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Effect of COVID-19 on Lives of Medical Students in India: A cross-sectional observational survey

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ABSTRACT: Background and Purpose: COVID-19 has affected everyone. Our survey aims to assess its impact on the lives of Indian medical students and their attitude towards hygiene practices followed during the pandemic. Methods: A 14-point, self-designed, open survey questionnaire [1 question (demography), 5 (knowledge of the disease), 2 (hygiene practices), 2 (perception), 4 (impact on their lives)] using google forms, was circulated via social media to medical students from various states, during 20th to 28th May 2020 .The study was approved by Royal Pune Independent Ethics Committee and SPSS software (version 20) was used for analysis. Results: Among 631 respondents (n=347 females, n=284 males, average age=20.47±1.72 years), 95.1% believed in social distancing as a potential preventive measure. Knowledge on the exact distance to be maintained, varied from <3 feet (22.6%), 4-6 feet (46.4%) and >6 feet (31%). Knowledge of awareness about use of mask, differed significantly between both sexes (50% males vs. 53.3% females, p=0.041), however, mask usage was more prevalent in females (92.3% vs. 96.8%, p=0.01). 74.3% used both hand wash and sanitizer (3.7% only sanitizer), 13.0% used only soap and water to maintain hand hygiene. 27.2% found it difficult to practice hand hygiene at their workplace. 55% felt that their lives were affected. Emotions of insecurity were experienced by 61.8% (66% females and 56.7% males, p=0.018),anxiety by 38.9%, irritability by 38.6%, and optimism by 31.06%. 42.3% were apprehensive of continuing their careers as healthcare professionals in future (39% females and 46.3% males, p=0.038). Conclusion: Our survey provides valuable insight into the impact of COVID-19 on the lives of medical students. This may provide potential solutions to design policies for these students in future.

Key words: COVID-19, pandemic, survey(Source: MeSH-NLM).

I. INTRODUCTION

The year 2020 has seen the devastating effects of COVID-19, the impact of which has revolutionized in public healthcare and medical education systems around the world. It was declared as a public health emergency of international concern by the World Health Organisation (WHO) on January 30th 2020.[1] Despite availability of vaccines, there is no definitive cure available as of today, preventive and precautionary measures are the only available means of reducing transmission of this virus. For this precise reason empowering public information regarding the epidemiology and preventive strategies of this disease is needed.[2]

A study conducted among healthcare workers, showed that there was a significant gap present in the information source, knowledge levels and in the perception of COVID-19 among healthcare workers.[3] Similar studies conducted, concluded that for the reduction in risk perception, stress and anxiety, preventive behavioural training must be increased among healthcare workers.[4] The pandemic has had a considerable impact on the mental health, training and educational opportunities of medical students.[5,6]

In view of the above literature, this survey was planned with an objective to understand the perception, knowledge and practices of COVID-19 and its impact on medical students in India.

II. METHODS

Study design: A cross sectional observational survey among medical students of various states of India. Data collection was done from 20th to 28th May, 2020

Participants

The survey was designed using a 14-point self-designed questionnaire on Google Forms, which aimed at assessing the knowledge, practices and perception of COVID-19 among medical students across India.

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The study usedan open survey which was approved by an independent and registered Ethics Committee (Royal Pune Independent Ethics Committee, Pune, Maharashtra). Medical students from all states of India were invited to participate in this online survey through social media platforms such as WhatsApp, Facebook and Instagram. The participant information sheet was shared online before answering the survey questions, using the same social media platforms. The participants were informed that answering the questions of the survey, implied consent to participation.

Survey questionnaire

The survey was designed using a 14-point self-designed questionnaire on Google forms, which aimed at assessing knowledge, practices and perception of COVID-19 among medical students across India.The survey questionnaire comprised 1 question on demographic details,5 questions to assess knowledge of the disease, 2 questions on practices followed 2 questions on perception and 4 questions on the impact of COVID-19 on theirlives and mindset.

