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KNOWLEDGE, ATTITUDE AND PRACTICES TOWARDS COVID-19 AND MENTAL HEALTH ISSUES AMONG MEDICAL STUDENTS

Mental Health

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ABSTRACT

AIM: This study aims to assess the knowledge, attitude, practices and Mental Health Issues in medical students(interns and residents) involved in provision of care of COVID-19 patients as there was no module for pandemic management for UGs during the early onset of COVID -19 however this module lacks any reference for mental health aspects. **METHOD:** A 59-item self-designed questionnaire was used in this study. This questionnaire included questions about 3 domains: (a) Socio-demographic profile of participants; (b) Assessment of Knowledge, Attitude and Practices with regard to COVID-19 and (c) Mental Health Issues in participants using the Fear of COVID-19 Scale, Coronavirus Anxiety Scale and Obsession with COVID-19 Scale. Informed consent was obtained from all the participants. **RESULTS:** Of the 158 respondents, majority were interns. Most respondents had the correct knowledge with respect to different aspects of the COVID-19 pandemic. Most of the respondents scored positively on the fear of COVID-19 scale.

KEYWORDS

Fear of COVID-19 Scale, Coronavirus Anxiety Scale, Obsession with COVID-19 Scale, Knowledge, Attitude, Practices, medical students.

INTRODUCTION

An outbreak of the novel coronavirus disease all over the world has influenced every aspect of individual life. Within a few months, COVID-19 has spread globally and WHO has declared it as a controllable pandemic on March 11th 2020, with near about 47 lakh confirmed cases as of May 20th 2020 and with more than 3 lakh deaths being reported.[1] India being a developing country with a poor healthcare system is facing major challenges to combat the virus. Emergence of this pandemic all the over the world has led to increased burden on the health care system. Health care workers being on the frontline are at greater risk of contracting the infection. Therefore, it's important to continuously educate healthcare workers regarding COVID-19 and the practices to be followed for better self-care.

In addition to physical damage, COVID-19 also has a serious impact on the mental health of people. Human to human transmission of COVID-19 has created a lot of emotional disturbance among the public. A recent study in India has reported individuals feeling more worried and depression in the general population. Half of the respondents (52.1%) were preoccupied with the idea of contracting COVID-19 and one-fifth (21.1%) of the respondents were repeatedly thinking of getting themselves tested for the presence of COVID-19 despite having no symptoms. Majority (69.6%) of the respondents were worried about the financial loss they were incurring during the period of lockdown. One-fourth (25.6%) and one-third (30.8%) of the respondents found that COVID-19 pandemic had threatened their existence and they found it difficult to adjust to the new routine during the 21-day lockdown period, respectively.[2]

Due to the highly infectious nature of the virus, there is an intense fear of being infected among the healthcare professionals as well the fear of transmitting the disease to their family members and patients.[3] Quarantine and self-isolation from family members leads to poor social support during crisis. The burden on the healthcare workers is huge as they have to handle physical as well as the emotional challenges. Due to its rapid spread, poor knowledge and unpreparedness to handle the disease, there is a lot of physical as well as emotional burden on the health care workers.[4]

In India, COVID -19 cases have increased drastically and by 20th May more than 1 lakh cases were reported with 3,584 deaths.[5] Previous studies done during the Middle East Respiratory Syndrome (MERS) outbreak have reported increased prevalence of depressive symptom 26.6% (n=17) and post-traumatic stress symptoms 7.8%(n=5) among the doctors. Doctors employed at hospitals with MERS cases had higher PHQ-9 and IES-R mean scores than those in doctors who were not soemployed. A recent online survey was conducted in China among 217 medical students. Among these students, 127 were female and 90 were male. 77 students (35.5%) who participated in the survey were in a state of depression, and 48 (22.1%) were in a state of anxiety. The majority of students had mild to moderate depressive (n=75) or anxiety (n=46) disorders. There were no significant differences in students in terms of gender, geographical location, and grade, for the prevalence of depression and anxiety.[6]

A recent study conducted among 152 doctors in India has reported 34.9% as depressed and 39.5% and 32.9% with anxiety and stress, respectively. Significant predictors for psychiatric morbidities were experience in health sector, duty hours, use of protective measures, and altruistic coping. Multivariable logistic regression showed most of the factors to be significantly associated with depression, anxiety, and stress level.[7] Increased stress levels have been seen to be leading to increased relapse rates of all pre-existing mental health problems during this pandemic of COVID 19. Quarantine in itself is a stressful situation which increases psychiatric morbidity through many different pathways.[8]

