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# Opinion of medical students and instructors on the challenges of in-person learning postcoronavirus disease 2019 pandemic

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## Abstract:

**BACKGROUND:** Several universities switched back to face-to-face teaching in 2022 after 2 years of online classes during the coronavirus disease 2019 (COVID-19) crisis. There is no data from these students/teachers on the challenges in postpandemic face-to-face teaching and learning. The current study's aim was to identify the challenges of face-to-face teaching and learning postpandemic from the perspective of students and instructors.

**MATERIALS AND METHODS:** Undergraduate medical students ( $n = 210$ ) registered in Imam Abdulrahman Bin Faisal University and instructors ( $n = 72$ ) filled out online questionnaires from November 2022 to March 2023 on teaching–learning challenges in the postpandemic period. The questionnaires asked students about their interest in education, scores, degree of shyness, how clear the voices of the instructors wearing face masks were, fear of COVID-19, preferred mode of teaching, and advantages/disadvantages of face-to-face teaching. Descriptive statistics included frequencies and percentages for qualitative variables; Chi-square test was applied to assess association between categorical variables.

**RESULTS:** Students reported a decrease in their educational interest postpandemic (47.1%), diffidence in interaction (42.4%), blurred teachers' voices because of the face masks (63.3%), and lack of teachers' empathy (47.6%). There was a significant association between preclinical year students and a decrease in educational interest ( $P = 0.002$ ), diffidence in class interactions ( $P = 0.001$ ), and fear of contracting COVID-19 infection while interacting with teachers ( $P = 0.04$ ). Instructors complained of a decrease in students' interest in education (65.3%), especially the instructors of the clinical years (16.7% vs. 2.1%;  $P = 0.022$ ). About 10% students reported taking leave from university on purpose due to fear of contracting COVID-19 infection; students and instructors both supported lecture recordings (98.6% and 63.9%, respectively). The students' and instructors' preferred platform for learning was "hybrid" (80.5% and 63.9%, respectively).

**CONCLUSION:** Challenges faced by the students include decreased interest in learning, drop in scores, muffled voices because of the face masks, increased shyness, waste of time in commutes, lack of flexibility in schedules, increased workload, and fear of catching COVID-19 infection. There is strong support for hybrid/blended learning and recording lectures.

## Keywords:

Coronavirus disease 2019 (COVID-19), learning, medical education, SARS-CoV-2

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## Introduction

The coronavirus disease 2019 (COVID-19), pandemic was a health emergency

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that changed the lives of people globally, especially the lives of students.<sup>[1-3]</sup> To minimize the spread of COVID-19, many countries suspended face-to-face teaching and switched to online learning. The pandemic affected 95% of students

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worldwide – the greatest education disturbance in history.<sup>[4]</sup> Instructors used tools such as Zoom, Moodle, Google Meet, Google Class, and YouTube for online teaching.<sup>[5,6]</sup> In this sudden move from F2F to remote learning, students and teachers faced various challenges, including the lack of competence in information and communication technology skills, lack of infrastructure for digital learning, connectivity issues, and the lack of proper learning environment at home.<sup>[7]</sup> A lot of research has been published on students' remote learning experience during the pandemic such as study time losses,<sup>[8]</sup> changes in reading behaviors,<sup>[9]</sup> students' views and their performance in virtual learning,<sup>[10]</sup> online learning challenges,<sup>[11,12]</sup> and the effectiveness of various instructional strategies in online classes.<sup>[13]</sup>

As part of preventive and precautionary measures against COVID-19, attendance was suspended in public and private educational institutes all over Saudi Arabia effective from March 8, 2020, and virtual learning started on March 9, 2020.<sup>[14]</sup> With the continued increase in COVID-19 cases, the Saudi Ministry of Education provided virtual classes until March 20, 2022, when educational institutions opened their doors for face-to-face learning.<sup>[15]</sup>

There is a little research on the problems students and instructors faced with the resumption of face-to-face teaching in teaching and learning. None of the studies has reported students'/instructors' experiences/challenges postpandemic. The present study attempts to fill that void by exploring students' and faculty perspectives on challenges in teaching and learning postpandemic (when students returned to colleges for 100% face-to-face teaching), the impact of these challenges on students' academic scores, and the association between opinions and year of study (clinical versus preclinical).

## Materials and Methods

The data for this cross-sectional study were collected from medical students (3–6 years) registered at Imam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia, in the academic year 2022–2023 and their teaching faculty from November 2022 to March 2023. The total population of students and instructors was about 900 and 200, respectively. The study participants were recruited through nonprobability sampling (convenience sampling). Ethical approval was obtained from the Institutional Review Board vide letter number IRB-2022-01-160 dated 11/04/2022, and written informed consent was taken from all participants in the study.

