Original Article :

Evaluation of the Experience of Online Classes for Medical Students during Covid- 19, Majmaah University, Saudi Arabia 2020

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Abstract

Background and Aims:
Because of the COVID-19 pandemic, traditional face-to-face teaching stopped, which affected medical students' learning. The Kingdom of Saudi Arabia suspended all educational institutions and shifted to E-learning techniques classes in response to COVID-19. The College of Medicine at Majmaah University also completely shifted from traditional face-to-face learning to E- learning through Blackboard and Zoom applications. Aim of the study was to evaluate the experience of online classes during COVID-19 among medical students in Majmaah University, 2020.

Methods:
This descriptive cross-sectional institutional-based study was conducted in the College of Medicine at Majmaah University. Using stratified random sampling, 160 students were selected from years 2, 3, 4 and 5 for this study.

Results:
Most medical students ,96%, attended online classes regularly. However, 91.9% of students got the information clearly during the online classes. Approximately 55% of students experienced some technical issues, such as internet problems. On the contrary, 33.2% of students faced financial problems. Regarding health problems, 63.8% of students experienced increased stress and anxiety, while 68.5% of them had sleeping problems. More than half of the students, 69.4%, were satisfied with online classes.

Conclusions:
The study has shown that most students were satisfied with online education.

Keywords:
Coronavirus, lockdown, financial problems, traditional classes, clinical skill.

Introduction

Coronavirus (COVID-19) is an infectious disease caused by new modern virus. This virus can spread from person to person through air droplets of an infected person's saliva produced by coughing or sneezing and getting in contact with surfaces contaminated with the virus[1,2] . On March 11, 2020, the World Health Organization (WHO) declared the coronavirus pandemic[3] . Since the start of COVID-19, which originated in Wuhan, China, millions of people have been placed under lockdown. COVID-19 lockdown forced students to take online classes for nearly half of the second semester of the 2019/2020 academic session, which lasted until the succeeding year[4] . An online class is a flexible educational delivery system that can be used to cover any education that takes place over the Internet. Educators can connect students who may be unable to participate in a traditional educational course and facilitate assistance for students who need to study at their own pace and on their own time.[5]. This unpredicted pandemic has also put the education system through an unpleasant experience that may have repercussions. Universities worldwide issued explicit guidelines to protect all students and faculty from COVID-19 and to avert its spread. Though the faculty members were enrolled in online teaching courses, the COVID-19 outbreak presented a few challenges for universities around the world. Since the coronavirus began to spread, approximately 150 countries around the world have stopped onsite education and switched to online classes; more than 80% of the population made to stay at home and has begun to take online classes. Schools and universities around the globe scrambled to shift to emergency remote education[6].

In an effort to halt the COVID-19 pandemic's spread, the Saudi Ministry of Education (MoE) announced on March [8], 2020, that all educational institutions, including public and private schools and universities, technical and vocational training institutions, and technical and vocational training institutions, will be physically closed to students, but the education would continue to be provided to all students through e-learning channels without delay [6-8]. The

initial announcement was soon stretched to March 16, 2020, to involve all employees within educational institutions in shifting to online work by utilizing institutionally adopted digital communication technologies such as Microsoft Teams, Zoom Meet, and Blackboard Collaborate[7]. Saudi Arabia's audacious and prompt response to the potential threat of the Covid-19 pandemic, switching to immediate online learning, was welcomed by educational institutions, students, and parents alike[6,9,10]. As was anticipated, faculty, teachers, and students in higher education initially expressed some perplexity and apprehension; however, the MoE was swift to announce its plans and establish a general framework to guide the activities of schools and higher education institutions[7]. It was challenging to engage students in an educational setting and to evaluate students' performance[8,11,12]. COVID-19 impacted nearly billions of students' education; higher education was delivered online[13,14]. Online classes have become a popular alternative study method in Saudi Arabia since the COVID-19 pandemic. Unlike traditional classes, online classes have both positive and negative aspects. Hence, this study was undertaken to investigate and analyze how online classes are perceived and experienced by medical students across Majmaah University. This will help to understand and make modifications to suit the needs of medical students. The study also focused on the strengths and weaknesses of online classes for further development of the educational mode and to overcome challenges that the students faced, such as poor internet connection. Additionally, it helps learning providers resolve all the challenges that arise during the online learning process, The aim of this study was to evaluate the experience of online medical classes at Majmaah University during the COVID-19 pandemic. The study assessed technical and financial struggles, measured performance, and evaluated health problems faced by students.

