ORIGINAL ARTICLE

PERCEPTION OF ONLINE VERSUS PHYSICAL LEARNING AMONG UNIVERSITY STUDENTS

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ABSTRACT

Objectives: To assess the perception of online versus face-to-face learning among medical and non-medical university students of Karachi, Pakistan.

Methods: A descriptive cross-sectional study was conducted in Karachi, Pakistan, from November 2021 to May 2022. Two hundred individuals were selected by employing non-probability sequential sampling based on the inclusion criteria. Informed consent was attained from each study participant. The data was collected online via Google Forms. A structured, self-designed questionnaire was employed to gather data. The chi-square statistic was used to evaluate the relationship between gender, teaching institute, knowledge, attitude, and practice. P-values less than 0.05 were accepted as statistically significant.

Results*:* The mean age of the participants was 20.65± 2.13 years, and the males proportion was 28.5 % (n=57). The sample comprised the 67% (n=134) medical and 33% (n= 66) non-medical students. On-campus learning was the preferred mode of learning in 70.9% (n= 95) medical and 72.7% (n= 48) non-medical students (p= 0.787). Online teaching had an effect on the social life of students more than medical students (p=0.042). Female participants identified poor internet connection (p=0.006) and family distraction (p=0.024) as barriers to online learning.

Conclusion*:* It was found that university students preferred face-to-face learning, regardless of the faculty they belonged to. However, medical students were self-satisfied with online learning because it was time-saving, they were learning on their own, they had continued access to the online material, and they had the opportunity to learn at their own pace in comfortable surroundings compared to non-medical students.

Keywords: Perception, online learning, On-campus learning

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INTRODUCTION

Online learning is increasingly being used during the COVID-19 pandemic; however, the influence of this modification on university students is uncertain. This study aimed to evaluate the perception of online vs. physical learning among university students.

The spread of the coronavirus disease 2019 (COVID-19) caused by SARS-CoV 2 across the globe has led to significant changes in numerous fields of human life, including healthcare facilities, business transportation and travel, and social structure [1]. The education sector has not been immune to the effects of COVID-19, resulting in the closure of schools and educational facilities in most affected countries to observe social distancing [1]. During school closures, online teaching and learning established an entirely novel routine, which might lead to lifestyle changes and adversely influence

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university students' health [2]. The physical closure of higher education institutions due to the coronavirus (COVID-19) highlighted the importance of analyzing, exploring, and implementing solutions for developing clinical skills in a learning setting [3]. The majority of nations have implemented limitations in which the mode of instruction has changed to either synchronous or asynchronous modes. Synchronous learning means that faculty and students meet at scheduled times as part of interactive learning sessions, whereas asynchronous learning occurs when faculty delivers the course without interacting with the students. There is no interaction between the faculty members and students. Asynchronous modes of online learning allow students to access online material whenever they like [4].

Research shows that students opined that online learning ensures that the students will have access to the learning materials based on their convenient time if online learning classes are asynchronously recorded at any time in a day [4]. The students of online learning face several challenges due to the struggle to complete adaptation to online courses and the lack of interaction between students and their tutors [4]. Perceived obstacles frequently included screen exhaustion, being physically isolated from others, and having a bad internet connection. Safety during COVID-19, no travelling time, and being more comfortable at home were noted as key benefits [5].

Multiple studies have been conducted about the significance and efficacy of e-learning implementation [6]. Despite the widespread embrace of e-learning throughout the world, it was never considered a component of formal education in Pakistan by the majority of the institutions, apart for some universities, which from the beginning of academic course had online classes by [7, 8]. There is no doubt that massive technological advance in the world demand a paradigm shift in the way we approach our educational goals and aspirations. Numerous universities and educational institutions are utilizing ICT equipment such as computers, projectors, tablets, smartphones, iPads, and interactive whiteboards, to mention a few. Apart from the various educational software and learning applications that are easily accessible via the internet [9].

The teaching and learning process among health care faculties, including medicine, dentistry, and other associated departments, is different, with a substantial component of gaining clinical and technical skills in the wards, clinics, and laboratories [10, 11]. It is critical in times of the COVID-19 pandemic to assess how e-learning among health faculties is used as a sole way of teaching and instruction compared to place-, clinic-, or laboratory-based learning; however, the trend of e-learning influencing perception, confidence, and satisfaction among students is pivotal for the development of future health professionals [10, 11]. Therefore, the aim of the study is to determine which mode of learning is most favorable among medical and non-medical students.

METHODOLOGY

A descriptive cross-sectional study was conducted in Karachi, Pakistan, from November 2021 to May 2022. Two hundred subjects participated in this non-probability sequential sampling study. Informed consent was attained from each study participant. Google Forms were used for data collection. A structured, self-designed questionnaire was employed to gather data. The survey was conducted among medical and non-medical university students. Only participants enrolled in undergraduate program were included.

