Review Article

Medical Education in Post-Covid Era: A New Dimension

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ABSTRACT

Introduction: COVID-19 modified the mode of medical education from face to face learning to distance learning (DL) based predominantly on online platforms. The post-COVID era demands an overview to assess the benefits and challenges of the modified methods comparing with the traditional methods.

Methods: This scoping review was conducted by searching in Research4life & PubMed with some keywords (Post COVID, Pandemic, Medical Education). We selected 4 articles for final review. We constructed a form consisting of the name of first author, publication year, study design, country, methods of teaching, methods of assessment, and recommendation from the authors. The findings are collated and assessed qualitatively in this review.

Results: The Korean study conducted by Kyong Jee Kim focused on blended learning, faculty development, technology integration & institutional collaboration. Study from Egypt showed that face to face learning is appreciated by students & teachers, but the doctor-patient relationship is compromised in DL. Researchers from UK emphasized on adaptation & assessment of different learning modalities, supervisor involvement and participation in community practice. A review from USA expressed that prerecorded lectures of non-clinical classes improve curriculum delivery though online learning negatively affect the mental health of students & teachers.

Conclusion: Our review indicates that though online systems are weak for developing clinical skills and doctor-patient relationships, it has some benefits to keep continuing the pace of teaching and learning during any health emergency. So we recommend to keep a blended education method, keeping the new one with the pre-COVID system, yet to assess the benefits and drawbacks of this new era of medical education.

Keywords: Medical education, COVID, Post-COVID, Distant learning, Traditional education

INTRODUCTION

COVID-19 has brought tremendous changes in all aspects of life including global health system.[1, 2] One of the most affected areas is medical education. All of the educational institutions were temporarily closed during the pandemic for the safety of the students and teachers. Measures to continue education in such situation was felt by the educationists and policy makers, which in turn ignited the installment of online education system with innovative protocols to adapt to the virtual reality (at least 5 reference to add).[3-6] Gradually the medical education had to adopt such system by installing simulation lab, virtual classes and exams, practical examination such as objective structured clinical examination (OSCE) with mock tests.[5,7-10]

The initial introduction faced various difficulties whereby the teachers as well as students found themselves unskilled with the use of the virtual classes, navigation through online windows and retrieve online materials from the designated web page.[4, 10, 11] To most of the teachers the online platform was very new where they were not exposed before the pandemic. Some of the students were in the

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similar facet of dilemma of navigation through the browser.[8] Many students of the developing countries like Bangladesh didn't have the means to access the online education system because of not being familiar with appropriate device, net connectivity and monetary support for the system to be installed.[12] The affordability as well as fear and anxiety among students and stuff on e-learning were also excavated by researchers.[13]

Now that the COVID havoc is nearly controlled, the post covid medical education needs to be evaluated. The question of continuing or modifying the medical education through the experience during the COVID pandemic awaits a malleable answer.

We conducted this review to assess the post COVID medical education system from the relevant literatures in this field.

METHODS
We conducted this scoping review with a broad research question of medical education in post COVID situation. After deciding on the research question, we searched the scientific field for pertinent studies. After that we selected the studies which met with our objectives. We reviewed the selected studies to put the findings into a pre-defined matrix. And finally, we consulted among the team members to agree upon the summary findings.
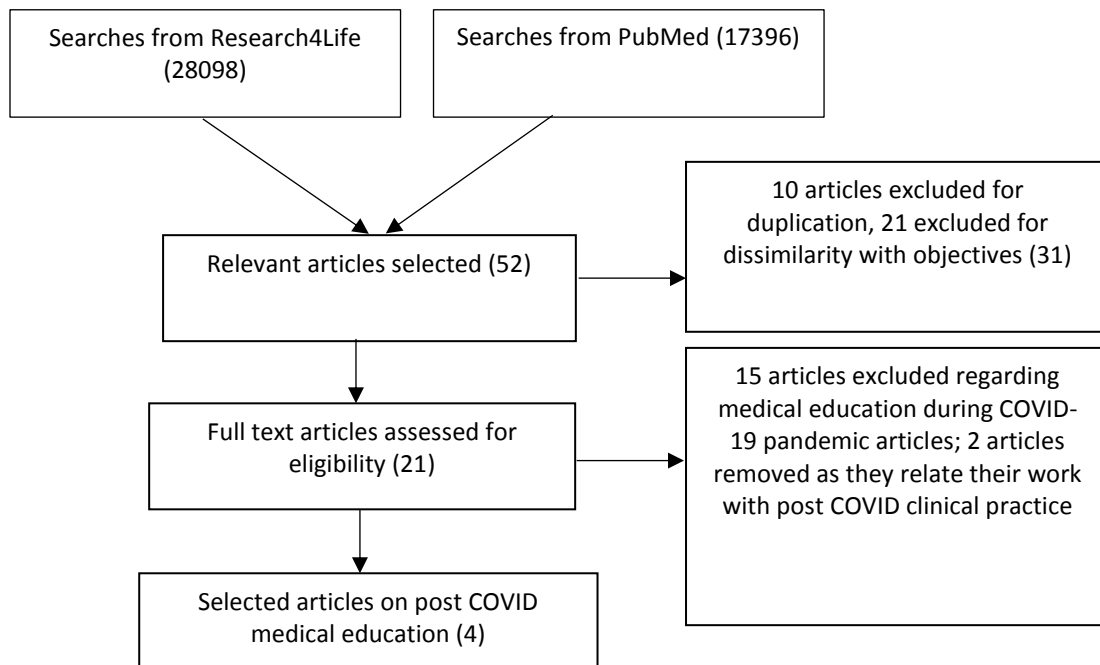

