated distress.

**METHOD**

**Design**

A single group correlational study design was utilized. Purposive and snowball sampling was used approach participants. The sample was collected online with the help of Google Forms. All participants were provided with a consent form following Helsinki Good Clinical guidelines (Krleža- Jerić, & Lemmens, 2009).

**Sample Selection**

The mode of data collection was online in accordance with COVID-19 protocol. Data was collected from June 2020 till July 2020. The participants were provided with the Google form link. The first page consisted of the informed consent sheet, which specified the voluntary nature of the study, followed by personal information sheet, and questionnaires on psychological flexibility and COVID-19 associated distress. A total of 611 responses were collected. Out of the total, 100 responses were excluded in accordance with the exclusion criteria. One participant withdrew participation upon accessing the link. Thus, a total of 510 responses were included for the final analysis.

**Eligibility Criteria**

Individuals of both genders (males and females) between the ages of 18 to 40 years, having fluency in reading and writing English language and residing in India for a minimum period of 5 years.

**Exclusion Criteria**

Individuals with a history of major psychiatric, medical or neurological illness/disability, and those with an inability to access forms digitally.

**Tools of Assessment**

A semi-structured socio-demographic performa was prepared to record relevant participant information, such as name, sex, age, years of education, marital status, number of family members, and state of residence. To assess psychological flexibility, the Acceptance and Action Questionnaire – II (Bond et al., 2011; Hayes, 2004) was used. It measures the acceptance of private experiences or experiential avoidance, i.e., psychological inflexibility. It consists of 7 self-report items and the scoring is done in the form of a Likert scale from 1 to 7, where 1 stands for “never true,” and 7 – “always.” The scores of all the 7 items are added to arrive at the overall...
psychological inflexibility score. Reliability of the scale yielded a good internal consistency (Cronbach’s α = 0.81).

To measure COVID-19 associated distress, the COVID Stress Scales (Taylor et al, 2020a) was utilized. It measures the level of COVID-19 stress severity level. It consists of 6 domains, namely: fear of becoming infected, fear of coming into contact with contaminated objects or surfaces, fear of foreigners who might be carrying infection (xenophobia), fear of the socio-economic consequences of the pandemic (e.g., job loss), compulsive checking and reassurance-seeking regarding possible pandemic-related threats, and traumatic stress symptoms about the pandemic (e.g., nightmares, intrusive thoughts). It entails a 5-point Likert scale format from 0 = not at all to 4 = extremely. The other scales also utilize a 5-point scaling system, but the meaning of the numbers slightly differ (e.g. for posttraumatic stress, 0 = never to 4 = almost always). Scores for each domain are calculated separately, and are also used to arrive at a total score that denotes the COVID-19 stress severity level. Reliability of domains yielded the following Cronbach’s alpha coefficients: danger and contamination – α = .91, socioeconomic concerns – α = .93, xenophobia – α = .92, trauma – α = .91, compulsion – α = .82.

Data Analysis
The data were manually entered into a Microsoft excel sheet and analyzed by Statistical Package for Social Sciences (SPSS) version 21. Appropriate descriptive (mean and standard deviation) and inferential statistics (independent t-test, correlation, regression analysis) were applied. Categorical data were expressed as mean and standard deviation. Comparison between groups was made using t-test for continuous variables. Bivariate correlation and regression analysis was used to assess the direction and magnitude between psychological flexibility with COVID-19 associated distress. The significance level was set at a two-tailed 5%, and all p-values less than 0.05 were considered to be statistically significant.

RESULTS

Description of the sample
There was a predominance of females in the study n = 320 (62%), with total number of males n= 190 (38%), having a mean age of = 29.36 years (S.D. = 5.86) (M= 26.67, S.D. = 6.74, respectively). Population age ranged from 18 to 45 years (M= 26.39, S.D. = 6.402). Education of participants ranged from 12-22 years (M= 16.84, S.D. = 2.57). Out of the total sample, 28% of the participants were married, and 72% were unmarried. With regard to occupation, 43% of the sample comprised of students, 42% consisted of those in service with a salaried job, self-employed participants comprised of 10%, and homemakers and unemployed participants comprised of 2% each, respectively. Domicile included urban and semi-urban households, which were found to be 89% and 11% respectively.

The summary of all the sociodemographic information is provided in Table 1.

