

## **ORIGINAL RESEARCH**

# **To Study the challenges in Medical education during Covid-19 Pandemic and way forward by new innovations**

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### **ABSTRACT**

The COVID-19 Pandemic has undoubtedly disrupted medical education worldwide. The new limitations of physical presence have accelerated the development of an online learning environment, comprising both of asynchronous and synchronous distance education, and the introduction of novel ways of student assessment. At the same time, this prolonged crisis had serious implications on the lives of medical students including their psychological wellbeing and the impact on their academic trajectories. The new reality has, on many occasions, triggered the 'acting up' of medical students as frontline healthcare staff, which has been perceived by many of them as a positive learning and contributing experience, and has led to a variety of responses from the educational institutions. All things considered, the urgency for rapid and novel adaptations to the new circumstances has functioned as a springboard for remarkable innovations in medical education, including the promotion of a more "evidence based" approach.

**Keywords** – Medical education, COVID 19, Pandemic, Innovation, e-learning, respondents.

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### **Introduction**

The coronavirus disease 2019 (COVID-19) pandemic led to far-reaching restrictions of social and professional life, affecting societies all over the world. The highly contagious nature of the virus has made it difficult to continue lectures as usual, thus influencing the medical education process, which is based on lectures and patient-based education.<sup>1</sup>The new limitations of physical presence have accelerated the development of an online learning environment, comprising both of asynchronous and synchronous distance education, and the introduction of novel ways of student assessment. At the same time, this prolonged crisis had serious implications on the lives of medical students including their psychological wellbeing and the impact on their academics.<sup>2</sup> The use of technology and online learning has become a core component of medical teaching. In this study, we explore the impact of the COVID-19 pandemic on the education and assessment of undergraduate medical students, the repercussions on their mental

health and future career plans, while exploring their experience as 'frontline workers', along with the institutional responses to these challenges. We also focus on how this unique period could act as a catalyst for substantial changes and further implementation of the 'evidence-based' approach in medical education. ONLINE VERSUS FACE-TO-FACE EDUCATION COVID-19 has already triggered the introduction of new methods of learning in medical education. Online distance education (ODE) can be generally delivered to medical students in two main formats: asynchronous distance education, such as recorded videos and podcasts, and synchronous (live) distance education (SDE), such as video conferences and virtual classrooms.<sup>3</sup> One of the new models is the 'flipped classroom', which is a blended type of learning mode with an asynchronous component that could allow medical students for more schedule flexibility, and a synchronous

component that offers interaction between medical students and faculty members.<sup>4</sup>

### **Aim & Objectives:**

1. We aimed to provide an overview of the medical online learning, medical education status experienced by medical students during the pandemic,
2. To determine the knowledge, attitudes, and practices of medical students regarding online medical education.
3. To measure the innovations in medical education in Post-Covid era.

### **Materials & Methods:**

A paper-based and online survey was conducted using google forms and e-mail with 1150 medical students of all the years of Gandhi medical college for a period of 3 months. The survey requested information related to online learning - knowledge, attitudes, and practices of the medical students during the pandemic. Google Form containing the study questionnaire was distributed among medical students, or personal emails and messages were sent to them to ensure the appropriate selection of study participants. A friendly reminder was sent to potential respondents to ensure the highest possible response rate. The paper version was distributed among medical students and peers. Completed paper questionnaires were collected by one of the authors to ensure confidentiality and to prevent any response bias. Unreturned questionnaires were recorded as missing. Participants were not aware of the study aim or outcomes to reduce the risk of any possible bias. The questionnaire was self-administered without intervention by the authors or any specific person, and it did not contain any identifying data of the participants to ensure confidentiality. Questionnaires with incomplete information or missing data were excluded from the analysis.

The questionnaire covered participant's basic demographic data, such as their gender, age and location as well as general questions whether students and families were impacted either physically or emotionally during the Pandemic, did online teaching replace offline teaching, how many felt virtual mode of teaching -a new innovation in medical education, how the new curriculum have impact during the pandemic, were you affected personally or psychologically, were the frequency of educational activities par with regular mode of teaching, student's level of interest, and concentration were affected. The questionnaire also addressed their experience with medical tele education, including questions related to teaching methodology, integration methods, practical sessions and assessments. Additionally, the survey requested information about participants' medical education status during the pandemic, such as their

work status, types of educational activities conducted how COVID-19 affected their career plan, personal attitudes towards the pandemic, personal opinions about authorities' response to the pandemic, and their wellbeing.

