A rapid online survey of knowledge about COVID-19 among medical students of Nagpur

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Abstract
Background: Since its beginning the year 2020 has been marked by a new global pandemic which has emerged and spread rapidly, caused by a new strain of Coronaviruses called SARS-CoV-2. It is essential in the current circumstances that medical undergraduates have adequate knowledge about COVID-19. Present study was planned to study the knowledge of medical undergraduate students about COVID-19. **Materials and Methods:** The present study was conducted at Government Medical College and Hospital, Nagpur located in state of Maharashtra in the central part of India. The study was carried out during March 2020. It included a survey in total 210 students from all four years of M.B.B.S. It was a rapid assessment descriptive cross sectional study. Data collection was done by a pretested, predesigned self administered questionnaire containing total questions about knowledge, causation, spread and prevention of COVID-19. Descriptive statistics like percentage, mean, and SD (standard deviation) were computed for data presentation. **Observations and Results:** Number of male respondents was 103 and female students were 107 in number. Students from all four years of MBBS participated in the study. Good knowledge was reflected by 111 (52.86%), fair knowledge was present in 83 (39.52%) whereas poor knowledge was observed in only 16(7.62%) of the study participants. There was a statistically significant difference in scores of male and female respondents (p <0.05). **Conclusions:** The study concludes that majority of the medical students had knowledge about COVID-19.
Key Words: COVID-19, Cross sectional, Knowledge, Medical students, Online, Undergraduates

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INTRODUCTION

Since its beginning the year 2020 has been marked by a new global pandemic which has emerged and spread rapidly, caused by a new strain of Coronaviruses called SARS-CoV-2. This pandemic started in Wuhan, China in December 2019, possibly due to cross-species transmission[1], and involved almost every country in the world causing mostly mild upper respiratory tract symptoms and in a minority of cases lower respiratory tract infections (LRTI) called coronavirus disease-19 (COVID-19). [2,3] This new disease has turned out to be a health disaster due to its physical, mental, social, economic and vocational ramifications. It is posing a bewildering array of challenges for health care services and communities at large across the world and India is no exception. Extensive and effective mitigation efforts will be required to successfully "flatten the curve" of COVID-19 pandemic in India and for that health authorities will need timely and actionable data to design policies and interventions that are easily understood and relevant to beneficiaries' lives: [4,5] During pandemics like that of COVID-19, healthcare systems are put under great pressure, and a shortage of healthcare providers (HCP) can drive the participation of less experienced HCP such

as medical students. In addition, medical students are commonly referred to for healthcare advice from family and friends.[6] The recent COVID19 pandemic has led to near-complete saturation and exhaustion of healthcare resources worldwide, including India.[7] Tapping into the massive human resource from undergraduate medical schools could be a potential solution and many state governments in India are considering it.[8] Despite the fact that most graduation school students are still in the learning phase of their career and are neither experienced nor licensed to practice, emergent circumstances may force state governments to engage them in the arduous task of volunteer -force against Covid-19.[7] This calls upon the medical students to be aware about the current diseases and the patterns of which can be helpful for them to prevent themselves and others from it. Thus it is essential in the current circumstances that medical undergraduates have adequate knowledge about COVID-19. A survey on knowledge yields critical information to guide response and recovery efforts, health education, and social mobilization. It also helps to identify misconceptions prevalent about transmission and prevention and the need to prevent stigmatization.[9] Simultaneously such study is also of utmost importance to appropriately assess the level of knowledge towards the disease (COVID 19 specifically here) in various subgroups of the populations with special emphasis on highly involved subpopulations including healthcare workers and students. With this background the present study was planned to study the knowledge of medical undergraduate students about COVID-19.

MATERIALS AND METHODS

The present study was conducted at Government Medical College and Hospital, Nagpur located in state of Maharashtra in the central part of India. The study was carried out during March 2020. It included a survey in total 210 students from all four years of M.B.B.S. Considering the current pandemic and lockdown situation, this study as conducted using an online questionnaire. It was a rapid assessment descriptive cross sectional study. Data collection was done by a pretested, predesigned self administered questionnaire containing total questions about knowledge, causation, spread and prevention of COVID-19. The study questionnaire was mainly based on the frequently asked questions (FAQ)s given by the ministry of health and family welfare (MOHFW).[10] The study participants were provided with a link for the questionnaire through WhatsApp. Approval from the Institutional ethics Committee (IEC) was obtained regarding carrying out the study. An informed consent was obtained from the study participants for their participation in the study. The students were explained about the nature and purpose of the study. Participation in the study was kept purely voluntary. The correct responses were given a score of one and incorrect response was given a score of zero. The total scores were expressed in percentage. Score of more than or equal to 50% was considered good, that of less than 50% and more than or equal to 30% was considered fair and scores less than 30% were considered as poor. Data was obtained in the form of excel sheet. Data analysis was done with help of open epi info and descriptive statistics like percentage, mean, and SD (standard deviation) were computed for data presentation. Chi square test was applied to test the level of significance.