Figure 1: Flow chart of article selection

We searched from Research4Life and PubMed to determine the answers to our question about the medical education after the COVID pandemic from the experience during the pandemic. Three authors conducted the initial search independently.

The search terms were "medical education AND COVID-19", "medical education AND post COVID-19", "medical teaching AND COVID pandemic" "medical teaching AND post COVID-19" and "medical education AND post COVID pandemic".

The search yielded 28,098 results from Research4Life and 17,396 results from Pubmed, and these included articles, books chapters, online comments, conference minutes etc. We narrowed down our search objectively to select 52 articles from both the search engines for our study. Ten results were excluded because of duplication; 21 articles didn't meet our objectives when investigated thoroughly. Out of the rest 21 articles, we removed 15 as they were on medical education during COVID-19. Two articles talked about the clinical practice during the post COVID time, hence didn't meet the criteria for inclusion. Finally, 4 articles were left for review as they were related to post COVID medical education. We showed the flow chart of the article search in Figure 1.

Two reviewers compiled the data in the table following the necessary steps of this review in a master sheet for initial checking. They went through these 4 literatures thoroughly to collate the findings or recommendations for the post COVID time. Then we constructed a form consisting of the name of first author, publication year, study design, country, methods of teaching, methods of assessment, and recommendation from the authors. The finding out of this form was presented in Table 1 and the discussions followed according to the findings.

RESULTS

The excerpt matrix of the results from the four articles are given in Table 1. The country wise description of the articles is given in the table.

Korean study
Kim K. J. discussed that COVID-19 pandemic which encourages continual innovation in medical education rather than passing trends as it represents a persistent threat, which resulted in bringing both opportunities and challenges for medical education.[14] They anticipated that COVID-19's online education experience could be utilized to further advance the reforms in medical education. The adoption of blended learning by addition of online with the traditional teaching bears a potential form of education system in the medical field. To incorporate the blended learning, curricula needs evaluation and modification. Though these shifts bear opportunities and challenges as well, faculty development through training of the instructors in online teaching techniques, developing and disseminating online resources, and efficiently designing and implementing online exams could gradually be adopted by the stakeholders and recipients. They recommended that medical schools should collaborate to create and exchange educational materials to uphold and sustain the neo education environments to their best so that any future health emergency can be dealt with ease.

Egyptian study
Ahmed S. A. et al took an initiative to lay out post-COVID planning priorities for a better balance between online and in-person learning to create a distant learning (DL) model using The Polarity Approach for Continuity and Transformation (PACT)[TM]. Using a virtual mapping session with 79 academics from 19 different nations, the researchers found mixed interactions with students who appreciated that DL offers a good learning environment. But contrary to the advantage of DL, participants alleged that face-to-face learning offers a better opportunity for professionalism through

Table 1: Findings of the selected studies

Author	Country, year	Publication type	Finding 1	Finding 2	Finding 3	Finding 4
Kyong-Jee Kim	South Korea, 2022	Comment review	Need to incorporate blended learning to make more student centred environment	Faculty development is necessary for DL	Technology integration, creation and sharing learning resources	Institutional support & collaboration
Samar A. Ahmed	Egypt, 2020	Cross-sectional qualitative study	Face to face learning appreciated by students and teachers	DL offers less variety of logistics use	Clinical skill & cognitive communication are at risk	Doctor patient relationship is compromised in curriculum
Richard Darnton	UK, 2022	Qualitative evaluation	Adaptation of different models of learning strategies	Supervisor involvement in student consultations	Assessment of different learning modalities	Participation in the community practise
Matthew Z. Guo	USA, 2022	Perspective review	Pre-recorded lectures for non-clinical classes improve curriculum delivery.	Medical curricula should be updated to include content on telehealth & tools to address it as separate skill.	Resources to be invested on the curriculum structures to promote self-learning and enhance education on health disparities.	Online learning negatively affect the mental health of medical students and educators.

