Health Sciences Students' Satisfaction with Quality of Online Distance Education

Syeda Zarreen Raza, Sanaa Ahmed, Ziyad Sanaullah, Zunairah Rais, Zahid Memon, Saad Saleem

ABSTRACT:

Objective: To assess the students' satisfaction with the online distance education at constituent institutes of a Medical University of Karachi.

Study design and setting: A cross-sectional study was conducted in 2021 March at JSMU to find out the experience across all the institutes of the university during the covid pandemic.

Methodology: A sample size of 338 was calculated through Open Epi. Ver. 3.0, keeping a confidence interval of 95% with a 5% chance of error from 357 students. Performa was specifically designed for this study, consisting of 3 parts that are content, teacher, and technical review, which contains 16 questions.

Results: Python ver. 3+ was used for descriptive analysis of the responses. A total of 338 responses were received. The lowest responses received in the teacher`s review were that most of the teachers inspired me to explore the subject further (Neutral = 33.73%), the lectures were boring and uninteresting to attend (Neutral = 28.4%), in the content review the lowest response. In the content review, the lowest response was for "your expectations regarding learning objectives were met" (Neutral 31.07%) and in the overall review, the subscale lowest response was for technical issues like problems in audio visual (Agree=33.4%), the learning environment was collaborative (Neutral=32.54%) and failure to meet the learning objectives by the teachers.

Conclusion: The responses of the students show that they were overall satisfied with distance education during the pandemic. A few problems were highlighted, including technical and content-related ones that could be resolved by providing training to the teachers and students.

Keywords: Online Education, Students` satisfaction, Medical education

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INTRODUCTION:

Covid-19 brought substantial transformation to daily life and routines. From education to domestic chores, it left nothing unmarked. Life in Pakistan has suffered, too. During these trivial times, nearly all educational programs switched to online sessions.[1] Classes were regularly held employing online platforms like Zoom, Skype, Google Meet and the Virtual Learning Management System (VLMS).[1-3] To address the challenges posed by online learning, American Dental Education Association requested the dental schools to follow the rules and policies set by the state. Work in coordination with the health department to make decisions that favour the safety of all the stakeholders.[4] Similarly, the Higher Education Commission in Pakistan also issued a policy for online distance education during this period to support the learning of students.[5]

The transition phase of the pedagogical shift was exigent, as the learning and assessment of students were largely affected and emanated in deficiency in clinical skills. To cover for this loss, one strategy adopted by the British Association of Oral and Maxillofacial Surgeons was by

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conducting webinars on a variety of topics as part of the Fellowship program utilizing strategies such as case-based discussions and flipped classrooms.[6] Trainees' input from these sessions was availed to provide information on developing a regional Moodle-based Virtual Learning Environment (VLE).[6] While in India, the All-India Institute of Medical Sciences shared its learning experience amid the pandemic.[7] After preparing to adapt to Google Meet's modern learning climate, the faculty conducted seminars and Case Based Learning (CBL) sessions. Furthermore, lab videos were also made and shared online.

Online education varies from conventional classes, including teacher and student responsibilities, collaboration, engagement, and versatility. It undeniably puts heightened accountability on learners for their own learning.[3] Though there are sparse interpersonal ties between teachers and students in online education, a shift to a more collaborative instructional format and frequent contact will partially overcome the problem.[7] Roseman University of Health Sciences, America, looked at the impact of the pandemic on the overall lives of dental students.[6] The findings revealed that students felt their education suffered as dental education relies majorly upon the skills that they master during four years of education but had positive reviews regarding the academic sessions held online. Most of the participants were male undergraduate students.[6] Two multi-centric kinds of research conducted in China probed the level of satisfaction with the online education platforms, as both the teachers and students were novices to working full time with them.[3,8] It is worth mentioning that the technical problems encountered during the usage of various platforms influenced their satisfaction.[3, 8]

All the previous literature on students' perception of online teaching covers either the barriers, their experience with the strategies, or how they dealt with the problems. But none covered the satisfaction with the quality of the online teaching strategies utilized. This mandated exploring students' satisfaction, perceptions, and attitudes towards online learning.[6]

METHODOLOGY:

The study was conducted at the Jinnah Sindh Medical University, Pakistan. Permission was taken prior to the conduction of the study from the IRB board letter No. 2021/-407. The design of the study was descriptive cross-sectional. Convenience sampling was done. The sample size was 338, calculated from the total number (2800) of students enrolled in MBBS (5 batches), BDS (4 batches), Pharm-D (5 batches), DPT (2 batches), BSN (2 batches) with a 95% confidence level with 5% chance of error and 50 % hypothesized frequency of outcome in the population. The sample size was calculated through OpenEpi software ver. 3.01.

