International Journal of Community Medicine and Public Health
*Singh R et al. Int J Community Med Public Health. 2023 Sep;10(9):3158-3163*
http://www.ijcmph.com
pISSN 2394-6032 | eISSN 2394-6040

DOI: https://dx.doi.org/ 10.18203/2394-6040.ijcmph20232672

**Original Research Article**

# Comparative study of knowledge, attitude, and practices towards COVID-19 among MBBS Prof 1 students of two successive years in Motilal Nehru Medical College, Prayagraj, Uttar Pradesh

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**Received:** 20 May 2023
**Revised:** 31 July 2023
**Accepted:** 01 August 2023

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## ABSTRACT

**Background:** Coronavirus disease 2019 (COVID-19) is an acute respiratory disease caused by a novel coronavirus. Three waves of COVID 19 have hit us so far. With repeated waves of any disease, it has been observed that panic in the community and healthcare personnel decreases and knowledge and attitude towards the disease and diseased improves. Keeping this in mind, the following study was conducted with the following objective. Aim of this study was to assess and compare knowledge, Attitude and Practices of students of MBBS phase I of two consecutive years-2020 batch and 2021 batch regarding COVID-19.
**Methods:** Data was collected from two successive MBBS first professional batch students by using questionnaire and assessment of knowledge, attitude and practice was done on the basis of scoring system described by Kaliyaperumal.
**Results:** It was observed that among phase I MBBS students (2020 batch) majority i.e. 55.89% were having medium level of knowledge, with a range of score 11-15. While among phase I MBBS students (2021 batch), majority i.e. 62.82% were having high knowledge score in the range of 16-21. Regarding the attitude scores, majority of students in both the batches (52.82% in phase I (2020 batch) and 65.45% in phase I (2021 batch)) were having good attitude (score >6). Practice scores were mostly satisfactory (score 3-5) among both batches' MBBS students.
**Conclusions:** The study revealed that the attitude among students was good while knowledge and practice were satisfactory.

**Keywords:** Attitude, COVID-19, Knowledge, Practice

## INTRODUCTION

The unprecedented emergence of covid-19 virus has brought about certain drastic changes in this world. Since the report of the first cluster of Coronavirus cases on 31 December 2019 in Wuhan, a metropolitan city of China, it has shown rapid spread over a short period.[1] On 30 January 2020, the International Health Regulations Emergency Committee meeting regarding the outbreak of COVID-19 declared it a Global Public Health Emergency of International Concern (PHEIC). On 11 February 2020, the virus was labelled by WHO as 'severe acute respiratory tract coronavirus-2' (SARS-CoV-2)and disease as COVID-19.[2,3] On 11 March 2020, this outbreak was declared as Global Pandemic by WHO as it had already spread in more than 200 countries by then.[4]

Three waves of COVID 19 have been witnessed so far, second being the largest and deadliest. Till 1st June, 2022, there have been more than 500 million positive COVID-19 cases recorded with 6.2 million deaths globally.[5]

The first case of COVID 19 in India was reported on 31st January, 2020 and since then India had recorded increase in number of cases. On 25th of March of the same year, no of cases in India was 51, when first lockdown was announced. In spite of screening at various ports and thorough tracing of all the contacts of known cases, other stringent measures were deemed necessary.

India's response so far to the COVID-19 pandemic has been one of the most stringent in the world, which was admired and praised worldwide and it scored a perfect 100 on the "Oxford COVID-19 Government Response Tracker (OxCGRT)" that compares various government's responses to the coronavirus outbreak worldwide.[6] The rate of rise in cases in this second most populous country was lower as compared to other countries, possibly due to implementation of a nation-wide lockdown at an early stage of the pandemic. As the second-most populous country, however, the eventual rapid rise to being the second-highest infected country in the world could not be restrained. The first wave of COVID-19 pandemic reached its peak in India in September-October and then started declining but the fight still continued. The second wave came in March 2021, peaked in April 2021 and stretched till July-August, 2021. The third wave came in December 2021 and was mostly subsided by February 2022.

Coronavirus disease 2019 (COVID-19) is an acute respiratory disease caused by a novel coronavirus. The disease causes respiratory illness (like the flu) with main clinical symptoms such as a dry cough, fever, and in more severe cases, difficulty in breathing. COVID- 19 is highly contagious with a certain mortality rate. So far, the behavior of COVID 19 virus and its variants and mutants has remained variable and unpredictable. Other symptoms like GI symptoms, damage to liver and kidney have also been reported in certain cases.

