



ORIGINAL ARTICLE

A COMPARATIVE CROSS-SECTIONAL STUDY OF CONVENTIONAL VERSUS VIRTUAL TEACHING METHODS IN THE MEDICAL FIELD

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ABSTRACT

Objective: To compare conventional (physical) versus virtual Teaching in the medical field.

Place of Study: Department of Anatomy, King Edward Medical University, Lahore

Study Design: A descriptive Cross Sectional Study.

Duration of Study: November 2020 to February 2021

Methodology: The study was conducted during the covid-19 pandemic, during which physical classes in medical colleges were suspended all over Pakistan. A sample size of 200 MBBS students were selected. A smartphone app was used to recruit students (i.e., WhatsApp). The participants were requested to take part in an anonymous online survey using Google Forms after providing their informed consent. The preferred teaching method chosen by respondents was reported with percentages, and the benefits and drawbacks of in-person and online teaching were considered. To compare responses of different groups, the Pearson chi-square test was used.

Results: Among 200 students, 84.5% preferred Conventional teaching, 08% went for virtual teaching, and 7.5% were interested in both types of teaching methodologies.

Conclusion: Most of the students preferred conventional (physical) teaching to virtual learning.

Keywords: COVID-19, Medical, Virtual learning, Conventional, Teaching

INTRODUCTION

The coronavirus COVID-19 disease pandemic is a highly contagious illness that negatively affects health and interferes with the social and economic activities of the world. This virus spreads through direct contact as well as airborne droplets. (1-3) To stop the spread of infection, the government was forced to adopt an embarrassing blockade or isolation policy. The most effective tactic to stop the COVID-19 pandemic from spreading widely is now the isolation policy. (4, 5)

The pandemic can be stopped by maintaining social distance and avoiding direct human contact or aerosol pollution through blockade or isolation. However, this approach also has negative consequences, such as limiting social activities. (6, 7) Many universities are looking for the best ways to engage students, distribute course content online, and administer exams. Because physical learning is viewed as a

risk to humanity, COVID-19 has prompted universities to engage in online education.

Systems for online learning that are web-based distribute, manage, and track courses. (8) These involve utilising technological developments to direct, plan, and deliver the curriculum and encourage two-way contact between students and instructors. (9) Microsoft Teams, Google Meet, Edmodo, and Moodle are used by Pakistani educational institutions as learning management systems and video conferencing tools. (10) Whiteboards, chat rooms, polls, quizzes, discussion forums, and surveys are a few examples of the tools that facilitate online collaboration between teachers and students and the sharing of course content. Zoom, Adobe Connect, WebEx, and Skype for Business are further commonly used video conferencing programmes. These may offer efficient and valuable ways to fulfil educational goals.

Three earlier studies from Pakistan that supported online learning were found in our literature review. The results of two researches conducted at Dow University of Health Sciences, Karachi and at Lahore Medical and Dental College showed that students highly regard online learning modes. (11,12) The effectiveness of online education among students, trainees, and academic staff was assessed in a study conducted in Khyber Pakhtunkhwa. They observed

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that participants had high internet skills, access to technology and appreciated online learning experience. (13) In light of the increased use of online learning platforms during COVID-19, it is imperative to evaluate the efficiency of virtual teaching and learning from various perspectives.

METHODOLOGY

Using a non-probability convenience sampling method, this comparative cross-sectional study was carried out at the King Edward Medical University, Lahore, from November 2020 to February 2021. The study aimed to assess the efficacy of classroom and online training during the Covid-19 pandemic. The main objective of this study was to determine the most effective teaching strategy.

The study included 200 MBBS students from King Edward Medical University Lahore. WhatsApp was used to sign up participants on mobile devices. Informed consent to participate in study was taken through Google Forms and students were assured of privacy and anonymity. Data entry and analysis was done with IBM-SPSS version 21.0. The Pearson chi-square test was used to compare the perspectives of different groups. The top teaching strategies selected by the respondents were presented frequency and percentages. The benefits and drawbacks of conventional classroom instruction and online learning were examined. In statistics, p-values less than 0.05 was considered significant.

