

## ORIGINAL ARTICLE

**ADVANTAGES, DISADVANTAGES AND LIMITATION OF E-LEARNING AMONG MEDICAL STUDENTS DURING COVID OUTBREAK**Qamar Yasmeen<sup>1</sup>**ABSTRACT**

**Introduction:** Worldwide, the COVID-19 pandemic has resulted in the closure of educational institutions. This examined how equipped academic institutions were to handle a situation where the use of cutting-edge hardware and software to support successful online learning is necessary. Such closure hastened the creation of online learning environments in order to prevent disruptions to instruction. The main issue facing many medical colleges during the COVID-19 pandemic, however, is how to provide and use online learning resources in an e-learning system. During the COVID-19 outbreak an online learning environment is the only alternative in circumstances where access to college and university classrooms is not possible. Given the increased usage of online modalities during COVID-19, it is critical to assess their efficacy in facilitating diverse stakeholder-based teaching and learning. Online learning has been implemented by medical institutions during the COVID-19 outbreak. This study investigates how medical students view its advantages, disadvantages, and limitations.

**Material & Methods:** A survey was conducted to examine the experiences of 502 medical students from April to June 2021 who were taking online classes during Covid 19 pandemic with Microsoft Teams as an academic tool. For this goal, a digitally self-structured questionnaire was implemented to collect their responses regarding academic coverage, satisfaction, prospects for faculty contribution, and the internet connection, the teachers' varied pedagogical approaches, and recommendations for improvements. The analysis of the data was done with SPSS version 23.0. For each of the factors, percentages were calculated for the responses.

**Results:** Efficiency, remote learning, immense flexibility, and asynchronous learning were main advantages regarding virtual learning, difficult adaptation, lack of motivation, lack of interaction with teachers and class fellows were prominent disadvantages, technology issues/weak internet connection and alternative online educational platforms were main limitations during online classes.

**Conclusion:** During the COVID-19 pandemic, online learning was a savior in disguise, but it also presented certain challenges because it was new to medical students. These issues should be rectified.

**Key Words:** Advantages, Face to face Learning, Technology Integration

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**INTRODUCTION**

Worldwide, the COVID-19 pandemic has resulted in the closure of educational institutions. This examined how equipped academic institutions were to handle a situation where the use of cutting-edge hardware and software to support successful

online learning is necessary. Such closure hastened the creation of online learning environments to prevent disruptions to instruction.<sup>1</sup> A lot of educational institutions are now curious about the best ways to engage students, administer exams, and distribute course materials online. Therefore, despite posing a threat to humanity, COVID-19 has led educational institutions to make investments in online education.<sup>2,3</sup> Pakistan is one of the nations where the COVID-19 viral mutation, scarcity of vaccines, and uncertainty surrounding the pandemic have resulted in the closure of educational institutions. Social separation is the only effective means of safeguarding human lives, particularly those of young children and adults, from viral infection. It is not possible for students and teachers to learn using standard methods in this situation.<sup>4</sup> The main issue facing many medical colleges during the COVID-19 pandemic, however, is how to provide and use online learning resources in an e-learning system. Because of its ubiquity (ability to be found anywhere at any time), affordability, usability, and interactive nature, e-learning systems are a valuable source of information. Using an e-learning platform like Blackboard, which has many wonderful features, would be beneficial during this coronavirus pandemic. Right now, using this system might be more sensible. For instance, students may be texting or participating in a learning activity with teachers from home using an e-learning system on a laptop or mobile device. Additionally, because they can connect to mobile networks, students can easily download educational materials to their mobile devices.<sup>5,6</sup> Due to advancement in telecommunication too system technology, online education system has emerged as new method of teaching via different digital platforms.<sup>7,8</sup> This also proves that in this pandemic situation online/distance learning is a viable choice. The use of learning management systems (LMS) is one method of e-learning. Therefore, offering, planning, and managing online learning activities—like student enrollment, tests, assignments, course descriptions, lesson plans, messages, syllabus, and basic course materials—all fall under the umbrella of e-learning. In addition to offering several advantages, such as increased effectiveness and efficiency of learning services through improved connectivity with

teachers and better access to learning materials, switching from traditional learning will allow students to access e-learning platforms like Blackboard around-the-clock.<sup>9,10</sup>

During the COVID-19 outbreak an online learning environment is the only alternative in circumstances where access to college and university classrooms is not possible. However, the degree to which medical students are content with the online learning environment provided by different digital and social media platforms is debatable.<sup>11</sup> The literature data shows different type of responses from students about online/distance learning.<sup>12,13</sup> E-learning includes internet-based learning, computer-assisted instruction, digital learning, interactive learning, and web-based education. This education system is primarily web-based and uses technology to give students knowledge or skills. Due to a significant decrease in the cost of implementing these technologies, the use of web-based technology for educational purposes has grown quickly.<sup>14</sup> E-learning has become a fundamental component of many universities' curricula these days. Consequently, additional studies have been carried out to comprehend the challenges, benefits, and difficulties associated with e-learning in higher education. These problems may negatively impact the caliber of instruction provided by instructors.<sup>15, 16</sup> Given the increased usage of online modalities during COVID-19, it is critical to assess their efficacy in facilitating diverse stakeholder-based teaching and learning. Consequently, the present study explores the perspectives of Pakistani educators and learners regarding the advantages, disadvantages, and recommendations related to virtual education.