While controlling the movement of people can limit the spread, empowering citizens with the right information and encouraging their strict adherence to government advisories play a crucial role in outbreak management. Data from the SARS outbreak in 2003 suggest that knowledge and attitudes towards relatively new infectious diseases are usually associated with level of panic among the population and healthcare personnel, which can further complicate measures to prevent the spread of the disease.[7,8] Similarly, it can be said that knowledge and attitudes towards COVID 19 disease among medical students (future doctors) will have long term impact on care and management of COVID 19 patients or any other newly emerging infectious disease patients. Also, with repeated waves of any disease, it has been observed that panic in the community and healthcare personnel decreases and knowledge and attitude towards the disease and diseased improves.

Keeping this in mind, the following study was conducted with the following objective to assess and compare knowledge, attitude and practices of students of MBBS phase I of two consecutive years- 2020 batch and 2021 batch regarding COVID-19.

## METHODS

A cross -sectional KAP study. The study was conducted on MBBS phase I students of two successive years, 2020 and 2021.

### *Study duration*

Data was collected from two successive batch students during their MBBS first professional.

### *Study participants*

Students of First Professional MBBS in Moti Lal Nehru Medical College, Prayagraj, Uttar Pradesh, India.

### *Inclusion criteria*

All students of MBBS-phase I present in the college at the time of study.

### *Exclusion criteria*

Those who left any section of the questionnaire blank, were excluded from analysis.

After obtaining approval from the Institutes Ethics committee and informed consent from all the students of phase I (2020 batch), a semi-structured and pre-tested questionnaire was administered to them and information regarding their knowledge on COVID-19 disease, their attitude towards adoption of preventive measures, attitude towards patients and their family members and their supposed actions regarding prevention and management of COVID 19 were sought in the form of answers in that questionnaire in the presence of an interviewer. The questionnaire was prepared in English. The pretesting was done on a group of 15 students and accordingly modifications were made. Again data was collected from MBBS phase I students (2021 students) in a similar manner in March 2022 as their entrance examination and hence admission was delayed due to COVID 19 second wave.

Assessment of knowledge, attitude and practices was done on the basis of scoring system described by Kaliyaperumal.[9] The evaluation of the questionnaire was done by two faculty members of different specialty. Every questionnaire was photocopied and evaluated by both of them in order to achieve fair judgment and maintain uniformity of marks. In case of discrepancy in marks, final decision of marks was made after discussion among them. For knowledge and practices, each correct response was awarded a score of 1. This was done to account for the multiple possible combinations of responses for a single question, e.g. when asked about

clinical features of COVID 19 disease, students might answer any number of these: sore throat, fever, fatigue, malaise, shortness of breath, diarrhoea etc. For each correct answer, 1 score was awarded. In case of questions which demanded answers in the words of students, the judgment was made by expert faculty members who evaluated. They were awarded either 1 or 0. For attitude, a numerical value was assigned to each choice in the range of responses, with the middle response given a score of zero and positive and negative scores assigned to those around it. In this way a score was calculated for each individual in relation to the highest possible score.

## RESULTS

The levels of KAP regarding COVID-19 disease are presented in Table 1. The data showed that among phase I MBBS students (2020 batch). Majority i.e. 55.89% had medium level of knowledge, with a range of score 11-15, 32.31% had low knowledge score (score <or=10) and only 11.80% students had high knowledge score (16-21). While among phase I MBBS students (2021 batch), majority i.e. 62.82% had high knowledge score in the range of 16-21, 35.60% students had medium knowledge scores and only 3 students (1.58%) had low scores. Regarding the attitude scores, majority of students in both the batches (52.82% in phase I (2020 batch) and 65.45% in phase I (2021 batch)) had good attitude (score >6). Practice scores were mostly satisfactory (score 3-5) among both batches' MBBS students. The details of knowledge assessment, attitude assessment and practice assessment with score assignment can be observed in Tables 2, 3 and 4 respectively.