Inclusion criteria:

We included medical students in India between the ages of 17-25 years (both inclusive) as this study was planned for and conducted among undergraduate M.B.B.S (1st, 2nd and 3rd professional year) students, who usually belong to this age group and were at home, in national lockdown.

Statistical methods:

Statistical analysis was carried out with the help of SPSS (version 20) for Windows package (SPSS Science, Chicago, IL, USA). The description of the data was done in form of frequencies (%) for qualitative (categorical) data and central tendency for continuous data. For examining the significant differences between responses to the questions based on gender, chi-square test was used. P-values of < 0.05 are considered significant.

III. RESULTS

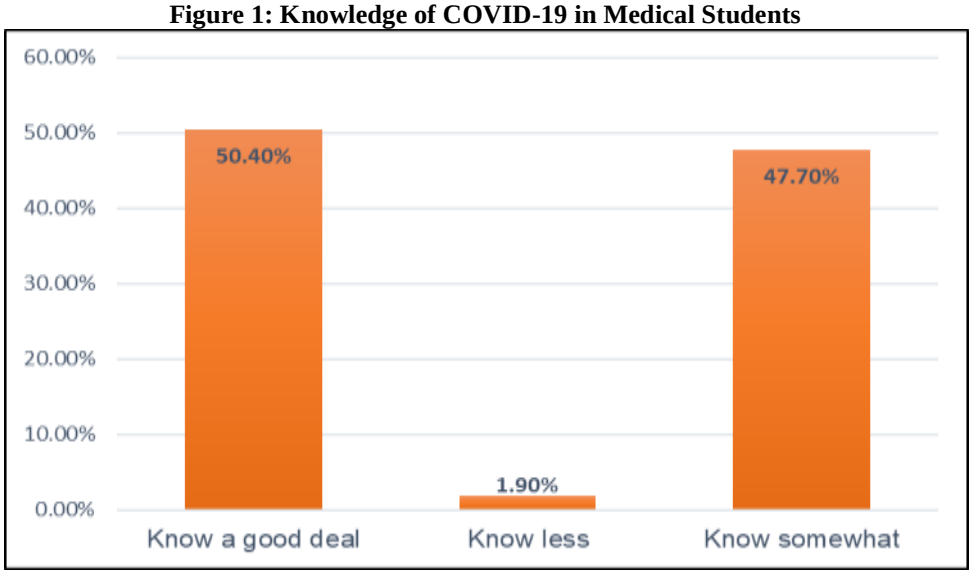
Demography

A total of 703 responses were obtained, of which 72 were excluded as they were non-medical students. As a result, 631 medical students took part in the survey comprising of 55.0% (n=347; average age 20.38 ± 1.32 years) females and 45.0 % (n=284; average age 20.58 ± 2.13 years) males.

Knowledge

Overall 50.4% students self-assessed that they knew “a good deal about COVID-19” while 47.7% felt that they knew only “something about the disease” and 1.9% knew “very less”.

Figure 1: Knowledge of COVID-19 in Medical Students



Social distancing:

Around 95.2% of students believed that social distancing was important to stop the spread of the disease. However, when asked about the ideal distance to be maintained as the social distance, the answers lacked uniformity. 46.4% answered “4-6 feet (<1.83 m)”, 31% believed the ideal distance to be “6 feet or more (>1.83 m)” and the remaining 22.6% answered “1-3 feet (<0.91 m)”.

