

## Original Article

# E-Learning amid COVID-19 Pandemic: An Experience by medical students of Rawalpindi Medical University Pakistan

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## Author's Contribution

<sup>2,4</sup> Conception of study

<sup>2,3,4,5,6</sup> Experimentation/Study conduction

<sup>1</sup> Analysis/Interpretation/Discussion

<sup>1,3</sup> Manuscript Writing

<sup>5</sup> Critical Review

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## Abstract

**Objective:** To determine the effectiveness of e-learning and hurdles confronted to the undergraduate medical students of Rawalpindi Medical University in continuation of academics during the COVID-19 pandemic.

**Material and Methods:** A survey was carried out during July 2020 to scrutinize the experience of 1041 medical students enrolled at Rawalpindi Medical University regarding their academic experience through Microsoft Teams. A self-structured questionnaire was digitally administered for this purpose to gather their responses about academic coverage, prior intimation about the lecture topic, opportunities for interaction with teachers, internet connectivity and various teaching methods employed by the teachers, and recommendations for improvement. The data was analyzed using SPSS version 25.0. Percentages were computed for responses on all the variables.

**Results:** A total of 1041 medical students gave feedback regarding their e-learning through Microsoft Teams. Theoretical aspect coverage, a prior intimation of the topic to be covered, and student-teacher interaction during online classes were satisfactory according to 68%, 85%, and 61% of students respectively. About 70% of respondents claimed frequent internet connectivity issues during e-learning while 63% found Microsoft Teams interface incompatible. Broad-band internet connection at home was available to only 60.10% of students. Most (25%) students wanted improvement in software for the smooth execution of their e-learning.

**Conclusion:** Although online learning proved as a blessing in disguise amid the COVID-19 pandemic but being a new experience for both students and teachers some problems were faced that can easily be rectified.

**Keywords:** e-learning, COVID-19 pandemic, Microsoft Teams, feedback, medical students.

## Introduction

COVID-19 pandemic has adversely shattered education apart from social and economic facets of life. Colleges and universities were instantaneously closed in response to government instructions to lessen the harmful health effects of coronavirus disease 2019.<sup>1</sup> The educational system has abruptly undergone a shift from classroom lectures to online teaching.<sup>2</sup> This educational shift was intended to continue uninterrupted learning of the students.<sup>3</sup>

Learning Management System was launched at Rawalpindi Medical University on 15<sup>th</sup> April 2020 in response to the COVID-19 pandemic to ensure academic continuity. IT experts and faculty of RMU accepted this challenge cheerily for educational continuity among students of both University campuses. This was based on a software application for the digitalization of medical education. The strenuous efforts of Prof. Muhammad Umar, Vice-Chancellor of RMU, and his dedicated team made quality distance learning feasible. Apart from MBBS, nursing and Allied Health Sciences students of RMU were also benefitted from audio-recorded lectures of their respective teachers. MCQs based online assessments of the students were also carried out to streamline their learning process.<sup>4</sup>

E-learning at RMU was ultimately switched to Microsoft Teams on 22nd June 2020 due to its potential for interactivity between teachers and students. Free license for working on Microsoft Office 365 was also provided to RMU by HEC for this noble cause.<sup>5</sup> This software conferred our institutional faculty and students with a collaborative platform with diverse gadgets and tools for the thriving execution of academics.<sup>6</sup> The monitoring sheet was also prepared to supervise the quality of lectures, PowerPoint presentations, X-ray films, models, and specimens shared with the students during online teaching. Focal persons were designated for each class to ensure the delivery of lectures and conduction of clinical sessions accordingly.<sup>5</sup>

The current study is therefore meant to analyze the perspective of medical students enrolled at Rawalpindi Medical University pertinent to e-learning that was initially executed through Learning Management System (LMS) followed by interactive teaching via Microsoft Teams application. This research will not only enable us to evaluate the pros and cons of both e-learning but will through Microsoft Teams but will also prove beneficial to the concerned