**Table 1: Levels of KAP regarding COVID-19 disease.**

| Knowledge score (Total score-20) | Medical students, phase I (2020 batch) (n=195) (%) | Medical students, phase I (2021 batch) (n=191) (%) | Chi-square test value and p value |
|---|---|---|---|
| Low (<or=10) | 63 (32.31) | 3 (1.58) | |
| Medium (11-15) | 109 (55.89) | 68 (35.60) | 16.01 and 0.00006 |
| High (16-21) | 23 (11.80) | 120 (62.82) | 107.75 and 0.00001 |
| **Attitude scores** | | | |
| Low (<3) | 0 | 0 | - |
| Satisfactory (3-6) | 92 (47.18) | 66 (34.55) | 6.36 and 0.0117 |
| Good (>6) | 103 (52.82) | 125 (65.45) | 6.36 and 0.0117 |
| **Practice scores** | | | |
| Low (<3) | 12 (6.15) | 6 (3.14) | 1.97 and 0.1605 |
| Satisfactory (3-5) | 163 (83.58) | 146 (76.44) | 3.09 and 0.07 |
| Good (>5) | 30 (15.38) | 39 (20.42) | 1.67 and 0.1968 |

**Table 2: Details regarding knowledge assessment.**

| Knowledge regarding COVID 19 disease | Answered correctly (n=386) (%) | MBBS I Phase (2020 batch) (n=195) (%) | MBBS I Phase (2021 batch) (n=191) (%) | Chi-square test value and p value |
|---|---|---|---|---|
| Knows the name and family of causative agent (1) | 204 (52.84%) | 34 (17.43) | 170 (89) | 198.34 and 0.00001 |
| Knowledge regarding source of infection (1) | 340 (88.08) | 162 (83.07) | 178 (93.19) | 9.41 and 0.0022 |
| Mean incubation period (1) | 323 (83.67) | 156 (80) | 167 (87.43) | 3.91 and 0.0481 |
| **Modes of transmission (3)** | | | | |
| Contact transmission | 321 (83.16) | 137 (70.25) | 184 (96.33) | 46.86 and 0.00001 |
| Respiratory droplet transmission | 336 (87.04) | 152 (77.94) | 184 (96.33) | 28.93 and 0.00001 |
| Airborne transmission | 120 (31.08) | 36 (18.46) | 84 (43.97) | 29.33 and 0.00001 |
| **Clinical features (max score 6)** | | | | |
| At least one clinical feature | 386 (100) | 195 (100) | 191 (100) | - |
| All known clinical features | 101 (26.16) | 42 (21.53) | 59 (30.89) | 4.37 and 0.0366 |
| Where and when to get yourself tested for COVID 19 disease (1) | 243 (62.95) | 123 (63.07) | 120 (62.82) | 0.003 and 0.9595 |
| When hospital based care is needed (1) | 235 (60.88) | 107 (54.87) | 128 (67.01) | 5.97 ; Continued. |
| **Hand washing- when and how (2)** | | | | |

| Knowledge regarding COVID 19 disease | Answered correctly (n=386) (%) | MBBS I Phase (2020 batch) (n=195) (%) | MBBS I Phase (2021 batch) (n=191) (%) | Chi-square test value and p value |
|---|---|---|---|---|
| When to wash hands | 364 (94.30) | 182 (93.33) | 182 (95.28) | 0.69 and 0.4075 |
| How to wash hands | 212 (54.92) | 53 (27.17) | 159 (83.24) | 122.51 and 0.00001 |
| Use of face masks (1) | 378 (97.92) | 188 (96.41) | 190 (99.47) | 3.09 and 0.0789 |
| Social distancing (1) | 305 (79.01) | 136 (69.74) | 169 (88.48) | 20.43 and 0.00001 |
| Safe disposal of used masks(1) | 125 (32.38) | 32 (16.41) | 93 (48.69) | 45.92 and 0.00001 |
| Arogya setu app (1) | 278 (72.02) | 119 (61.02) | 159 (83.24) | 23.64 and 0.00001 |
| COVID Vaccine (1) | 102 (26.42) | 33 (16.92) | 69 (36.12) | 18.30 and 0.000019 |

**Table 3: Details regarding attitudes assessment.**

| Attitudes assessment | | | | |
|---|---|---|---|---|
| | **Answered correctly (total n=386) (%)** | **MBBS I phase (2020 batch) (n=195) (%)** | **MBBS I phase (2021 batch) (n=191) (%)** | **Chi-square test value and p value** |
| **Willing and okay with wearing of masks while in public?** | 386 (100) | 195 (100) | 191 (100) | - |
| **Of the view that strict measures should be taken to enforce wearing of masks in public** | 372 (96.37) | 192 (98.46) | 180 (94.24) | 3.78 and 0.0517 |
| **Of the view that social distancing is going to help curb the transmission** | 378 (97.92) | 187 (95.89) | 191 (100) | - |
| **Read any article related to covid 19 in a scientific journal in past 6 months** | 297 (76.94) | 146 (74.87) | 151 (79.05) | 0.95 and 0.3290 |
| **Willingness to get tested if mild flu like symptoms are there** | 291 (75.38) | 130 (66.66) | 161 (84.29) | 16.16 and 0.00006 |
| **Reaction if you found that you are covid 19 positive** | 266 (68.91) | 120 (61.53) | 146 (76.43) | 10.00 and 0.0016 |
| **Okay with all your relatives and neighbours knowing that you are covid 19 positive?** | 317 (82.12) | 162 (83.07) | 155 (81.15) | 0.24 and 0.6216 |
| **Fear of unknown present if diagnosed with covid 19?** | 303 (78.49) | 175 (89.74) | 128 (67.01) | 29.53 and 0.00001 |

