

A Cross-Sectional Study of Online Medical Education and Traditional Offline Education at Tertiary Care Hospital, Barpeta, Assam (India)Pathak Pradumna¹, Talukdar Bipul Kumar², Hakim Abdul³, Deori Rumi⁴¹Assistant Professor, Department of Pharmacology, Fakhruddin Ali Ahmed Medical College & Hospital, Barpeta, Assam, India²Assistant Professor, Department of Biochemistry, Fakhruddin Ali Ahmed Medical College & Hospital, Barpeta, Assam, India³Assistant Professor, Department of Pharmacology, Dhubri Medical College & Hospital, Dhubri, Assam, India⁴Professor & Head, Department of Biochemistry, Lakhimpur Medical College & Hospital, North Lakhimpur, Assam, India

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Abstract:**Background:** Teaching methods for undergraduate medical students has seen a big transformation with the rapidly advancing technology. It has shifted from earlier chalk and talk method to hybrid mode where both online as well as offline facility are utilized. With the onset of Covid-19 pandemic in early 2020, there was a boom in online learning. We tried to assess the acceptability of this mode of teachings amongst the medical students and find out challenges if any to make it more accessible to medical students.**Methods:** A qualitative observational study was carried out at Fakhruddin Ali Ahmed Medical College & Hospital, Barpeta, Assam, India. A total of 480 medical students were enrolled in the study out of 100 students per batch capacity after considering the exclusion criteria but online questions answer were submitted by 468 students. Results were analysed using MS-excel and results were expressed in percentage.**Results:** We classified the questions based on psychological aspects, health aspects and technical aspects. Although responses were subjective based questions but overall on psychological, health and technical aspects, students preferred offline over online mode of teaching. On a rating scale of 0 to 10, 22.64% students gave rating above 7 for online teaching while 44.87% students gave rating above 7 for offline teaching.**Discussion:** In modern day medical science, knowledge can be gathered from different sources. Technology is inevitable. Technology has made life better but challenges are also there. It is therefore, important for the teachers and the medical students as well as persons involved in planning medical education to update skill in technology and do necessary capacity building so that the technology can be harnessed in the most effective way to impart right knowledge amongst the medicos.**Keywords:** Medical students, Questionnaire, Psychological, Health, Technical aspects.

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Introduction

In this era of technological boom, information is bombarded from everywhere. In earlier times, people used to acquire knowledge from textbooks, traditional mode of teachings, from practical knowledge and from mentors. Online system of learning has vastly increased since 2012, evidenced by the thriving of massive open online courses (MOOCs)[1].

During the Covid times, online teaching became the core method of teaching in medical institutions. This shift of teaching to a purely online platform posed a lot of challenges both for the students and faculty, but they have also prompted new examples of educational innovation using digital

interventions. As they say, every dark cloud has a silver lining this covid pandemic could be considered as an opportunity to bring about some reforms because academic institutions for ages have been continuing with didactic lectures, in which there is only the teachers speaks.[2] The lecture is a simple, fast and cheap method to present the vast issues to a lot of groups of learners.[3]

Inactiveness of the students, tiring long lectures, one-way communication, and fast forgetting of the issues are the disadvantages of this method.[4] With Covid19 pandemic occurring globally in the early 2020, online mode of teaching became the

major tool for dissemination of information. In medical education also it became the major source for teaching undergraduate M.B.B.S. students. Initially it posed a challenge to both the teachers as well as students as medical education is incomplete without practical knowledge but it became the new normal during covid19 pandemic. As every system has its own merits and challenges, the study was undertaken to analyse the acceptability of online teachings amongst medical students and challenges and benefits of online teachings with traditional offline mode of teachings.

Aims and objectives of the study:

1. To know the acceptability of online mode of teaching amongst M.B.B.S. students.
2. To know the challenges in online teaching with traditional offline teaching.

Material and Methods:

It is a qualitative cross-sectional study. The study was conducted at Fakhruddin Ali Ahmed Medical College, Barpeta, Assam, India. A total of 480 students were enrolled in the study with 100 students per batch capacity after considering the exclusion criteria.

They were from phase I, phase II, Phase III part 1 and 2 of M.B.B.S. courses who have attended both online and offline classes. Written consent was taken from all the participants and the study protocol was approved by Institutional Ethics Committee (No. FAAMC&H/P.Est/I.E.C./26/20

21/360 DTD: 07/01/2022). The research was conducted through an online survey, over a specific form circulated through WhatsApp and e-mails and response were collected anonymously.

The study period was from August 2020 to July 2021. Close ended prevalidated questionnaire were circulated which includes 16 questions covering psychological, health and technical aspects. Rating of online versus offline teaching was done on a scale from 0 to 10.

Inclusion criteria: M.B.B.S. students of different phases studying at Fakhruddin Ali Ahmed Medical College, Barpeta, Assam, India.