METHODOLOGY

It is a cross sectional, observational online survey, which was conducted using Google Forms with link sent using WhatsApp and Email. Google Forms offers the advantage of submitting the response when maintaining anonymity. Data was collected from 5th May 2020 to 30th May 2020. Daily reminder was sent. Survey was conducted in two tertiary teaching centres of India – one each in Maharashtra and Karnataka. Medical students(interns and residents) involved in provision of care of COVID-19 patients at these centres were included in the study. The survey invitation clearly stated that the participants will have the right not to participate in the survey and participation in the survey will imply providing informed consent. The survey

questionnaire would take around 7-10 min to complete. Total 158 responses were received by the stipulated time.

Inclusion criteria

- Medical students(interns and residents) involved in provision of care of COVID-19 patients
- Any gender
- Had internet connection and WhatsApp installed on their phone
- Age more than 18 years.

Exclusion criteria

- Unwilling and not providing informed consent for the study

Instrument used

Self-designed questionnaire: A 59-item self-designed questionnaire was used. The questionnaire included questions about 3 domains: (a) Sociodemographic profile of the respondents (b) Assessment of Knowledge, Attitudes, Practices of the respondents towards COVID-19; and (c) Self-assessment using Fear of COVID-19 Scale, Coronavirus Anxiety Scale and Obsession with COVID-19 Scale.

Ethical considerations

- The recipients had the full liberty not to respond to the survey.
- The personal information was kept confidential, and anonymity was maintained.
- In case someone expressed the desire for psychiatric help, they were guided to seek help.

RESULTS

A total of 158 medical students(interns and residents) involved in provision of care of COVID-19 patients participated in this study. 106 (67.1%) of the respondents were from Maharashtra and 52 (32.9%) were from Karnataka. Out of the 158, 59 (37.3%) were male and 99 (62.7%) were female. By designation, majority of the participants (56.3%, n=89) were working as interns and around 36.1 % (n = 57) were working as post -graduate residents. Most of the participants were in the age group 22 – 24 years (n = 90, 57%). Most participants (n=143, 90.5%) were single (Table 1).

Table 1: Demographic details

Age (in years)	Frequency	Percentage	Gender	Frequency	Percentage
21	1	.6	Female	99	62.7
22	26	16.5	Male	59	37.3
23	39	24.7			
24	25	15.8	**Marital Status**	**Frequency**	**Percentage**
25	15	9.5	Single	143	90.5
26	8	5.1	Married	14	8.9
27	14	8.9	Separated	1	.6
28	12	7.6			
29	4	2.5	**Designation**	**Frequency**	**Percentage**
30	5	3.2	Interns	89	56.3
32	2	1.3	Postgraduates	57	36.1
33	3	1.9	CMO	11	7.0
36	1	.6	Medical student	1	.6
39	1	.6			
48	1	.6	**Location**	**Frequency**	**Percentage**
Not mentioned	1	.6	Maharashtra	106	67.1
			Karnataka	52	32.9

Tables 2,3 and 4 describe the knowledge, attitude and practices of the respondents with regard to COVID-19.

In our study, we saw that all 158 respondents rightly reported that COVID-19 is caused by a virus, around 65.2% (n=103) correctly reported that the coronavirus causing COVID-19 can be killed and around 98.7% (n =156) were right in reporting that not everyone infected with COVID-19 will die. 79.1 % of the participants had correct knowledge about the transmission routes of COVID-19. However, majority of the participants (96.2 %, n = 152) answered incorrectly regarding the percentage of people infected with COVID-19 dying. 97.5% of the respondents correctly reported about the confirmatory diagnostic test for COVID-19. 86.1% had correct knowledge about the incubation period of COVID-19. 93% of participants were able to correctly answer regarding the individuals at greater risk of acquiring COVID-19 - namely those with lung disorders, individuals with any other medical comorbidities and individuals aged above 60 years. However, only 67 participants (42.4 %) were able to answer rightly regarding the minimum distance needed to prevent the spread of coronavirus infection. Majority (72.8%) of the respondents had incorrect knowledge about the survival time of the coronavirus outside the human body. 50% of the participants were able to rightly report about the steps in handwashing as mandated by WHO. Majority. (n=130,82.3%) had correct knowledge regarding the symptoms of COVID-19. Around 44.3% participants correctly reported that the virus dies on its own on a surface. 91 participants (57.6%) correctly reported that the nose should be covered with elbow while sneezing and/or coughing.

