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Medical Undergraduate Students' Perception about Online Education during the COVID-19 Pandemic

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Abstract

BACKGROUND: The influence of the COVID-19 pandemic is great not only on general health but also on regular learning worldwide.

AIM: This study analyzed medical undergraduate students' feedback about online education at Taif University during the COVID-19 pandemic.

METHODS: Five hundred undergraduate medical students from the four medical colleges at Taif University participated in the current study. They were requested to give their feedback about online medical education through an online questionnaire. The questionnaire was prepared and administered to the medical students at different academic levels through Google forms. The current study is a cross-sectional study.

RESULTS: The respondents who can ask questions during e-classes were significantly higher than those who had not this opportunity. A significantly higher number of students reported that the shared material was useful. In addition, the study results indicated significantly poor student-teacher interaction during the e-classes. Finally, about 231 of the respondents (46.2%) preferred physical classes over e-classes and 140 of respondents (28%) preferred online classes over physical classes, and the remaining number, 129 (25.8%), mentioned that online and conventional education are both the same.

CONCLUSION: Most students said that conventional education is better than online education. The combination of online and formal education can be implemented after the COVID-19 pandemic to satisfy all parties.

Introduction

At this time, the world is dealing with a pandemic of an infectious respiratory syndrome caused by a new coronavirus named COVID-19 [1]. By 12 February 2020, there were 43,103 confirmed cases of COVID-19. Most of these cases were from China [2]. The influence of the COVID-19 pandemic is great not only on general health but also on regular learning worldwide. These negative influences are due to preventive measures being taken to decrease its spread. The social distancing (i.e., widening the space between individuals) during the COVID-19 pandemic has pushed educational institutes to empty their classrooms and take the students away. Hence, conventional face-to-face education has been shifted to online teaching [3].

Medical education is also disturbed due to the cancellation of conventional face-to-face education [4]. As there is doubt about the length of this pandemic and the needed preventive measures, the education of future doctors requires strong and quick consideration [5]. Rajab *et al*. [6] mentioned numerous challenges to online medical education during the COVID-19 pandemic. Examples of these challenges are student evaluation, technology usage, academic stress associated with the pandemic, and time management.

In Saudi Arabia, about 1 million students at universities all over the country were highly influenced when all universities were closed, and teaching was converted from face-to-face education classes to online education from home through the Blackboard learning management system (BLS) [7]. BLS is a system for the educational process management and students' follow-up. It has certain advantages, such as it controls the efficiency of the educational process in the educational institution. It provides great opportunities for students to communicate with their courses outside the lecture hall anywhere and at any time through various tools. In addition, it allows communication with the course professor and the rest of the students enrolled in the same course by various electronic means. Faculty

members can manage all courses online, and faculty can post documents, make ads, send e-mail, and create assessments online through the BLS. Course materials are available 24 h a day, 7 days a week, from anywhere, allowing students to learn when and where they want to [8]. Most institutions, including Taif University, have shifted to distance learning in the easiest and most suitable ways, including blackboard.

As this was one of the essential options for medical students to continue their learning, it will be important to assess the medical students' feedback on online learning. Consequently, this study improves our understanding of the medical students' perceptions of using online classes. In addition, exploring their feedback will allow the educational institutes to take future decisions regarding the application of online learning approaches. These future decisions will help educational institutes to train staff and students and develop strategies to overcome difficulties and obstacles. Therefore, this study aimed to assess medical undergraduate students' feedback about online learning at Taif University during the COVID-19 pandemic.

Materials and Methods

Five hundred undergraduate medical students from the four medical colleges at Taif University participated in the current study. They were requested to give their feedback about online medical education through an online questionnaire. The online survey is an effective way to get notarized data from online people, and at the same time, it is a good method to decrease the cost when implementing a study [9]. The medical colleges were the College of Applied Medical Sciences, College of Medicine, College of Dentistry and College of Pharmacy, Taif University, Taif, KSA. Data were gathered over 1 month, from February to March 2021. Each participant signed an electronic consent form before filling the questionnaire. The used questionnaire was prepared and administered to the medical students at different academic levels through Google forms. The declaration about the questionnaire was made through the BLS with the help of university professors and colleagues.

