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Original Research Article

Impact of digital transformation in teaching and learning (TL) process of forensic medicine & other medical subjects due to COVID 19 lockdown: Medical student's perspective

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ABSTRACT

COVID-19 may have changed the 'physical classroom', but learning doesn't stop. In global perspective, digitalization played a major role in medical education of forensic medicine and other subjects when COVID-19 lockdown forced. Physical classroom were not possible due to safety norms so as to maintain social distancing. Post lockdown continuing digital transformation got more momentum. Challenges and opportunities started coming in front for students and faculties. This study was done to analyze impact of transition of teaching methodology to students in medical institutions.

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1. Introduction

The widespread COVID 19 pandemic has threatened the medical education of undergraduate students and healthcare system worldwide.¹ During the lockdown, with the principles of social distancing, all the classroom teaching for these students had to be suspended, all over the world.²

If the offline education was continued, the disease can cause life-threatening conditions and it presents challenges for medical education to deliver lectures safely, also ensuring the integrity and continuity of the medical education process.³ So, it is very important to identify the usability of online learning methods, and to determine their feasibility and adequacy for undergraduate medical students.⁴

So, we aimed to access the response of medical students all over the country on online mode of education during COVID-19 pandemic and also knowledge, practices and attitudes of undergraduate medical students on electronic medical education.

2. Objective

To gather the perception of medical students on online education during COVID-19 pandemic.

2.1. Study design

A cross-sectional study, national online survey.

3. Materials and Methods

This was a cross-sectional study conducted on a national level via an online survey. A 25-item questionnaire was devised following a literature search on current online

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learning methods and the effects of COVID-19 on medical education in India.

3.1. Inclusion criteria

Undergraduate medical students across the country.

3.2. Statistical analysis

The data obtained through online Google forms were compiled in Microsoft excel, presented as tables and analyzed in terms of proportion and represented in percentages.

4. Result

A cross-sectional survey was conducted with 71 undergraduate medical students from different medical colleges all over the country. An online survey was conducted using email and social media through google form.

Out of 71 students, almost all (98.6%) have experienced online mode of education, mostly via zoom, meet and webex while few (11.3%) used other platforms. Around 40.8% students lack high speed internet at their respective homes also 13% donot have access to electronic device for online classes all the time.

Table 1: Using of online platform (n=71)

S. No.	Online platform	No. of Responses
1	Zoom	64
2	Meet	52
3	Webex	43
4	Others	8

Table 2: Have you ever experienced online mode of learning?

S. No.	Options	Responses
1	Yes	70
2	No	1

Table 3: Do you have high speed internet at your home?

S. No.	Options	Responses
1	Yes	42
2	No	29

Table 4: Do you have access to a device for learning online any time?

S. No.	Options	Responses
1	Yes	62
2	No	4
3	Sometimes	5

Only 32.4% of all the students are satisfied with the technology and software they are using for online teaching. For more than 60% online classes during lockdown were stressful, while for rest it's mildly stressful. Most of the students (56.4%) supported offline classes as better mode of learning, while the rest supported mixed as better.

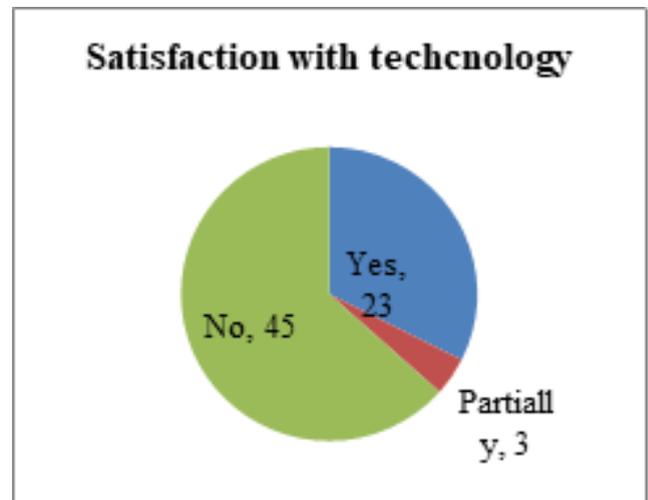


Fig. 1: Are you satisfied with the technology /software you are using for online teaching?

The greatest perceived benefits of online teaching platforms included anyplace, anytime learning (62%), flexibility (42.3%), global teaching (29.6%) while for the rest its cut out the commute. Whereas the commonly perceived barriers to using online teaching platforms included lack of sufficient interaction (26.8%), distractions at homes (26.8%), network issues (21.1%), not enough critical thinking (16.9%) while for rest no teacher student eyecontact.

Table 5: Reason of linking online education

S. No.	Reason	Responses
1	Anytime, anyplace learning	44
2	flexibility	30
3	global teaching	21
4	cut out the commute	14

Table 6: Reason disliking online mode of learning? (n=71)

S. No.	Reason	No. of response
1	Network issues	15
2	Lack of sufficient interaction	19
3	No teacher student eye contact	6
4	Distraction at home	19
5	Not enough critical thinking	12

More than 77% students' don't want online education after lockdown. Only 50% of the teachers all around the

country are using clinical scenarios in their presentation for better understanding of the topic. Around 93% students supported that they are lagging behind in clinical skills due to lockdown. But, there is also an advantage that students get more time for self study. Also, half of the students are using online platforms like course, Surgeries, DNA tube, eye tube to boost their clinical skills.