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Percent (%)</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>190</td>
<td>38%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>320</td>
<td>62%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>190</td>
<td>26.67</td>
<td>6.74</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>320</td>
<td>29.36</td>
<td>5.86</td>
<td></td>
</tr>
<tr>
<td>Education (In years)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>142</td>
<td>28%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unmarried</td>
<td>368</td>
<td>72%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MaritalStatus</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student</td>
<td>223</td>
<td>43%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Service/Professional</td>
<td>217</td>
<td>42%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-employed</td>
<td>52</td>
<td>10%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Homemaker</td>
<td>08</td>
<td>2%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unemployed</td>
<td>10</td>
<td>2%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Domicile</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urban</td>
<td>453</td>
<td>89%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Semi-Urban</td>
<td>57</td>
<td>11%</td>
<td></td>
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</tr>
</tbody>
</table>
Correlation analysis between the scores of AAQ and CSS indicated a significant moderate correlation between the total score of the COVID-19 Stress Scales and AAQ ($r = .407$, $p < 0.01$). The results of the correlation analysis between AAQ and CSS sub-scales of danger, contamination, socioeconomic concerns, xenophobia, traumatic stress, and compulsive checking are enumerated in Table 3. All the components of CSS were found to be significantly correlated with AAQ, i.e., AAQ and Danger ($r = .384$, $p < 0.01$), AAQ and Contamination ($r = .276$, $p < 0.01$), AAQ and Socioeconomic Concerns ($r = .316$, $p < 0.01$), AAQ and Xenophobia ($r = .155$, $p < 0.01$), AAQ and Traumatic Stress ($r = .325$, $p < 0.01$), and lastly, AAQ and Compulsive Checking ($r = .330$, $p < 0.01$).

Regression analysis was carried out on all the significant findings to see the significant prediction levels between variables. The overall regression model fit for CSS total score and AAQ was found to be significant, wherein 16.6% of the participants’ COVID-19 associated distress was predicted by psychological inflexibility (Table 3a).

Table 3a. Regression Analysis Summary for AAQ predicting CSS

<table>
<thead>
<tr>
<th>Variable</th>
<th>R²</th>
<th>B</th>
<th>95% CI</th>
<th>β</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSS/AAQ</td>
<td>0.166</td>
<td>1.029</td>
<td>(0.828, 1.231)</td>
<td>0.407</td>
<td>10.042</td>
<td>0.001</td>
</tr>
</tbody>
</table>

The overall model fit - $R^2 = 0.166$, df = 1, and $p < 0.05$

The overall regression model fit for AAQ and CSS sub-scales was also found to be significant, wherein psychological inflexibility significantly predicted 14.7% of danger distress, 7.6% of contamination distress, 10% of socioeconomic concerns, 2.4% of xenophobia distress, 10.6% of traumatic stress, and 10.9% of compulsive checking distress in all the participants, in the context of COVID-19 (Table 3b).

Table 3b. Regression Analysis Summary for AAQ and Components of CSS

<table>
<thead>
<tr>
<th>Variable</th>
<th>R²</th>
<th>B</th>
<th>95% CI</th>
<th>β</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAQ/DA</td>
<td>0.147</td>
<td>0.234</td>
<td>(0.185, 0.283)</td>
<td>0.384</td>
<td>9.372</td>
<td>0.001</td>
</tr>
<tr>
<td>AAQ/CO</td>
<td>0.076</td>
<td>0.168</td>
<td>(0.117, 0.219)</td>
<td>0.276</td>
<td>6.461</td>
<td>0.001</td>
</tr>
<tr>
<td>AAQ/SES</td>
<td>0.100</td>
<td>0.189</td>
<td>(0.139, 0.238)</td>
<td>0.316</td>
<td>7.513</td>
<td>0.001</td>
</tr>
<tr>
<td>AAQ/XE</td>
<td>0.024</td>
<td>0.079</td>
<td>(0.035, 0.123)</td>
<td>0.155</td>
<td>3.543</td>
<td>0.001</td>
</tr>
<tr>
<td>AAQ/TS</td>
<td>0.106</td>
<td>0.183</td>
<td>(0.136, 0.229)</td>
<td>0.325</td>
<td>7.745</td>
<td>0.001</td>
</tr>
<tr>
<td>AAQ/CC</td>
<td>0.109</td>
<td>0.177</td>
<td>(0.133, 0.221)</td>
<td>0.330</td>
<td>7.883</td>
<td>0.001</td>
</tr>
</tbody>
</table>
Aim of the present study was to determine the role of psychological flexibility on COVID-19 associated distress, experienced by young adults, during the second wave of the COVID-19 pandemic in India. Previous literature has shown that psychological inflexibility tends to be both - a risk and a moderating factor in the development of anxiety and depressive symptoms in individuals, when faced with any adversity. With regard to psychological distress experienced in the current COVID-19 pandemic, the levels and extent of distress has surpassed the previous epidemics, due to its novelty and higher mortality rate. The results of this study indicated a significant moderate correlation between psychological flexibility and COVID-19 associated distress. Regression analysis between psychological flexibility and COVID-19 associated distress revealed that 16.6% of the participants’ COVID-19 associated distress was predicted by their level of psychological inflexibility. These findings are in tandem with previous researches that have measured the role of psychological inflexibility in the context of anxiety and depressive symptoms, insomnia, mental health outcomes, and general well-being (Ahmadabadi, et al, 2020; McCracken, et al, 2021; Rotărescu, et al, 2020; Smith, Twohy, & Smith, 2020). Researchers have also asserted the notion of experiential avoidance to play a significant moderating and contributory role in developing state and trait level anxiety in the face of adversity. Even though, it may initially begin as an adaptive coping mechanism in the form of providing relief through active avoidance, but eventually, it exerts detrimental effects on the individual in the form of poor adjustment and decreased ability to think of a solution. (Chawla & Ostafin, 2007; Rotărescu, et al, 2020). However, in the present study, in accordance with previous researches, psychological inflexibility was found to exacerbate COVID-19 associated distress pertaining to dangerousness of the virus, fears of contamination, socioeconomic concerns, xenophobia, traumatic stress, and compulsive checking behavior. Additionally, psychological inflexibility was found to contribute towards 14.7% of the distress experienced due to the perceived dangerousness of the virus by the participants, which forms the epicenter of COVID Stress Syndrome (Taylor, et al, 2020b). Furthermore, 290 out of 510 participants scored in the categories of high to severe on COVID-19 associated distress.

