# Perception about Online Learning among Medical Students in Northern India during Lockdown Period of Covid - 19: A Cross Sectional Study

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## ABSTRACT

**Introduction:** The Covid-19 pandemic has affected educational system worldwide. GoI has suggested online teaching through various portals. The present study was conducted with an aim to evaluate the perception about online learning among medical students in northern India during lockdown period of Covid -19.

**Material and methods:** Cross-sectional prospective web-based study conducted at MIMS, Barabanki was conducted on students of 3rd professional. A 38-item structured questionnaire with 36 close-ended responses and 2 open-ended responses was developed and distributed using Google forms. Participation was voluntary and informed consent was obtained from each participant. An introductory paragraph outlining the purpose of study, instructions to complete the questionnaire was explained to the participants over "Zoom Meeting. Analyzed using Excel for Windows 2020.

**Results:** The total number of participants were 288, of which 50.3% (n-145) were females and 49.7% (n-143)males. When enquired about the device preferred for e learning 259(89.9%) students chose mobile phones, 106(36.8%) used laptops. Maximum students 55.6% (n-159) liked to spend 1 to 2 hours on e learning others. When questioned about the type of e-learning by the college 95.4%(275) said live face time. Sixty two students(21.5%) preferred video lecture on zoom app, 43% (124) sharing lecture/power point slide to students, 12.8%(37) e textbook. 27.4% students felt that the online classes were teacher controlled.

**Conclusions:** Reliable network connectivity is a key to successful e-learning apart from necessary hardware and software and attitude. Both students and teachers must be familiar with technology before and during an online course


**Keywords:** Online Learning, Perception, Students, Covid-19

## INTRODUCTION

The Covid-19 pandemic has affected educational system worldwide.[1,2] It has forced educational institutions to close, which has impacted more than 90% of the world's student population. As face to face learning method is no longer appropriate during this Covid-19 pandemic, the situation led to forced implementation of learners into e-learning.[3] The closure of medical colleges during pandemic has put the students in dilemma as they were not getting support, guidance, and supervision from their teachers as during non-covid times. There was no face-to-face interaction between student and teacher; the traditional way of teaching methods were hampered. With the upcoming digital era during this decade, the availability of education materials and resources to medical students has expanded rapidly. There is access to online learning tools and apps with the rapid expansion of mobile technology apart from traditional methods.[4] GoI has suggested teaching schools and institutes to teach the students through various available and accessible online portals. The need of hour is to find out how medical students learn during this pandemic while institutes are closed. The present study was conducted with an aim to evaluate the perception about online learning among medical students in northern India during lockdown period of Covid -19, when e-learning has been emerged as the only available option to continue learning.

Study aimed to assess the perception of online learning by students during Covid - 19 times; analyze the factors influencing them and the advantages and disadvantages of e-learning.

## MATERIAL AND METHODS

Study setting and design: The present study was cross-sectional prospective web-based study conducted at Mayo Institute of Medical Sciences, Barabanki, Uttar Pradesh, during the July 2020. The study was taken after Institutional Ethical Clearance.

**Study population and sample size:** Purposive sampling included participants of 3rd Professional MBBS students, having access to the internet and it counted to around 320 eligible students. The purpose of the study was explained and informed written consent was obtained from all the study participants; and anonymity and confidentiality of the participants were maintained.

**Study tool:** A 38-item structured questionnaire with 36 close-ended responses and 2 open-ended responses was developed which covered the domains of participant's

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characteristics, educational resources for learning new knowledge; availability of network and functioning with new programs; level of satisfactions toward learning during Covid-19 pandemic. The questionnaire was piloted among a small number (n = 10) of undergraduate students and the average time taken to complete the survey was 10 min. The presentation and validity of the questionnaire were undertaken by 8 randomly selected faculty members for clarity, relevance, and acceptability. Refinements were made as required to facilitate better comprehension and to organize the questions before the final survey on google forms. The study questionnaire comprised three sections containing 24 items. Section 1 had 6 items that explored the characteristics of participants including age, gender, year of study, and access to smart phone. Section 2 comprised of 13 items and aimed to gather student's perception towards e-learning for acquiring knowledge, time spent on e-learning, device preferences, assignments and resources provided. Similarly, Section 3 comprised of 9 items and aimed to gather student's experience of the educational resources for knowledge. The 9 items included "attending lectures online; disturbances at home, consulting medical literature like journals; watching online teaching videos; interactive online materials; using medical apps like normal labor minor procedure provided. Participants also responded to advantages and disadvantages with e-learning.The questionnaire was developed and distributed using Google forms.