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Table 1: Responses (%) for Knowledge and Practices about COVID-19 According to Gender

Questions	Options	Male	Female	P#
Do you believe social distancing is important to stop the spread of COVID-19? (n=630)	Maybe	4.9%	3.8%	0.575
	No	0.7%	0.3%	
	Yes	94.4%	96.0%	
What according to you is the ideal distance to be maintained as social distance? (n=629)	1-3ft	20.4%	24.3%	0.242
	4-6ft	45.4%	47.2%	
	6ft or more	34.2%	28.4%	
Do you think COVID-19 transmission can be prevented by use of a mask? (n=631)	Maybe	32.7%	36.3%	**0.041**
	No	17.3%	10.4%	
	Yes	50.0%	53.3%	
Do you wear a mask every time you step out of the house? (n=631)	No	7.7%	3.2%	**0.01**
	Yes	92.3%	96.8%	
What do you think is the right way to maintain hand hygiene? (n=630)	Both soap and sanitizer	71.0%	76.9%	0.073
	either of the above	11.3%	6.3%	
	frequent use of a sanitizer	4.9%	2.6%	
	Neither	0.7%	0.3%	
	soap and water for 20 seconds	12.0%	13.8%	
Do you think you will be able to practice all the hygiene practices effectively at your place of work? (n=629)	Maybe	32.2%	31.8%	0.067
	No	23.0%	30.6%	
	Yes	44.9%	37.6%	

#: significance using chi-square test

Awareness

Only 60.1% believed that COVID-19 was life-threatening and 11.6 % believed that it was not. 28.3% were unsure of the threat it posed to human lives. Around 64.8% females (n=225) and 54.3% males (n=282) considered this disease to be life-threatening (p=0.026)

Awareness and use of mask:

Only 51.8% respondents thought that COVID-19 transmission could be prevented by using a mask whereas, 13.5% did not and 34.7% were not sure of its utility. 53.3% of the total female population answered 'yes' to the question that masks can prevent the transmission of this disease (n=185/347) and 50% of total males answered 'yes' (n=142/284) to the same question and the difference between the two groups was found to be statistically significant (p=0.041)

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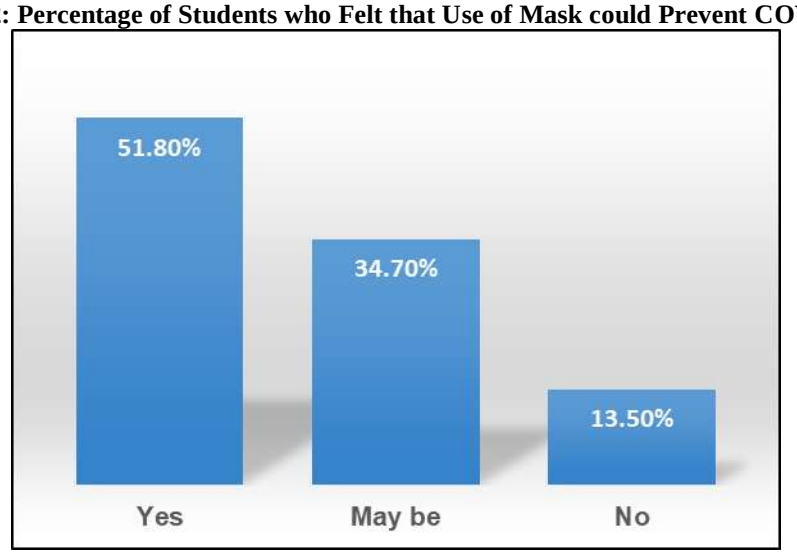
Figure 2: Percentage of Students who Felt that Use of Mask could Prevent COVID-19.

