Assessment of Knowledge of Undergraduate and Postgraduate Medical Students about Home-Isolation Guidelines of COVID-19

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ABSTRACT

Background: COVID-19 patients can stay at home if isolated from others. The present study was carried out for assessment of knowledge of home-isolation (HI) guidelines.

Method: Cross sectional descriptive study was done amongst 289 Undergraduate (UG) and Postgraduate (PG) medical students. The data collected through Google form were analysed and calculation of percentages, proportion, mean, SD etc. was done.

Results: Response rate was 61.49%. Mean age was 21.32 ± 2.27 years. Female to male ratio was 1.4:1. 93.42% and 6.57% were UG students and PG students respectively. 80.97% had performed COVID duty. There is no significant difference between boys and girls in performing COVID-19 duties. (z=1.46, p>0.05). 38.06% correctly defined HI, 50.52% knew when to discontinue HI, and 66.09% knew eligibility criteria for HI. 18.68% had knowledge about hand washing, 20.07% knew about COVID 19 helpline numbers. The mean score of the UG students was 6.84±2.17 whereas same as for PG students was 7.79±2.07.

Conclusions: Students had higher level of correct knowledge about, when to seek medical attention for home isolated person; infection control practices followed by hand hygiene, use of mask by care giver. There is less knowledge about other aspects of home isolation.

Key words: COVID 19; Hand washing; Helpline; Home isolation; Medical students

INTRODUCTION

Pandemics, are well-known as the epidemics on the basis of worldwide spread.[1] World health organization (WHO) first learned of this new virus from cases in Wuhan, people's republic of China on 31st December 2019.[2] COVID 19 was declared as pandemic by WHO on 11 March 2020.[3] COVID-19 (corona virus disease) is an infectious disease caused by the corona virus, SARS- CoV – 2 which is a respiratory pathogen. COVID-19 affects different people in different ways .Most people infected with the COVID-19 virus will experience mild to moderate respiratory illness and recover without hospitalization or requiring special treatment. Older people, and those with underlying medical problems like cardiovascular disease, diabetes, chronic respiratory disease, and cancer are more likely to develop serious illness.[4] Both isolation and quarantine are methods of preventing the spread of COVID-19. **Quarantine** is used for anyone who is a contact of someone infected with the SARS-CoV-2 virus, which causes COVID-19, whether the infected person has symptoms or not.[2] **Isolation** is used for people with COVID-19 symptoms or who have tested positive for the virus. Being in isolation means being separated from other people, ideally in a medically facility where you can receive clinical care. If one is not in a high-risk group of developing severe disease, isolation can take place at home.[2] As per ministry of health and family welfare (MoHFW) guidelines, COVID-19 positive person who is **Very Mild/ Pre – Symptomatic /Asymptomatic** can stay

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at home if adequately isolated from others, but this should be confirmed by the treating doctor.[5] According to MOHFW home isolation guidelines, the asymptomatic cases are laboratory confirmed cases not experiencing any symptoms and having oxygen saturation at room air of more than 94%.[6] And clinically assigned mild cases are patients with upper respiratory tract symptoms (&/or fever) without shortness of breath and having oxygen saturation at room air of more than 94%.

Most of undergraduate students were involved in sanjeevani home care duty, RTPCR and rapid antigen testing duty, and postgraduate students were in hospital COVID 19 ward and OPD duty and other COVID duties. In view of all the above-mentioned facts, the present study was carried out to know their knowledge about DO & DONT'S in home-isolation guidelines for COVID 19.

METHODS

A cross sectional Google form-based survey was conducted amongst Undergraduate (UG) and Postgraduate (PG) medical students of a Medical College in Ahmedabad, Gujarat, India for the duration of one month from December 2020 - January 2021.

In absence of prior data, prevalence of knowledge was assumed as 50% for this study. Taking allowable error of 12%, sample size was calculated as 267. Those students from AMCMET medical college who were not willing to take part in the survey as well as those who were not using smartphone and/or had internet connection issues were excluded from this study.

The questionnaire was prepared to evaluate the knowledge of the MoHFW home isolation (HI) guidelines[5,6] for COVID-19 pandemic amongst UG and PG students. The questionnaire was formed in a pre- designed, semi structured pattern which composed of twenty-one questions. The questionnaire included closed ended questions, open ended questions and multiple-choice questions. The questionnaire consisted of three sections which assessed mainly three aspects of the students: A) Demographic characteristics; B) Covid-19 duty performed and COVID-19 infection in self and/or their family member; and C) Current knowledge of MoHFW HI guidelines for COVID-19. The guidelines of MoHFW regarding HI for COVID 19 were used for preparation of the questionnaire.

