Evaluation of Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) fear among the medical college students of West Bengal, India

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Abstract:
Coronavirus disease (COVID-19) is a multifaceted respiratory infection. Most individuals worldwide, particularly health-care workers (HCWs), have experienced anxiety, fear, and depression due to the pandemic, resulting in psychological and mental stress. This study aimed to analyze the fear among medical college students of the West Bengal Province of India.

In this study, data was collected online. Fear was among the students of different medical colleges of West Bengal was analyzed using the fear of coronavirus-19 scale (FCV-19s). SPSS 21 was used to analyze the data.

Data of 232 students from different medical colleges reported a mean fear score of 17.15 ± 5.494. No statistically significant difference was observed between Pre-Clinical and Clinical years students (t (230) = 1.161, p>0.05). However, we found a significant difference in fear among genders, and females reported more fear (t (230) = -2.913, p=0.004). We found that 99% of the participants were vaccinated, and 13% were tested positive for SARS-CoV-2.
Fear is prevalent among medical college students. Counseling sessions should be conducted to improve the psychology that the pandemic has disrupted.

**Introduction:**

Coronavirus disease (COVID-19) is a complex respiratory disease with symptoms ranging from fever, tiredness, loss of taste and smell, shortness of breath, severe pneumonia, or even death.[1, 2] The causative organism is a novel virus, SARS-CoV-2, firstly identified in Wuhan, China, in December 2019. It quickly spread to other nations, prompting the World Health Organization (WHO) to declare it a public health emergency in January 2020 and a global pandemic in March 2020.[3]

The outbreak of COVID-19 has put fear in the mind of Healthcare Workers (HCWs) across the world.[4, 5] HCWs amounting to psychological and mental stress. Due to their high risk of infection, insufficient safety and protection, limited or no supply of personal protective equipment, limited or almost zero experience in managing this disease, heavy workload, unpredictable work schedule, perceived stigma, significant lifestyle changes, and fear of infecting their loved ones, HCWs are under more stress than the general population.[6, 7]

The current COVID-19 pandemic has resulted in a disturbing global fatalities level, where healthcare workers in a thousand were infected. Studies have reported the consequences of previous epidemics or pandemics, that most of the disease survivors experienced a high rate of Post-Traumatic Stress Disorder (PTSD). [8, 9]

In order to control the spread of this dangerous illness, governments all over the world were forced to impose a strict lockdown in specific areas of their country, forcing people to stay at home and preventing the virus from spreading through person-to-person contact.[10] This caused delays in the opening of schools, colleges, and institutions around the world and the cancellation
of important events.

The psychological impact of pandemics on the general population, patients and their families, doctors, medical staff, and other healthcare workers has been documented in several studies.[11-14]

However, there is limited information on the influence of the pandemic on college students’ psychology and mental health, particularly those in medical schools.

This study aims to assess the effect of COVID-19 on the psychology of the students studying in different medical colleges of West Bengal, India. This study will help develop present and future policies and plans on their psychological well-being, strengthening mental care generally.

**Material and Methodology:**

This cross-sectional study, online survey-based research, was performed in July 2021. Rao soft (www.raosoft.com) was utilized to find the required sample. The determined sample size was 262 based on the total number of students in medical colleges of West Bengal, 10000, 90 percent confidence interval, and 05 percent margin of error. An extra 05 (n=14) was added to account for inconsistencies and anomalies. As a result, the sample size of 278 was determined to be adequate for the current investigation.

The Bachelor of Medicine and Bachelor of Surgery (MBBS) students from different medical colleges from West Bengal, India, participated in this study. Students from any other discipline like dentistry, pharmacy, etc., were excluded. The convenience snowball technique was used for data collection.

In this study, a previously validated scale, the Fear of Coronavirus Scale (FSC-19S) was used to assess fear among medical college students.[15] The FCV-19S is a seven-item questionnaire with a five-point Likert scale. The FCV-19S score ranges from 7 to 35, with the higher the score, the greater the dread. The survey instrument for this study was finalized after a detailed literature
search and discussion. The demographic data, which includes age, gender, year of study, city, and other information, was the first component of the survey instrument. FCV-19S questions were asked in the second part. Online consent was obtained from every participant.

SPSS v. 21 was used to analyze this study. Percentages and frequencies were used to report sociodemographic data. For fear, an independent sample t-test was used to see if there was a difference in scores between Pre-clinical and Clinical year students and between Males and females. Significant was defined as a P-value of less than 0.05.