15.2% of respondents reported of feeling panic, 20.9% reported feeling helpless and 6.3% reported feeling hopeless due to COVID-19. Majority (86%) reported feeling scared of either them or their family acquiring COVID-19. 101 participants reported that it's part of their duty to work daily during the pandemic. 88.6% (n=140) respondents reported that if tested positive they would need 14 days of quarantine. Majority (n=144) reported of using correct hand hygiene measures. Around 5.1% reported having disturbed sleep, 11.4% reported of fatigue and 21.5% reported feeling fearful while working during the pandemic.

156 participants answered correctly about the constituents of a PPE kit. 94.3 % of respondents correctly answered about the measures to be taken while handling the dead body of a COVID-19 patient. 111 participants (70.3%) answered correctly about the testing positive for COVID-19 rates for different samples. Majority of the participants (n=113) incorrectly answered about the Hydroxychloroquine chemoprophylaxis regimen to be taken.

Table 2: KNOWLEDGE

Question	Reply	Frequency	Percentage
Can coronavirus be killed?	Right	103	65.2
	Wrong	55	34.8
What is Coronavirus?	Right	158	100
	Wrong	0	0
Do all people infected with the novel coronavirus die?	Right	156	98.7
	Wrong	2	1.3
How does coronavirus spread?	Right.	125	79.1
	Wrong	33	20.9
What percentage of people infected with corona virus die?	Right	6	3.8
	Wrong	152	96.2
How can COVID-19 be confirmed?	Right	154	97.5
	Wrong	4	2.5
How long does it take to get the test results for RT-PCR?	Right	64	40.5
	Wrong	94	59.5
Who is at greater risk for COVID-19?	Right	147	93
	Wrong	11	7
What is the minimum distance to prevent the spread of coronavirus infection?	Right	67	42.4
	Wrong	91	57.6
How long does Coronavirus survive outside the body?	Right	43	27.2
	Wrong	115	72.8
What are the effective disinfectants that can be used to kill coronavirus?	Right	121	76.6
	Wrong	37	23.4
How many steps are there according to WHO to wash hands?	Right	79	50
	Wrong	79	50
What is the incubation period of COVID-19?	Right	136	86.1
	Wrong	22	13.9
If tested positive and symptomatic, how many swabs should be negative before discharging?	Right	87	55.1
	Wrong	71	44.9
How much time is	Right	70	44.3

required to kill the Coronavirus on the surface?	Wrong	88	55.7
For how long will you wash hands using 70% alcohol?	Right	19	12
	Wrong	139	88
How should you cover your mouth and nose while coughing/sneezing?	Right	91	57.6
	Wrong	67	42.4
Symptoms of COVID-19	Right	130	82.3
	Wrong	28	17.7

Table 3: ATTITUDE

Question	Reply	Frequency	Percentage
If you come in contact with a patient with COVID-19 symptoms (touch/hand shake) what will you do?	Right	70	44.7
	Wrong	88	55.3
What do you feel about the COVID-19 outbreak?	Panic	24	15.2
	Helpless	33	20.9
	Hopeless	10	6.3
	None of the above	91	57.6
How scared are you or your family of getting COVID-19?	Scared	136	86
	Very much scared	20	12.7
	Scared of death	2	1.3
If tested positive how many days should you quarantine yourself?	Right	140	88.6
	Wrong	18	11.4
How do you feel coming to work every day during the COVID-19 outbreak?	Determined	33	20.9
	Part of my duty	101	63.9
	Forcibly coming	24	15.2
How would you follow hand hygiene?	Right	144	91.1
	Wrong	14	8.9
What are the problems that you are facing now after the pandemic spread of the coronavirus?	Disturbed sleep	8	5.1
	Fearful	34	21.5
	Fatigue	18	11.4
	Disturbed sleep, Fatigue and Fearful	98	62

Table 4: PRACTICES

Question	Reply	Frequency	Percentage
When health care providers become symptomatic while handling respiratory distress/SARS do they need to be tested for COVID-19?	Right	152	96.2
	Wrong	6	3.8
What does PPE (personal protective equipment) set contain?	Right	156	98.7
	Wrong	2	1.3
How to handle corona virus infected dead body?	Right	149	94.3
	Wrong	9	5.7
Effective way of disposal of corona virus infected dead body?	Right	128	81
	Wrong	30	19
Testing rates of different samples for COVID-19	Right	111	70.3
	Wrong	47	29.7
Hydroxychloroquine chemoprophylaxis dosage to be taken under precautions	Right	45	28.5
	Wrong	113	71.5

