



## ASSESSMENT OF MBBS STUDENTS USAGE, PERCEPTIONS AND UTILITY OF WEB BASED LEARNING DURING COVID-19 PANDEMIC

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**ABSTRACT** Current study aims to find out the pros and cons of virtual classroom teaching adopted during Covid-19 era for continuation of medical education. Purpose was to understand student's needs, expectations and analyze the benefits and pitfalls for future amendments in digital teaching design and modules. We conducted an online survey with 400 MBBS 1st and 2nd year students. A Questionnaire was prepared through google form and students responded on a 5 point Likert scale. We found that though a good percentage of students were quite appreciative of content, interaction and flexibility of online classes, about 55% of them preferred to learn in live classrooms only post pandemic and about 37% wanted to have blended teaching where benefits of both live and online teaching can be experienced. The buoyancy and liveliness of face to face interaction was missed by both pupils and faculty. It was difficult to measure the level of attention and comprehension by students on these platforms Though the practical ward based patient centric learning and development of skills by a medical student can never be replaced by online learning, a good deal of preclinical and paraclinical subjects can still be efficaciously dealt by it. However a major constraint with online evaluation is that students are unsupervised and hence a need for an institutional supervision software for future. Data analysis done here could prove as a base for medical institutions to better their efforts in digital learning methods for pupils.

**KEYWORDS :** COVID-19, Online classroom, pathology, teaching, virtual, MBBS

### INTRODUCTION

During COVID-19 pandemic, strict lockdown coerced universities and hospitals to shut down their regular physical interactive classes and take up web based teaching plans as solitary system of medical education. We describe our experience of shifting from face to face learning to distance learning during the pandemic. Use of internet for teaching is not new but the way and scale of its usage during pandemic was exceptional. The feedback from the students provided useful insights into online teaching being carried out by our department.

### MATERIAL AND METHODS

We conducted a single centre, online cross-sectional survey for first and second year MBBS students (1<sup>st</sup> to 4<sup>th</sup> semester) in SIMS Hapur, U.P, India in March 2021. Permission was granted to us by the ethical committee of our institution. A questionnaire was prepared through google forms. Virtual classroom was designed on google after the institution took a subscription of G suite. Google Calendar and Google Meet were used for notification of schedules. For conducting theory and practical classes, Google Meet and Zoom was used and for conducting assessments, Google Forms were utilized. Students' viewpoint on online education was judged based on their responses to an authenticated questionnaire.

400 medical students from three MBBS batches were enrolled for the study and 242 students responded. A pre-attested 5-point Likert scale questionnaire with 11 questions covering planning, content, design, mode and assessment of classes and students' outlook on e-teaching as a learning medium was issued to the students. The anonymity of the student responses was maintained. Participation was voluntary and they were required to respond for each question on a five point scale with "1" indicating strongly dissatisfied and "5" indicating strongly satisfied. Descriptive data was summed up as Mean  $\pm$  SD or as relative frequency in relation to total number. Percentage of responses in each category was calculated. All statistical analysis was done using SPSS version 25

### RESULT

A total of 242 responses were received. 11 questions were asked from students, 7 of them were based on Likert scale. The aim was to assess the usage and discernment of online learning methods and tools along with student preferences in future. Mean age of students was 21.2 years (SD is 8.4 years). 11 students did not mention their age. Of all 242 participants, 137 (56.6%) were males and 105 (43.3%) were females

When asked about the amount of syllabus covered by online methods, 148 [60.6%] were satisfied while 47 students [19%] were very dissatisfied or slightly dissatisfied. A good number of students [68%] were happy with the material shared before, during or after the class. 66 students [27%] were very satisfied with it while 102 [41.8%] students showed some satisfaction.

Around 89 [36%] students were dissatisfied with practical type/ skill based topics during online teaching while 56 [23%] students were neither satisfied nor dissatisfied

A fair percentage of students 157 [64%] showed satisfaction with the mode of assessment during web based learning which was in the form of quizzes, short descriptive questions etc. 67.6% students were quite happy in getting fast feedback for their assignments and considered it to be beneficial

About 181 [74%] students showed satisfaction for the interaction with teachers and opportunity to ask questions during online teaching. However 41 [16.8%] students were very dissatisfied with the speed/ access to internet services in their geographical location and another 36 [14.7%] students also showed some dissatisfaction with web services.