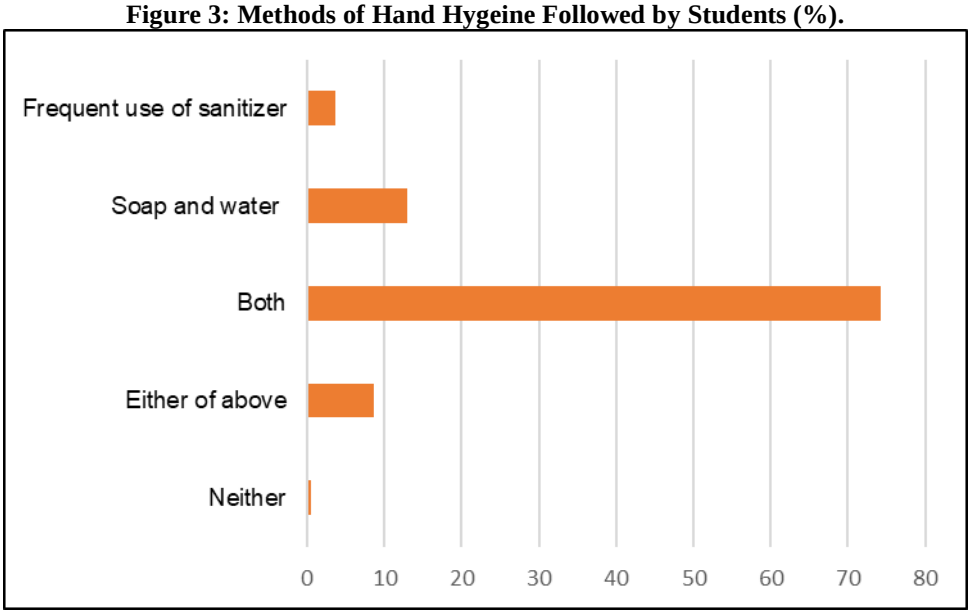


However, despite their belief,94.8% reported to wearing a mask every time they stepped out of the house. 96.8% of this student population were females (n=336) and 92.3% were males (n=262) (p=0.010). The remaining 5.2% (n=33) admitted to not wearing a mask every time they were out of their house.

Hand hygiene practices

Around 74.3% of students felt that both, frequent hand washing and use of hand sanitizer were necessary to arrest disease transmission. About 13.0% of students considered only soap and water to be the right method while the use of a hand sanitizer alone was advocated by a mere 3.7% of the student population. However, 8.6% of them felt either of these methods could be used.

Figure 3: Methods of Hand Hygeine Followed by Students (%).



Perception

Only 40.9% of students felt that they would be able to practice all the mentioned hygiene practices at their workplace while 32% were not sure whether or not they will be able to do so. However, 27.2% were sure that they would not be able to keep up with these practices at their workplace.

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Table 2: Responses (%) for Impact of COVID-19 According to Gender.

Questions	Options	Male	Female	P#
How has COVID-19 affected your daily life? (n=631)	Not at all	3.2%	2.9%	0.514
	Significantly	52.5%	57.1%	
	Somewhat	44.4%	40.1%	
Do you think you will be at a loss (academic or job) due to this pandemic? (n=629)	Maybe	18.4%	18.8%	0.787
	No	17.7%	15.6%	
	Yes	64.0%	65.6%	
does this pandemic make you insecure about your future? (n=626)	No	43.3%	34.0%	**0.018**
	Yes	56.7%	66.0%	
Does this pandemic make you apprehensive of your decision to pursue your career as a medical professional?	No	53.7%	61.0%	**0.038**
	Yes	46.3%	39.0%	