The inclusion criteria included all the students enrolled in MBBS, BDS, Pharm D, DPT, and BSN programs at JSMU who agreed to be a part of this survey and students with any smart device or computer and internet connection. Exclusion criteria included students with online attendance of less than 50%.

The questionnaire was specifically designed and reviewed by the involved faculty members. It consists of 3 subscales containing teachers review, content review and overall review respectively. It encompasses 16 closed-ended questions. Literature was reviewed for finding the relevant questions to include.[9-18] For every question, the Likert scale was used from strongly agree to strongly disagree. The survey form was checked for reliability by pilot testing on 10% of the sample size population before the commencement of the study. The Cronbach alpha was found to be 0.65. Face validity was also checked.

After seeking permission from the IRB(IRB/2021/-407), an invitation letter to all the Heads of the disciplines was sent requesting them to participate in the study. Upon acceptance, the link to the questionnaire created on Google Forms was shared with the students through their respective Google classrooms.

RESULTS:

A total of 338 responses were received from the students belonging to different programs. The analysis was done through Python 3+. The mean and standard deviation were calculated for each sub-scale, also the frequency of the responses was calculated. The responses were highest on the technical/overall aspect while the standard deviation was highest for content-related questions.

Table 1 contains the sub-section details with each item and the highest and lowest responses they received. For subscale 1, questions related to teachers were asked. The highest positive response was received for the question "The lecture date, time, and topic were conveyed beforehand" was 51.78% agreed. Subscale 2 comprising 6 questions highlights the aspect of quality of content presented during online education. The highest response was for "lectures were focused towards the topic". The percentage of agreed responses was 71.89. Finally, sub-scale 3 with 5 questions focuses on the overall and technical aspects of online education. The item receiving the highest agreed response was "I was appropriately guided about the technical use of the provided learning platform" which was 49.11%.

Students have different learning styles, which affect their learning capability and satisfaction with the learning process and teaching strategy.[9] Subscale 1 regarding the teacher's review was positively supported by ambient votes regarding the punctuality of lectures, planned schedules being followed, and the teacher's ability to hold the interest of the students and make it interactive.

The conversational connections between students and teachers, as well as among students themselves, are an essential component of classroom learning. Online interaction

Table 1: Responses of students in percentage accordingly to instruments in subscale 1, 2, and 3

Sr. No	Question/Instrument	Highest Response	Lowest response
	Subscale 1: Teacher		
1	The lectures started on time	Agree 44.08%	Strongly Agree 4.73 %
2	The lecture date, time, and topic were conveyed beforehand	Agree 51.78%	Strongly Disagree 5.62%
3	The teachers were enthusiastic and had command of the subject	Agree 43.49%	Strongly Disagree 5.03%
4	The teachers were taking feedback during the lecture regarding delivery and showed respect towards all the students	Agree 49.41%	Strongly Disagree 5.33%
5	Most of the teachers inspired me to explore the subject further	Neutral 33.73%	Strongly Agree 6.8%
6	The topic and time of lectures were not communicated well before	Disagree 38.46%	Strongly Agree 3.25%
7	The lectures were one-way communication lacking the interaction	Agree 35.8%	Strongly Disagree 2.96%
8	The punctuality of the lecture was not taken care of	Disagree 35.5%	Strongly Disagree 4.44%
9	The lectures were boring and uninteresting to attend	Neutral 28.4%	Strongly Disagree 4.14%
	Subscale 2: Content		
10	The lectures were organized and effective	Agree 41.72	Strongly Agree 5.33%
11	The lectures were focused towards the topic	Agree 71.89%	Strongly Disagree 1.78%
12	The pace of lectures was optimal	Agree 40.83%	Strongly Agree 2.96%
13	The teachers were incorporating the given feedback into their delivery	Neutral 35.5%	Strongly Disagree 4.14%
14	Your expectations regarding learning objectives were met	Neutral 31.07%	Strongly Agree 5.33%
15	The presentation and quality of the material were appropriate	Agree 51.48%	Strongly Disagree 3.85%
	Subscale 3: Overall & Technical		
16	The teacher's voice was coherent and intelligible	Agree 44.08%	Strongly Disagree 3.85%
17	The learning environment was collaborative	Neutral 32.54%	Strongly Agree 5.62%
18	I was appropriately guided about the technical use of the provided learning platform	Agree 49.11%	Strongly Disagree 4.44%
19	The platform for online lectures was not chosen wisely and was difficult to understand	Disagree 44.67%	Strongly Disagree 7.4%
20	The audio-visuals were disturbing and needed high concentration	Agree 33.43%	Strongly Disagree 1.18%