All inclusive, about 31.5 % students grumbled about net connectivity. Most students felt that online teaching provided them with a flexibility in their regular pattern.

When asked to compare virtual classes with traditional mode of teaching about 101 [41.4%] students showed satisfaction with web learning, however 105 [43%] showed dissatisfaction. Around 14% [35 students] couldn't decide which is better.

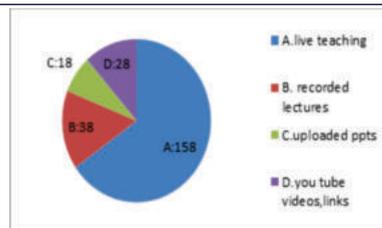
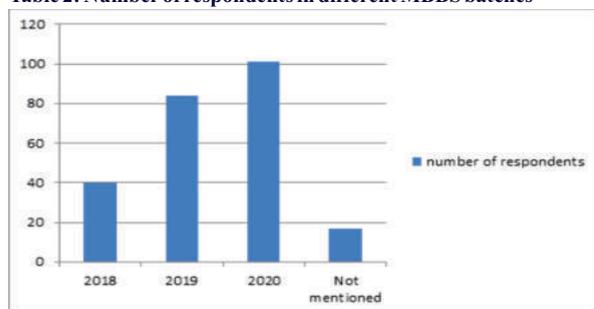
When asked about the preferred mode of online teaching, 158 [64.7%] students preferred live lectures while 38 [15.5%] students opted for recorded lectures online, 18 [7.3%] went for uploaded power point presentations (ppt), and 28 [11.4%] for you tube video and links. Mostly students logged them through their smart phones [71%] in comparison to laptop. This shows that more mobile friendly apps are required in future.

Lastly when asked about the suggestions for post pandemic teaching, majority of students preferred physical classes only 135 [55.3%] while 92 [37.7%] students voted in favour of blended teaching. Only 15 [6%] students were in favour of e-classes only.

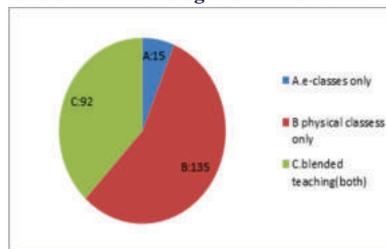
**Table 1: Feedback On Online Teaching By Medical Under Graduates (N=400)**

S.NO	Questions	Very Dissatisfied [VD]	Some what Dissatisfied [SD]	Neither Satisfied Nor Dissatisfied [NSND]	Somewhat Satisfied [SS]	Very satisfied [VS]
1	Were you satisfied with overall enhancement of learning for topics covered during online classes	9	38	47	106	42
2	Were you satisfied with material shared before, during or after the e-classes	5	29	39	102	66
3	Were you satisfied with interaction with teacher/ opportunity to ask questions during online teaching	12	16	33	88	93
4	Were you satisfied with practical topics/skill based topics during online teaching?	35	54	56	57	40
5	Were you satisfied with mode of assessment (quiz based, short descriptive questions etc) during online teaching?	11	17	56	95	62
6	Were you satisfied with mode of assesment (quiz based, short descriptive questions etc) during online teaching?	41	36	38	71	56
7	How satisfied or dissatisfied are you with virtual classes as compared to physical classes?	33	72	35	70	31

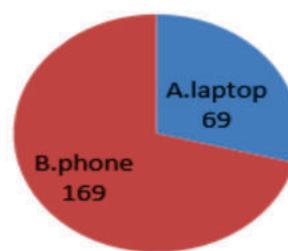
**Table 2: Number of respondents in different MBBS batches**



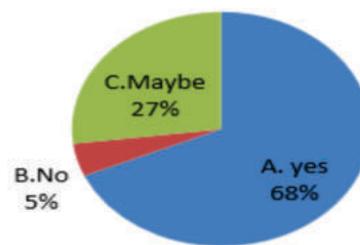
**Figure 1: Which mode of teaching is most beneficial?**