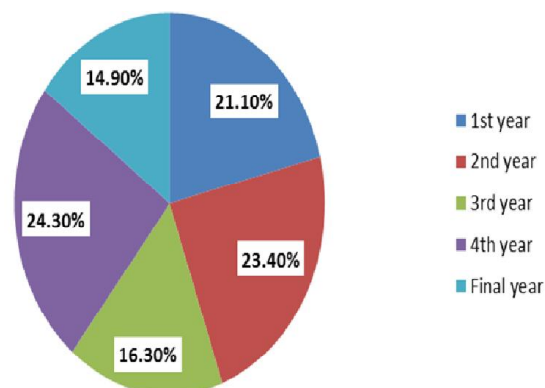
authorities for appropriate modifications in the best interest of our students.

## Materials and Methods

A questionnaire-based survey was done during July 2020 to analyze the experience of 1041 medical students enrolled at Rawalpindi Medical University pertinent to the continuation of their academics through Microsoft Teams. A self-structured questionnaire was digitally administered to gather the responses. The responses of the students were gathered on a 4-point Likert scale (strongly agree, Agree, Disagree, Strongly Disagree) regarding academic coverage, prior intimation to students about the lecture topic, opportunities to interact with tutors aptly during online class, internet connectivity, and use of diverse teaching methodologies by the teachers. Students were also welcomed to give recommendations for the betterment of the e-learning system. The data was analyzed using SPSS version 25.0. Percentages were computed for responses on all the variables.

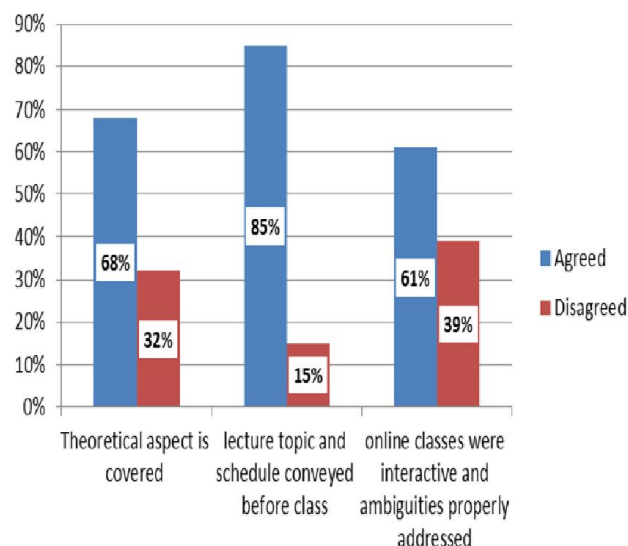
## Results

About 2-3 weeks following continuation of e-learning at RMU, feedback of medical students pertinent to Microsoft Teams was gathered through online forms. Most (24.3%) of our respondents out of 1041 medical students were from 4th-year MBBS as depicted below in Figure 1.



**Figure 1: Medical students responding from each MBBS class**

Most of our students were satisfied with the coverage of educational content, opportunities for clarification of ambiguities, and prior sharing of lecture topic and schedule as shown below in Figure 2.



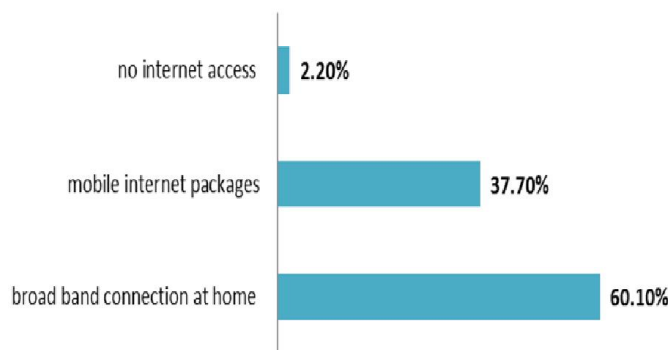
**Figure 2: Optimism of e-learning through Microsoft Teams perceived by medical students**

However, our medical students were dissatisfied with internet connectivity, Microsoft Teams interface, and other such aspects as depicted in Table 1.