is less stressful than face-to-face discussions and produces a thorough exchange of views. It is also more student centred, and even the socially shy students feel at ease in conversing with colleagues and teachers.[10]In our survey, more than 35% of the students complained of a lack of interaction. Comparing the results to a previous study held using online instructions showed that, according to the students, effective teaching depended on the teacher`s ability in creating a flexible and structured environment and actively participate in the learning of the students and establish a trust-based relationship.[11]

The second subscale was on the content review of the lecture. There were two issues highlighted in this section. One was the teacher's failure to incorporate feedback in their lecture and the second was a failure to meet the learning objectives. Though the students were satisfied with the content of the lectures regarding the topic, they felt that the defined learning objectives were not met. It creates a gap in what is delivered and what is expected to be learned by the students to be judged at the end of the module or semester. It can also affect the grade of the students which is usually taken as a direct result of the teaching and learning process. Usually, during conventional lectures, we take feedback from students

regarding the pace of the lecture and whether they understand or require further clarification. The facial expressions of the students during lectures are informal indicators of both. This is lacking in online lectures for during class, the video and mic were off to decrease the load on the bandwidth. To improve this problem, teachers should ask students either take feedback at the end or take a poll during lectures may improve.[10]To cater for the needs of different kinds of learners it is important to incorporate strategies such as adding pictures and videos in the presentation to gain spark their interest and maintain their attention[9].For this purpose, before the start of the online classes, a training session for Google Meet was held by Professional Development Centre and later "The Basics of Online Assessment and Teaching (BOAT) was arranged by the Institute of Medical Education of the university to support and provide technical training. that was addressed in this section included the voice and video quality of the lecture. The lectures were understandable and coherent, but the quality of the video was poor. Low bandwidth is one of the reasons behind the poor quality of visuals. The lecture recording was uploaded to Google Classroom to inundate the issues of internet connectivity or

Table 2. Summary of Published Articles related to Student Satisfaction with Online Teaching

Author	Venue	Year	Study Focus	Highest Responses/Results
Rafi AM, Pulikkottil VR and Kuttichira P.[17]	Central Kerala, India	2020	Online education Barriers	-Most common barrier was network issue 43.7% -Recorded lectures were preferred 69.2% -Lecture duration preferred 30-40 minutes (47.6%) -Common Platform was Impartus (63.6%)
Hameed T et al.[15]	India	2020	Frequency Organization, Content Preparedness of classes.	-Somewhat satisfied (SWS) with -Amount of syllabus covered (59%) -Frequency of online classes (78%) -Organization and preparedness (96%) -Online mode and methods of teaching (64%)
Verma A et al.[18]	India	2020	Online Teaching	-99% students learning needs were met. -57% felt classes were safe, comfortable, and enjoyable. -92% felt these classes were good utilization of time. -51% felt problems in internal online assessment -47% wants online classes in the future.
Singh K et al.[7]	India	2020	Feedback on Online Teaching	-Previous exposure (73%) -Material shared was relevant (91.8%) -In class questioning was allowed (92.3%) -Interaction with the teacher was poorer than physical classes (43.9%) -Physical classes are better than online classes (50.9%)
Nepal S et al.[16]	Nepal	2020	Learning preparation Means of attending classes Student`s perception	-Mostly mobile were used -Broadband utilized (65.5%) -2/3 rated preferred traditional classes. -76.5% attended online lectures -Utilized notes/books to revise (53.5%) -Use e-books for learning (64%) -Utilized books or e-books before or after classes (55.8%)
Dost S. et al.[14]	UK	2020	Experiences Barriers and benefits	-Time spent online increased during Covid: 23.56% students during the pandemic spending >15 hours per week -BenefitThe benefit of the teaching platform was it's flexibility. -Barriers included distraction from family (26.76%) and poor internet connectivity (21.53%)
Baticulon R et al.[13]	Phillipine	2021	Access to technological resources Study habits Living conditions Self-assessment of capacity for and perceived barriers to online learning, and proposed interventions	-93% owned a smartphone - 79% had a postpaid internet subscription -Only 1505 students (41%) considered themselves physically and mentally capable of engaging in online learning. – Barriers included learning styles, having to perform responsibilities at home, and poor communication or lack of clear directions from educators
Baczek M et al.[12]	Poland	2021	Advantages and Disadvantages of e-learning Comparison of face-to-face and Online teaching Acceptance of e-learning	-Ability to stay at home (69%) -continuous access to online materials (69%) -learning at your own pace (64%) -comfortable surroundings (54%). -Major disadvantage was lack of interactions with patients (70%) and technical problems (54%). -No difference between face-to-face and online learning in terms of opinions on the ability of the learning method to increase knowledge. -E-learning was considered less effective than face-to-face learning in terms of increasing skills and social competencies.