Methodology

Study design:

This was a descriptive cross-sectional institutional-based study.

Study population:

Total female (84) and male (188) medical students from the College of Medicine, Majmaah University, Saudi Arabia in 2020.All 3rd, 4th 5th, and 6th year female and male students from the College of Medicine were included in this study. We excluded 2nd and 7th-year medical students.

Sample size: by using sample size calculation:

Sample Size n = N * [Z2 * p * (1-p)/e2]

/ [N – 1 + (Z2 * p * (1-p)/e2]

Where n= Sample size, N= Study population, P= Prevalence, Z=Confidence Level, e= Margin of Error, 5% or 0.05.

P assumed as 0.5 since there was no prevalence.

Critical value at 95% confidence interval, Z=1.96.

The required sample size was calculated to be 159. The study involved 160 students of Majmaah University, College of Medicine. In total, they were 89 (55.6%) male students and 71(44.4%) female students.

Sample design:

Stratified random sample.

Tools and data collection: The data collection was done using electronic questionnaires in English and Arabic to avoid language bias. The questionnaire included sociodemographic information and questions about financial and academic challenges.

It was sent to students selected at random to mail and WhatsApp numbers.

Data analysis:

The collected data was analyzed using SPSS statistical software program version 20.

Ethical concern:

Ethical approval from the Ethical Committee of Majmaah University (MUREC) (HA-01-R-088) was taken before conducting the study. Ethic number MUREC-Dec. 28/COM-2020/17-4. The confidentiality of participants was assured and protected. Informed consent was obtained from the students at the beginning of the questionnaire form filling. Since the study involved Human participants, the study protocol conformed to the ethical guidelines of the 1975 Declaration of Helsinki as reflected in a prior approval by the institution's human research committee.

Results

Table 1 shows the Mean (±SD) age of the participants was 22.51±1.47. It was observed that 4th and 5th-year students participated to a maximum of 26.9% in each level. A significant percentage of participants belonged to Majmaah (66.9%) . While considering the source of income, 71.3 % belonged to families with >10000 Saudi riyals income per year.

Table 2 shows a highly significant number of participants, 96.3 % submitted their assignments on time without delay. Ninety-two percent reported that the information was clear after attending the online classes. On switching to online classes, most participants (66.9%) reported no financial difficulties. During the discussion session, 66.3% of the participants experienced difficulties in understanding lectures, while 91.9% of students reported they un-

Table-1: Sociodemographic Information of Participants

Age (years) Mean± SD		22.51±1.47	
Variables		Frequency	Percentage
Gender	Male	89	55.6%
	Female	71	44.4%
Level of education	3rd year	38	23.8%
	4th year	43	26.9%
	5th year	43	26.9%
	6th year	36	22.5%
Marital Status	Single	156	97.5%
	Married	4	2.5%
Place of residents	Majmaah	107	66.9%
	Riyadh	14	8.8%
	Zulfi	15	9.4%
	Others	24	14.9%
Family income: Saudi Riyals/month	< 3000	4	2.5%
	3000-6000	19	11.9%
	6000-10000	23	14.4%
	> 10000	114	71.3%

derstood the topic clearly on attending the online classes. Eighty-four percent of participants reported difficulty in practicing clinical skill examination sessions. Seventy-eight percent of participants felt the pandemic had affected the hospital training sessions. During the online classes, 79.4% of participants actively participated. A significant association was observed between male 98.9% and female 91.5% participants in attending online classes on a regular basis. (Chi. sq 5.07, P value <.024). Table 3 reveals the significant impact of the pan-

Table2: Financial and academic challenges faced by participants due to online classes.

