RESEARCH ARTICLE

Relationship between awareness and fear about coronavirus disease infection among M.B.B.S. students studying at dedicated coronavirus disease hospital – A cross-sectional web-based survey

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ABSTRACT

Background: News of havoc created by novel corona virus in infected regions of the world gave rise to fear and panic about coronavirus disease (COVID-19) infection among the people. Various news agencies, bringing mixed and variable information helped the spread of fear among the masses. Aims and Objectives: On literature search, few studies can be found analyzing fear and anxiety about COVID-19 infection among medical students, medical professionals, as well as general public. The present study is an attempt to fulfill these lacunae. Materials and Methods: The present study was carried out at tertiary care hospital and medical college. Design of the study was a cross-sectional, observational study and data collection was carried out using online means. Results: Mean score of All responses was 7.37 and with standard deviation of 1.36. Among individual questions, perfect score was achieved for question regarding common symptoms for COVID-19 infection while the lowest score was obtained for minimum hand washing time mentioned as per the WHO guidelines with only 15.6% of responders giving correct answer. Conclusion: Findings of this study demonstrated the level of fear and level of awareness and knowledge among the M.B.B.S. students. There was moderate amount of fear among the minds of students and their awareness and knowledge about COVID-19 infection was high. Although, difference in awareness score was statistically significant but no significant difference was obtained for fear levels among different batches of medical students.

KEY WORDS: Fear; Coronavirus Disease; Awareness; Medical Students; Web-Based Survey

INTRODUCTION

Pandemics are the epidemics that are spread to the whole world. Threats of pandemic are not new to the world. The world and the humankind have been facing pandemics since times immemorial. First documented evidence of pandemic can be found as early as 1350 BC in Amarna letters complaining plague in the city of Megiddo. Since then, pandemics of bubonic plague, smallpox, cholera, HIV, and influenza have killed millions of peoples all over the world.[1]

In December 2019, the world saw origin of new threat to the existence of the humankind. 2019 novel coronavirus, possibly originated from bats, started infecting human hosts in the city of Wuhan, Central Hubei Province of China. Despite many measures taken to contain spread of infection, severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) found a way outside to the whole world. Coronavirus are so named because of their resemblance to corona layer of the sun. International Committee on Taxonomy of Viruses (ICTV) on 11 February 2020, announced “severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)” as the name for ‘Novel Corona virus 2019’. This was due to genetic makeup
of virus had resemblance to the coronavirus responsible for the SARS outbreak of 2003. While related, the two viruses are different. On the same day, the WHO announced “coronavirus disease (COVID-19)” as the name for this new disease caused by SARS-CoV-2. SARS-CoV-2 is an enveloped, single-stranded, RNA virus. Coronavirus mainly infects the lungs of the patients which leads to the development of a pneumonia followed by many cascade of events across various systems and organ. Most people experience mild-to-moderate respiratory illness after being infected by SARS-CoV-2 and recover without requiring special treatment. Old age, underlying medical problems such as cardiovascular disease, diabetes, chronic respiratory disease, and cancer are more likely to develop serious illness. Corona infection was known to occur in avian species especially bats, but new variety SARS-Cov-2 was deemed more infectious and deadly to humans than previous variants.

The World Health Organization declared the COVID-19 outbreak as public health emergency of international concern on January 30, 2020, and the same was declared pandemic on March 11, 2020. As per reported to the WHO, as July 23, 2021, there have been 192,284,207 confirmed cases including 4,136,518 deaths due to COVID-19 infection. Situation in India was direr with 31,293,062 confirmed cases of COVID-19 with 419,470 deaths, being reported to the WHO.

Before pandemic of the COVID-19 infection hit the world, knowledge about infection caused by coronaviruses was rare even among the medical professionals. Pandemic spreads fear among the masses at scale previously unknown to current generations. Advancement of technology played very important role in this regard. It acted as double-edged sword helping medical professional and masses in combating the pandemic by rapid production of products such as N-95 masks, ventilators, oxygen generators, development and testing of drugs, and vaccines to combat infection while, on the other hand, it also aided in spread of misinformation and fear about COVID-19 infection.