power failure. All in all, the experience with Google Meet was satisfactory.

Several studies conducted in India assessed student`s perspectives on the online learning efficacy, teaching strategies and the barriers to the process of pedagogical shift which are like the studies held in the UK, Ireland, Nepal, Poland, Philippines, and China.[3,8,12-18] These studies are summarized in Table 2 below to compare them.

In comparison, we reported on the various aspects, which are the content, teacher, and technical, as well as other factors that may affect satisfaction with online teaching, whereas none of these studies covered this topic completely. It is vital to contemplate these factors to strengthen the overall learning process for students.

Video conferencing software use was not limited to the lecture delivery; tutorials and case-based discussions were held throughout the pandemic, giving versatility to its usage.[1,19,20] Students' satisfaction with online education is affected by several factors, including their prior experience with the software, the workload, including assignments and tests, and their ability to interact and get prompt replies to queries. Also, creating a collaborative, supportive, and motivating environment invigorate the students' online experience. Giving team assignments helps them establish a cohort of friends.[21]

There are some limitations. The study was designed to find out the student`s satisfaction with the online teaching process, and though it covered the different aspects of the process, the emotional/psychological aspect was not included in the survey, which could have impacted satisfaction with the process. A longitudinal study of pre-and post-online teaching sessions would have shown more in-depth pre-session perceptions and readiness and post-session satisfaction with the education delivered during the pandemic.

CONCLUSION:

Although our study reveals that online education is worthwhile, it does not mean that it can substitute for on-campus teaching. We should consider incorporating an optimal proportion of online learning into medical education.

Authors Contribution:
Syeda Zarreen Raza: Study Design, Data Collection, Writing of initial Manuscript
Sanaa Ahmed: Study design, Results formulation, writing of initial manuscript
Ziyad Sanaullah: Data curation, Data Analysis and results compilation
Zuneirah Rais: Writing of discussion and review of manuscript.
Zahid Memon: Writing of introduction and review of manuscript
Saad Saleem: Review and finalization of manuscript

REFERENCES:

1. Elledge R, Williams R, Fowell C, Green J. Maxillofacial education in the time of COVID-19: the West Midlands experience. British Journal of Oral and Maxillofacial Surgery. 2020. DOI:https://doi.org/10.1016/j.bjoms.2020.07.030

2. Carlson ER. COVID-19 and educational engagement. Journal of Oral and Maxillofacial Surgery. 2020;78(7):1049-51. DOI: https://dx.doi.org/10.1016%2Fj.joms.2020.04.033

3. Chen T, Peng L, Yin X, Rong J, Yang J, Cong G, editors. Analysis of user satisfaction with online education platforms in China during the COVID-19 pandemic. Healthcare; 2020: Multidisciplinary Digital Publishing Institute. DOI: https://dx.doi.org/10.3390%2Fhealthcare8030200

4. ADEA. Response of the dental education community to novel coronavirus (COVID-19) USA: ADEA; [31.5.20].DOI: https://www.adea.org/COVID19-Update/