The used questionnaire takes about 3 min to be completed. It contained an introductory paragraph that informs all participants about the study's main objective and the anonymity and confidentiality of the data. In addition, they have the right not to answer any questions or withdraw from the study without consequences. Data was collected using spreadsheets. The used questionnaire is valid. A group of faculty members validated it at the India institute of medical sciences, Jodhpur, Rajasthan, and India. The questionnaire consists of four categories. The first category is the characteristics of the study respondents containing sex, college, department, and academic level. The second category is the feedback question which gives three responses (previously attended any online classes? if the student was allowed to ask questions during the e-classes? and if the material shared before/after e-classes was useful). The answer is by "yes" or "no." The third category is how the students rate their interaction with the teacher during e-classes. This contains three responses (as good as the physical classroom, better than the physical classroom, or poorer than the physical classroom). The last category evaluates their general opinion about e-classes. The participant selects one of three responses (physical classes are better than e-classes, e-classes are as good as physical classes, or e-classes are better than physical classes).

Statistical analysis

The current study is a cross-sectional study. Descriptive statistics (percentage) described medical undergraduate students' feedback about online education at Taif University. Additionally, SPSS version 26 was used to conduct chi-square analysis at an alpha level of significance of 0.05 to compare the responses to each question with each other.

Results

Descriptive analysis of respondents' characteristics and responses

A total of 500 undergraduate medical students from all academic levels responded to the survey. The participants represented the different medical colleges at Taif University. About 230 (46%) participants were males, and 270 (54%) were female students. The details of participants' characteristics are shown in Table 1. Table 2 describes the number and percentage for each response regarding the feedback questions.

Table 1: Characteristics of the study respondents (n = 500)

Characteristics	No	Percentage (%)
Gender		
Males	230	46
Females	270	54
Total	500	100
Academic year		
1st year	56	11.2
2nd year	52	10.4
3rd year	105	21
4th year	229	45.8
5th year	30	6
6th year	28	5.6
Total	500	100
College		
College of applied medical sciences	211	42.2
College of medicine	117	23.4
College of pharmacy	94	18.8
College of dentistry	78	15.6
Total	500	100

Chi-square test for students' responses

The number of students who attended e-classes before the COVID-19 pandemic was significantly higher than those who did not. Respondents who reported that they had an opportunity to ask questions during e-classes were significantly higher than those who had not had this opportunity. Regarding the shared material usefulness, a significantly higher number of students reported that the shared material was useful. The number of the students who reported poor interaction with the teacher during the e classes was significantly higher than those who reported good or fair interaction. Finally, a substantially higher number of students preferred physical classes over e-classes (Table 3 and Figure 1).

Discussion

The study's main aim was to analyze the medical undergraduate students' feedback about online education at Taif University during the COVID-19 pandemic. We selected the medical students to participate in this timely study because a recent study has shown that medical students are more willing to be part of the decision-making process concerning matters that may affect their education and ensure that their opinions are taken into consideration [10]. Thus, it was wise to engage medical students in renovating education at this difficult time. Moreover, the response rate of medical students to this survey is considered high because the medical students became well adapted to the new ways of learning. At the same time, the stress level became lower. In addition, these students quickly realized that accurate feedback is critical when shifting to a novel education mood during a healthcare emergency, which elevated the response rate.

Regarding the interaction between the students and teachers, the current study results revealed that most students stated that the interaction between them and teachers during online classes was poorer than in physical classes. Fichten *et al*. [11] supported these findings when they reported that there was a lack of interaction, active participation, and discussions between the students and lecturers in online learning. This may be attributed to certain technical issues as poor internet, lack of experience with online education, and stresses and anxiety related to the pandemic [12]. In addition, Ragab *et al*. [6] reported that several challenges influenced online education and, consequently, student-teacher interaction. Examples of these challenges are communication, usage of technology, and academic stress associated with the pandemic. They added that overcoming these challenges may help improve interaction and communication between students and teachers during online classes and may also enhance communication in conventional physical classes.