OBSERVATIONS AND RESULTS

In the present study, questionnaire was filled by 210 medical students. Mean age of study participants was 20.21 years with a standard deviation (Sd) of 1.05 years. Number of male respondents was 103 and female students were 107 in number. Students from all four years of MBBS participated in the study. The gender-wise details of the medical students are shown in table 1.

Table 1: Details of the study participants

Parameter	Gender		
	Male	**Female**	**Total**
Age in years	**Number (%)***	**Number (%)***	**Number (%)***
18	4 (3.88)	7 (6.54)	11 (5.24)
19	19 (18.45)	22 (20.56)	41 (19.52)
20	30 (29.13)	42 (39.25)	72 (34.29)
21	40 (38.83)	27 (25.23)	67 (31.90)
22	9 (8.74)	8 (7.48)	17 (8.10)
23	1 (0.97)	1 (0.93)	2 (0.95)
Total	103 (49.05)	107 (50.95)	210 (100)

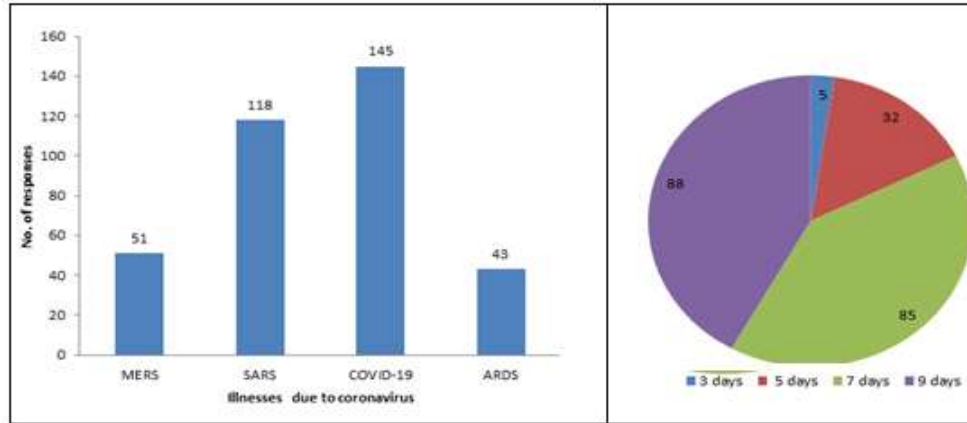| Year of MBBS	Male	Female	Total
1st	17 (16.50)	12 (1.21)	29 (13.81)
2nd	36 (34.95)	46 (42.99)	82 (39.05)
3rd	45 (43.69)	44 (41.12)	89 (42.38)
4th	5 (4.85)	5 (4.67)	10 (4.76)
Total	103 (49.05)	107 (50.95)	210 (100)

*indicates group-wise percentage

Figure 1: Respiratory illnesses that can be caused by coronaviruses in humans

Figure 2: Incubation period

The study participants were asked about illnesses that can be caused due to different coronaviruses in human beings. It was a multiple response type question. The responses to this closed ended question are depicted in figure 1.

First case of COVID 19 was detected in China was known to all (100%) of the study participants. Commonly the incubation period for COVID-19 is 5 days. This was marked by 32 (15.28%) of the study participants. The details about responses on knowledge about incubation period of COVID-19 is presented in Figure 2.

The questionnaire included questions related to knowledge about causation, symptoms, various modes of spread and prevention of COVID 19. Details of the same are shown in table 2.

Table 2: Knowledge about COVID 19

| Statement/Question	Correct response	Number (n=210)	Percentage
In humans, several corona viruses are known to cause respiratory infections ranging from the common cold to more severe diseases	True	191	90.95
It is possible to catch COVID-19 from someone who has, for example, just a mild cough and does not feel ill.	True	137	65.24
Is COVID-19 the same as SARS?	No	112	53.33
Globally the first case of COVID 19 was detected during	December 2019	126	60.00
Mode of spread of COVID-19	Touching contaminated surface and droplets	193	91.90
Can humans become infected with the corona virus infection from an animal source?	Yes	106	50.48
Can you catch COVID-19 from your pet?	No	148	70.48
The most common symptoms of COVID-19	Fever, tiredness, dry cough,	133	63.33
Around 1 out of every_____ people who gets COVID-19 becomes seriously ill and develops difficulty breathing.	6	36	17.14
Antibiotics are effective in preventing or treating the COVID-19	False	131	62.38
Is there a specific vaccine, drug or treatment for COVID-19?	No	153	72.86
How should one dispose the used mask during COVID outbreak?	Discard mask in a closed bin immediately after use	113	53.81
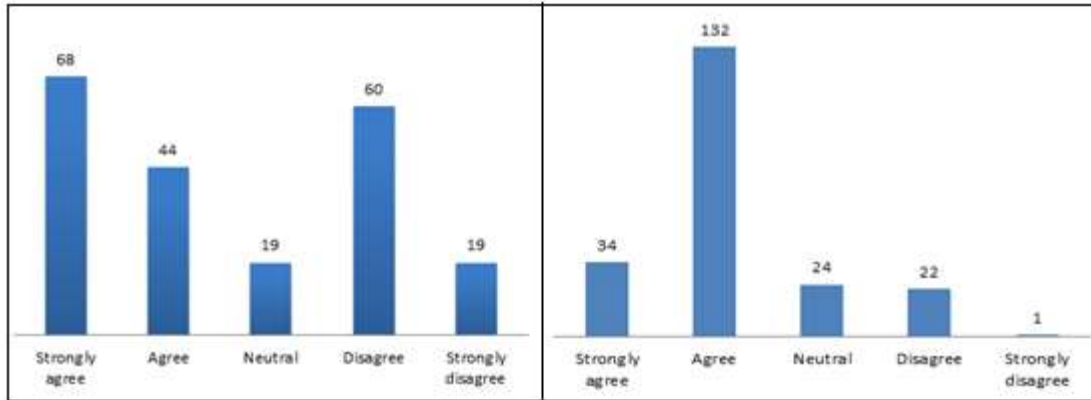
Figure 3: Opinion about asymptomatic nature of COVID-19   **Figure 4:** Opinion about mask usage