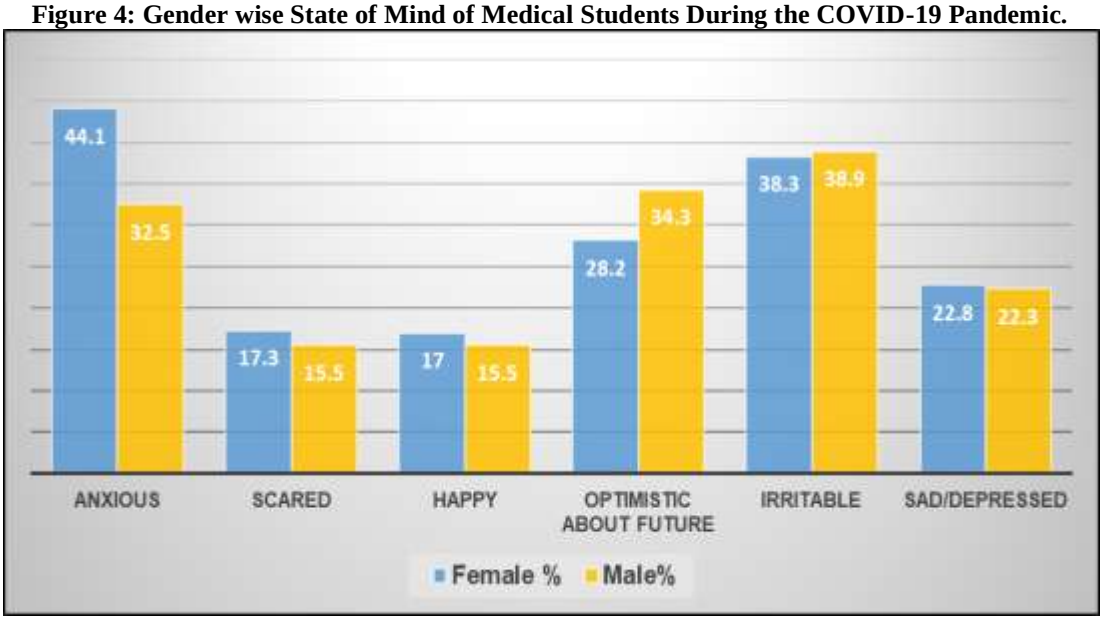
#: significance using chi-square test

A loss due to the pandemic with regards to academic and professional progress was reported by 64.9 % of the students as opposed to 16.5 %, who felt there would be no such loss.

Impact
Based on this survey, 55% felt that COVID-19 had affected their daily life significantly while 42% felt that it had affected their lives only in some ways.
Almost 61.8% of the responders admitted to being insecure about the future. This includes 66% (n=227) females and 56.7% (n=160) males (p=0.018) while 38.2% students had no such perception.

Impact on mental health:
Overall state of mind during this pandemic was assessed and revealed that 38.9% respondents felt anxious,16.5% were scared,38.6% felt irritable, 22.5% felt sad/depressed. However, there were 16.3% students who also felt happy. Nearly one third (31.06%) of respondents reported feeling optimistic about their future

Figure 4: Gender wise State of Mind of Medical Students During the COVID-19 Pandemic.



Although 57.7% of students were confident about their decision to continue with this career choice, 42.3% of the medical students were apprehensive of their decision to pursue a career as a medical professional in the current situation. Among students who reported apprehension, 39% (n=134) were females and 46.3% (n=131) were males (p=0.038).

IV. DISCUSSION

Although the knowledge and awareness of this disease among natives of the USA, UK and Middle East has been documented, [2,4,7]documentations expressing the actual impact of this pandemic in countries like India especially among medical students are only a few.[8]

Analysis of our survey results revealed, that most of the respondents felt that 4-6 feet were the ideal distance to be maintained to prevent the spread of COVID19. And more females felt that a longer distance (>6ft) was more protective as compared to males. This may be due to variations in guidelines given by professional bodies like WHO and Indian Ministry of Family Health and Welfare (MoHFW) and Indian Council of Medical Research (ICMR). [9,10] Hence, options 4-6 feet and 6 feet both are acceptable. However, it was surprising that nearly one-fifth of the respondents felt that distance less than 3 feet was also adequate, which is unacceptable according to current guidelines. Also, some respondents felt that social distancing was not important at all. Although there may be deficient uniformity in literature, it is well established that social distancing is a very important tool with no adverse effects and should be strictly followed. This is important as there are no established full proof treatment options for COVID-19. This is an important finding from our survey that despite ample information available in social and digital media, the awareness about social distancing is still not optimal.

Initiatives have been taken by India to spread awareness among the people by the introduction of a 'COVID caller tune' which is a 30-second audio clip in between calls. However, it is subject to the caller's discretion whether or not to listen to it.[11] Similar efforts in countries like China and Singapore have helped to curb the disease transmission in a large population.[12,13] In spite of numerous online education portals, official platforms or portals to educate students on COVID-19 are not available. As future physicians and educators, implementation of such educational reforms will help medical students to be well equipped to help their patients.