Financial and educational issues	YES		NO		X^2	p- value
	Frequency	%	Frequency	%		
Faced financial problems	53	33.2%	107	66.8%	18.2	.0001**
Faced problems during discussion in the sessions	106	66.3%	54	33.7%	16.9	.0004**
The information became clear. after attending classes	147	91.9%	13	8.1%	112.2	<.00001**
Faced difficulties in practicing. clinical skills during the exams	132	82.6%	28	17.4%	67.6	<.00001**
Effects of the pandemic on hospital training	124	77.6%	36	22.4%	48.4	<.00001**

Financial and educational issues	YES		NO		X^2	p- value
	Frequency	%	Frequency	%		
Participation ratio during the online classes	127	79.4%	33	20.6%	55.25	<.00001**
Rate of assignments submitted on time	154	96.3%	06	3.7%	136.9	<.00001**
The impact rate of online classes on understanding	134	83.8%	26	16.2%	72.9	<.00001**

demic on hospital training during the 2020 pandemic among the participants (Chi. sq 25.9, p- value=.002), with 36.25% feeling it affected all the time followed by 25% they often felt, 16.25 % sometimes while 22.5% rarely felt the impact of a pandemic on hospital training.

Table 3: Comparison between academic level and the impact of the pandemic on hospital training of participants during pandemic 2020

	GPA after pandemic						
		2.50-3.00	3.00-3.50	< 2.50	>3.50	Total No. (%)	Chi.sq. p- value
GPA Before pandemic	2.50-3.00	14 (8.8%)	1 (0.7%)	1 (0.7%)	0	16 (10%)	X^2=205.6 .00001**
	3.00-3.50	2(1.3%)	34 (21.3%)	0	11 (11.9%)	47 (29.4%)	
	< 2.50	0	0	0	1 (0.7%)	1 (0.7%)	
	> 3.50	0	7 (4.4%)	0	89 (55.6%)	96 (60%)	
	Total no.(%)	16 (10%)	42 (25%)	1 (0.7%)	101 (63.1%)	160 (100%)	
	GPA after pandemic						
		2.50-3.00	3.00-3.50	< 2.50	>3.50	Total No. (%)	Chi.sq. p- value
GPA Before pandemic	2.50-3.00	14 (8.8%)	1 (0.7%)	1 (0.7%)	0	16 (10%)	X^2=205.6 .00001**
	3.00-3.50	2(1.3%)	34 (21.3%)	0	11 (11.9%)	47 (29.4%)	
	< 2.50	0	0	0	1 (0.7%)	1 (0.7%)	
	> 3.50	0	7 (4.4%)	0	89 (55.6%)	96 (60%)	
	Total no.(%)	16 (10%)	42 (25%)	1 (0.7%)	101 (63.1%)	160 (100%)	

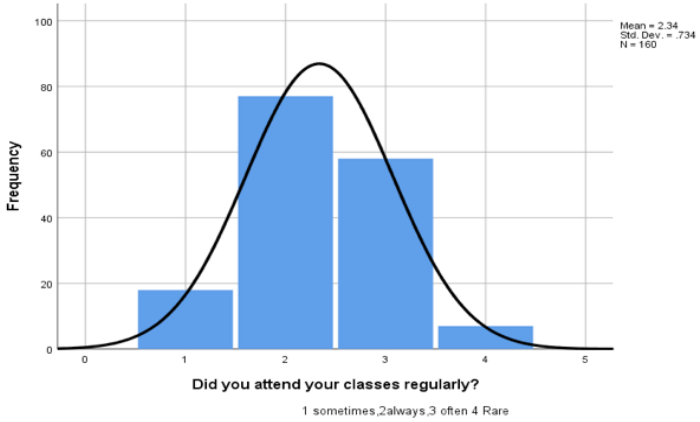
Table 3 shows a highly significant association observed between GPA before (Chi. sq 132.05, p- value <.0001), and after the pandemic (Chi.sq 145.6,p-value <.0001). (p<0.001) Showing that the students whose GPA before the pandemic was (3.00-3.50) were 47 students, which decreased to 42 students after the pandemic. While the students whose GP before the pandemic was more than 3.50 were 96 students, increased to 101 students after the pandemic.

Graph 1 shows 48% attended the classes always, followed by 36.3% reported often attended the classes, 11.3% sometimes attended least 4.4% rarely attended the classes.