The advent of information technology made it possible to spread the news of infection wide across the world in a rapid manner. News of havoc created by novel coronavirus in infected regions of the world gave rise to fear and panic about COVID-19 infection among the people. Various news agencies, bringing mixed and variable information helped the spread of fear among the masses. Information dispersed through television and social media apps such as WhatsApp, Twitter, and Facebook, many times displayed contrasting nature of information. Every news channel was in the race for bringing grave news from far side of the world. Resultant chaos put the world under the fear of COVID-19 infection. Governments across the world sprung into the action taking measures such as closing transboundary movement, closing airports and imports, invoking lockdowns, and spreading awareness regarding the infection. This further added as catalyst creating fear and anxiety among people.

The fear and anxiety was not only evident among the masses but it was palpable among the medical professionals also. After all, medical professionals are at highest risk of infection due to direct contact with patients and longer period of stay in infected environment. It can be understood that medical students, taking their first steps into the world of medical field will have fear and anxiety when compared with common people. True knowledge about disease and proper guidelines should lessen the fear and anxiety associated with COVID-19 pandemic.

On literature search, few studies can be found analyzing fear and anxiety about COVID-19 infection among medical students, medical professionals, as well as general public. However, virtually none exists that analyzes level of knowledge about COVID-19 infection and its impact on fear and anxiety levels, especially among the medical students from different levels of their medical curriculum. Therefore, the present study was started with the objective of assessing the association between level of knowledge about COVID-19 infection and fear, anxiety associated with the same among the medical students studying at Government Medical College (GMC), Jalgaon.

MATERIALS AND METHODS

The present study was carried out at tertiary care hospital and medical college. Design of the study was a cross-sectional, observational study and data collection was carried out using online means. Due approval was taken from the Institutional Ethics Committee before start of the study. Two separate Google Forms each containing a predesigned questionnaire was created in English language. Both of the forms mentioned voluntary nature of the participation for the study. First form included questionnaire with 10 multiple-choice single best answer type questions. Questions were adopted from “Interim Clinical Guidance for Management of Patients with Confirmed COVID-19” released by CDC, “Hand Hygiene: Why, How, and When? WHY?” released by the WHO and Clinical Management Protocol for COVID-19 (Updated on July 03, 2020) released by Ministry of Health and Family Welfare, Government of India.

Each correct answer was given score of 1 with total score of 10 and was meant for evaluation of “Knowledge and Awareness” among participants. Second Google Form questionnaire included seven questions with five Likert-based choices each from strongly disagree (score=1) to strongly agree (score=5) for evaluation of fear of COVID-19 among the participants. This questionnaire was based on fear of COVID-19 scale (FCV-19S) developed by Ahorsu et al. Link to Google Forms was sent on January 25, 2021, to...
WhatsApp group of students from various phases of MBBS curriculum at GMC Jalgaon. A reminder through WhatsApp message was given after 5 days for encouraging students for taking active participation in the study. After 10 days, forms were locked for further submission of responses. Responses from both forms were downloaded as excel sheet for further data analysis. Participants of study received no monetary or academic benefits whatsoever for participation in the study. Data obtained were analyzed using Microsoft Excel 2016 edition software. Ethics committee approval was taken before the start of the study from Institutional Ethics Committee (IEC), GMC, Jalgaon.

RESULTS

Link to Google Forms was sent to 399 students from 2018 batch (Phase III), 2019 batch (Phase II), and 2020 batch (Phase I) of MBBS curriculum at GMC, Jalgaon. Declaration regarding voluntary nature of participation, aim of study, and no incentive cause were clearly mentioned in messages forwarded and at the start of both questionnaires in bold letters. Out of 399 students, questionnaire for awareness and knowledge received 314 responses (78.7%) while questionnaire for fear of COVID scale received 355 responses (88.9%) in total.

### Awareness and Knowledge about COVID-19 Infection

Mean score of all responses was 7.37 and with standard deviation of 1.36. Among individual questions, perfect score was achieved for question regarding common symptoms for COVID-19 infection while the lowest score was obtained for minimum hand washing time mentioned as per the WHO guidelines with only 15.6% of responders giving correct answer. Percentagewise, second most correct response was regarding infectivity of COVID-19 infection during asymptomatic infection (95.5%) while the second least correct response was for physical distancing norm as prescribed by the WHO (32.8%). Level of awareness was found to have correlation with seniority level at M.B.B.S. curriculum. Statistically difference was significant with $P < 0.00001$. Intercbatch pairwise comparison gave statistically significant difference for 2018 versus 2020 batch students ($P = 0.0000$) and 2019 versus 2020 batch students ($P = 0.0011$). Difference was not statistically significant in 2018 versus 2019 batch students. The $F$-ratio value is 13.107. $P < 0.00001$ was considered, result is significant at $P < 0.05$ [Table 1 and Figure 1].

### Fear of COVID-19 Scale

The present study utilized fear of COVID-19 scale developed by Ahorsu et al.[21] for the evaluation of level of fear about COVID-19 infection among students from M.B.B.S. curriculum. Least score possible was 7 and maximum score possible was 35. Questionnaire for the evaluation of fear levels received 355 responses in total. Average score for all

<table>
<thead>
<tr>
<th>Question</th>
<th>Total (n=314)</th>
<th>2018 batch (n=88)</th>
<th>2019 batch (n=141)</th>
<th>2020 batch (n=85)</th>
</tr>
</thead>
<tbody>
<tr>
<td>COVID-19 infection is caused by</td>
<td>284 (90.4%)</td>
<td>86 (97.7%)</td>
<td>127 (90.1%)</td>
<td>71 (83.5%)</td>
</tr>
<tr>
<td>COVID-19 infection mainly spread through –</td>
<td>236 (75.2%)</td>
<td>73 (83.0%)</td>
<td>106 (75.2%)</td>
<td>57 (67.1%)</td>
</tr>
<tr>
<td>What are the common symptoms for COVID-19 infection?</td>
<td>314 (100.0%)</td>
<td>88 (100.0%)</td>
<td>141 (100.0%)</td>
<td>85 (100.0%)</td>
</tr>
<tr>
<td>In which of the following comorbidities, there is high chance of severe COVID-19 infection?</td>
<td>290 (92.4%)</td>
<td>87 (98.9%)</td>
<td>129 (91.5%)</td>
<td>74 (87.1%)</td>
</tr>
<tr>
<td>Physical distancing norm as prescribed by the WHO is[2]</td>
<td>103 (32.8%)</td>
<td>28 (31.8%)</td>
<td>54 (38.3%)</td>
<td>21 (24.7%)</td>
</tr>
<tr>
<td>According to the WHO guidelines, contact period for hand washing with soap is minimum of –</td>
<td>49 (15.6%)</td>
<td>18 (20.5%)</td>
<td>21 (14.9%)</td>
<td>10 (11.8%)</td>
</tr>
<tr>
<td>Following percentage of alcohol in hand rub can be effective for cleaning non-soiled hands –</td>
<td>243 (77.4%)</td>
<td>69 (78.4%)</td>
<td>114 (80.9%)</td>
<td>60 (70.6%)</td>
</tr>
<tr>
<td>Average time period between exposure to the virus and onset of symptoms is –</td>
<td>262 (83.4%)</td>
<td>77 (87.5%)</td>
<td>114 (80.9%)</td>
<td>71 (83.5%)</td>
</tr>
<tr>
<td>Can asymptomatic COVID-19-infected person spread infection to others?</td>
<td>300 (95.5%)</td>
<td>84 (95.5%)</td>
<td>133 (94.3%)</td>
<td>83 (97.6%)</td>
</tr>
<tr>
<td>Which of the following drug is currently being used for the treatment of COVID-19 infection –</td>
<td>232 (73.9%)</td>
<td>75 (85.2%)</td>
<td>112 (79.4%)</td>
<td>45 (52.9%)</td>
</tr>
</tbody>
</table>

Figure 1: Awareness and knowledge score

Table 1: Awareness and knowledge questionnaire with responses obtained
responses was 15.94 with standard deviation of 4.96. One hundred and forty-one out of 355 students (39.7 %) had score of 18 or more indicating serious fear of COVID-19 infection among them. Highest score observed was 32 from 2020 batch student and 22 students had least score of 7 indicating least or no fear of COVID-19 infection among them. Only eight out of 355 responders strongly agree that they are most afraid of COVID-10 infection while 12 responders strongly agreed that they fear for losing their life due to COVID-19 infection. Highest number, 162 responses (42%) were observed for students strongly disagreeing to fact that they cannot sleep due to fear of COVID-19 infection while the second highest response recorded was for 124 students (34.9%) strongly disagreeing to get palpitation after thinking about COVID-19 infection. Interbatch comparison was carried for total score observed by individual responders from respective batches. Interbatch comparison yielded no significant difference regarding fear of COVID-19 infection with \( P = 0.64 \) and, \( f \)-ratio was 0.445 [Table 2].

### DISCUSSION

In the current study, we investigated relationship between the awareness and the fear about COVID-19 infection among medical students at GMC, Jalgaon. Mean awareness score for all students was 7.4 (range 1–10) with standard deviation of 1.4. We observed increase in awareness score with increase in seniority among students, with 2018 batch students having highest mean score of 7.8. Lowest percentage of correct answers was obtained for the question, minimum period required for hand washing soiled hands with soap as per the WHO hand washing guidelines with only 15.6% of students giving correct answer. More than 60% of students thought that 20 s time should be recommended, which is in corroboration with the WHO hand washing guidelines. Interestingly, CDC suggests 20 s as time period for hand washing with soap and water while the WHO in its “Hand Hygiene: Why, How, and When?” brochure mentioned it as 40 s. This multiplicity of guidelines prescribed by various authorities creates confusion among masses as well as health care workers. This combined with poor penetration of various awareness programs carried out by various agencies. Responders being medical students, overall correct responses obtained for even few of the difficult questions like drug used for COVID-19 infection (73.9%) and average time for appearance of symptoms (83.4%) was satisfactory. This can be ascribed to medical education taken by students. In total, 74% of responses were correct highlighting better awareness levels among responders.

Database search showed study conducted by Huynh et al. on health care workers got mean knowledge score of 8.7 (range 4–10) with standard deviation of 1.3. Study by Saddik et al. showed similar result with 70% of students answering correctly on the COVID-19 knowledge questions with a median score of 5 (from a maximum score of 7). Fear of COVID-19 with mean score of 15.94 indicates the presence of moderate amount of fear in minds of the students with no significant difference on interbatch comparison. This is in contrast to our earlier observation about finding significant difference in knowledge and awareness score between different batches. Increase in knowledge and awareness about COVID-19 infection in senior batches was not associated with decrease in fear and anxiety. Study conducted by Sogut et al. among midwifery students gave similar findings and did not found any significant correlation between beck anxiety inventory score and knowledge level of coronavirus infection. Analysis of individual questions of fear of COVID-19 scale showed highest number of students 45% (162 responses) strongly disagreeing to question asking losing sleep over COVID-19 infection. This was consistent with findings of study by Stanton et al. where 50.7% of all respondents reported no change in sleep quality since the onset of the COVID-19 pandemic. Nearly one-third of students agreed to fact that they become nervous after watching news. Effective communication is the key to control COVID-19 infodemic. Instead of unilateral communication by relying through methods such as setting caller tune messages, hoardings, loudspeakers, and addressing people through television, governments should adopt two-way communication involving suggestions and feedback from public at large. Furthermore for effective communication during the times of pandemic, it should have timely updates that are tailored to the general public’s needs and wants to enhance relevancy. Relieving the fear and uncertainty from the minds of people should be equally stressed during communication as the stress is given on the compliance of people for following public and personal related safety and procedures.

The present study was conducted at tertiary care hospital and medical college which was also designated as dedicated COVID hospital making participants of this study rather unique. However, ongoing COVID-19 pandemic limited the study for further comparison of awareness and fear level with general population.

### CONCLUSION

Findings of this study demonstrated the level of fear and level of awareness and knowledge among the M.B.B.S.
students. There was moderate amount of fear among the minds of students and their awareness and knowledge about COVID-19 infection was high. Furthermore, there was a significant difference between awareness and knowledge levels in students from different batches with senior students showing higher score than their junior students. However, no statistically significant difference about fear of COVID-19 infection was observed among the students from different batches. Mere dispersal of information is not sufficient in the times of pandemic but we also need to increase our focus on relieving anxiety and fear among the students by utilizing various strategies effective communication and regular counseling.

REFERENCES


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