Inclusion Criteria: Students from different medical and non-medical universities in Karachi, aged 18–25, both the gender, the study program they are enrolled in, and their year of study, will be included in the study.

Exclusion criteria: Students who did not receive online education during covid-19 lockdown. The research is based on the English language, so the questionnaire can be filled out by students who read English language.

Questionnaires were filled out through Google

Forms, which were sent via WhatsApp; some Google Forms were filled out on the spot by the participants, and manually filled out forms were also given to the participants after the receipt of informed consent from them. A range of different sets of questions were asked in relation to how the students perceived online vs. physical learning. Questions were mainly related to the advantages and disadvantages of online vs. physical learning.

For data entry and analysis Statistical Packages for Social Sciences (SPSS) version of 24 was used. For numerical variables, the mean and standard deviation were calculated; for categorical variables, the frequency and percentages were determined. The chi-square statistic was used to evaluate the association between gender, teaching institute, knowledge, attitude, and practice. P-value =0.05 was used for statistical significance.

RESULTS

The total of 200 participant comprised of 67% (n=134) medical and 33% (n= 66) non-medical students. Mean age of our study population was20.65± 2.13 years. There were 71.5% (n=143) females and 28.5 % (n=57) males.

On campus learning was the preferred mode of learning in 70.9% (n= 95) medical and 72.7% (n= 48) non-medical students, p= .787. On-line teaching had an effect on social life of students, more so in medical students, p= .042. Poor internet connection (p= .006) and family distraction (p=.024) were identified as barriers to online learning by female study participants. On-line learning was regarded as an additional final burden by female participants (p= .007).

Table 01 shows the association between gender and various aspects of the online learning experience during the COVID-19 pandemic among 200 students (57 males and 143 females). Results indicated that a significant proportion of females (51.75%) found the transition to online learning difficult, compared to 26.32% of males, with a p-value of less than 0.0001 demonstrating strong statistical significance. In terms of time spent on online platforms, males were more likely to spend 1-3 hours per day (43.64%), while a greater percentage of females (48.95%) reported spending 4-6 hours. Furthermore, while 43.86% of males indicated they missed more lectures than on campus, this difference was not statistically significant. Regarding the adequacy of support during online lectures, a higher percentage of males (52.63%) felt their queries were addressed appropriately compared to only 22.38% of females, with a significant p-value of less than 0.0001. When it came to submitting assignments on time, 69.93% of females reported timely submissions versus 45.61% of males, reflecting a significant difference (p=0.006). Additionally, more females (28.67%) felt that online learning imposed a financial burden compared to 15.79% of males (p=0.007). Lastly, 66.67% of males stated that online learning affected their social lives, compared to 51.49% of females, with a p-value of 0.042 indicating statistical significance. These findings underscore notable gender disparities in the online learning experience, suggesting a need for targeted support to address the unique challenges faced by each gender.

Table 01:Association between gender and study variables

Variables		Male (n=57)	Female (n=143)	p-Value
Was the transition to online learning difficult for you?	May be	10(17.54)	39(27.27)	<0.0001
	Yes	15(26.32)	74(51.75)	
	No	32(56.14)	30(20.98)	
How much time did you spend per day on online platforms during covid –19?	1-3 hours	24(43.64)	33(23.08)	0.026
	4-6 hours	22(40)	70(48.95)	
	5-7 hours	0(0)	1(0.7)	
	7-9 hours	8(14.55)	37(25.87)	
	10 hours	1(1.82)	0(0)	
	12 hours	0(0)	1(0.7)	
How many online lectures did you miss?	Too much	0(0)	1(0.7)	0.028
	As many as on campus	14(24.56)	16(11.19)	
	Less than on campus	18(31.58)	67(46.85)	
	More than on campus	25(43.86)	60(41.96)	
Were your queries during online lectures addressed properly?	No	21(36.84)	67(46.85)	<0.0001
	Not sure	6(10.53)	44(30.77)	
	Yes	30(52.63)	32(22.38)	
Did you submit your online assignments on time?	Yes	26(45.61)	100(69.93)	0.006
	No	8(14.04)	11(7.69)	
	Often	23(40.35)	32(22.38)	
Was online learning an added burden financially?	Agree	9(15.79)	41(28.67)	0.007
	Strongly agree	3(5.26)	20(13.99)	
	Neutral	27(47.37)	34(23.78)	
	Disagree	9(15.79)	31(21.68)	
	Strongly disagree	9(15.79)	17(11.89)	
Did online learning affect your social life in any way?	Yes	44(66.67)	69(51.49)	0.042
	No	22(33.33)	65(48.51)	

Table 02 shows the association between the institute of study and various aspects of online learning involved 200 students (134 from medical fields and 66 from non-medical fields). Regarding satisfaction with online teaching methods, 55.97% of medical students reported being satisfied, compared to 69.7% of non-medical students, with a p-value of 0.06 indicating no significant difference. When asked if online sessions were time-saving, 35.82% of medical students agreed, while only 21.21% of non-medical students shared this view, though the difference was not statistically significant (p=0.08). Responses were more varied for those who felt that online learning affected their social life, with 51.49% of medical students saying yes compared to 66.67% of non-medical students, also reflecting a p-value of 0.08. Overall, while there were trends suggesting that non-medical students reported higher satisfaction and perceived benefits from online learning, these differences did not reach statistical significance.