## **MATERIAL AND METHODS**

A cross-sectional survey was conducted between April 2021 to June 2021 in different private and government medical colleges Faisalabad, Punjab Pakistan. Convenient sampling technique was applied to collect the data from medical students in their basic and clinical years. Online consent about the confidentiality of data was taken from the participants who were willing to participate in research. The participants were briefly informed about importance of research. The survey was conducted online using the Google

Forms and was distributed through social media platforms such as: WhatsApp, email. Total of 502 respondents were included. A questionnaire was created to evaluate the following areas: (1) participant demographics; (2) experiences with online learning during the pandemic (self-confidence, motivation to learn); (3) advantages, disadvantages and limitations students faced while learning online (interdisciplinary thinking, practical/clinical abilities, faculty' role, participation, and assistance); and (4) effectiveness of online learning. Single-choice responses to the survey's questions were given on a Likert scale 17 (1 = extremely ineffective, 5 = extremely effective). The data were compiled, and a report of the variables was created using descriptive statistics. For continuous variables, the data description contains frequencies and proportions. S.P.S.S. was used to perform the statistical analyses. (Version 23).

## RESULTS

According to table 1, majority of students were belonging to age group 21-23 (39.4%). Among them 55.4% consist of male and 44.6% were female. 35.3% of medical students were studying in 1<sup>st</sup> year. Among electronic device used for online study mobile was used as major electronic device (59%).

While e-learning can improve education, there is debate over whether to make e-learning materials available, as this can only improve learning outcomes for particular kinds of group assessment. Nonetheless, e-learning might lead to a lot of usage of particular websites. Furthermore, it is unable to support domains that call for in-depth research.

According to the students (Table 2) one of the most important applications of e-learning is a recreation of the scientific method that can be learned through multimedia or electronic means. The students concur that online learning is beneficial, safe, and raises academic standards. 24.3% were agreed that way of communication through digital learning was highly efficient, 31.4% indicated it was immensely flexible, 39.4% believed that online learning was highly effective in time management for studies. Students felt that during this lockdown, their focus had been encouraged by online learning platforms. They had developed into self-directed, asynchronous learners who could learn

asynchronously at any time in a day (36.2%). The primary disadvantage of online learning is the lack of important face-to-face interactions between students (40.8%) and teachers (36.4%) as well as between peers. 37.6% of medical students were of the view that digital learning was difficult to adapt due to various challenges and lack of motivation (47.8%). It was discovered that, in contrast to developed nations, developing nations encounter numerous obstacles when implementing e-learning, such as inadequate internet connections (34.2%), inadequate understanding of ICT usage and use of alternative digital platforms (32.8%), and subpar content. According to the students, the largest barrier/limitation to the adoption of e-learning is the poor quality of internet services, which makes e-learning introduction challenging.

The statistical analysis of the variables shows that there is a statistically significant relationship between the impact of online learning and medical students, as presented in Table 3. The direction of the relationship was positive for the variables. The table demonstrated a strong ( $p < 0.01$ ) and statistically significant correlation between all variables and students' satisfaction levels. While students did not find online learning to be particularly superior to in-person instruction, they did report that faculty response times were prompt and that the amount of time allotted for study was adequate. The findings suggest that, in the future, they would prefer traditional instruction over online instruction for a variety of reasons, including poor communication and discomfort with online learning.

## DISCUSSION

Students using the e-learning system are having technical difficulties. In medical education, face-to-face instruction is the conventional method. However, given the dire circumstances (COVID-19), in which conventional classroom instruction is rendered impossible by the virus's virulence and potential for widespread transmission, online learning has emerged as a crucial step for advancing medical research.<sup>17,18,19</sup> The e-learning experience is hindered by slow internet speed and high internet traffic due to unavailability of technical staff and lack of support for facilities to perform various

activities, including installation, operation, maintenance, network administration, and security. Students' unwillingness to assume responsibility for their own e-learning and lack of awareness of internet safety. Lack of ability to modify or adapt course material to meet the needs of individual students.<sup>20,21</sup> The reluctance of many instructors and students to use the eLearning system can be explained by the fact that many students have misgivings about the learning services that the system handles, like sending in assignments and administering tests.<sup>22,23</sup> Furthermore, when the system is switched from traditional teaching to an e-learning system, instructors may feel that it poses a threat to their careers. This problem does not just affect the students.<sup>24,25</sup> It is suggested that strict monitoring of students, establishing guidelines for online communication, providing counseling, and taking disciplinary action are ways to preserve decorum. Students claimed that their attention spans during online learning was even shorter than in-person sessions, and the literature concurs with this claim. Shorter lectures, greater teacher-student interaction, and the use of flipped classroom learning modalities can all help with this.<sup>26</sup> Instructors must receive training, and students must be oriented to the use of online learning resources. It is advised to make the investment in purchasing high-end software packages as this will assist in overcoming numerous constraints.<sup>27</sup>

## CONCLUSION

In light of the COVID-19 pandemic, this study offers medical students' perspectives on online learning. The majority of medical students felt that multiple factors needed to be maintained for the online digital system. However, there are numerous benefits for Pakistan and the global community from the use of electronic technologies in medical education. These benefits need to be carefully weighed, and practical strategies for improving these students' online education ought to be developed.