With regard to the components of COVID-19 Stress Scales measuring COVID-19 associated distress in this study, psychological inflexibility was found to be significantly correlated with all the components, i.e. danger, contamination, socioeconomic concerns, xenophobia, traumatic stress, and compulsive checking. Furthermore, psychological inflexibility possessed the highest correlational strength with danger, socioeconomic concern, traumatic stress, and compulsive checking. With regard to regression analysis, psychological inflexibility significantly predicted 14.7% of danger distress, 7.6% of contamination distress, 10% of socioeconomic concerns, 24% of xenophobia distress, 10.6% of traumatic stress, and 10.9% of compulsive checking distress in all the participants, in the context of COVID-19. The predictive relationship between anxiety and psychological inflexibility has been well established in literature (Kashdan & Rottenberg, 2010; Masuda & Tully, 2012; McCracken, et al, 2021; Tirch, et al, 2012). The novelty and uniqueness of the virus, unpredictable and unstable outcomes about the perceived dangerousness and susceptibility towards contracting it, and additional stressors of possible unemployment and constant checking/cleaning one’s body and surroundings, can promote an anxious mindset (Asmundson, & Taylor, 2020a; Khosravani, et al, 2021; Zandifar, & Badrfam, 2020). It has also been posited that a predisposition in the form of a tendency to worry or overthink can tend to exacerbate the stress levels, experienced in the face of any adversity especially COVID-19 (Taylor, et al, 2020b).

In conclusion, psychological inflexibility was found to be significantly associated with COVID-19 associated distress. As much as 17% of COVID-19 associated distress was significantly predicted by participants’ psychological inflexibility. Among the different domains of COVID-19 associated distress, psychological inflexibility was found to have the highest impact and contribution towards distress regarding dangerousness of the virus, followed by traumatic stress, compulsive checking, socioeconomic concerns, and contamination. However, a few limitations of this study need to be stipulated before interpreting the findings of the study for future research in this area. Firstly, the study entails a cross-sectional research design, therefore, it lacks the possibility of follow up for future outcomes and progress. Secondly, the tools of the study were used in its original language (English), due to which the sample was purposively chosen as those comfortable with spoken and written English. Due to the online mode of data collection, longer psychometric tools were could not be utilized, which could have provided a broader perspective to the variables used in this study. However, the strengths of this study include the vast sample, as well as the being the first Indian study to study relevant COVID-19 associated distress variables in tandem with psychological flexibility. The findings of this research study can be interpreted as an addition to the existing literature on COVID Stress Syndrome in order to
strengthen its diagnostic qualities. Future research could explore the role of other possible mediating variables such as grief and trauma of getting infected with COVID-19 infection and medical complications due to it, grief of losing loved one(s) to COVID-19 infection, vaccine hesitancy, etc.

ETHICAL APPROVAL STATEMENT

The research was approved by the AIB(H)AS Departmental Research Committee and Amity University Ethics Committee.

SOURCE OF FUNDING

No funding was received.

DECLARATION OF COMPETING INTEREST

The authors declare no competing interests.

REFERENCES


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