Graph 2 shows 37.5 % were satisfied with online teaching all the time, fol-

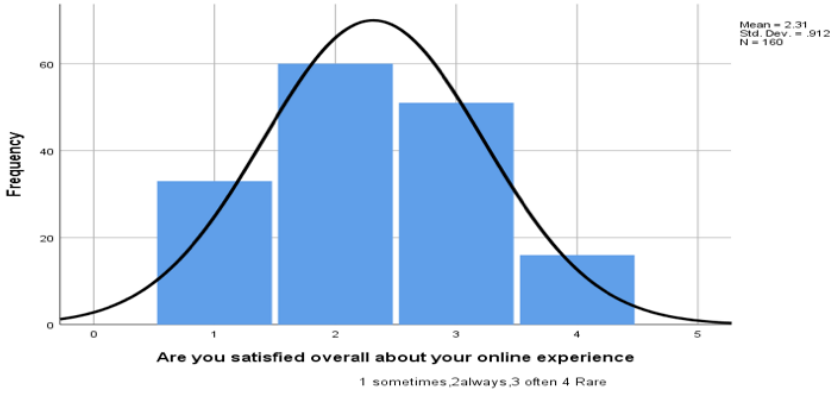
Table 4: GPA comparison before & after among participants during pandemic 2020

	GPA after pandemic						
		2.50-3.00	3.00-3.50	< 2.50	>3.50	Total No. (%)	Chi.sq. p- value
GPA Before pandemic	2.50-3.00	14 (8.8%)	1 (0.7%)	1 (0.7%)	0	16 (10%)	X^2=205.6 .00001**
	3.00-3.50	2(1.3%)	34 (21.3%)	0	11 (11.9%)	47 (29.4%)	
	< 2.50	0	0	0	1 (0.7%)	1 (0.7%)	
	> 3.50	0	7 (4.4%)	0	89 (55.6%)	96 (60%)	
	Total no.(%)	16 (10%)	42 (25%)	1 (0.7%)	101 (63.1%)	160 (100%)	



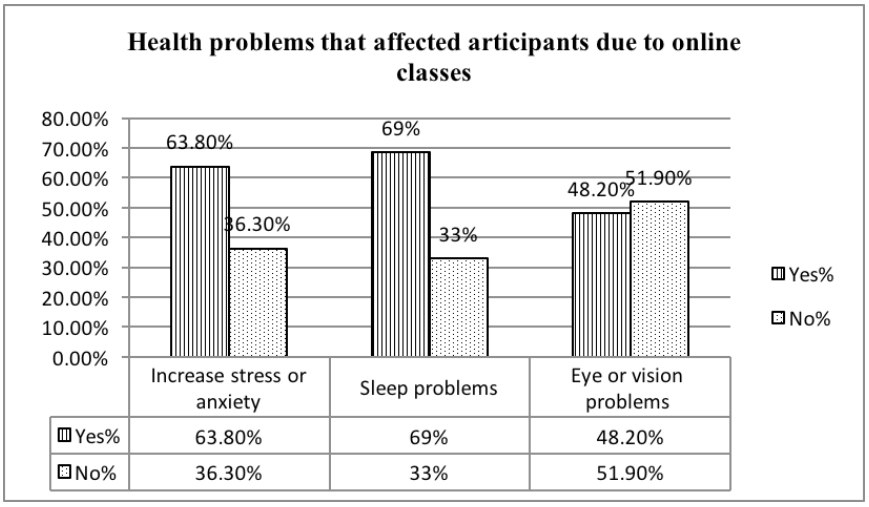
Graph 1: Commitment of participants in attending online classes

lowed by often satisfied 31.9%, sometimes 20.6%, least 10% were rarely satisfied with the online teaching. Graph 3 shows