Inclusion criteria for the students/instructors were exposure to both online teaching and face-to-face

teaching sessions (at least 5 months of exposure to online teaching in the pandemic period/at least 5 months of face-to-face teaching into the postpandemic period). Year 2 medical students were not included in the study because they were exposed to online classes during the pandemic in preparatory year/pre-med year which is technically not a part of the medical curriculum. The study tools were two questionnaires: one for the students and the other for the faculty. These questionnaires were derived from the task force report of George Washington University (available on the university website) that investigated students' and teachers' experiences during the pandemic.<sup>[16]</sup> Surveys were created in Google Forms and distributed on various social media platforms. These questionnaires asked about the changes (if any) in students' interest in education, degree of shyness, degree of satisfaction, and scores in face-to-face teaching in comparison to online teaching. The questionnaire also asked whether instructors could be heard clearly with their face masks on, students' support for recording lectures, the fear of contracting COVID-19 infection, the most difficult safety precautions to maintain, preferred mode of teaching, and advantages/disadvantages of face-to-face teaching. Participation was entirely voluntary and confidentiality was maintained.

Survey questions were piloted on 6–7 students and faculty members to check for any ambiguity. Items were revised according to participants' responses. The reliability of the surveys was checked through the test-retest technique. Six instructors evaluated "content validity ratio" of individual items in both surveys. The "content validity index" was found to be 0.92 and 0.89 for students and faculty surveys, respectively.

Responses downloaded from Google Forms were entered into the Statistical Package for the Social Sciences software (IBM SPSS Statistics for Windows, version 27, IBM Corporation, Armonk, NY, USA). Descriptive statistics and frequencies of study variables were calculated. To find the association between respondents' perspectives and their specialty (clinical or preclinical), Chi-square associations were calculated. A significant Chi-square association was followed by Phi and Cramer's V coefficients (strength of association in a 2 × 2 contingency table and tables bigger than 2 × 2 tabulation, respectively) which were interpreted as described by Akoglu.<sup>[17]</sup>  $P < 0.05$  was considered statistically significant.

## Results

A total of 210 students (preclinical years: 103; clinical years: 107) and 72 faculty members (preclinical years:

48; clinical years: 24) completed the online surveys. Students reported a decrease in their interest in education owing to 2 years of virtual learning (47.1%), diffidence in interaction (42.4%), indistinctness of teachers' voices because of the face masks (63.3%), lack of flexibility in assignment deadlines (34.3%), diminished teachers' empathy (47.6%), and lower students' scores (23.3%) [Table 1]. Students supported lecture recordings (98.6%) and chose the option "socialization with peers" as the biggest advantage of F2F teaching postpandemic (51.9%). As compared to those studying in clinical years, there were significantly more students in the preclinical years who reported a fall in educational interest ( $P = 0.002$ ), increased satisfaction with F2F teaching ( $P = 0.049$ ), reticence in class discussions with F2F teaching [ $P = 0.001$ , Table 1], and fear of

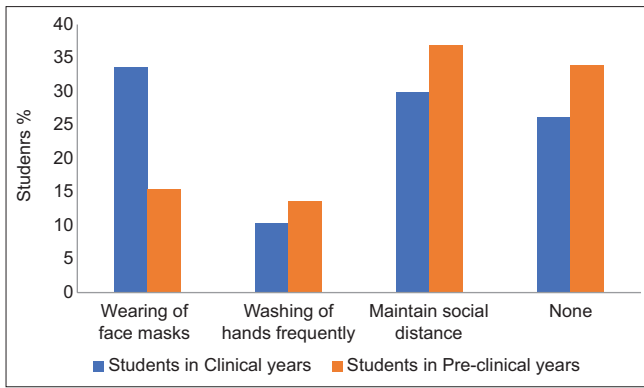
catching COVID-19 infection while interacting with teachers [ $P = 0.04$ , Table 2]. For most students (80.5%), the preferred platform for learning was "hybrid" [Table 2]. Figures 1 and 2 show students' views about "the safety precautions identified as the most difficult to adhere to" and "biggest concern about face-to-face teaching."

Most of the instructors agreed that the 2 years of virtual learning had led to a fall in students' interest in education (65.3%) and that they enjoyed face-to-face teaching more (87.5%) [Table 3]. The variable "taking leave from the university owing to the fear of COVID-19" was significantly associated with instructors in clinical years ( $P = 0.022$ ). Furthermore, there was a significant association between faculty specialty (clinical or preclinical) and the report: "most difficult safety