### **Results:**

Out of 1150 medical students of all the years, A total of only 1012 valid questionnaires were retrieved. Did not receive the responses from the remaining students. Most respondents (84.5%) agreed that learning was affected during the COVID-19 pandemic, (73%) have reported that online(virtual) teaching did not replace offline(traditional), (89.4%) responded that the new curriculum was impacted, almost many (89.5%) responded that they got affected personally or psychologically,(58.1%) along with the families,(69.5%)responded that frequency of virtual classes were not in par with offline classes,(84.6%) responded that concentration is affected during virtual classes,(61.4%) that medical teacher could not deliver the classes efficiently on par with the traditional teaching,(86.5%) responded that the practical sessions and small group discussions were effective. (72.1%) Theory classes and integration methods were affected and (61.5%)responded that assessments were not strictly implemented. While (62.1%)of the respondents agreed that interactive discussion is achievable by means of e-learning, Only (65.7%) had participated in online medical educational programs. And almost 72.3% of participants felt virtual education as a new innovation in the medical education.

### **Discussion:**

The adoption of online learning is a key strategy for ensuring continuity in medical education during the pandemic. The need to find alternative solutions, such as e-learning and video lectures, to support medical students during this difficult times is widely acknowledged.<sup>3</sup> In this study, we observed that most medical students had access to electronic devices and were able to use them. We also found that medical students displayed variable levels of knowledge, attitudes, and practices regarding e-learning.<sup>4</sup> However, our study were performed in a single college with specific settings. Therefore, the results may not be generalized to other colleges and other places, and they must be validated by further studies in different colleges and centers to obtain an overview of the utility of the online learning platform as a mode of teaching,<sup>6</sup>and almost 72.3% of participants felt virtual education as a new innovation in the medical education. Out of which 7.3% got benefited through integrated teaching, 21% through google rooms, 32% through webinars and 12% via online sessions. Similar results were seen in Zahra Kariamanet *al.*<sup>7</sup> 72.1% students responded that

virtual education did not affect theory classes, 86.5% responded that they were not affected in practicals, 62.1% responded that Small group discussions were not affected, 61.5% responded that they were affected in assessments. Students of various years were affected accordingly and responded variedly.

These methods can prove to be even more efficient from both the educator's and the student's perspective, in case special teams composed for this purpose and consisting of both faculty members and student representatives participate in their development. The 'student-educator interaction' is essential, so that both the concepts of 'evidence-based teaching' and 'evidence-based learning' are combined harmoniously. Masic *et al* have underlined this partnership as a determining facilitator of smooth curricular adaptation to the status quo of the pandemic.<sup>8</sup> Accordingly, several schools transitioned away from providing ordinary classes towards adopting an e-learning platform that is suitable for both students and staff.<sup>9</sup> The teachers were involved in developing plans to achieve the educational objectives of the teaching courses. However, there is a critical need for academic coaching programs that will help students engage in continued learning with supervision and follow-up by their teachers, as this will prevent students from becoming less motivated, and will increase communication skills between learners and educators<sup>10</sup>.

### Conclusion:

In summary, the outbreak of COVID-19 has brought a new innovation and unforeseen challenges in the field of medical education, related to the development of online learning. A rapid transition to online teaching of medicine, along with small group discussions and introduction of alternative student assessment methods. The urgency of the pandemic has rapidly brought on the development of many innovative educational strategies across the world, the majority of which encompass the use of a variety of digital tools. Such initiatives must act as a stepping stone for evidence-based medical education to thrive even more in the future. More large-scale studies from all over the globe are required to accurately depict how this unparalleled period has affected all aspects of medical education. Along with all the difficulties it brought, this pandemic reminded us that human collaboration through science is one of the greatest tools of humanity to deal with threats. Applying the same collaborative science in education, and specifically in medical education, could raise our optimism for the future of medicine. Education is our future, or in the words of Christine Gregoire: 'Education is the foundation upon which we build our future. Medical schools should be prepared to ensure a successful educational

environment for medical students through emphasizing the tech-based pedagogy, advising, motivating, inviting medical students' feedback, as well as through supporting medical educators to adapt to the new innovation which is an integration of traditional and virtual methods which is effective and incorporated in the present curriculum.

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