**Table 4: Details regarding practices assessment.**

| Practices assessment | | | | |
|---|---|---|---|---|
| | **Answered correctly (total) (n=386) (%)** | **MBBS I phase (2020 batch) (n=195) (%)** | **MBBS I phase (2021 batch) (n=191) (%)** | **Chi-square test value and p value** |
| **Following social distancing with people in public places** | 351 (90.93) | 165 (84.61) | 186 (97.38) | 19.07 and 0.00001 |
| **Regularly wearing mask when stepping outside of your house** | 372 (96.37) | 185 (94.87) | 187 (97.90) | 2.54 and 0.1109 |
| **Practice frequent hand washing?** | 364 (94.30) | 182 (93.33) | 182 (95.28) | 0.69 and 0.4076 |
| **Proper disposal of worn masks?** | 121 (31.34) | 32 (16.41) | 89 (46.59) | 40.86 and 0.00001 |
| **Intake any prophylactic drugs against covid 19?** | 159 (41.19) | 48 (24.61) | 111 (58.11) | 44.70 and 0.00001 |
| **Supposed action if somebody known approaches you with complains of fever and sore throat?** | 271 (70.20) | 123 (63.07) | 148 (77.48) | 9.58 and 0.0028 |

Table 3 shows attitude of students towards COVID 19 disease. Almost all the students are willing to wear masks in public and agree with social distancing norms, 76.94% students read articles related to COVID 19 while at home,

majority of students (over 75%) were willing to get tested in case of mild flu like symptoms and were okay with everyone knowing their covid status. This shows a very good attitude towards this disease. This good attitude was also shown to be translated in good practice (Table 4) among these students as they had been practicing social distancing (90.93%), wearing of masks while stepping out of house (96.37%) and frequent hand washing (96.37%). 41.19% students had also taken prophylactic drugs for prevention against covid 19 and 70.20% had answered correctly and appropriately when asked about supposed action if somebody known approaches them with complains of fever and sore throat.

Table 4 shows practices related to COVID 19 disease. 90.93% students were following social distancing, 96.37% were regularly wearing masks while stepping out of house or hostels, 94.30% were practicing frequent hand washing, 41.19% took any prophylactic drugs against COVID 19 and 70.20% answered correctly when asked about supposed action if somebody known approaches you with complains of fever and sore throat.

It can be observed that students of MBBS phase I (2021 batch) displayed better knowledge and attitude as compared to those of 2020 batch. This difference in knowledge and attitude scores was found to be statistically significant (Table 1).

## DISCUSSION

The current study assessed the knowledge, attitude and practice regarding Covid-19 disease among medical students. Knowledge of medical students was found to be good as most of the students (83.67%) knew about the duration of incubation period, comparative result was obtained in the study done by Yakar et al in turkey as they found that most of the students (90.2%) knew about incubation period.[10] Majority (87.04%) of them knew about the mode of transmission of COVID-19 disease is through respiratory droplets, similar results were obtained in the study conducted by Maheshwari et al in Dehradoon where most of the students (92.7%) said that it spreads by respiratory droplets.[11]

In this study, it was found that most of the students (96.4%) practiced regular wearing of mask when going out. In the study done by Maheshwari et al in Dehradoon, similar results were obtained as majority of students (91.0%) used mask regularly.[11]

In the present study, almost all the students (94.3%) practiced regular washing of hands. Similar results were obtained by Khasawneh et al in Jordon, where most of the students (87.0%) students washed hands regularly.[12]

It was observed in this study that, majority (90.9%) of students practiced social distancing, almost comparable results were seen in the study conducted by Khasawneh et al in Jordon, where also most of the students (70.1%) practiced social distancing.