The study participants were asked to opine on a five point Likert scale about asymptomatic nature of COVID-19 i.e. can some people of COVID 19 become infected but do not develop any symptoms and don't feel unwell. The response to this is displayed graphically in figure 3 ahead. Similarly, an opinion was also sought on a five-point Likert scale about the compulsory usage of masks. The question asked was, should wearing mask be compulsory during COVID 19 pandemic to protect from the disease. The details of this are displayed in the form of a bar diagram in figure 4.

Total scores of the study participants based on their correct responses were graded as good, fair and poor. Good knowledge was reflected by 111 (52.86%), fair knowledge was present in 83 (39.52%) whereas poor knowledge was observed in only 16(7.62%) of the study participants. The scores were compared with gender and year of MBBS study. The results are shown in table 3.

Table 3: Comparison of scores with age and MBBS study year

		Good	Fair	Poor
Gender	Male	63	33	7
	Female	48	50	9
	Chi square =6.3647, df=2, p= 0 .04148*			
MBBS year	First MBBS	9	17	3
	All others	102	66	13
	Chi square = 6.4642, df=2, p= 0.0394*			

*Indicates significant p values.

As obvious from the table, there was a statistically significant difference in scores of male and female respondents (p <0.05). Also the knowledge of first MBBS students was observed to be significantly less in comparison with other students (p<0.05).

DISCUSSION

Medical students are clinicians who have responsibilities to patients and who should be allowed to fulfill their duties as such. In addition to the benefits to patients and the health care system, allowing students to participate reinforces important values, such as altruism, service in times of crisis, and solidarity with the profession. In the present study o knowledge of medical students about COVID-19, study participants from all years of MBBS participated. Majority of them were from 2nd and 3rd year of MBBS. Number of male and female students was almost similar. Both amounted for almost half of the study population. This distribution is similar to a study by Mohammed *et al.* from Nigeria.[11] Most of the participants had correct knowledge that in humans several corona viruses are known to cause respiratory infections ranging from the common cold to more severe diseases. Most of them also had a correct knowledge about modes of spread of COVID-19. Overall knowledge about the symptoms of COVID-19 was fairly good with more than half of the participants had correct knowledge about the symptoms. In addition knowledge regarding non availability of vaccine or any specific antiviral treatments against COVID-19 was present in a vast majority of the medical students i.e. approximately in above three-fourth participants. The correct knowledge about disposal of used mask was also noted among more than half the medical students. These findings are coherent with another studies.[12,13] Study from Nigeria supports this finding wherein the authors explain it by quoting that high level of knowledge could be attributed to the increased publicity and effect of the pandemic on lives and livelihood.[11] All the findings are a positive sign that the medical students are having an insight into the current pandemic situation and they are thus updating them with the correct knowledge. As the society looks forward onto the doctors as COVID warriors with the medical

students as being the budding ones having knowledge about aspects of COVID is indeed a promising asset. However it was observed that knowledge about common incubation period of COVID-19 and its severity was present in very few study participants. Thus there is a need to focus on all aspects of the disease as these have a role to play in prevention of the disease. A noteworthy point is that majority of the participants had a good or fair knowledge about COVID-19, indirectly pointing towards their preparedness. Providing knowledge through authentic sources either books, journals or official websites will help the medical students in gaining an all round update on COVID-19. The medical students do not treat the patients directly. But by having a correct knowledge they can definitely treat the misconceptions about the disease. The limitations of the study need a mention. A low response rate of 23.57% can be a limiting factor of the current cross sectional study and its statements cannot be generalized. Moreover the questionnaire was a self administered one. However in spite of the limitations the current study brings out the picture of knowledge about COVID-19 among medical students specifically from the central part of India.

CONCLUSIONS

The study concludes that the study participants had a good knowledge about COVID-19. Gender and year of MBBS study was significantly associated with the findings.

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