**Figure 2: Suggestions for post pandemic teaching?**



**Figure 3: Which mode used for online teaching?**



**Figure 4: Was getting fast feedback on assignment beneficial?**

**DISCUSSION**

We took responses from medical undergraduate students from 1<sup>st</sup> to 4<sup>th</sup> semesters. 400 students were enrolled and 242 submitted their responses to questionnaire with a percentage varying from 40% to 67.3% across various semesters. This is in accordance with study done by Kuldeep et al<sup>[1]</sup> where proportion of student response was 44-61%. In our study, 56.6% were males while 43.3% were females. Dash et al<sup>[2]</sup> conducted a study where female participation was more (61% females and 34% males)

Majority of students (74%) admired the virtual platform and acknowledged that they were able to interact and ask questions. A much higher percentage of students (92.3%) observed the same in Kuldeep et al<sup>[1]</sup> study. However another study showed that 56% students complained of lack of interactivity<sup>[3]</sup>

When asked to rank the most popular tools used in e-learning, it was live lectures (65%), recorded lectures (15.5%), ppt(7.3%), videos and links (11.4%). This is supported by Back et al study<sup>[3]</sup>

An important technological issue was noted in the feedback, that use of mobile phones was preferred over the use of laptops for e-learning. About 67.6 % of responses conveyed that it was comfortable to respond to quizzes given for assessment for google classroom and they were happy with quick assessment done. Similar responses obtained by Dash et al<sup>[2]</sup>

Around 36% students were not satisfied with skill based or practical type training online. Students were more appreciative of a flipped

classroom model<sup>[5,6,7]</sup> where basic concept building is done through virtual teaching and then practical and collaborative activities taken care of through face to face teaching<sup>[8,9,10]</sup>. Contrasting results were obtained in a study<sup>[4]</sup> where 75% thought it had a favourable effect on practical skills.

In our study 68% students were satisfied with the content and material shared during online classes which are similar to findings of Hameed et al<sup>[11]</sup> where > 50% students had the same perception and also studies by Kuldeep et al<sup>[1]</sup> and Dash et al<sup>[2]</sup> where a whopping 91.8 % and 80.5% students respectively responded in a similar manner. In contrast a study done by Abbasi et al<sup>[12]</sup> showed only 23% students were satisfied with the matter shared online.

Student's reaction showed a fascinating contradiction. While admiring online classroom teaching, nearly 55% students vouched for physical classes only, 37% wanted to go for blended teaching and meagre 6% chose only e-classes. Factors for this perception were not clear. It may be because of the urgency and rather short of time for design and orientation, a properly structured and organised schedule for faculty could not be developed. This however improved with the passage of time when faculty learnt and got adjusted with online platform. Secondly, ours is a relatively small sample size and single centre study. As it was an online feedback, only students interested in the internet would take up the questionnaire leading to generation of non-response bias. A multicentre survey nationally and internationally would increase the generalizability of results<sup>[5]</sup>. Lack of testing of skills and attitude was also a limitation of this study

## CONCLUSION

A major transformation took place during Covid-19 shutdown with medical colleges hastened the development of infrastructure and training for digital education for students as the classrooms shifted from real to virtual world. We noted that compared to lecture hall teaching, student teacher interaction was better on Google meets and Zoom as there are options for text chat, screen sharing, audios and videos on these platforms. Interdisciplinary learning was also possible as multiple speakers can teach in a single session. Student assessment was made very quick with Google forms

We experienced that as time passed, online teaching learning also developed. Initially lectures in the form of ppt were uploaded which later evolved into live classes, sharing of audio and videos related hyperlinks you tube videos. A continuous unbroken high internet bandwidth connectivity is required for live streaming of lectures. With progression of time, teachers also became comfortable and at ease with online tools and started uploading recorded lectures so that students can have the pliability to view or download them at their convenience and net connectivity with minimum data usage

To conclude, online teaching has emerged as an adequate and pleasant mode for medical teaching for MBBS I<sup>st</sup> and II<sup>nd</sup> year students in difficult times of Covid shutdown. It can serve as a very good platform to continue medical education whenever a situation of crisis arises in future. However, accessibility to laptops and poor Internet network were significant causes of concern for a substantial number of students.

The experience indicated that in the future a judicious mixture of traditional and online classes may be a more effective educational design for teaching MBBS students.

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## Conflict of Interest

Authors declare that they have no conflict of interest

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