RESULTS

Among 200 students, 84.5% elected conventional classroom teaching, 8% choose virtual learning, and 7.5% picked a combination of both conventional and virtual learning. (Figure 1)

Results of effective delivery method, accessibility, affordability, and lecture recording were significantly associated with different teaching methods ($p < 0.01$). Among all the students who preferred virtual learning, 13 (81.2%) concluded that e-learning was the most effective way to deliver lessons, 7 students (43.7%) appreciated the variety of tools in e-lessons, 11 students (68.7%) were happy with the choice of location to attend online classes, 10 students (62.5%) valued the provision of recording of online lectures, 50% said it is more affordable than traditional classrooms. (Table 1)

Regarding online teaching, 75% of respondents claimed that they were easily distracted by other websites, 62.5% cited internet connectivity as the largest obstacle, 81.2% argued that online classes required adequate teacher training, and 93.7% believed that more screen time was harmful to one's health. Focusing challenges, internet accessibility, and health concerns strongly correlate with online learning. ($p < 0.05$). (Table 2)

Regarding the advantages and disadvantages of physical

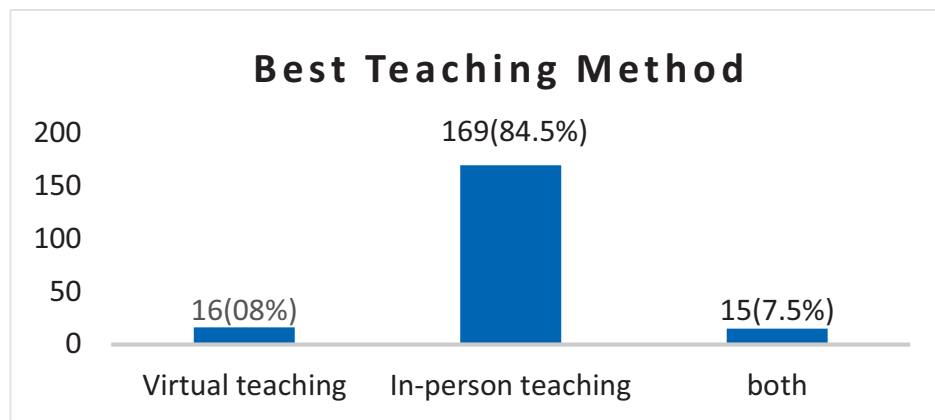


Fig. 1: Bar diagram showing the vote for the best teaching method

Table 1: Benefits of Online Teaching Method

	Online (n=16)	Physical (n=169)	Both (n=15)	p-value
Productive approach for teaching students.	13(81.2)	52(30.7)	12(75)	<0.01*
Ease usage of variety of tools in online lesson plans, including videos and PowerPoint presentations.	07(43.7)	160(94.6)	12(80)	0.05
Ease of location for online classes.	11(68.7)	155(91.7)	13(86.6)	0.17
Recording option available	10(62.5)	158(93.4)	14(93.3)	0.22
More affordable	08(50)	78(46.1)	11(73.3)	<0.01*

Table 2: Drawbacks of Online Teaching Method

	Online (n=16)	Physical (n=169)	Both (n=15)	p-value
likelihood of distraction	12(75)	155(91.7)	12(80)	0.11
Problem with Internet access	10(62.5)	166(98.2)	13(86.6)	<0.01
Adequate Teachers training	13(81.2)	168(99.4)	14(93.3)	0.22
Health risks by more screen time	15(93.7)	167(98.8)	12(80)	<0.01

Table 3: Benefits Physical Teaching Method

	Online (n=16)	Physical (n=169)	Both (n=15)	p-value
Healthy learning atmosphere	08(50)	169(100)	13(86.6)	<0.01
Better opportunity to communicate with teacher	12(75)	166(98.2)	14(93.2)	<0.01
helps in better understanding of concepts.	09(56.2)	168(99.4)	14(93.3)	<0.01
Preference to enrol in physical classes.	11(68.7)	164(97)	12(80)	<0.01

Table 4: Drawbacks Physical Teaching Method

	Online (n=16)	Physical (n=169)	Both (n=15)	p-value
More time required	10(62.5)	107(63.3)	12(80)	<0.01*
More finances required	14(87.5)	100(59.1)	11(73.3)	<0.01*

education, respondents concurred that it promotes a healthy learning environment for learners. A total of 166 students (98.2%) responded that they have a better possibility of personally speaking with the professors. 168(99.4%) pupils agreed that engaging with teachers during physical education helps students in better understanding of the concepts. According to 164 (97%) survey participants, it encourages students to enrol at particular university. Physical education consumes too much of the student's time, according to 107 respondents (63.3%), and it costs more than online learning, according to 100 respondents (59.1%).