It was seen in our study that only half of the respondents knew the importance of wearing masks despite periodic enforcement by national and international healthcare institutions like WHO and MoHFW,[9, 10, 14] for preventing the transmission of COVID-19. Ironically, a greater majority stepped out of their homes with a mask. This practice could be attributed to the fear of contracting the infection, rather than the insight into how masks can prevent transmission. Moreover, it is not a customary practice to wear a mask, unless one is sick, in many countries including India,[15] which could possibly explain the negligence towards this practice during the pandemic. Opinions on hand hygiene measures were variable with the majority opting for the use of both soap and water for 20 seconds and frequent use of a sanitizer. There was a small population of females who believed neither of the two ways was the right and some believed that use of either was fine enough to contain the disease. The varied behaviour might be due to the individual negligence or genuine concerns about skin problems arising due to amplified hygiene practices[16, 17]or due to lack of facilities at their place of work as observed in developing nations like India and Kenya[18,19]

More than half of the respondents felt that they have suffered a loss due to this pandemic either academically or professionally. Many students especially interns faced compromised clerkships and clinical rotations due to restricted movements or to prevent overcrowding at the health care setups. Many students had to attend online lectures where complaints of improper understanding were encountered due to lack of hands-on experience.[20-22] Moreover, a considerable part of the student population in India hails from remote villages, where irregular electricity supply and poor internet connectivity causes these students lose out on the learning more compared to their counterparts living in urban cities. Documented data from the United Kingdom revealed that the disruptions to student assistantships during this pandemic had had a great impact on students' confidence and preparedness at work.[23]Medical students in India have been retracted from clinical experiences. With the entire curriculum being transitioned to a virtually delivered format, there is no on-campus activity. Delays in conductance of licensure examination, internships along with examinations being conducted online, have made their struggle of finding their worth in healthcare beyond challenging.[24]Similarly, a national survey conducted among students of the United States to

address perceptions of medical students towards their career during this pandemic revealed that the pandemic and the situations created as a result, did affect their choice of speciality.[25]

Analysis of states of mind revealed that a higher percentage of males had experienced positive emotions like being happy and optimistic compared to their female colleagues. Documented data from countries like Italy, explained that changes in sleep quality and feeling of time expansion may cause these altered emotions during the lockdown.[26]

The last yet important observation made was the apprehension that the students harboured about their decision to pursue their career as healthcare professionals. Quite a few respondents in both genders were apprehensive of their decision to continue their careers as healthcare professionals. More number of males expressed apprehension their decision to continue their career as healthcare professionals, despite being more optimistic in their moods. It could be the possible outcome of the setting sun of appropriate behaviour towards healthcare professionals, misinformation about healthcare systems, fear of contracting the disease during their period of service, the stress of workload during and after this pandemic along with economic constraints which may be the reason for apprehension among these students.[27]

Limitations of our study:

The design of the study has its own limitation, as it was an open survey circulated on social media and relied solely upon the information provided by respondents. The stratification of undergraduate students with respect to year of study, state and university was not possible due to a small sample size. The results of the study would have been robust and stronger, had this data captured details and included a large sample size. The survey was sent to only undergraduate students and could not include post graduate and interns, due to their occupancy with mandatory COVID duty, which also meant that the exposure of the undergraduate students to COVID-19 patients is minimal and hence, extrapolating this data to all medical students may be questionable.

V. CONCLUSION

Our survey gives a good insight into how COVID-19 pandemic has 'touched' the lives of medical students in India. Not only does this study show discrepancy and confusion in the minds of the students regarding the right preventive strategies but also the impact which this discrepancy can have on their behaviour and views towards their future. This survey can help to identify the lacunae in the knowledge and preventive strategies of COVID-19 among Indian medical students as we unlock and may lay a cornerstone for the concerned authorities and policy makers to implement solutions for medical students during the pandemic.

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