**Table 1: Rectifiable Issues of MS Teams software**

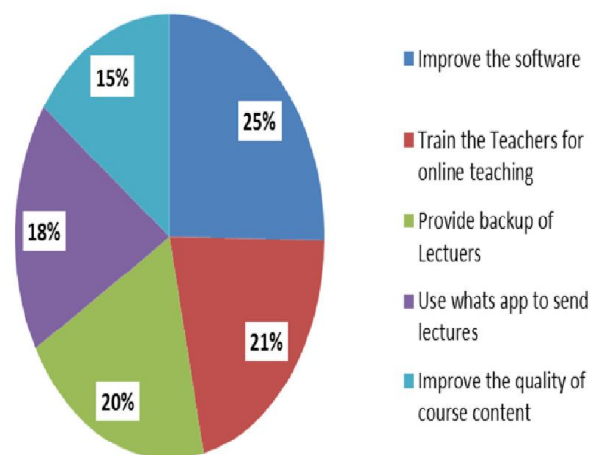
Sr. No.	Rectifiable attributes of software	Agree	Disagree
1.	Continuation of online teaching on resumption to normality	37%	63%
2.	Frequent connectivity issues	70%	30%
3.	The user-friendly interface of MS Teams	63%	27%
4.	Adequacy of techniques for clinical teaching	27%	73%

Most of our students have access to the internet at home for virtual learning activities as shown below in Figure 3.



**Figure 3: Internet access to medical students at the residence**

About 51.9% of our students had load shedding up to 6 hours in their residential areas. The majority of our respondents suggested improving the software that is utilized for interactive teaching at RMU as illustrated in Figure 4.



**Figure 4: Recommendations to improve the quality of online teaching**

## Discussion

On the declaration of coronavirus infection as a pandemic by the World Health Organization on 11<sup>th</sup> March 2020<sup>7</sup>, all academic institutions in Pakistan were closed instantaneously to limit the crowding of people<sup>8</sup>. Continuation of academics in such circumstances became quite challenging. Although the sudden shift from traditional classroom teaching to e-learning for the educational accomplishment of our students was fairly cumbersome it became the need of time.<sup>9</sup>

Microsoft Teams was introduced as a modality for the educational continuity of students at Rawalpindi Medical University. About 70% of our undergraduate medical students faced difficulty in getting connected with their teachers during an online class. Another national research carried out amid the COVID-19 pandemic scrutinized the response of higher educational institutes pertinent to online education revealed that most (65%) of the students frequently confronted with internet connectivity issues although 77% of them were comfortable in communicating electronically with their tutors.<sup>10</sup> We were in dire need of E-learning to reduce the transmissibility of infection during the COVID-19 pandemic.<sup>11</sup> Digitally advanced countries proficiently continued online teaching in distressful situations resultant of COVID-19. However, developing countries could not cope up successfully due to their digital un-advancement.<sup>12</sup> Similarly about 77% of medical and dental students of Liaquat College of Medicine and Dentistry were dissatisfied with e-learning and preferably favoured face-to-face teaching.<sup>13</sup> Contrary to our and other national researches, a qualitative case study was done by Mukhtar K et al strongly recommended e-learning in healthcare institutes as it comfortably facilitates remote learning.<sup>14</sup> The reason for this disparity in results might be internet connectivity issues. The broad-band or high-speed internet access can fairly resolve this problem.