Exclusion criteria:

- Students not willing to participate
- Incomplete submission

The results were analysed using MS-Excel. Every question results were expressed in percentage.

Results:

Out of the 480 students participated in the study, 12 students did not submit their responses. Responses were collected from 468 M.B.B.S undergraduate students. Amongst the response collected 254 were males and 214 were females. Out of the 16 questions, questions 1,2,3,5,6,10,13(7) were based on psychological aspects, questions 4,7,9,11,14(5) were based on health aspects and questions 8,12,15 (3) were based on technical aspects.

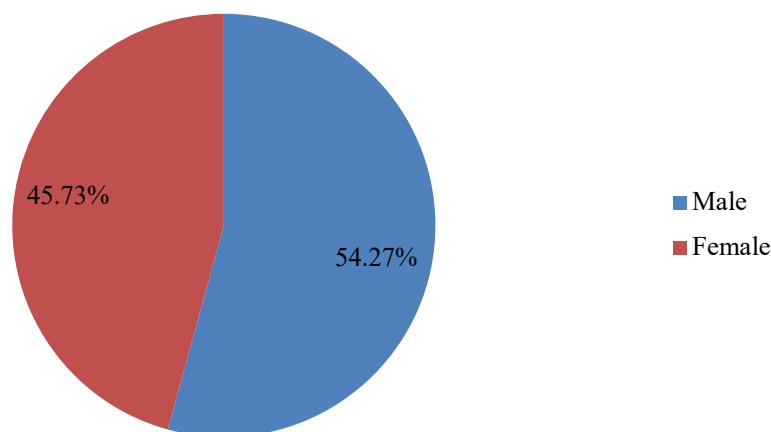


Figure 1: Gender wise distribution of participants

Figure shows 54.27% participants are male and 45.73% are female participants.

Table 1: Gender-wise age distribution and mean age of study participants.

Gender	Age range (years)	Mean age (years)
Male	18 - 28	22.7
Female	17.2 - 26	22.1

Table 1 shows age of the male students ranged from 18 years to 28 years while the age amongst the females ranged from 17.2 years to 26 years. The mean age amongst the males was 22.7 years while the mean age amongst the females was 22.1 years.

Table 2: Responses of students on psychological aspects

Questions	Yes	No
1. Do you think that online teaching is good for students	198(42.3%)	270(57.7%)
2. Are the online class able to grasp concept?	186(39.7%)	282 (60.3%)
10. Do students get stressed when they get online assignment with deadline?	301(64.3%)	167(35.7%)
13. Do you feel that social skill won't develop with online teaching?	315(67.3%)	153(32.7%)

Table 2 shows 42.3% students favoured online teaching while 57.7% students favoured offline teaching.

Table 3: Responses of opinion between online with offline classes on psychological aspects

Questions	Online	Offline
3. Which teaching makes students lethargic or lazy?	283(60.5%)	185(39.5%)
5. Which teaching personal interaction of teacher is better?	158(33.8%)	310(66.2%)
6. Which teaching reduces chance of favouritism and partiality?	285(60.9%)	183(39.1%)

Table 3 shows 60.5% students said online teaching makes them lethargic while 39.5% students said offline teaching makes them lethargic.

Table 4: Responses received on health aspects.

Questions	Yes	No
9. Do you agree with the fact that vision issues are rising amongst children due to online teaching?	315(67.3%)	153(32.7%)
11. Do you agree to the fact that online teaching reduce carbon emissions and saved time which is consumed during travelling?	297(63.5%)	171(36.5%)
14. Do you agree to the fact that online classes increase mobile addiction in students?	310(66.2%)	158(33.8%)

Table 4 shows 67.3% students complained of vision issue due to online mode of teaching while 32.7% students had no effects, 63.5% students said mobile addiction due to online teaching while 33.8% students had no effects.

Table 5: Responses on opinion between online with offline classes on health aspects

Questions	Online	Offline
4. Which teaching make students face backbone issues while sitting for too long time ?	208(44.4%)	260(55.6%)
7. Would you like to attend online classes at home or go out in harsh weather [offline]?	390(83.33%)	78(16.67%)

Table 5 shows 44.4% students said backbone issues due to online teaching while 55.6% students said it was due to offline teaching.

Table 6: Responses received on technical aspects.

Questions	Yes	No
12. Do you face issues while downloading videos?	274(58.5%)	194(41.5%)
15. Do you agree to the fact that students copy-paste assignments in online education?	230(49.1%)	238(50.9%)

Table 6 shows 58.5% students said they faced downloading issues on online teaching while 41.5% students said they did not face downloading issues.

Table 7: Responses on opinion between online classes with offline classes on technical aspects.