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Table 1: Sociodemographic Profile of medical Students

Characteristics	Frequency (%)	
Age	18-20	182 (36.3)
	21-23	198 (39.4)
	24-26	122 (24.3)
Gender	Male	278 (55.4)
	Female	224 (44.6)
Medical year	1 <sup>st</sup>	177 (35.3)
	2 <sup>nd</sup>	116 (23.1)
	3 <sup>rd</sup>	81 (16.1)
	4 <sup>th</sup>	69 (13.7)
	5 <sup>th</sup>	59 (11.8)
Digital device	Mobile	296 (59)
	Laptop	120 (23.9)
	Tablet	26 (5.2)
	Mobile & laptop	60 (12)

Table 2: Distance e-learning reported advantages, disadvantages and limitations

characteristics	Extremely effective	Effective	Neutral	Ineffective	Strongly ineffective
<b>Advantages</b>					
Efficiency	122 (24.3)	120 (23.9)	90 (17.9)	80 (15.9)	90 (17.9)
Remote learning	140 (27.8)	246 (49)	23 (4.6)	72 (14.3)	21 (4.1)
Immense flexibility	158 (31.4)	110 (21.9)	87 (17.6)	98 (19.5)	49 (9.7)
Asynchronous learning	182 (36.2)	141 (28)	23 (4.5)	100 (19.9)	56 (11.1)
Learning on your own pace	201 (40)	95 (19.5)	36 (7.1)	70 (13.9)	100 (19.9)
Time management for studies	196 (39)	118 (23.5)	94 (18.7)	36 (7.1)	58 (11.5)
Easy access from distance	118 (23.5)	152 (30.2)	82 (16.3)	57 (11.3)	93 (18.5)
Diverse delivery methods	62 (12.3)	200 (39.8)	56 (11.1)	76 (15.1)	108 (21.5)
<b>Disadvantages</b>					
Difficult to adapt	189 (37.6)	113 (22.5)	120 (23.9)	34 (6.7)	46 (9.1)
lack of motivation	240 (47.8)	94 (18.7)	65 (12.9)	75 (14.9)	28 (5.5)
Improved learning	130 (25.8)	178 (35.4)	123 (24.5)	23 (4.5)	48 (9.5)
Lack of work satisfaction while taking online classes	141 (28)	90 (17.9)	150 (29.8)	84 (16.7)	37 (7.3)
Difficult to engage	174 (34.6)	78 (15.5)	128 (25.4)	96 (25.4)	26 (5.1)
Lack of teacher student interaction	100 (19.9)	183 (36.4)	93 (18.5)	72 (14.3)	144 (28.6)
Lack of interaction with class fellows	205 (40.8)	89 (17.7)	57 (11.3)	37 (7.3)	114 (22.7)
Sense of Isolation	98 (19.5)	207 (41.2)	97 (19.3)	38 (7.5)	62 (12.3)
<b>Limitations</b>					
Technology Issues/internet connectivity	172 (34.2)	155 (30.8)	58 (11.5)	83 (16.5)	34 (6.7)
Lack of training	111 (22.1)	154 (30.6)	120 (23.9)	99 (13.7)	18 (3.5)
Lack of awareness	120 (23.9)	147 (29.2)	91 (18.1)	65 (12.9)	79 (15.5)
Alternative online educational platforms	165 (32.8)	145 (28.8)	23 (4.5)	78 (15.5)	91 (18.1)

Table 3: Correlation analysis for online learning among medical students during Covid outbreak

Variable	M	SD	1	2	3	4	5	6	7	8	9
Faculty participation	3.39	1.15	—								
Digital technologies	2.90	1.19	.54**	—							
Dedicated time	3.48	1.38	.33**	.32**	—						
Support by Faculty	3.44	1.38	.58**	.42**	.39**	—					
More comfortable	3.25	1.37	.59**	.61**	.25**	.65**	—				
Response time by faculty	3.01	1.13	.33**	.48**	.30**	.58**	.37**	—			
Preferences	2.75	1.11	.25**	.36**	.36**	.50**	.28**	.57**	—		
Future course preference	2.83	1.20	.37**	.48**	.27**	.50**	.53**	.44**	.44**	—	
Satisfaction level	3.17	1.15	.47**	.56**	.34**	.69**	.53**	.59**	.49**	.61**	—

Note: M=mean; SD=standard deviation; \*\*. Correlation is significant at the 0.01 level (2-tailed)