The questionnaire link was distributed via social media like WhatsApp and data were collected through a Google form. Data were analysed using Microsoft excel 2019 and SPSS version 20.0. Calculation of percentages, proportion, mean, standard deviation (SD) and p value was done.

Each of the twelve questions was given score '0' for incorrect answer and '1' for correct answer. So, the range of the score could be between 0 to 12 for each respondent.

Approval was obtained from the Institutional Review Board (IRB) of the medical college before the commencement of study.

RESULTS

All the UG and PG students were imparted 2 day's training in various aspects like rapid testing, RTPCR testing, Sanjeevani duties (for care of home isolated patients), Dhanvantri duties, 104 duties, care of hospitalized COVID-19 patients, infection control practices etc. by department of microbiology, anaesthesia and general medicine. For the purpose of present study, the link of the questionnaire was shared with 400 undergraduates and 70 postgraduate students of medical college and a total of 289 medical students of medical college had responded to the survey giving an overall response rate of 61.49%. To prevent incomplete and missing results of responses through Google form, the majority of the questions were marked as necessary to be answered. Individual Google form responses were checked by the principal investigator to avoid double entry of the data.

Age wise distribution of the respondents showed that majority i.e., 81 (67.5%) male and 105 (62.1%) female students belonged to age group 20-22 years. Mean age of respondents was 21.32± 2.27 years. Mean age of male respondents was 21.65 ± 2.14 years and mean age of female respondents was 20.99 ± 1.86 years. Gender wise distribution of the respondents showed that 169 (58.48%) were females and 120 (41.52%) were males. Female to male ratio was 1.4:1.

Out of total respondents 270(93.4%) were UG students and 19(6.6%) were PG students. Distribution according to year of MBBS study showed that 96 (35.56%) students belonged to second MBBS followed by 82 (30.37%) who were in final MBBS. Only 8 (2.96%) belonged to first MBBS as the response rate amongst them was poor due to apprehension that they were not knowing much about HI.

Table 1: Socio-demographic profile

Variable	Male (N=120)	Female (N=169)
Age (years)		
17-19	10 (8.3)	35 (20.7)
20-22	81 (67.5)	105 (62.1)
23-25	22 (18.3)	23 (13.6)
26-28	4 (3.3)	6 (3.5)
29-31	3 (2.5)	-
Year of study		
Undergraduates: (N=270)		
1st MBBS	3 (2.5)	5 (2.9)
2nd MBBS	30 (25)	66 (39)
Final MBBS part-1	38 (31.7)	44 (26)
Final MBBS part-2	17 (14.2)	22 (13)
Intern	23 (19.2)	22 (13)
Postgraduates: (N=19)		
1st year	3 (2.5)	4 (2.4)
2nd year	2 (1.6)	4 (2.4)
3rd year	4 (3.3)	2 (1.2)

Figures in parenthesis indicate percentage.

Table 2: Information about COVID-19 duties and infection among the respondents

Variable	UG (n=270)	PG (n=19)
COVID duty Performed		
Yes	215 (79.6)	19 (100)
No	55 (20.4)	-
Type of COVID duty		
Single type	175 (64.8)	4 (21.1)
More than one type	44 (16.3)	15 (78.9)
Not answered	51 (18.9)	-
H/O COVID-19 infection		
Self		
Yes	52 (19.3)	10 (52.6)
No	218 (80.7)	9 (47.4)
Family member		
Yes	92 (34.1)	7 (36.8)
No	178 (65.9)	12 (63.2)
Self & family member both	34 (12.6)	3 (15.7)

Figures in parenthesis indicate percentage.

Out of 19 PG students, almost equal numbers belonged to three years of PG studies. [Table1]

During pandemic of SARS-CoV-2 all medical students were involved in COVID-19 duty. UG students mostly performed Sanjeevani duty for home care of patients, rapid antigen testing and contact tracing whereas PG students were given COVID-19 duties in OPD and wards. Out of 289 participants, 215(79.6%) UG students and 19(100%) PG students had performed COVID-19 duty and 55(19%) UG students had not performed COVID-19 duty.