The current study revealed discontent of about 63% of medical students with e-learning and their unwillingness regarding the continuation of this modality after normalization. Moreover, 73% of our students confessed that diverse teaching strategies were not employed by the teachers for efficient delivery of the content. Contrary to our results, medical students of the Dow University of Health Sciences<sup>15</sup> and Lahore Medical and Dental College<sup>16</sup> were highly satisfied with online teaching done for coverage of curriculum amid the COVID-19 pandemic. This discrepancy of contentment with online teaching between our students and those of other medical institutes might be the skilled faculty and staff availability for online lecture delivery with the utilization of varied domains for proficient content delivery. Although orientation sessions were frequently arranged to facilitate the tutors of RMU in online teaching our 21% of students suggested training the teachers for this purpose. Switching to e-learning from the traditional method in response to global crisis was the very challenging but instant response of our administrators, IT professionals, and faculty members

ensured apt provision of virtual platform for the continuation of academics in the COVID-19 era.

The provision of a comfortable learning climate in response to the pandemic was attributed to the strenuous endeavor of the institutes to support teaching and learning amidst the COVID-19 pandemic. Approximately 2.2% of our medical students did not have access to the internet for joining the e-learning interactive sessions. Similarly, the students of Riphah International University were also confronted with such problems.<sup>17</sup> No doubt, it is impossible for every citizen of Pakistan to afford internet access due to resource limitations. Also, some of the rural areas of our country are devoid of broad-band internet connection. Keeping in view these obstacles, concerned authorities of Rawalpindi Medical University took the responsibility to mail the learning material in hard as well as soft copy to bridge the gap in virtual learning of our students.

In the present study, only 18% of medical students wanted their teachers to send lectures on what's app than on any other communicating modality to facilitate their learning amid the COVID-19 pandemic. On the other hand, about 75.7% of students from Liaquat College of Medicine & Dentistry favoured the use of mobile for e-learning instead of using laptops, computers, or tablets.<sup>13</sup> The access to broadband internet is the main facility needed for virtual learning and the majority of students enrolled at RMU belong to the middle class and therefore preferably got admission in this public sector university due to their merit or academic excellence at an intermediate level. Therefore little proportion of our students favoured the use of what's app for a continuation of online education. Also, 20% of our students wanted to get backup of online lectures delivered to them during the pandemic era. The students of Liaquat College of Medicine & Dentistry being tutees of a private institute can afford access to nearly all the lifestyle amenities so they were probably more comfortable with the usage of online modalities. The relationship of social class with easiness in e-learning should be studied qualitatively to sort out the problems confronted by our students.

About 27% of our medical students were satisfied with the clinical teaching sessions carried out online for their adequate clinical exposure. Likewise, students of University College of Medicine & University College of Dentistry claimed inefficiency in the acquisition of psychomotor skills through e-learning.<sup>14</sup> Although the COVID-19 pandemic has made our students indulge in habit of Self-Directed Learning (SDL), which is

deemed necessary for their in-depth and long-term comprehension of the subject<sup>18,19</sup>, but learning of laboratory and clinical skills by hands-on session were interrupted in true sense.<sup>14</sup> The interaction between students and teachers during classroom sessions along with study guides, models, specimens, and laboratory equipment are imperative for effective learning the significance of which is very much evident.<sup>20</sup> Medical students of RMU recommended having practical classes particularly on the resumption of conventional lectures because practicals could best be understood by doing than by just listening to a demonstration of teachers. This feedback of our students pertinent to e-learning was also incorporated in the minutes of curriculum committee meetings that are usually held every six months at the end of each block for improvement of our institutional academics as per PM&DC guidelines.<sup>21</sup>

## Conclusion

E-learning at Rawalpindi Medical University assisted greatly in the continuation of academics as per schedule during the COVID-19 pandemic era. Obstacles in smooth execution of Microsoft Teams software at the institutional end should be promptly managed by concerned authorities. A plan to assess students' knowledge, attitude, and skills by diverse online modalities will help a great deal to evaluate the achievement of learning objectives. Suggestions of students for repetition of practicals and clinical sessions on the normalization of scenario should be given due consideration.

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