More than 80% students are using online applications like marrow, prepladder, DAMS, DBMCI for preparing for postgraduate exams and most of them are satisfied with it.

Table 7: Use of video libraries for learning clinical skills (n=71)

S. No.	Video library	No. of Response
1	coursera	8
2	CSurgeries	2
3	DNA tube	3
4	Eye tube	1
5	Geeky Medics	8
6	Health talk	0
7	MED tube	4
8	Med scape	6
9	VuMedi	0
10	any other	0

5. Discussion

Learning online is different from learning in a face-to-face setting, and as medical students being main factor for which things are arranged to train them for their better professional outcome. It is important to investigate their responses of their interests, needs and goals to have comparative study of virtual classroom learning. Several factors come into play, such as the time factor, comfort level with technological aid and access to technology, high-speed internet, the platform being used teaching etc. The pandemic has shown us that online learning is going to be part of our reality, now it's up to students to seek out new opportunities through it.⁵

It is wonderful that technology has enabled millions of students to keep learning even when direct contact is impossible. However, a physical classroom environment and interaction has been perceived as the best form of teaching-learning method. So, we can say that the online learning hasn't threatened the traditional model of in person learning.

E-learning, as the name suggests, relies on the availability and accessibility of technology, but little or no availability of resources needed is a significant challenge to taking advantage of education online.⁶

With educational institutes closed due to the COVID-19 pandemic, the government has been encouraging online education to achieve academic continuity. Most high-end private and public institutions have made the switch smoothly using online platforms such as Zoom, Google meet, webex, etc., while many still find it a herculean task. The challenges of online education are multifaceted. It is

time that we Indians, as a society, understand the realms of online education – in India, for India.⁷

Online education makes provision for learning unlimited not bounded by norms. Prospective student remain enriched with dearth of important topics of desired specialty under the guidance and flagship of global experts in ordinary situation which is unimaginable and unaffordable.⁸ Virtual mode of education allow individual of different age group to study at their own speed, without much difficulty and hindrance, and without embarrassing other obligations.⁹

Main concern of the pandemic is maintaining continuity teaching and learning. Online mode of education came as elixir for learners. It has made availability of education at doorstep and flexibility is highly acceptable.¹⁰

Many students must be appreciating this transition a welcome change as it freed them from tight academic routine and travelling to institutes from their place of residence. This is obviously less stressful.¹¹ This has given an opportunity to academicians for exploring new teaching methodology and also assessment tools.¹²

All these are positive development but as far as applicability and in practice concern, there are many hurdles as it is new concept and long term dependency created bad and more worse taste. There are many factors in Indian set up and not easy to redress completely.

For many, internet is used for recreation and other business activities but using it for online learning is not an easy going task. Faculties and professors are not well versed with exploitation of digital technology for online classes and making delivery content effective.¹³ It is not easy for these faculties to enhance their skills of teaching and for students to accept to be comfortable with this transition. It is not fair to expect from them to adapt fully.¹⁴

Classroom ethics are applicable mainly in physical form and it is tough to engage students in online mode as body language and eye contact are important sign for faculty and not easy to look on and manage.⁹

To make teaching learning process effective, feedback of student and faculty is very important which is not easy to get properly in online class which dilutes the preciseness.¹⁵ Student's perspective for physical classroom learning is better as outcome is concerned in comparison to virtual one. For many students phones are disturbing and distract in making concentration.¹⁶

Additionally, medical education include bedside, clinical subjective teaching programs and in some departments hands-on practical session and field visits in community medicine. This practical aspect of teaching highly restricted in online education.¹⁷

Teaching learning is not only subjective knowledge instead holistic development is the goal of education which includes acquiring social skills and other extracurricular activities.¹⁸ Solely depending on virtual mode hinder

personal growth of learner and this causes difficulties in facing outer world in professional pursuit.¹⁹

Medical students belong to diverse background due to socioeconomic and cultural divide in Indian setting.²⁰ Many students face difficulty due to improper access to online education. Interrupted supply of power weak and unavailability of internet connectivity and inability to manage smart phone or other necessary devices are grave concern.²¹ It is cumbersome to engage less interested students to engage in online class. Fluctuating network issues are faced by both faculties and students.¹²

This is not an ending situation. Female medical students suffer a lot due to their engagement in household chores.²² Students belonging to low socioeconomic family face difficulty in managing internet package.²³

6. Conclusion

During pandemic online medical education of forensic medicine and other subjects become necessity for teaching-learning activities, the institute should necessarily address the challenges and problems faced by teachers and students so that hurdles could be minimized.

Online teaching has enabled the continuation of medical education during these unprecedented times. Moving forward from this pandemic, in order to maximize the benefits of both face-to-face and online teaching and to improve the efficacy of medical education in the future, we suggest medical schools resort to teaching formats such clinical scenario-based and practical based learning.

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8. Conflict of Interest

Nothing to declare.

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