The knowledge and attitude scores of phase I (2021 batch) students were found to be better as compared to phase I (2020 batch) students especially regarding source of infection, modes of transmission, hand washing technique etc. 2021 batch students when interviewed, particularly knew about airborne transmission. This may be because of the findings of recent researches. With the progress of time and after witnessing three waves of COVID-19 disease, the status of knowledge, attitude and practices of medical students of phase I (2021 batch) supports the theory that with repeated waves of any new disease, panic decreases and knowledge and attitude towards the disease and diseased improves. Also, the better knowledge of phase I (2021 batch) students regarding vaccines is obvious as the vaccine was released after first wave.

As far as attitude is concerned, MBBS phase I (2021 batch) students displayed much better attitude than phase I (2020 batch) especially regarding willingness to get themselves tested in the event of symptoms, enforcement of strict measures by government to promote the use of masks and social distancing, their reaction on finding either themselves or a family member positive, lack of fear of unknown and not shying away from communicating their status to their neighbours thereby reducing the stigma associated with it.

Only first year students were recruited in the study. This was the limitation of this study.

## CONCLUSION

The study revealed that the attitude among students was good while knowledge and practice were satisfactory. The knowledge and attitude scores of phase I (2021 batch) students were found to be better as compared to phase I (2020 batch) students especially regarding source of infection, modes of transmission, hand washing technique etc. Overall, good scores of knowledge, attitude and practices show willingness of students to act accordingly in a situation when faced with an unknown enemy like COVID 19. This shows readiness of our system and can also be considered an opportunity to build further upon the base knowledge and equip our medical students to prepare for any such eventuality in future.

*Funding: No funding sources*
*Conflict of interest: None declared*
*Ethical approval: The study was approved by the Institutional Ethics Committee*

## REFERENCES

1. Zhu H, Wei L, Niu P. The novel coronavirus outbreak in Wuhan, China. Global health research and policy. 2020;5:1-3.

2. World Health Organizatio. Novel coronavirus (2019-nCoV) situation report 2020. Available at: https://apps.who.int/iris/handle/10665/330991 Accessed 13 April 2020.
3. Gorbalenya AE, Baker SC, Baric RS, de Groot RJ, Drosten C, Gulyaeva AA, et al. Coronaviridae Study Group of the International Committee on Taxonomy of Viruses. The species severe acute respiratory syndrome-related coronavirus: classifying 2019-nCoV and naming it SARS-CoV-2. Nat Micro. 2020;5(4):536-44.
4. Cucinotta D, Vanelli M. WHO Declares COVID-19 a Pandemic. Acta Biomed. 2020;91(1):157-160.
5. World Health Organization. COVID 19 dashboard. Available at: https://www.who.int/emergencies/diseases/novel-coronavirus-2019?adgroupsurvey={adgroupsurvey}&gclid=CjwKCAiAl9efBhAkEiwA4ToriqIJwm9QgvpvTLY_xycjEHWuNhQ7S8Hg-gj2Vj8KAn-Z0QPTG5FPYxoCeHgQAvD_BwE. Accessed 5 June 2022.
6. Mukherjee T, Banerjee A, Mitra S, Mukherjee T. Data Science for COVID-19. 2022:705-28.
7. Person B, Sy F, Holton KS, Govert B, Liang A, National Center for Infectious Diseases SCOT. Fear and stigma: the epidemic within the SARS outbreak. Emerg Infect Dis. 2004;10(2):358-63.
8. Tao N. An analysis on reasons of SARS-induced psychological panic among students. J Anh Inst Educat. 2003;21(2):78-9.
9. Kaliyaperumal K. Guideline for conducting a knowledge, attitude and practice (KAP) study. AECS Illumination. 2004;4(1):7-9.
10. Yakar B, Kaygusuz TO, Pirincci E, Onalan E, Ertekin YH. Knowledge, attitude and anxiety of medical students about the current COVID-19 outbreak in Turkey. Fam Pract Palli Care. 2020;5(2):36-44.
11. Maheshwari S, Gupta PK, Sinha R, Rawat P. Knowledge, attitude, and practice towards coronavirus disease 2019 (COVID-19) among medical students: A cross-sectional study. J Acute Dis. 2020;9(3):100.
12. Khasawneh AI, Humeidan AA, Alsulaiman JW, Bloukh S, Ramadan M, Al-Shatanawi TN, et al. Medical students and COVID-19: knowledge, attitudes, and precautionary measures. A descriptive study from Jordan. Front Pub Heal. 2020;8:253.

**Cite this article as:** Singh R, Beenu, Dwivedi G. Comparative study of knowledge, attitude, and practices towards COVID-19 among MBBS Prof 1 students of two successive years in Motilal Nehru medical college, Prayagraj, Uttar Pradesh. Int J Community Med Public Health 2023;10:3158-63.