5. HEC. HEC guidance Policy Series on Covid 19. Islamabad 2020.DOI: https://www.hec.gov.pk /english/HEC Announcements / Documents/nCoVirus/Guidelines-Faculty.pdf

6. Hung M, Licari FW, Hon ES, Lauren E, Su S, Birmingham WC, et al. In an era of uncertainty: Impact of COVID-19 on dental education. Journal of dental education. 2021;85(2):148-56. DOI: 10.1002/jdd.12404

7. Singh K, Srivastav S, Bhardwaj A, Dixit A, Misra S. Medical education during the COVID-19 pandemic: a single institution experience. Indian pediatrics. 2020;57(7):678-9. DOI: https://doi.org/10.1007/s13312-020-1899-2

8. Wang K, Zhang L, Ye L. A nationwide survey of online teaching strategies in dental education in China. Journal of dental education. 2021;85(2):128-34. DOI: https://dx.doi.org/10.1002%2Fjdd.12413

9. Al Shaikh A, Aldarmahi AA, Ebtehal A-S, Subahi A, Ahmed ME, Hydrie MZ, et al. Learning styles and satisfaction with educational activities of Saudi Health Science University Students. Journal of Taibah University Medical Sciences. 2019; 14(5): 418-24.DOI: 10.1016/j.jtumed.2019.07.002

10. Ni AY. Comparing the effectiveness of classroom and online learning: Teaching research methods. Journal of public affairs education. 2013;19(2):199-215.DOI: https://doi.org/ 10.1080/ 15236803.2013.12001730

11. Young S. Student views of effective online teaching in higher education. The American Journal of Distance Education. 2006;20(2):65-77.DOI: https://doi.org/10.1207/ s15389286ajde2002_2

12. B¹czek M, Zagañczyk-B¹czek M, Szpringer M, Jaroszyñski A, Wo¿akowska-Kap³on B. Students' perception of online learning during the COVID-19 pandemic: a survey study of Polish medical students. Medicine. 2021;100(7).DOI: https://dx.doi.org/10.1097%2FMD.0000000000024821

13. Baticulon RE, Sy JJ, Alberto NRI, Baron MBC, Mabulay REC, Rizada LGT, et al. Barriers to online learning in the time of COVID-19: A national survey of medical students in the Philippines. Medical science educator. 2021;31(2):615-26.DOI: 10.1007/s40670-021-01231-z

14. Dost S, Hossain A, Shehab M, Abdelwahed A, Al-Nusair L. Perceptions of medical students towards online teaching during the COVID-19 pandemic: a national cross-sectional survey of 2721 UK medical students. BMJ open. 2020;10(11):e042378.DOI: 10.1136/bmjopen-2020-042378

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15. Hameed T, Husain M, Sudhir Kumar J, Singh CB, Sabina K. Online Medical Teaching in COVID-19 Era: Experience and Perception of Undergraduate Students. Mædica. 2020;15(4):440. DOI: 10.26574/maedica.2020.15.4.440

16. Nepal S, Atreya A, Menezes RG, Joshi RR. Students' perspective on online medical education amidst the COVID-19 pandemic in Nepal. Age (in years). 2020;20(40):17.7. DOI: 10.33314/jnhrc.v18i3.2851

17. Rafi AM, Varghese PR, Kuttichira P. The pedagogical shift during COVID 19 pandemic: online medical education, barriers and perceptions in central Kerala. Journal of Medical Education and Curricular Development. 2020;7:2382120520951795. DOI: https://doi.org/10.1177/2382120520951795

18. Verma A, Verma S, Garg P, Godara R. Online teaching during COVID-19: perception of medical undergraduate students. Indian Journal of Surgery. 2020;82(3):299-300. DOI: 10.1007/s12262-020-02487-2

19. Ahmed S, Zimba O, Gasparyan AY. Moving towards online rheumatology education in the era of COVID-19. Clinical Rheumatology. 2020:1-8.DOI: https://dx.doi.org/10.1007%2Fs10067-020-05405-9

20. Monaghan AM. Medical Teaching and Assessment in the Era of COVID-19. Journal of Medical Education and Curricular Development. 2020;7:2382120520965255. DOI: https://dx.doi.org/ 10.1177%2F2382120520965255

21. Michaelsen LK, Sweet M. Creating effective team assignments. Team-based learning for health professions education. 2012:35. PMCID: PMC2670235

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