Out of 270 UG students, 175 (64.8%) had performed only single type of COVID-19 duty out of three mentioned above. 44(16.3%) had performed more than one type of COVID-19 duty and 51(18.9%) had not answered that which type of COVID-19 duty was done by them. Out of 19 PG students, 4(21%) had performed only single type of COVID-19 duty and 15(78.9%) had performed more than one type of COVID-19 duty. There is no significant difference between boys and girls in performing COVID duties. (z=1.46, p>0.05).

Out of 289 students, 52 (19.3%) UG students and 10(52.6%) PG students had history of Covid-19 infection. 218(80.7%) UG and 9(47.4%) PG students had no history of novel corona virus infection. Out of 289 students, 92 (34.1%) UG students and 7(36.8%) PG students had history of family member tested Covid 19 positive. 34 (12.6%) of UG and 3 (15.7%) of PG students had history of corona virus infection in self and family members both. [Table 2]

Table3: Knowledge about home isolation guidelines of MoHFW

Variables	UG students (N=270) Answered correctly		PG students (N=19) Answered correctly		P value
	Yes (%)	No (%)	Yes (%)	No (%)	
Correctly defined home isolation	103 (38.1)	167 (61.8)	7 (36.8)	12 (63.2)	0.91
Correct knowledge about eligibility for home isolation	178 (66)	92 (34)	13 (68.4)	6 (31.6)	0.83
Correctly answered When to discontinue home isolation?	129 (47.8)	141 (52.2)	17 (89.5)	2 (10.5)	<0.0001
When a home isolated person should go for testing again?	86 (31.8)	184 (68.2)	14 (73.7)	5 (26.3)	<0.0001
During home isolation, when there is need to seek medical attention?	210 (77.8)	60 (22.2)	14 (73.7)	5 (26.3)	0.7
When the mask used by home isolated patient should be discarded?	148 (54.8)	122 (45.2)	11 (57.9)	8 (42.1)	0.79
For how many seconds home isolated person has to wash their hands?	51 (18.9)	219 (81.1)	3 (15.8)	16 (84.2)	0.7188
Correct knowledge of infection control practices for care giver	225 (83.3)	45 (16.7)	17 (89.5)	2 (10.5)	0.4
Correct knowledge about helpline numbers for COVID19	55 (20.4)	215 (79.6)	3 (15.8)	16 (84.2)	0.6
Correct knowledge about hand hygiene practice, use of mask when communicate with ill person	193 (71.5)	77 (28.5)	16 (84.2)	3 (15.8)	0.15
Correct knowledge of hand hygiene in care giver	236 (87.4)	34 (12.6)	16 (84.2)	3 (15.8)	0.71
Correct knowledge of proper use of mask by care giver	234 (86.7)	36 (13.3)	17 (89.5)	2 (10.5)	0.7

Table 4: Year of study and corona duty versus knowledge score

Variable	Knowledge score		P value
	Mean	SD	
Year of study			
Undergraduates:	**6.84**	**2.17**	-
1st year MBBS	5	2.45	0.0150
2nd year MBBS	6.5	2.06	0.1052
Final year MBBS part 1	6.93	2.31	0.9422
Final year MBBS part 2	6.85	1.95	0.8699
Intern	7.76	1.92	0.0136
Postgraduates:	**7.79**	**2.07**	-
1st year	7.14	2.27	0.7821
2nd year	7.33	2.34	0.6397
3rd year	9	1.10	0.0194
Corona duty			
Performed	7.05	2.18	0.0191
Not performed	6.29	2.03	

Note: p values were calculated by comparing the sub group score with overall score of the group

The knowledge of UG and PG medical students about HI guidelines was assessed on basis of twelve questions prepared according to home isolation guidelines of MOHFW. All the respondents had higher level of correct knowledge about, when to seek medical attention for home isolated person, infection control practices followed by care giver, hand hygiene by care giver and use of mask by care giver. However, PG students had statistically significantly higher knowledge about when to discontinue home isolation and testing protocol for home isolated patient. [Table 3, Figure 1]