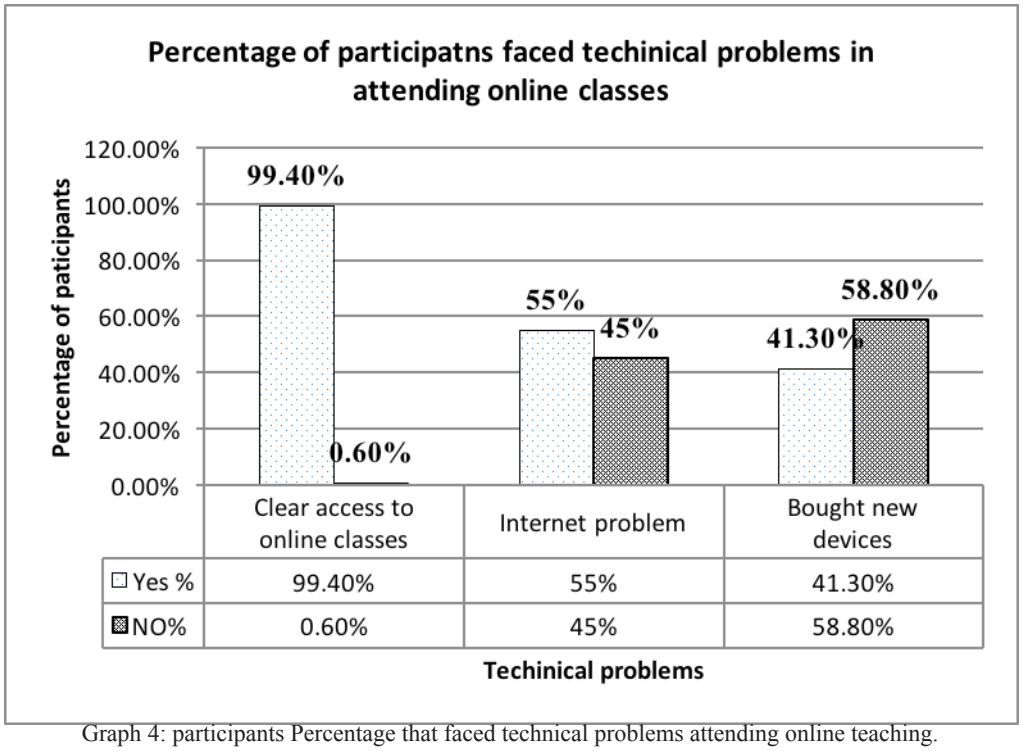
Grap 2: Satisfaction of medical students with online classes.

the comparison of health problems participants faced during the online teaching 68.5% of the participants reported sleep problems, followed by stress and anxiety 63.80 % and vision and eye stress problems 48.2%.



Graph 3: Comparison of health problems participants faced during the online teaching

Graph 4 shows the percentage of participants that faced technical problems in attending online teaching, 55% of the participants faced internet issues.41.30% had to buy internet devices for learning purposes. On the contrary, 99.40% mentioned they had clear access to online classes.



Graph 4: participants Percentage that faced technical problems attending online teaching.

Discussion

In the present study, 160 participants (55.6% males and 44.4% females) answered the questionnaire. Those answered maximum were from the fourth- and fifth-years level (26.9% each), and 71.3% had a family income of more than SR 10,000

per year.

The current data showed that 95.7 % of medical students attended online classes regularly, whereas 4.4% did not. Gender-wise male participants 98%, showed statistically high significance in attending online classes regularly as compared to female participants 91.5%, The lockdown affected students' performance and commitment to attending the lectures. Changwon Son et al demonstrated that 82% of the participants were worried about their academic performance due to the pandemic, especially about sudden changes in the objectives of the courses, the quality of the lectures, technical problems with online equipment, and the difficulty of dealing with online classes due to technical issues, such as lack of internet and mobile data connections [15,16.] Muhammad Tanveer et al showed in their research that the COVID-19 lockdown and online classes affected students' performance and commitment since most of them missed their lectures[17]. Similarly, Abdulkarim Al-Rabiaah et al showed that COVID-19 affected many academic educational online aspects [18] . Mohamed A. A. Mahdy et al showed some common problems faced by the students, such as missing some lectures due to their weak commitment and lack of interest in online teaching[19] . In the present study, 99.4% of medical students had access to online classes. However, 55% faced internet problems, and 41.3% had to purchase expensive devices to take online classes. Likewise, Mohamed A.A. Mahdy, in their studies, revealed challenges like the need for devices for online classes, such as laptops, phones, and tablets, to access the internet for online lectures [19] . Some other studies showed the technical problem was internet breakdown as many student populations were using the internet in the daytime for their education[19,20]. The data from Majmaah University showed that 33.3% of participants faced financial problems. A similar study in the United States by Changwon Son et al. showed that 59 % of participants were worried about their financial problems because of COVID -19 and 12% have faced financial problems[15] .