Question	Online	Offline
8. Are online assignments good for students or offline?	181(38.7%)	287(61.3%)

Table 7 shows 61.3% students preferred offline assignments while 38.7% students preferred online assignments.

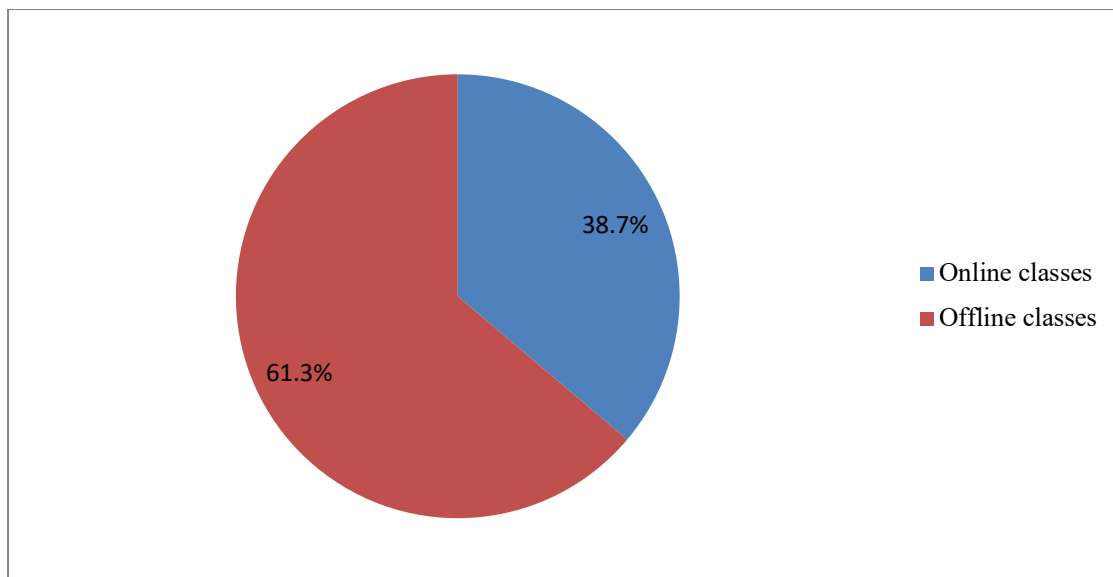


Figure 2: Pie diagram showing preferences on technical aspects: online and offline classes

On rating online teaching against offline teaching on a scale of 0 to 10, 106 students (22.64%) gave rating above 7 for online teaching, 47 students (10.04%) gave rating between 5 to 7 and 7 students (1.49%) gave rating between 1 to 5 for online teaching. 210 students (44.87%) gave rating above 7 for offline teaching and 98 students (20.94%) gave rating between 5 to 7 for offline teaching while no response was received below 5 against offline teaching.

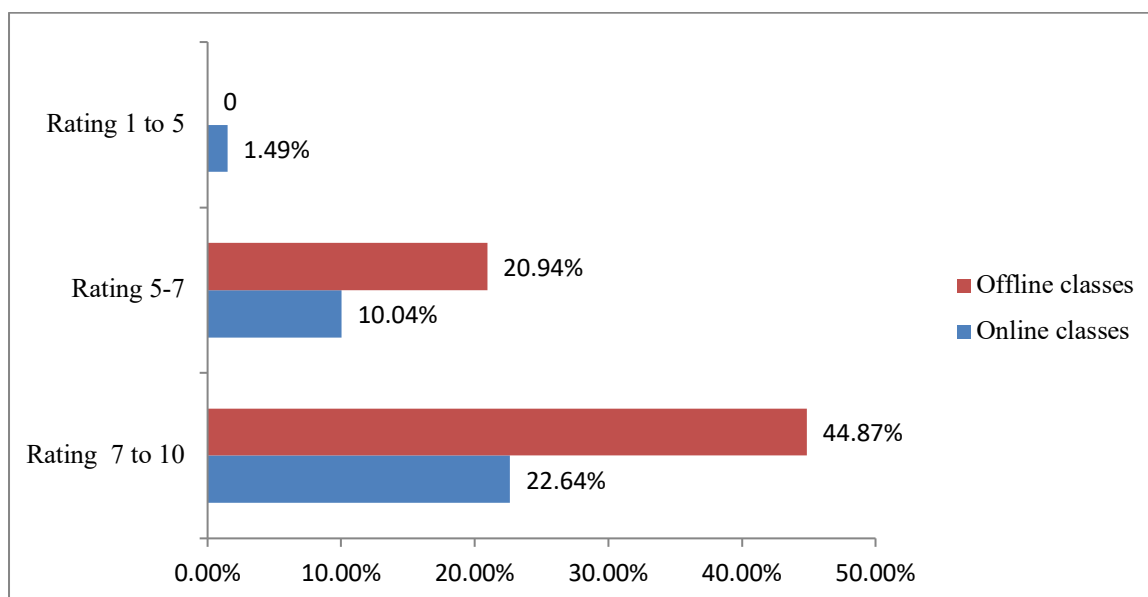


Figure 3: Bar diagram showing ratings of online and offline classes

Table shows 22.64% students gave rating above 7 for online teaching while 44.87% students gave rating above 7 for offline teaching.