Tables 5, 6 and 7 show the scores obtained by the respondents on the three scales administered: Fear of COVID-19 Scale, Coronavirus Anxiety Scale and Obsession with COVID-19 Scale. In our study it was seen that a majority of the participants scored between 11-16 on the Fear of COVID-19 Scale (n=80, 50.6%). On the Coronavirus Anxiety Scale, it was seen that a significant number of respondents scored 0 on the scale (n=125,79.1%). On the Obsession with COVID-19 Scale it was seen that a majority of respondents scored 0 (n=55,33.5%). Of the remaining participants, a large number of participants (n=84,53.1%) scored between 1 to 4.

Table 5: Scores on Fear of COVID-19 Scale

Fear of COVID-19 Scale					
Score	Frequency	Percentage	Score	Frequency	Percentage
-	4	2.5	18	9	5.7
7	7	4.4	19	9	5.7
8	6	3.8	20	7	4.4
9	8	5.1	21	6	3.8
11	10	6.3	22	4	2.5
12	8	5.1	23	2	1.3
13	10	6.3	24	3	1.9
14	17	10.8	25	1	0.6
15	13	8.2	26	2	1.3
16	22	13.9	27	2	1.3
17	7	4.4	29	1	0.6

Table 6: Scores on Coronavirus Anxiety Scale

Coronavirus Anxiety Scale		
Score	Frequency	Percentage
0	125	79.1
1	11	7.0
2	8	5.1
3	2	1.3
4	4	2.5
5	2	1.3
9	2	1.3
10	1	.6
12	2	1.3
16	1	0.6

Table 7: Scores on Obsession with COVID-19 Scale

Obsession with COVID-19 scale		
Score	Frequency	Percentage
0	53	33.5
1	31	19.6
2	24	15.2
3	19	12.0
4	10	6.3
5	6	3.8
6	2	1.3
7	3	1.9
8	4	2.5
9	3	1.9
13	2	1.3
14	1	0.6

DISCUSSION

The rapid spread of the COVID-19 pandemic has affected millions of people all over the world, and has had significant consequences on the lives we lead - ranging from restriction on movement and social interaction to even being isolated and quarantined. It is therefore no surprise that the COVID-19 pandemic has mental health implications as well. Healthcare professionals are particularly susceptible to psychiatric and psychological implications in this pandemic as they continue to work amidst high risk daily [9]. Studies done on similar infectious disease outbreaks in the past have elaborated on the various factors leading to psychological trauma in healthcare professionals including the fear of getting infected while treating infected patients, or even infecting a family member [10,11]. Over the past few months, clinical experience has shown that it is an infection with a relatively prolonged incubation period , thereby making it really difficult to exactly ascertain an individual's exposure to the virus [12]. To add to this, the lack of availability of any approved treatment modality or a vaccine further worsens the anxiety.

With the rising rates of COVID-19 transmission and infection among everyone, including healthcare professionals, an important issue that arises is how best to manage and disseminate information to medical students(interns and residents) involved in provision of care of COVID-19 patients in this massive public health crisis. Healthcare professionals are not only at the forefront of the fight against COVID-19 but also have an increased likelihood of acquiring this disease compared to the general population [13]. It is therefore of paramount importance that frontline healthcare professionals have adequate knowledge about all aspects of COVID-19 starting from risk factors, clinical manifestations and diagnosis to testing methods, treatment protocols, and even preventive measures. [14,15]

This cross-sectional study aimed to report the knowledge, attitude and practices pertaining to COVID-19 among medical students(interns and residents) involved in provision of care of COVID-19 patients . It also reports the sent-assessment of the frontline healthcare professionals working in the COVID-19 pandemic on 3 scales: Fear of COVID-19 Scale, Coronavirus Anxiety Scale and Obsession with COVID-19 Scale. The data collection for this study was done by sending the questionnaire among medical students(interns and residents) involved in provision of care of COVID-19 patients Google Forms. The questionnaire used in the study collected information objectively and Google Forms offers the advantage of submitting the response while maintaining anonymity. Research has shown that questionnaires are useful and efficient tools for collecting information regarding preferences, attitudes, opinions and experiences of participants; however, data collection and interpretation should be done carefully. [16] This study is one of the very few studies done in India to assess the knowledge, attitude and practices among medical students(interns and residents) involved in provision of care of COVID-19 patients .The socio-demographic profile of the participants in this study shows that most of them were aged between 22-24 years and majority of the study sample constituted of medical interns and post graduate residents working at the two tertiary care centres. Similar demographic profile has been seen in other studies done in India on frontline healthcare professional working in the COVID-19 pandemic. [17] This finding can be understood in the background of the fact that junior doctors which includes interns, post graduate junior residents and senior residents form the bulk of the workforce actively engaged in patient care in tertiary teaching centres in India.