Results:

Data of a total of 283 participants’ was collected for this investigation. The data of 232 individuals were analyzed after being sorted out due to various irregularities. In this study, we found a significantly higher number of students from pre-clinical years ($X^2=64.155, P <0001$) and male participants ($X^2=17.655, P <0001$). The calculated mean age is $21.50 \pm 1.41$ years. [Table 1]

Table 2: Demographics of the study participants

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency (%)</th>
<th>Chi Square X2</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total</strong></td>
<td>232 (100)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Males</td>
<td>148 (63.8%)</td>
<td>17.655</td>
<td>$P &lt;0001$</td>
</tr>
<tr>
<td>Females</td>
<td>84 (36.2%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Category</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-Clinical Students</td>
<td>177 (76.29%)</td>
<td>64.155</td>
<td>$P &lt;0001$</td>
</tr>
<tr>
<td>Clinical Students</td>
<td>55 (23.70%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Mean Age</strong></td>
<td></td>
<td>21.5086 ± 1.41 years</td>
<td></td>
</tr>
</tbody>
</table>

The current study found that 98.7% (n=229) of medical college students are vaccinated. However, 1.3% (n=3) students are still not vaccinated. The difference is highly significant ($p <0.001$). (Figure 1)
Fig 1: Percentage of the medical college students who are vaccinated.

In the current study, 12.93% (n=30) students reported that they were infected with SARS-CoV-2, and 20.25% (n=47) were not sure if they were infected or not. However, 66.81% (n=155) said they were not infected. (Figure 2)

Figure 2: Number of individuals infected with SARS-CoV-2

The total mean score of FCV-19S was 17.15 ± 5.494. To analyze the statistical difference in fear scores among Pre-Clinical and Clinical years students, we performed Independent sample T-Test. Between Pre-Clinical and Clinical years students, the difference was not significant ($t_{(230)} = \ldots$)
1.161, p>0.05). However, the analyzed that the mean score of Pre-clinical students (M=17.38±5.557) was observed somewhat higher than the clinical years students (M=16.40±5.265). (Table II).

To check the difference in anxiety among gender, we executed Independent sample T-test. No significant difference has been reported (t (161) = -1.718, P=0.88). However, the mean GAD-7 score of females is higher than the of males. The mean score of Pre-clinical year students was 6.6000 ± 4.61788, which is higher than that of clinical year students 5.9057 ± 5.68150. Though, no significant difference is reported according to the Independent sample T-test (t (86.205) = 0.775, P=0.441). As per ANOVA, we didn't find any significant difference between infected, non-infected, and uncertain individuals about their status (F = -0.868, P=0.422). But mean GAD-7 score of infected individuals is reported higher than others. [Table 2]

Table II: Fear among the Pre-Clinical and Clinical students of the medical college

<table>
<thead>
<tr>
<th>FCV-19S Items</th>
<th>Category</th>
<th>Mean</th>
<th>SD</th>
<th>T-score</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am most afraid of coronavirus-19.</td>
<td>Pre-Clinical</td>
<td>2.94</td>
<td>.984</td>
<td>-0.049</td>
<td>.961</td>
</tr>
<tr>
<td></td>
<td>Clinical</td>
<td>2.95</td>
<td>1.096</td>
<td></td>
<td></td>
</tr>
<tr>
<td>It makes me uncomfortable to think about coronavirus-19.</td>
<td>Pre-Clinical</td>
<td>2.65</td>
<td>1.051</td>
<td>0.191</td>
<td>0.855</td>
</tr>
<tr>
<td></td>
<td>Clinical</td>
<td>2.62</td>
<td>1.130</td>
<td></td>
<td></td>
</tr>
<tr>
<td>My hands become clammy when I think about coronavirus-19.</td>
<td>Pre-Clinical</td>
<td>2.20</td>
<td>0.948</td>
<td>3.451</td>
<td><strong>0.002</strong></td>
</tr>
<tr>
<td></td>
<td>Clinical</td>
<td>1.76</td>
<td>0.769</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am afraid of losing my life because of coronavirus-19.</td>
<td>Pre-Clinical</td>
<td>2.73</td>
<td>1.227</td>
<td>0.484</td>
<td>0.629</td>
</tr>
<tr>
<td></td>
<td>Clinical</td>
<td>2.64</td>
<td>1.267</td>
<td></td>
<td></td>
</tr>
<tr>
<td>When watching news and stories about coronavirus-19 on social media, I become nervous or anxious</td>
<td>Pre-Clinical</td>
<td>2.92</td>
<td>1.063</td>
<td>-0.252</td>
<td>0.801</td>
</tr>
<tr>
<td></td>
<td>Clinical</td>
<td>2.96</td>
<td>1.201</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I cannot sleep because I’m worrying about getting coronavirus-19.</td>
<td>Pre-Clinical</td>
<td>1.87</td>
<td>0.892</td>
<td>2.052</td>
<td><strong>0.04</strong></td>
</tr>
<tr>
<td></td>
<td>Clinical</td>
<td>1.60</td>
<td>0.710</td>
<td></td>
<td></td>
</tr>
<tr>
<td>My heart races or palpitates when I think about getting coronavirus-19</td>
<td>Pre-Clinical</td>
<td>2.08</td>
<td>1.003</td>
<td>1.346</td>
<td>0.180</td>
</tr>
<tr>
<td></td>
<td>Clinical</td>
<td>1.87</td>
<td>0.963</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table III: Fear of Corona Virus Among Males and Females.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean FCV</th>
<th>Std. Deviation</th>
<th>T-Score</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>16.3716</td>
<td>5.32774</td>
<td>-2.913</td>
<td>0.004</td>
</tr>
<tr>
<td>Females</td>
<td>18.5238</td>
<td>5.54603</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Independent sample t-test was executed to evaluate the difference between Male and female students for the total score of FCVS. Significant difference have been observed ($t_{(230)} = -2.913$, $p=0.004$). It indicates that fear among females is significantly higher than males. The investigation further revealed that females exhibited a greater fear score ($M=18.52 \pm 5.546$) than Males ($M=16.37 \pm 5.327$). (Table III).