**Data collection:** Participation was voluntary and informed consent was obtained from each participant prior to participation. Undergraduate students were approached through existing WhatsApp group. An introductory paragraph outlining the aims and objectives of the study as well as instructions to complete the questionnaire was explained to the participants over "Zoom Meeting" online portal especially mentioning that all questions were mandatory. Sufficient time was given to participants to read, understand, and answer all the questions and the participants could not change the answers after submission of questionnaire. The participants were given a 48 hours to voluntarily complete the questionnaire and those who did not respond to the questionnaire with in defined time, reminders were given and later declared as drop outs and were not included in the data analysis. Of 320 students 288 participated whose questionnaire were analyzed.

## STATISTICAL ANALYSIS

The collected data were tabulated and analyzed using Excel for Windows 2020. Categorical variables were presented as percentage (%).

## RESULTS

The total number of participants were 288, out of which the number of females 50.3% (n-145) were comparable to the number of males 49.7% (n-143). The mean age of the respondents was 21.2 years. The perception of the students about the online teaching has been summarized in Table 1.

About the type of network used for the purposes of online teaching 88.5% (n-255) students used 4G while 11.1% (n-32) used 3G.

When enquired about the device preferred for e learning 259(89.9%) students chose mobile phones, 106(36.8%) used laptops, 19 –tablets, 13 desktop while 1 preferred other devices.

Maximum students 55.6% (n-159) liked to spend 1 to 2 hours on e learning, 35.5% (n-102) 2 to 4 hours, only 3.8% (n-11) 4 to 6 hours and 5.2% (n-15) like to spare no time for the same.

When questioned about the type of e-learning employed by the college 95.4%(275) said live face time, 11.11%(32) acknowledged of soft copy of study material, 7.98% (23) knew about provision of online study material. Sixty two students(21.5%) preferred video lecture on zoom app, 43% (124) sharing lecture/power point slide to students, 12.8%(37) e textbook, 10.4% (30) sharing audio lecture whereas 9.7%(28) opted for topics discussion of subjects on whatsapp as a teaching tool for e learning.

The various suggestions made by the students for the improvement of e learning are shown in table 2.

Of the 288 students 27.4% (78) felt that the online classes were teacher controlled, 15.8% (45) said it was interactive, 5.6% (16) felt it was learner controlled.

Half of the students 50% (144) seemed to be satisfied with online teaching, 29.2% (84) were neutral regarding the issue.

Advantages and disadvantages as cited by students is depicted in Fig 1 and Fig 2.