Table 02:Association between institute of study and study variables

Variables		Medical (n=134)	Non- Medical (n=66)	P-value
Were you satisfied with the methods applied in online teaching	Yes	75(55.97)	46(69.7)	0.06
	No	59(44.03)	20(30.3)	
Do you agree that online sessions were time saving?	Agree	48(35.82)	14(21.21)	
	Strongly agree	27(20.15)	9(13.64)	0.08
	Neutral	30(22.39)	22(33.33)	
	Disagree	16(11.94)	10(15.15)	
	Strongly disagree	13(9.7)	11(16.67)	
Did online learning affect your social life in any way?	Yes	69(51.49)	44(66.67)	0.08
	No	65(48.51)	22(33.33)	

DISCUSSION

The transition to online learning from physical learning significantly affects the students' lives, and the study given below also proclaims this transformation to be strenuous. The gender association with the study variable emphasizes that transitioning to online classes from physical classes was difficult for them, corresponding to the world where digital information is everywhere and available to almost everyone and has vastly increased since 2012 [12]. Relevant studies conclude that most students use smartphones for education, communication, and recreation [13]. For some medical participants, screen time was more than six hours, since online textbooks, lectures, and notes are more constructive, efficient, and timesaving. In the relevant study, online textbooks, medical podcasts, a medical calculator, online lectures, and note-taking are all done via mobile applications by medical students [13]. However, online learning was a financial burden for the majority of the participants in terms of buying new gadgets, installing a good wifi device, and for backup, subscribing to a monthly data package. The screen time was only 4 to 6 hours; queries related to the given lectures were not properly addressed during this period, and they missed about more than 46% of their lectures. The only benefit they got from the internet was the submission of assignments on time, and a study found that smartphones have a wonderful influence on education, especially with easy access to relevant resources through the internet [14].

In our study, medical students were self-satisfied with online learning because it was time-saving, they were learning on their own, they had continued access to the online material, and they had the opportunity to learn at their own pace in comfortable surroundings as compared to non-medical students.In both institutes, students were satisfied with the mode of teaching method applied during online sessions because e-learning enables learning materials to be quickly delivered to students [15]. The faculties of both institutes were taking into consideration all the appropriate measures in delivering the content and lectures, which can be attainable in all possible ways for the students.

Maintaining self-discipline is necessary for self-learning, but it can be challenging without the teacher's close supervision. Poor interaction between learners and facilitators and a lack of clarity regarding the purpose and goals of the learning may hamper the learning process [15]. Stacey and Gerbic advocated that students' maturity might increase their degree of self-discipline [16].

The strength of our study is that we took participants from all over Karachi, including medical and non-medical institutes. Participants were enrolled in undergraduate programs before the outbreak of COVID-19 and have taken online classes arranged

by their respective universities. The weakness of our study is its small sample size. The limitations: everyone taking part needs to be proficient in using electronic devices. To ensure the safety of all participants and to reduce bias in our results, our survey did not ask for any personal information.

CONCLUSION

It was found that university students, irrespective of their faculty affiliation, favored in-person learning. In contrast to non-medical students, medical students were content with online learning since it saved their time, allowed them to learn independently, provided them with ongoing access to the online content, and allowed them to do so in comfortable settings. In conclusion, on-campus instruction is more favored since it gives students practical experience, improves communication skills, and creates a healthy learning atmosphere. Conversely, online learning enables learners to progress at their own paced. Additionally, it may be more successful if the institute began posting lectures on time, making them concise, including exercises after the videos, and effectively answering students' queries.

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Author's Contribution:
RS: Concept & design, statistical analysis, editing of manuscript, discussion writing, review and final approval of manuscript.
MA: Concept & design, result writing and data collection.
TN: Concept & design,methodology and data collection,
SS: Concept & design,introduction writing and data collection
SJ: Abstract writing and data collection.
BF: Review and final approval of manuscript

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Methods

Describe clearly your selection of the observational or experimental subjects (patients or laboratory animals, including controls). Identify the methods, apparatus (manufacturer's name and address in parenthesis), and procedures in sufficient detail to allow other workers to reproduce the results. Give references to established methods, including statistical (see below); provide references and brief descriptions for methods that have been published but are not well known; describe new or substantially modified methods, give reasons for using them, and evaluate their limitations. Identify precisely all drugs and chemicals used, including generic name(s), dosage(s), and route(s) of administration.