A positive aspect reported by our study was that the majority of the respondents were aware of the different facets of the COVID-19 pandemic. As discussed in the results, in our study it was seen that most of the participants had the correct knowledge regarding the causative organism, incubation period of the disease and symptom profile. Most of the respondents also had the correct knowledge about the at-risk population for COVID-19 and preventive measures for COVID-19. Almost all the respondents reported that RT-PCR is the diagnostic confirmatory test for COVID-19 and most of them answered correctly about the sensitivity of different samples testing positive for COVID-19. Most of the participants correctly reported of the measures to be taken when handling the dead body of a COVID- 19 infected patient and the correct measures to dispose it. This is essential from the point of view of infection control. Similar findings have been reported from studies done in various other countries.[14,18,19] However, a study from the United Arab Emirates reported poor knowledge about the disease transmission and the symptoms in a significant proportion of healthcare workers.[15] Keeping healthcare professionals updated reduces the fear of uncertainty and negative emotions which are associated with the viral infection. [20]

A significant number of respondents reported of panic, feeling helpless and feeling hopeless in this pandemic. Some of the respondents also reported of disturbed sleep, fatigue and feeling fearful since the pandemic has begun. A large number of the participants did report of feeling scared of either them or their family acquiring COVID-19. However, majority of the participants reported that it is part of their duty to work daily during this pandemic. This response of feeling fearful by the frontline healthcare professionals is similar to the perception of the rest of the population where people are worried and scared of getting infected from others in the community as the pandemic spreads so quickly. [21] A large number of doctors working on the frontline are fearful of treating patients who are suspected of having COVID-19 and this fear of acquiring the disease from a patient is justified as COVID-19 has rapidly infected such a large number of individuals in almost every country over the past few months.[22] Another significant fear that the frontline healthcare professionals have is transmitting the infection to their families and this has been reported from several studies done in different parts of the world. [19,23,24] In spite of this, majority of frontline healthcare professionals continue to work daily considering it part of their duty to do so.

When assessing themselves on the Fear of COVID-19 Scale, most of the respondents in our study scored above 7 which is the minimum possible score on this scale. This shows that most of the frontline healthcare professionals do have a certain amount of fear of COVID-19. However, most of them scored between 11-16 which are not very high scores but this does reflect that there is a fear of getting infected with COVID-19. This is in agreement with the findings of several other studies. [25,26] On the Coronavirus Anxiety Scale, a large number of participants scored 0 but some of the respondents did report of anxiety with regard to COVID-19 and 4 of the respondents even scored above 10. This indicates that anxiety is a significant mental health consequence in frontline healthcare professionals and needs to be addressed. Other studies done in India corroborate the same. [7] On the Obsession with COVID-19 Scale, almost two-thirds of the sample scored 1 or above thereby indicating that a majority of the respondents did have worrying thoughts about the coronavirus. This finding reiterates that a large number of frontline healthcare professionals are facing anxiety due to COVID-19. However, as these scales were self-administered and there was no formal assessment by a trained mental health professional, there is a good likelihood of reporting bias and the actual estimation of fear and anxiety in these frontline healthcare professionals may vary.

CONCLUSION

Our study finds that most medical students(interns and residents) involved in provision of care of COVID-19 patients have familiarized and updated themselves to information regarding different aspects of COVID-19 but they do need continuous education about the emerging aspects of this disease in order to provide better patient care as well as safeguard themselves when working closely with COVID-19 patients. Training regarding protection measures should be organized regularly. It's necessary to put in place steps that ensure that frontline healthcare workers have enough rest time between shifts. This study has its set of limitations. The survey was conducted online, therefore there is a possibility of reporting bias. In addition to that, the measurement of KAP may be imprecise due to the limited number of items. This study was conducted during the early phase of the pandemic when there was no module for pandemic management by NMC. Further research with larger sample size, better measurement of Knowledge, Attitude and Practices and objective assessment is needed to resolve these issues. This study also highlights the importance of Mental Health Issues among the medical students as the NMC module doesn't include the mental health aspects which is the major issue of concern as well.

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