Discussion

Gender wise 169(66.53%) male students preferred offline classes while 139 (64.95%) female students preferred offline classes (rating above 5). This difference gender wise is insignificant as the number of male student is higher than the female students. We found that on psychological aspects, 60.5 % students felt lethargic or lazy for online

classes while 39.5% students felt lethargic for offline classes. In our study, offline classroom teaching is preferred by 63.7% students while 36.3% students prefer online classes. In a study by SharmaD.et al [5] found that 58% students preferred offline classes, 23% prefer online communications while 19% expressed they did not experience a rich interaction with their teachers and peers during online classes. Kee [6] mentioned the importance of face to face interactions in solving complex problems which are very beneficial for the students. On health aspects, 67.3% students said

eye –issue rising due to online teaching while 32.7% said no issue due to online teaching. In our study, 66.2% students said mobile addiction due to online teaching while 33.8% students said no such issue. In our study, 44.4% students complained of back-bone issues due to online teaching while 55.6% students said their back bone issue is due to offline classes. In harsh weather, 83.33% students preferred online classes while 16.67% students still prefer offline classes irrespective of harsh weather. In a study by Sharma D. et.al [5] found that 498 students feel comfortable to attend online classes as they do not have to commute. 386 students feel online classes learning provides more space, and the students may learn things at their pace.

In our study, it was found that on technical aspects 58.5% students said they faced downloading issue while 41.5% students said no such issue. 61.3% students preferred offline assignments while 38.7% students preferred online assignments. Although with the advancement of internet services, online mode should have been preferred, it may be due to the remote area of our college and areas which are still to get better internet connectivity, the preference of online over offline teaching is less. In a study by Sharma D.et.al [5], feedbacks by few students stressed on the needs for faculty training, students also mentioned their struggle with the plethora of online tools. About 75% of students did not get the opportunity for online interactions.

Compared with recording and broadcasting, live teaching is more interactive, can create a learning atmosphere, and can solve the problem of mandatory learning to a certain extent.[7] Like any method of teaching, online teaching has its share of ups and downs for both students and teachers.

Problems in internet connectivity, poor internet quality, insufficient digital skills of the respondents, time flexibility can also be a limitation, specially for students with difficulty in self-discipline.[8,9,10,11] The benefits included that there is no pause in the teaching-learning process, increased convenience, access to resources regardless of location and time and reduction of costs and air pollution, for example, carbon dioxide emission because of the reduction in traffic.[12]

In a country like India, with specific challenges to meet at the current situation, the ‘one size –fits-all’ concept may not work. Therefore, before putting certain online/blended activities into practice, one must take into consideration many variables, including the target learners, their social, cultural and economic backgrounds, their age range, their access to technological infrastructure, the technology readiness on the part of the educational institutions and so on.[13] In this study, we put questions about which teaching method medical students prefer and their preferences were

qualitatively grouped on psychological, health and technical aspects. Overall, offline teaching is still preferred over online teaching. The covid-19 pandemic has lead to a boom in online education. This has taught us that we cannot solely depend on conventional mode of teaching. Another reason is to acquire so much of knowledge in a limited time. Adopting a hybrid or blended mode of teaching with local available resources and training of faculties as well as students on technology will help us reaping the benefits of technology.

Appendix

The Questionnaire used:

The students were assured that confidentiality of their names will be maintained and their names will not appear in the documents. The survey questions are mentioned below:

1. Do you think that online teaching is good for students.
2. Are the online classes able to grasp concept?
3. Which teaching makes students lethargic or lazy?
4. Which teaching make students face backbone issues while sitting for too long time?
5. Which teaching personal interaction of teacher is better?
6. Which teaching reduces chance of favouritism and partiality?
7. Would you like to attend online classes at home or go out in harsh weather [offline]?
8. Are online assignments good for students or offline?
9. Do you agree with the fact that vision issues are rising amongst children due to online teaching?
10. Do students get stressed when they get online assignment with deadline?
11. Do you agree to the fact that online teaching reduce carbon emissions and saved time which is consumed during travelling?
12. Do you face issues while downloading videos?
13. Do you feel that social skill won't develop with online teaching?
14. Do you agree to the fact that online classes increase mobile addiction in students?
15. Do you agree to the fact that students copy-paste assignments in online education?
16. How much would you rate online teaching and offline on a scale of 0 to 10?

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