**Discussion:**

There has been dread and concern among individuals from all walks of life since the advent of COVID-19 and the proclamation of this disease as a pandemic. The frontline warriors in the current circumstance are health care providers that include doctors, nurses, as well as students studying medicine. In the present study, we evaluate the fear among the students of medical colleges of West Bengal.

Previous studies reported fear, anxiety among the healthcare professionals and students of medical colleges. [13, 16] In the current study, we also found that fear is prevalent among medical college students. However, previous studies performed in India and other parts of the world reported a high score for fear compared to our study. [17-19]. In our research, we found that 99% of medical college students are vaccinated. This could be one of the reasons for less fear among them. The high rate of vaccination is because of the compulsion by the Medical colleges and higher authorities. Studies that were conducted in 2020, before the immunization, reported higher levels of anxiety, depression, and fear among health care professionals. [20, 21]
In the current study, around 13% of the students reported that they were tested positive SARS-CoV-2, and approximately 20% were not tested but felt symptoms. Previous studies also reported a high prevalence of COVID-19 among medical professionals. The high prevalence of COVID-19 fear is because of the continuous exposure with the patients in the clinical years of the study. [22]

In the current study, the fear levels are higher among the students in Pre-clinical years (1st and 2nd Year), and among the students of clinical years (3rd, 4th, and final year), fear scores were reported lower. Similar findings were reported in a study performed in Vietnam. [23] It may be due to the better knowledge and awareness regarding the protocols of COVID-19 among the students of clinical years.

Moreover, their continuous exposure to patients of different diseases has made them strong and skillful in dealing with such situations. [22] In contrast to our results, another study performed on dentistry students reported higher scores of fear among the students of clinical years. [24] Previous studies reported the causes of fear and anxiety among the students of medical universities. Highly contagious nature of the coronavirus, disruption in studies, particularly online classes, exposure to suspected patients, and the influence of COVID-19 on the health care sector. [25, 26] According to the findings of another study targeting HCPs, a family member’s concern over contracting an infection is greater than one’s own, according to the current study’s findings. [27] Furthermore, according to a study conducted in a neighboring country, COVID-19 has caused mental health issues in two-thirds of health-care practitioners, including stress, depression, and anxiety. [28]

We observed that female students are more worried than male students. The significant difference of FCV score among the gender is also reported in previous studies. Where females showed more fear, anxiety, and depression due to the COVID-19 pandemic. [29-31]

Along with fear, studies have also reported depression, stress, insomnia and other psychological symptoms among the students of various disciplines. [32-34]
Limited sample size along with a single center study are the main limitations. Further studies should be performed to access the psychological impact of COVID-19 in the medical students.
**Conclusion:**

Due to the current pandemic, a significant number of the students are still in a state of fear. These medical students will be the pillars of the health care system of India in India. Higher authorities should conduct counseling sessions to improve the psychology that is disturbed due to this pandemic.

**Acknowledgment:**

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**References:**

8. William A. Fischer NAH, Trish M. Perl. Protecting Health Care Workers From Ebola:


