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Original Research Article

Awareness of COVID-19 infection and mental health screening among medical students

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ABSTRACT

Background: Novel corona virus disease (COVID-19) has spread throughout the world causing massive morbidity and mortality. The infection has drastically changed the way of living in the current situation. This change has led to higher levels of fear, anxiety and confusion in the minds of the people. The behavior of people influenced by their knowledge and mental status has a huge bearing on the course of COVID-19 pandemic. This study evaluates the awareness of COVID-19 infection and screens the mental health status of medical students of a tertiary care teaching hospital.

Methods: This was a cross-sectional, observational survey conducted on an online platform. A predesigned questionnaire was created using google forms and sent to 912 medical students. Ten questions were used to assess knowledge and awareness on COVID-19 and a fear of COVID-19 scale rated on a 5-point Likert was used to screen mental status.

Results: 641 students responded to the survey. Almost 95.5% of students lived with their family during the lockdown period. The mean score was 8.15 ± 1.05 for awareness and knowledge. The overall awareness and knowledge of COVID-19 was satisfactory with 81.49% reporting correct answers. Almost 40% of participants were most afraid of COVID-19, 34% became nervous or anxious, watching news and nearly 20% were afraid of losing life because of COVID-19.

Conclusions: Currently in the peak of infection, our focus is on reducing transmission and preventing mortality. Managing psychological issue of people, especially healthcare workers is equally important during this pandemic. Enhanced awareness to disease and providing psychological support will allay COVID-19 fears among the people.

Keywords: Awareness, Knowledge, Fear, COVID-19, Medical students

INTRODUCTION

The word corona derived from Latin, was named so due to the characteristics 'fringe' of projections on the outside of the virus like solar corona under electron microscope.¹ These are a group of highly diverse, enveloped, positive-sense, and single-stranded RNA viruses found in avian and mammalian species.² In animals they cause variety of diseases but in humans known to cause mild upper respiratory tract infection like common cold.³ They also affect the enteric, hepatic and neurological system of varying severity among humans and animals. Past coronavirus outbreaks were severe acute respiratory

syndrome (SARS) in 2003 and Middle East respiratory syndrome (MERS) in 2012.^{4,5}

A novel viral pneumonia originating from city of Wuhan, central Hubei province of China was announced to the world health organization on 31 December 2019 (WHO, 2020a).⁶ The first case of novel viral pneumonia infection later named as SARS-CoV-2 infection was reported from Wuhan City, China, in December 2019.⁷ After a survey Chinese official identified a cluster of pneumonia cases of unknown etiology, some of these patients related to a seafood wet market also selling wild exotic animal meats for human consumption. Subsequently samples obtained from this seafood market were found to be SARS-CoV-2

positive in December 2019, suggesting it to be the source of outbreak.⁸ On 11th January China announced its first coronavirus related death of a 61-year-old man, exposed to the seafood market (WHO, 2020a). The seafood wet market was closed on 1st January 2020. Soon in few weeks' coronavirus started to spread to other countries. On 11th February WHO announced the name of new coronavirus disease as COVID-19 and exactly a month later on 11th March declared it a pandemic with rapid spread of disease (WHO, 2020 c).⁹

There was lot of initial speculation that the virus could have been originated or spilled out from a biochemical lab in Wuhan. The genetic sequence of SARS-CoV-2 from China and all over the world since then shows it has origin from bats. So far data suggest, corona virus has animal origin and not from lab. A manipulated virus genome sequence would have shown a mix of known elements.⁸ Research and investigations on origin of virus are still ongoing.

Dealing with management of novel coronavirus 2019 is emerging as a global challenge of the decade. This pandemic has created a health as well as mental crisis of huge magnitude ever since SARS outbreak in 2003.¹⁰ Globally as of 2.00 am CEST, 3rd May 2020, there have been 3,356,205 confirmed cases of COVID-19, including 239,980 deaths, reported to WHO.¹¹ The first bold measure most of the countries took was to go for a state of lockdown with travel restrictions within and out of the country. This has brought to a standstill the import and export of all commodities and weighed global economy badly.¹² In a huge country like India with 1.33 billion populations, these initial containment measures had unprecedentedly affected people from all sectors of life. India went for three continuous lockdowns from 25th March to 17th May 2020. Businesses across the country have been told to shut down, educational institutions were closed, IT sector people were asked to work from home, migrant workers were stranded 1000 of kilometers away from their homes, allowing only essential services to operate. People are facing such harsh situation for the first time in their life and finding it extremely difficult to cope up with these adverse measures in spite of magnanimous support and help from the government for both treatment and prevention of spread of COVID-19 infection.

This COVID-19 pandemic has created fear and anxiety among people, the media has played a main role in increasing this stress.¹³ In India with poor literacy rate, the major source of information on outbreak has been television and social media. The sources of information from these media are often not authenticated leading to severe distress and anxiety among general public. Continuous nonstop and repeated breaking news on mortality, morbidity, suffering by common people, suicides by doctors around world are putting lot of stress in the minds of the people. Domestic violence and crime against women have drastically increased during this period. People working in unorganized sector have lost

their livelihood and are finding difficult to meet their daily expenses. In spite of good work done by the health care worker called the "frontline warriors" to contain the infection, there have been issues like inadequate PPE, protective mask, sanitizers, hostile crowd in containment area leading to anxiety and stress among health care workers. Due to the lockdown students are being given online classes with free apps and some colleges with paid apps, but there are always issues with internet connectivity and reaching students, throughout the country especially in remote rural regions. Students across all fields in India are accustomed to traditional class room teaching then the current online classes. Loss of semester classes, payment of fee dues, continuous online classes etc. are all playing on the minds of the students. All these issues have put lot of stress and anxiety on the students' community to cope up with life and at the same time to catch up with studies.

The behavior of the general public or people, influenced by their knowledge and perception will play a vital role in containment and course of COVID-19 pandemic.¹⁴ There have been some published studies to evaluate the awareness and mental health status of general population and health care workers, but very few on students. Hence the present study aims to evaluate the awareness of COVID-19 infection and screen the mental health status of medical students of a tertiary care teaching hospital during the lockdown period of COVID-19 pandemic.

METHODS

This study was a cross-sectional, observational survey conducted on an online platform. A predesigned questionnaire with multiple choice answers were created using google forms. Each question had only one correct answer. There were 10 questions on awareness and one validated mental health screening scale in the Google form. The institutional ethics committee of JJM medical college reviewed the study and gave approval for conduct of the study. The questionnaire in google form was sent to undergraduate medical students of all three years of JJM medical college from 27/04/2020 4 pm to 02/05/2020 9 pm. The first page of the google form explained the study and written consent form for participation in the study, followed by questionnaires. The link to the Google forms was sent to all three years medical students only through WhatsApp. The study was restricted only to JJM medical college undergraduate students. Once the students consented to the study, they were directed to answer the questions on awareness and the mental health screening scale and submit the completed forms. Participants, who took this survey voluntarily were good in English and received no payments for completing the survey.

Fear of COVID-19 scale (FCV-19S)¹⁵

This scale (FCV-19S) acts as an additional aid to clinical methods in prevention of spread and management of corona virus cases. It can be employed to identify, evaluate and manage psychological issues arising from corona virus

infection in all age groups. FCV-19S scale could help identify fear and anxiety attached to COVID-19 and help in addressing the issue. This scale had 7 items (questions) that were to be rated on a 5-point Likert scale ranging from strongly disagree to strongly agree. The maximum score possible for each item is 5, and the minimum score is 1. A total score is calculated by adding up each item score (ranging from 7 to 35). The collected data was entered in to Excel sheet. Strict confidentiality was maintained on all information, without revealing the identity of the participant in the study. Descriptive statistics was used in the study to analyze the findings based on percentage of correct responses. Mean and standard deviation were used to estimate the proportion of correct responses.

RESULTS

Demographics: The survey link was sent to 912 students belonging to all three years of medical students of JJM medical college. All were above 18 years of age. Out of 912 students 641 students responded to the survey. The participants were aged between 18 to 25 years. The male and female distribution was almost similar in the study. Almost 95.5 % of students lived with their family during the lockdown period (Table 1). The participants were residing in various parts of India during the lockdown period.

Table 1: Demographic details of participants.

Age (year) (%)	Gender (%)	Living with during lockdown (%)
18-20 (49.1)	Female (53.2)	With family (95.5)
21-22 (47.1)	Male (46.8)	With friends (2.95)
23-25 (3.80)	-	Alone (1.55)

Awareness and knowledge about COVID-19: As all students were in the medical stream, the awareness and knowledge about COVID-19 was quite high among the participants. The mean score was 8.15 ± 1.05 , with a median of 8. The overall awareness and knowledge of COVID-19 was satisfactory with 81.49% reporting correct

answers. Out of all students, 10% were not clear about common symptoms of COVID-19 infection, 5% did not know how does COVID-19 spread, 12.6% did not know COVID-19 can be transmitted through asymptomatic cases and almost 10% thought there is a proven drug, vaccine or treatment to COVID-19 (Table 2). The most frequent questions with wrong answer were regarding transmission of virus through air (71.45%) and 51% of participants were not clear on people at risk of developing severe illness. Almost 99% of the participants were aware of COVID-19 to be a viral infection known to cause respiratory infection and know how to protect self and prevent spread of disease.

Table 2: Percentages of correct responses to questionnaires.

Questionnaires	% of correct responses (n=641)
What is corona?	98.6 (632)
What are the symptoms of COVID-19?	90.8 (582)
How does COVID-19 spread?	94.2 (604)
Can the virus that causes COVID-19 be transmitted through air?	28.5 (183)
Can COVID-19 be caught from a person who has no symptoms?	87.4 (560)
Who is at risk of developing severe illness?	48.4 (310)
Is there a vaccine, drug or treatment for COVID-19?	91.3 (585)
Is there anything I should not do?	84.1 (539)
What can I do to protect myself and prevent the spread of disease?	99.2 (636)
In any case, if you have fever, cough and difficulty breathing?	92.4 (592)

Table 3: Percentages of responses to various items on fear of coronavirus-19 scale (n=641).

Items on COVID-19 scale	Strongly disagree (%)	Disagree (%)	Neither agree nor disagree (%)	Agree (%)	Strongly agree (%)
I am most afraid of COVID-19.	10.92 (70)	25.43 (163)	23.09 (148)	33.23 (213)	7.3 (47)
It makes me uncomfortable to think about COVID-19.	17.63 (113)	37.60 (241)	15.76 (101)	25.12 (161)	3.90 (25)
My hands become clammy when I think about COVID-19.	33.23 (213)	45.71 (293)	14.67 (94)	4.69 (30)	1.72 (11)

Continued.

Items on COVID-19 scale	Strongly disagree (%)	Disagree (%)	Neither agree nor disagree (%)	Agree (%)	Strongly agree (%)
I am afraid of losing my life because of COVID-19.	27.46 (176)	33.23 (213)	19.66 (126)	16.07 (103)	3.59 (23)
When watching news and stories about COVID-19 on social media, I become nervous or anxious.	19.34 (124)	28.55 (183)	17.63 (113)	31.05 (199)	3.43 (22)
I cannot sleep because I'm worrying about getting COVID-19	45.24 (290)	42.28 (271)	9.05 (58)	2.45 (16)	0.95 (6)
My heart races or palpitates when I think about getting COVID-19.	37.13 (238)	39.94 (256)	12.64 (81)	8.75 (56)	1.56 (10)

Fear of coronavirs-19 scale: The mean score of 641 participants was 16.32 ± 5.55 on fear of coronavirus-19 scale, the least score was 7 and maximum 35. As shown in table 3 almost 40% of the participants were most afraid of COVID-19 (agree and strongly agree), 34% of participants became nervous or anxious, watching news and stories about COVID-19 on social media (agree and strongly agree) and nearly 20% of participants (agree and strongly agree) were afraid of losing life because of COVID-19 indicating severe distress among them. Almost 37.9% of the participants had a mean score of 18 and above. Those with higher score have a greater fear of COVID-19.

DISCUSSION

Generally contagious disease of this nature can lead to enhanced levels of fear and anxiety among people and it is quite normal to be feeling this way in the given situation. Awareness and attitudes of people play a pivotal role to curtail the spread of COVID-19 infection. Misconception, rumors, unconfirmed reports, highlighted media coverage, social media can all lead to spread of wrong information and create panic in the community. This study assessed the knowledge of COVID-19 infection and mental health status among medical students, who form a part of health care workers. The medical students in this study had a mean knowledge score of 8.15 ± 1.05 (range 3-10). 10% of the study participants were not clear about the common symptoms of COVID-19 infection and thought there is a proven drug, vaccine or treatment to COVID-19 infection. A similar study by Huynh Giao et al showed healthcare workers had a mean knowledge score of 8.17 ± 1.3 (range 4-10). They showed good knowledge and a positive attitude towards COVID-19 infection.¹⁶

One of the main findings from this study was around 12.6% of participants did not know COVID-19 could be transmitted from asymptomatic cases. Transmissions from asymptomatic cases play a main role in rapid spread of COVID-19 infection. In a study by Bhagavathula et al showed significant proportion of healthcare workers had poor knowledge of its transmission (61%) and symptom onset (63.6%).¹⁷ The overall awareness and knowledge of

COVID-19 was satisfactory with 81.49 % reporting correct answers in our study. A similar study by Modi et al in-healthcare students found 71.2% reporting correct response indicating adequate awareness, medical students fared better than other subgroups as in our study.¹⁸

Lot of research, resources and manpower is currently being focused throughout the globe on finding the magic drug that could cure COVID-19 and vaccine to prevent infection. Many pharmaceutical giants are trying to reposition their drugs for COVID-19 infection and have started clinical trials on the same. Industries around the world are working on ventilators, sanitizers, masks, personal protection equipment, and software applications to trace primary & secondary contact to meet the challenges of this pandemic. One area that has received least attention is to take care of fear, stress, and anxiety of both the general public and healthcare workers. During a pandemic outbreak of a contagious infectious disease, people's psychological reaction plays a crucial role in spread of the disease. Identification, assessment and addressing fear and anxiety of COVID-19 infection are the crucial clog missing in the wheel.

This study showed, almost 40% of the participants were most afraid of COVID-19. The mean fear of COVID-19 scale score in our study was 18 and above in 37.9% of participants. The higher score could correlate with depression, anxiety, fear of COVID-19 among these individuals.¹⁵ Similar studies in the past done on SARS epidemic in 2003 and H1N1 pandemic in 2009, found high levels of stress, worries, fear, stigma among health care workers.¹⁹⁻²¹

A study by Rabiaah et al to study MERS-CoV associated stress among medical students found 77% reported minimal anxiety, 18.4% reported mild anxiety and 4.6% reported moderate anxiety, needing the psychological problem to be addressed properly.¹³ A study by Khalid et al on healthcare workers emotions during a MERS-CoV outbreak found fear of personal safety and well-being of colleagues and family.²² A study by Roy et al to evaluate anxiety during COVID-19 pandemic found more than 80% of the people were preoccupied with the thoughts of

COVID-19, 37.8% had paranoia about acquiring COVID-19 and 36.4% participants has distress related social media.²³

The need of the hour is how we address the fear and anxiety to COVID-19 both in general public and more importantly among the health care workers including medical students throughout the world. Psychological support and mental care of the people should be adequately supported during any pandemic as they play an important role in containment and spread of infectious disease. Psychological reactions to pandemics include maladaptive behaviors, emotional distress and defensive responses.²⁴ High levels of stress and fear among the population adds to the problem, as the person will not be able to take care of self and his family. Increase number of cases, risk of being infected, fever a common symptom in any infection can be mistaken for COVID-19 infection, increasingly worried for their family at home, high mortality rates in some countries, long work hours in personal protection equipment, lack of ventilators, and deaths among health care workers to COVID-19 are some of the factors putting severe stress on already stretched health care workers. The behavioral changes of stress are increase in alcohol or tobacco use, irritability and frequent arguing, outburst of anger, trouble in sleeping, crying frequently, worrying excessively, having difficulty in communication and inability to feel pleasure. Some of the emotional problems are being fearful, feeling depressed, feeling angry and overwhelmed by sadness.

So, the general public and health care workers in particular need urgent psychological support. WHO and public health authorities around the world have issued some measures to overcome this hidden problem. WHO message to health care workers is managing mental health is equally important as physical health during the pandemic.²⁵ In the USA, the centers for disease control and prevention offer valuable advice for healthcare workers to learn common signs of stress, taking breaks from news stories including social media, to take care of body, make time to unwind, to connect with others with digital media and ask for help with dedicated help line or text to TalkWithUs.²⁶

Addressing stress and mental healthcare to COVID-19 should be integrated in various guidelines for prevention and treatment of COVID-19 infection. This will play a vital role in preventing spread of infection and help people to live with the virus in the community till we find an effective drug and vaccine. Mental health interventions are to be carried out regularly in societies for general population and health care workers on frontline duties. We do need more mental health support programs through various mass communication strategies to society and webinars and other modes to support healthcare workers during the outbreak. In addition, it is equally important to address mental health and psychological concerns of student community. Some of the measures proposed in India are to setup dedicated help lines, regularly counsel

students by identified faculties members, regular communication with students by mentors by various mediums like telephones, e-mail and other digital and social media platforms, form COVID-19 help groups to identify students in need of help and sharing video links from respective government and WHO on practical aspects to fight the fear and anxiety.

CONCLUSION

This study provides some insight in to the knowledge and awareness of COVID-19 infection and the associated fear among medical students. Till date there are very few large-scale studies to analyses the complete physiological impact of COVID-19 in all strata of population, especially health care workers. Currently, in the peak of infection, our focus is on reducing transmission and preventing mortality. Managing psychological issue of people, especially healthcare workers also begs for urgent attention. The government and policy makers should do all it can to tackle this hidden problem to effectively control the pandemic.

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