As the Pearson Chi-Square test P value was less than 0.05, all of the advantages and disadvantages were strongly correlated with the instructional approaches. (Table 3)

DISCUSSION

In the current study, 200 samples were surveyed. 84.5% selected physical teaching, 08% selected online teaching, and 7.5% selected both types of teaching. Similar findings were made in a local study by Abaid Ullah et al. They discovered that all students in high school or college had the

same problems with online teaching. In a related study, Tej Bahadur Karki et al. discovered that more students felt that attending physical classes was more comfortable than attending online classes. (14) On the contrary, according to few related studies conducted in Saudi Arabia, online instructions were well received by participants with better performance and efficient time usage. (15)

Another survey found that online learning was more valuable, with 28.5% and 31.9% of respondents agreeing that it was much more effective or somewhat more effective. (16) The country's easy access to energy (no load shedding), the internet, and computers contributed to this difference of opinion. A worldwide study found that students' reactions to online teaching methods varied based on their familiarity with online resources and their technical capacity to access online courses. (17)

Most participants voted in favour of online instruction and concluded that it was a better method of instruction. It allowed students to attend classes from any location of their choice, was more economical than traditional education, boosted student participation, and was an effective way to

create a positive learning atmosphere. Online instruction was preferred by dental college students over traditional classroom instruction, according to a different study by Yu-Fong Chang et al. (18) This difference could be attributed to Taiwan's online teaching resources and highly qualified teachers.

Internet access was a bigger problem for online classrooms. Students' inability to concentrate on a screen for an extended period or their increased propensity to become easily distracted by social media or other websites was a big disadvantage. Those who preferred online teaching frequently voiced concerns about the health dangers associated with increased screen time. A local Pakistani study from Lahore found that online lessons present many challenges for school and university students. 85% of pupils had eyesight issues, 88% were prohibited from internet access, and 65% did not like the online learning environment. (19)

According to the Higher Education Commission (HEC) of Pakistan, online learning is problematic for teachers and students. Most students lacked access to computers or Wi-Fi. (20) Another similar local study revealed that load shedding issues, an unsuitable learning environment, a lack of access or slow internet, and inadequate online study materials were all issues with online teaching. (21) According to a study done in private universities in Pakistan, students' most significant problems with online learning were the unavailability of the internet, load shedding, money problems and ear pain from using hand-free or Bluetooth devices for too long. (22)

Our findings are consistent with a study from India which concluded that the physical classroom was the best teaching technique for comprehension, ease of attendance, notes-taking, visibility, audibility, and raising questions. (23) According to a European study, online instruction's top challenges were inadequate equipment at home and inadequate training in information technology. (17)

CONCLUSION

We concluded that most students prefer traditional classroom learning over online teaching. Overall, the findings of our study revealed a low level of satisfaction with e-learning and a favourable attitude in physical classes toward the calibre of the scientific material's presentation. However, COVID-19 related events have brought attention to how critical it is for students and teaching staff to develop their e-learning and computer skills to prepare them for crises in the future better. This can be done by including information technology and computer sciences in all academic curricula. Additionally, it is advised that e-learning be acknowledged as a required subject in addition to the traditional classroom curriculum.

Conflict of Interest: None

Patient Consent: Inform Consent were taken

Ethical Approval: Ethical approval was taken from the institutional review board of Multan Medical & Dental College on February, 09 2021 vide Letter No. 137/RC/KEMU

Author's Contribution:

MAS & RT: Study design, data collection and analysis

AA & MAS: Manuscript preparation, drafting and revising

MAS & RT: Review and final approval of manuscript

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