Concerning the students' preference for physical education over online education, 231 respondents (46.2%) mentioned that they prefer physical classes over online classes. These findings are supported by Singh *et al*. [13] when they evaluated the medical students' perspectives about online education at the India institute of medical sciences, Jodhpur, Rajasthan, India. They reported that most students still believed that conventional physical classrooms were better than online classrooms. This may be related to the better interaction between students and their teachers at physical classes than online classes. Furthermore, the respondents' preference for physical classes may be related to that the medical institutes have postponed the practical parts to the summer. These adjustments may lead to a decrease in the satisfaction level of medical students with online education. Tokuç and Varol [14] supported this finding when they conducted a study about medical education in Turkey during COVID-19. They found that all medical institutes converted the theoretical contents of the curricula to an

Table 2: The detailed responses of the participants

Feedback question	Response	No	Percentage (%)
Previously attended any online classes?	Yes	376	75.2
	No	124	24.8
Given the opportunity to ask questions during online classes	Yes	347	69.4
	No	153	30.6
The material shared before/after e-classes was useful?	Yes	355	71
	No	145	29
How do you rate your interaction with the teacher during online classes?	As good as physical classroom	145	29
	Better than a physical classroom	145	29
	Poorer than a physical classroom	210	42
Select the statement that applies best to you?	Physical classes are better than online classes.	231	46.2
	Online classes are as good as physical classes.	129	25.8
	Online classes are better than physical classes	140	28

Table 3: Chi-square analysis for students' responses

Questionnaire items	Response	Observed N	Expected N	Residual	Chi-square	df	Sig.
Previously attended any online classes.	Yes	376	250.0	126.0	127.008[a]	1	0.000
	No	124	250.0	−126.0			
Given the opportunity to ask questions during the e-classes?	Yes	347	250.0	97.0	75.272[a]	1	0.000
	No	153	250.0	−97.0			
The material shared before/after e-classes was useful.	Yes	355	250.0	105.0	88.200[a]	1	0.000
	No	145	250.0	−105.0			
How do you rate your interaction with the teacher during e-classes?	Better	145	166.7	−21.7	16.900[b]	2	0.000
	As good as	145	166.7	−21.7			
	Poorer	210	166.7	43.3			
Select the statement that applies best to you:	E-classes better	140	166.7	−26.7	37.612[b]	2	0.000
	As good as	129	166.7	−37.7			
	Physical classes better	231	166.7	64.3			

a. 0 cells (0.0%) have expected frequencies<5. The minimum expected cell frequency is 250.0. b. 0 cells (0.0%) have expected frequencies<5. The minimum expected cell frequency is 166.7.