The mean score of the UG students was 6.84±2.17 whereas same as for PG students was 7.79±2.07. However, over all knowledge score for the study group was 6.91±2.17. The difference in mean score between UG and PG students was statistically not significant. (p >0.05)
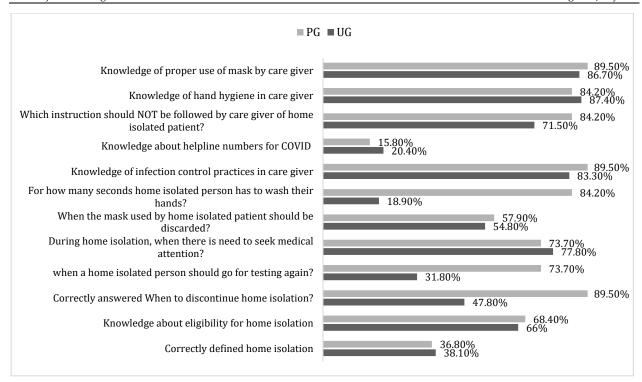
Figure 1: Knowledge about home isolation guidelines

The knowledge score was calculated as per the year of study of UG and PG students. The score increased as students advanced in studies from 1st year of MBBS to 3rd year of residency.

The knowledge score of each year of study was compared with overall knowledge score of the respondents. When mean score of students of different years of MBBS studies was compared with overall score, the knowledge score of first MBBS students was significantly lower whereas the knowledge score of interns and third year residents was significantly higher. Mean score of the students who performed one or other type of COVID-19 duty was compared with those who did not do any type of COVID-19 duty. The mean score was statistically significantly higher amongst students who had done one or other type of corona duty. (p 0.0191) [Table 4]

DISCUSSION

Asymptomatic and mild COVID 19 cases can be managed in home isolation with constant monitoring of spO2 levels and other symptoms.[5,6] Hospital beds can be kept reserved for more severe cases who need oxygen therapy or ventilatory support. As medical students are actively involved in management of corona pandemic under supervision, they need to have proper knowledge about MoHFW guidelines. In the present study the knowledge of UG and PG medical students were assessed about HI guidelines of MoHFW in regard to COVID-19.

In the current study the survey was conducted online. In many other studies conducted during this pandemic amongst community and health care providers, the same method for survey was used.[7,8,9,10,11,12] Response rate in current study 61.49% and was similar to the response rate of many other studies.[13,14]

In the current study UG and PG medical students were study participants. Other studies for knowledge assessment during current pandemic were carried out amongst general population [7,8,9,10,14,15] and few were carried out amongst health care providers.[11,13] Another study by Yuehui et al was carried out amongst college students.[16]

Mean age of respondents was 21.32± 2.27 years in the present study and participants belonged to age range between 17 to 31 years. In a study by Benjamin et al, the study participants were more than the age of 18 years.[8] whereas, in another study by Zannatul et al, in Bangladesh amongst general population the study group belonged to age group between 12 to 64 years.[9]

In the current study female to male ratio was 1.4:1 and 58.48% participants were women. In another study which was carried out in China 65.7% were women.[7]

In current study 79.6% of UG and 100% of PG medical students had performed COVID duty. 19.3% of UG and 52.6% PG students have history of COVID infection before the time of survey.

Mean knowledge score about the HI practices in the current study was 6.91±2.17. In a study by Benjamin et al study participant had moderate to high level of knowledge of COVID 19.[8] In another study amongst general population 48.3% of participant had more accurate knowledge and 55.1% had more frequent

practices regarding COVID 19 infection.[9] In one more study overall high score was 81.19% for knowledge and 60.8% for practice toward COVID 19.[10,12]

In the current study the knowledge of UG and PG medical students was high about when to seek medical attention, infection control practices, hand hygiene, use of mask, hand hygiene of care giver and use of mask by care giver during HI of patient. PG medical students had high knowledge about when a HI person should go for testing again and when to discontinue HI. Those performed one or other type of COVID duty had higher knowledge about HI.

LIMITATIONS

This study was limited to a single medical college of Ahmedabad, Gujarat. Moreover, due to the ongoing COVID-19 duties of students as front-line workers, there was low response rate through online mode of data collection hence this may impact the generalizability.

CONCLUSIONS AND RECOMMENDATIONS

Knowledge of correct definition of home isolation, when to discontinue home isolation, when to retest, when to change the mask, correct duration of hand washing and helpline number was poor amongst UG and PG students. Training programmes aimed at improving COVID-19 knowledge and the knowledge of existing national guidelines for COVID management are helpful for improving knowledge of UG and PG medical students for better management of COVID-19 amongst HI patients. Exposure to the COVID-19 duties increases the practical knowledge of students in regard to various aspects of COVID-19 management. Development of effective training programme followed by the practical experience is effective in improving the COVID-19 management amongst the HI patient. The gaps in knowledge and skill observed in the current study can be useful in providing the targeted training to UG and PG medical students.

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