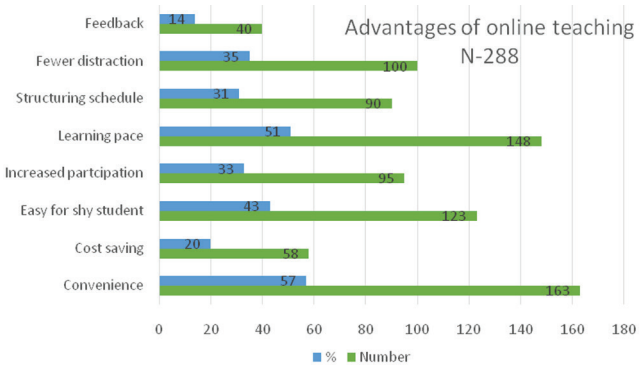


**Figure-1** Shows advantages of e learning as cited by the participants.

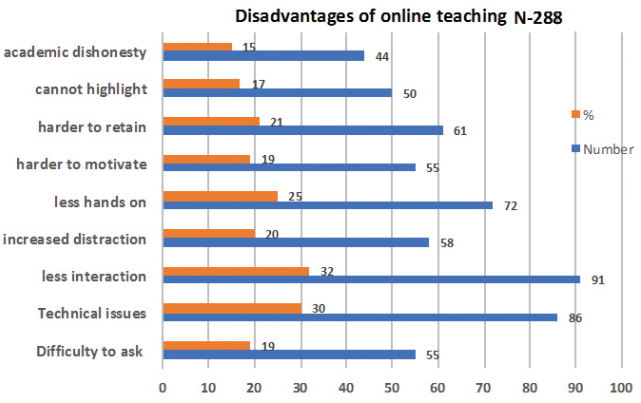


**Figure-2:** The various disadvantages of e learning as cited by the participants

| | Questions | Yes N (%) | No N (%) | To some extent N (%) |
|---|---|---|---|---|
| 1. | Are you using your email regularly | 259 (89.9%) | 29 (10.1%) | - |
| 2. | Do you have basic knowledge of function of computer / Laptop. | 276 (95.8%) | 12 (4.2%) | - |
| 3. | Do you have access to internet connection | 277 (97.2%) | 11 (2.8%) | - |
| 4. | Is it a financial burden for you to pay for internet access. | 33 (19.6%) | 255 (80.4%) | - |
| 5. | Are you using online library and e-resource | 99 (34.4%) | 88 (30.6%) | 101 (35.1%) |
| 6. | Do you believe e-learning leads to social isolation | 148 (51.4%) | 72 (24.8%) | 68 (23.8%) |
| 7. | Do you believe lack of face to face interaction reduces learning | 137 (47.6%) | 94 (32.6%) | 57 (19.8%) |
| 8. | Do you regularly search online resources | 172 (59.7%) | 31 (10.8%) | 85 (29.5%) |
| 9. | Do you like to receive e-learning resource from your college. | 249 (86.8%) | 38 (13.2%) | - |
| 10. | During lockdown period are online classes being conducted daily by your college | 288 | 0 | - |
| 11. | Have you started attending online teaching sessions by respective subject teacher | 288 | 0 | - |
| 12. | Do you prefer online teaching over class room teaching | 127 (55.7%) | 161 (44.3%) | - |
| 13. | Do you miss the class room ambience | 204 (71.1%) | 84 (28.9%) | - |
| 14. | Do you think there is scope to clear your doubt during online teaching. | 117 (40.6%) | 63 (21.9%) | 108 (37.5%) |
| 15. | Do you think teachers enjoy online teaching | 75 (19.1%) | 55 (26%) | 158 (54.9%) |
| 16. | Do your parents monitor your duty online teaching sessions. | 191 (66.6%) | 97 (33.4%) | - |
| 17. | Would you be disturbed by people in your house during online learning sessions. | 40 (13.9%) | 182 (63.2%) | 66 (22.9%) |
| 18. | Are you being given assignments during lockdown period | 284 (91.6%) | 4 (1.4%) | - |
| 19. | Do you like to be assessed online? | 198 (68.8%) | 90 (31.3%) | - |
| 20. | Do you think if you were to be assessed it is easy to cheat in online examination | 49 (17.1%) | 141 (48.8%) | 98 (34.1%) |
| 21. | Do you like a part of online session to continue in post covid era? | 197 (68.4%) | 91 (31.6%) | - |

**Table-1:** The perception of the students about the online teaching

| Suggestions | Number of students |
|---|---|
| No suggestions / satisfied with online teaching | 12 |
| Improve upon technical/ network issues | 24 |
| Discard Zoom App | 11 |
| Online teaching to be continued only till pandemic lasts | 6 |
| Increase time duration of classes | 4 |
| Reduce online assignments | 4 |
| Make sessions more interactive | 3 |
| Improve upon the image/video/audio quality | 3 |

**Table-2:** The various suggestions made by the students for the improvement of e learning

## DISCUSSION

Rapid change of Covid-19 outbreak, had serious impact on almost all aspects of life including academic or education. Every educational institutional, were forced to adjust their way of delivering education.

In our study total number of participants were 288, out of which there were 50.3% (n-145) females and males 49.7% (n-143)males. The mean age of the respondents was 21.5years.Daroedono et al[6] and Surana et al[7] and reported the demographic characteristics of their respondents as 21.2 and 21.7 years respectively. The age groups were almost same.