In the present study, 79% of the students actively participated in online classes. Whereas a study by Kunal Chaturvedi revealed that students' overall satisfaction in active participation in Delhi was 38.3%[21]. In one of the studies in Saudi Arabia by Muhammad Tanveer et al. 68% of the participants were unhappy with the amount of help LMS and other internet tools provided, and 76% of them felt that the assignments were tough and difficult to accomplish without prior explanation from the teachers[17]. The results of the present study were consistent, with 69.40% of students

expressing satisfaction with online instructions.

In the present study, 83.8% of the participants understood the online classes without difficulty, and 96.3% submitted their assignments on time. Muhammad Tanveer et al. revealed that 39% of students disagree, while 28% strongly disagree that the online classes were easy to understand. However, 91.9% of Majmaah medical students found the online courses to be clear regarding the information they received[17] . A study among veterinary medical students by Mohamed A. A. Mahdy et al. found it challenging to learn or do practical or clinical sessions[19]. Similar results were observed in the present study, where 82.6% of students faced difficulty during clinical skill exams, and 77.6% of students needed help to take hospital training. It was also observed that using the internet for a long time in online classes affected the motivation of students [18]. The data from Majmaah University showed that 63.8% of participants experienced increased stress and anxiety while taking online classes. In this context, Changwon Son et al. showed that 71% of students were stressed and worried due to the COVID-19 outbreak, and 82% were worried about their academic performance because of pandemic[15]. Similarly, Dr. Ankuran Dutta showed in their study that 80% of the students suffered from worries, stress, and depression due to lockdown and online teaching [10,16]. According to Abdulkarim Al-Rabiaah et al., females have higher stress levels than males[18] . While in the present study, 63.8% of students had anxiety indicating a lower proportion than the other studies in Saudi Arabia. Because of COVID-19, many students had different levels of stress, worries, and anxiety. About 77% of participants experienced less level of worry, and about 18.4% of participants had less level of worry. The current study found that 68.5% of participants experienced sleeping problems during online classes, which was much higher compared to the study by Changwon Son et al with 38% [15]. On the contrary, in a study by Rehana Khalil et al. 85% of participants revealed that online classes helped them to have better sleep patterns[22].

Limitations

The research has some limitations of its own. Since the research was totally conducted on an online basis without face-to-face interviews due to the pandemic lockdown, the survey could have led to insufficient or excessive reporting.

Conclusion

Researchers conclude that most of the students had easy access to online classes, received the information clearly and could

submit their assignments in time despite having technical and financial problems. More than half of the medical students faced problems during the discussion session. Many participants had difficulty in practicing clinical skills as they could not attend the clinical skill sessions nor were they able to attend the hospital trainings. The students experienced increased stress and anxiety during online classes, sleep, and eye problems.

Conflict of interest

The authors declare that the research was conducted without any commercial or financial relationships that could be constructed as a potential conflict of interest.

Recommendations

The study recommends that, with the use of the internet, electronic devices, and other equipment, the students improve their theoretical knowledge of modern teaching and learning techniques by attending face-to-face sessions for practical and clinical labs.

We would suggest the students reuse the available devices as much as possible to avoid the high cost of the new ones and relieve some of their family's financial stress.Finally, we need to conduct another study to determine how stressed and anxious the students were while taking online classes.

Authors' contributions

Conceptualization: HHA, TAM, AAA; Methodology: HHA,
Validation and supervision: HHA, TAM; Formal analysis and data curation: SAL, AAA, WSA, MMA, MAA, WAA; Data collection: AAA, WSA, MMA, MAA, and WAA;
Writing original draft preparation: HHA, SAL, AAA, AAA, WSA, MMA, MAA, and WAA;
Writing review and editing: SAL, HHA, MME; Visualization: SAL HHA, Project administration: HHA, TAM.

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