improved teamwork with regard to social issues. Participants concurred that DL logistics are significantly more challenging than face-to-face learning. The participants argued that face-to-face learning gives easiness to interact without coping with the difficulties that arises from using the online logistics. However, as seen by the participation of 46 people, special needs pupils did not feel physically comfortable attending. The model faced an important challenge of clinical skill and communication with the real time patients when they looked at the curriculum, which indicated a weakness of the DL hence can compromise doctor patient relationship. [15]

UK study

Darnton, R. et al conducted a qualitative evaluation of final year undergraduate clerkship.[16] They showed that triage, e-consultations, remote consultations, online meetings, and reduced home visits to be utilized massively. So, they urged to reconsider the purpose and impact of online learning primary medical care. Out of different models for supervised student consultations, triaging systems appeared to boost the student-patient relationship. Remote consultations had become a necessity to provide an educational advantage and to make up the loss incurred during the pandemic.

USA study

Guo M. Z. et al examined the asynchronous and virtual learning during pandemics, to reimagine undergraduate medical education in the post-pandemic period. They concluded to prepare and train the physicians by utilizing these two learning models. The researchers found that pre-recorded lectures for non-clinical classes meet up curriculum coverage. They also recommended for real time small group discussion among students, front-line medical professionals, patients from various communities, and policy activists, to improve themedical education system had any future epidemic engulfs our life. The authors recommended for updating medical school curricula that should cover telehealth. They chalked out the weakness of virtual education to have been impacting student isolation and detachment brought on by online learning.[17]

DISCUSSION

Emergence of COVID 19 created tremendous changes in all fields & medical education system was also affected by it. Medical students faced a lot of difficulties in their learning process. Different institutions developed different strategies to ensure the firmness & integrity of medical education system including safe lecture delivery. The most popular method was distance learning through online platforms.[1] The researchers went on discussing the potential of using the modified education system during the COVID pandemic for continuation of DL or adopt a fusion of traditional and new methods of education and learning.[3,15]

Some researchers from Korea emphasized on the blended learning for making student centered environment including faculty development, technology integration, sharing learning resources and institutional collaboration. But when we looked at the study from Egypt, the authors focused on post COVID planning priorities for a better balance between online and offline learning to create a distant learning (DL) model using the Polarity Approach for Continuity and Transformation (PACT). In this cross-sectional qualitative study, face to face learning was appreciated by students and teachers arguing that DL offers less variety of logistic use. They found that clinical skill and cognitive communication are at risk and doctor patient relationship is compromised in this curriculum.

While the matter of utilization of the blended education system was still in debate, educationist urge for keeping the competency whatever the methods of choice an institute finalize for running the course.[2] Some researchers emphasized on the healthy living environment because it was affected most during the pandemic, especially the adolescents.[18] Though researchers urged that e-consultations, online meetings, and reduced home visits were utilized massively during the pandemic, the threat of social media

addiction should be kept in mind as it was already a concern even before the commencement of the pandemic.[16,19] So, adaptation of different models of learning strategies, supervisor involvement in student consultations, assessment of different learning modalities and participation in the community practice could mitigate the gap between the expected and the real time situation.[11]

Pre-recorded lectures for non-clinical classes enhance the delivery of the curriculum, according to a perspective evaluation conducted in the USA. The researchers found that in order to increase self-learning and improve instruction on health disparities, medical curricula should be revised to include telehealth content. Additionally, they discovered that educators and medical students' mental health are both significantly impacted by online learning.[15]

The studies which we reviewed mostly concluded with the weakness of online system over clinical skill and doctor patient relationship. Researchers from Japan found that clinical skill perception was low during the COVID, supporting the claim of researchers in our review.[4] On the contrary, researchers during COVID expressed their satisfaction on this modified online education system.[20] So we need to revisit the applications to evaluate the pros and cons of the new era of medical education.

We recommend a blending of the both education system by accepting the tools we have used to continue the teaching environment that we learned from the COVID pandemic, in order to sustain medical education. Moreover, we need to emphasize public health activities in field, address healthcare disparities, where we can mix virtual patient care integrating with face-to-face learning.[3, 21] Because medical students

of today will be the doctors of tomorrow, we need to create an acceptable teaching and learning environment for them preparing them for the untoward public health emergencies.

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