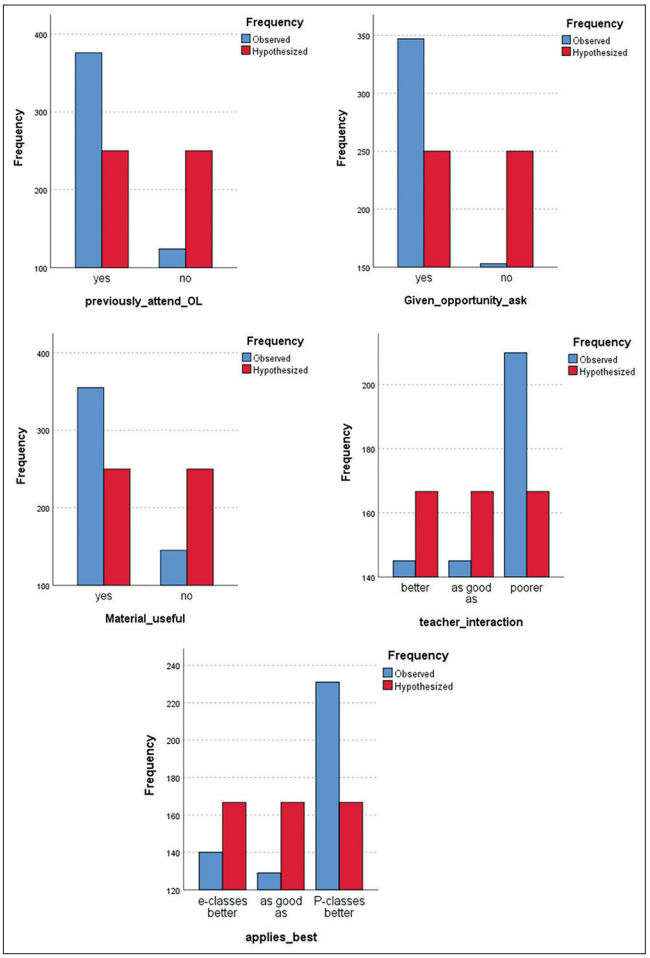

Figure 1: Chi-square analysis for students' responses

online strategy. Practical parts and examinations were delayed to the summer term, increasing the medical students' stress level.

Moreover, Moawad [7] studied university students' academic stress due to online learning during the COVID19 pandemic. He stated that certain stresses negatively affected university students when they were engaged in online education. For example, doubt about the end of semester exams and assessments, quality of the internet, and insufficient time to complete the tasks required from the students. All these factors made many students prefer physical classes over online classes. Furthermore, Verma *et al*. [15] added that the deficiencies found in the practical and clinical aspects of the courses may have reinforced students' preference for conventional classes over distance education. In addition, they mentioned that conventional education is a cheap and viable method that helps to obtain knowledge, preserve routine, and improve the spirits of both teachers and students.

Concerning the preference for online classes, the study results revealed that 140 respondents (28%) preferred online classes over physical classes. This may be attributed to the fact that all the study respondents are young adults who are clever with social media, which is considered their primary source of communication [16]. This agrees with Ragab *et al*. [6], who conducted a study to detect the impact of the COVID-19 pandemic on online education at the College of Medicine, Al Faisal University. They reported that many medical students mentioned that the pandemic positively impacted online education. The students were satisfied with online learning even though using educational procedures that had never been used before. They added that the experiences acquired by medical students during the first few weeks of conducting online education during the pandemic may have raised their belief in the efficiency of online medical education.

In addition, Demuyakor [17] had agreed with this category when he conducted a study to assess the satisfaction level of Ghanaian international students about online education in higher educational institutions in Beijing, China. He found that students were satisfied with the online education introduced by numerous higher educational institutions despite the few challenges identified. He justified these findings by high students' satisfaction level about the available learning resources such as explanatory videos and texts provided by teachers. Furthermore, Sun *et al*. [18] reported certain positive aspects of online teaching as the increase in the attendance rate of students, time, and cost-saving. Furthermore, advisors could set assignments that can be carried out at home. They added that online education turned students from passive recipients to active participants through open discussions, interactive questions and answer sessions, and presentations. Moreover, Verma *et al*. [15] mentioned that the student still considered these classes safe, relaxed, and interesting, which may have boosted students' preference for distance education over conventional classes.

Conclusion

Most students mentioned that conventional education is better than online education due to certain challenges. By overcoming these challenges, a combination between online education and conventional education can be implemented after the COVID-19 pandemic to satisfy all parties.

Limitations of the Study

First, we did not record the students' grade point average that may impact students' responses. Second, the questionnaire did not include items to

justify the participants' responses. Furthermore, the study was delimited to medical students only.

Recommendations

Conducting another study to include respondents from all other colleges other than the medical colleges. In addition, regarding the questionnaire, items to justify the participants' responses could be added, and then the validity of the questionnaire reassessed.

Ethical Considerations

The Taif University research ethics committee; approved the study. The approval number is 42-116.

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Authors' Contributions

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