We observed that 55.6% students (n-159) liked to spend 1 to 2 hours on e-learning, 35.5% (n-102) 2 to 4 hours, and 3.8% (n-11) 4 to 6 hours. Our observations are in comparison with Hui et al's[8] observation where students spent upto 1 hour and also did multitasking simultaneously.

We observed that 90%(259/288) students preferred mobile for e-learning and 36%(106/288) used laptops. Very few 19 students used tablets and 13 preferred desktop. Abbasi et al's[9] reported mobile used by 75.7%, computer by 0.8% laptop 21.2% and tablets by 2.4%. Roberts and Rees[10] too reported that mobile was the most common evice used by majority, followed by laptop. Less commonly i-pad or netbooks were used. Mobile has become one of the most popular devices among students for e-learning as compared to laptops and tablets. 66%students used mobile devices for e-learning.

However, 90% of our students preferred mobile device as student-teacher interaction through mobile was much easier as compared to other devices. Mobile has become one of the most popular devices among students for e-learning as compared to laptops and tablets.

In present survey we observed that supportive factors for online classes were that students owned their gazette (99%), internet access (97%) and no financial burden (80%); the inhibitory factors were social distancing (51%), less interaction/no interaction (48%) no scope of clearning doubts (41%). Most of the students (68%) were not accompanied by parents and 63% did not have disturbances at home during online classes (Table 1). Daroedono[6] revealed that among supportive factors, location flexibility was the most supportive factor (479 agree/87.9%) but the lowest level of agreement was on the issue of "no specific preparation is needed" (314 agree/57.6%). On the contrary, inhibitory factors were network connectivity, (437 of the respondents agree/80.2%) and the least agreement is "time flexibility is too loose " with 285 respondents agree (52.5%). Most of the students (402 respondents/73.8%) followed this programme without accompanied by parents, even though the students were at home. This is similar to our observations. This reveals about autonomy of older children who learn at higher level of education.

Feedback from students regarding their perception of online classes revealed that it was a viable alternative in current scenario. The main advantages as perceived by students were: ease and convenience (57%), cost saving (20%),easy for introvert students (43%), learning at their own pace (51%), could refer to reference material any number of time (31%). Similar observations were reported by Sud et al[11] in 2020. The drawbacks perceived by students were that teaching was less interactive (32%), thus doubts could not be cleared instantaneously. Other observations were difficulty to retain information (61%), harder to retain information (21%), harder to be motivated (19%), and academic dishonesty(15%). Technical issues in 30% participants and distractions in 20%.Perception of less interactivity (60%) and poor connectivity in 85.7% was reported by Sud et al.[11] It could be due to network issues.

In present study 50% students (144) seemed to be satisfied with online teaching, and 20.9% (60) were dissatisfied. Baczek et al[12] observed acceptance of e-learning in total of 589 (73%) respondents who rated e-learning as enjoyable. Of these, 125 (15%) found it extremely enjoyable, 237 (29%) found it very enjoyable. A total of 214 (27%) students did not enjoy online learning.55% of our students were utilizing resources during non covid times through the WhatsApp group regularly. Over 60% of the respondents in a survey by Baczek et al[12] had never experienced any form of e-learning before the Covid-19 pandemic, which might be the reason why technical issues were the second major disadvantage of e-learning in their study. Surana[7] reported that online lectures, reading textbook, online teaching videos, and written notes were the new learning and revision priorities among participants. The medical apps and other online interactive lectures were often used as educational resource. Open and direct discussion and a more controlled systematic information collection gathering and sharing among peer-groups was possible. Sharing of resources, providing of class lectures was a regular practice, thereby students could adapt to online classes with relative ease.

## CONCLUSIONS:

Reliable network connectivity is a key to successful e-learning apart from necessary hardware and software and attitude. Both students and teachers must be familiar with technology before and during an online course. Self directed learning is required. Poor interaction between learners and facilitators, and a lack of clarity of the purpose and goals of the learning can impede the learning process.

With the advances in information technology and application of sophisticated softwares which are user friendly there is a rising trend towards e-learning. Regular use of IT had lead the students to be benefited by online learning. Gadgets and IT are mostly users-friendly and easy to operate. This was one of the basic strength in order to fight during Covid and at the same time fulfilling the responsibilities of teaching learning activities and delivering education to the students.

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