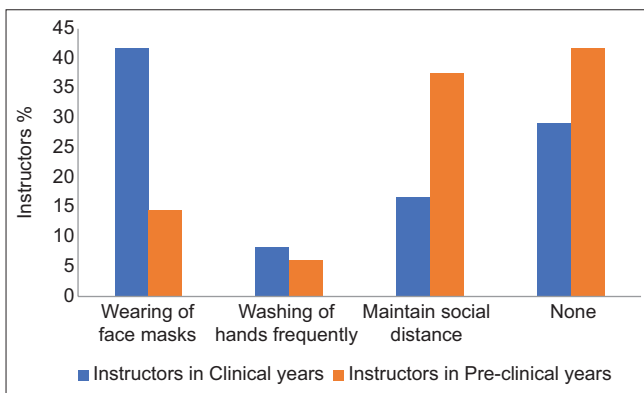
**Table 1: Medical students' views on in-person learning in postpandemic period and the association between student's views and their year of study (clinical or preclinical)**

Variables	Total (n=210) N (%)	Clinical (n=107) N (%)	Preclinical (n=103) N (%)	P-value
My interest in studies has waned because of staying at home during COVID-19 period for almost 2 years				
Yes	99 (47.1)	39 (36.4)	60 (58.3)	0.002
No	111 (52.9)	68 (63.6)	43 (41.7)	
I am satisfied more with F2F teaching than virtual learning				
Yes	137 (65.2)	63 (58.9)	74 (71.8)	0.049
No	73 (34.8)	44 (41.1)	29 (28.2)	
I feel more shy to participate in class discussions in F2F teaching than in virtual learning				
Yes	89 (42.4)	33 (30.8)	56 (54.4)	0.001
No	121 (57.6)	74 (69.2)	47 (45.6)	
In F2F teaching, if lecture recordings are made available for students, it will have a positive impact on their learning				
Yes	207 (98.6)	104 (97.2)	103 (100)	0.09
No	3 (1.4)	3 (2.8)	0	
Since teachers give lectures while wearing face masks, their voice is not clear and students have difficulty understanding them				
Yes	133 (63.3)	61 (57.0)	72 (69.9)	0.05
No	77 (36.7)	46 (43.0)	31 (30.1)	
Teachers were more flexible for assignment deadlines during COVID-19 period				
Yes	72 (34.3)	38 (35.5)	34 (33)	0.70
No	138 (65.7)	69 (64.5)	69 (67)	
Teachers were more concerned about physical and mental health of the students during COVID-19 period				
Yes	100 (47.6)	47 (43.9)	53 (51.5)	0.275
No	110 (52.4)	60 (56.1)	50 (48.5)	
For me, the biggest advantage of ON campus learning in current semester of postpandemic period is				
Better learning and understanding of lectures	83 (39.5)	37 (34.6)	46 (44.7)	0.282
Socialization with peers/friends	109 (51.9)	59 (55.1)	50 (48.5)	
None	18 (8.6)	11 (10.3)	7 (6.8)	
As compared to COVID-19 period (online teaching), my aggregate scores in postpandemic period (F2F teaching) have				
Increased	78 (37.2)	35 (32.7)	43 (41.7)	0.386
Decreased	49 (23.3)	26 (24.3)	23 (22.3)	
No change	83 (39.5)	46 (43.0)	37 (35.9)	

F2F=Face-to-face



**Figure 1:** Students' views about the most difficult safety precaution to maintain during face-to-face teaching and learning postpandemic. Chi-square (degree of freedom) ( $\chi^2$  [df]) = 9.272 (3)  $P = 0.026$ , Phi and Cramer's V coefficients 0.210 (strong association)



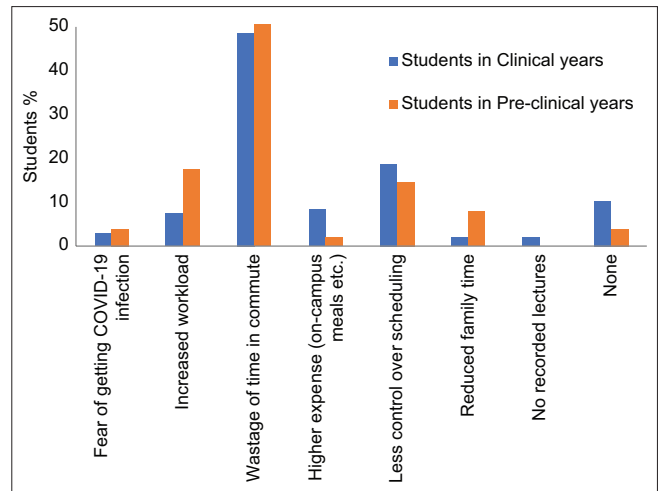
**Figure 3:** Instructors' views about the most difficult safety precaution to maintain in face-to-face teaching and learning postpandemic. Chi-square (degree of freedom) ( $\chi^2$  [df]) = 10.010 (3)  $P = 0.040$

precaution" and "biggest concern with face-to-face teaching" ( $P = 0.04$  and  $P = 0.018$ , respectively) [Figures 3 and 4].

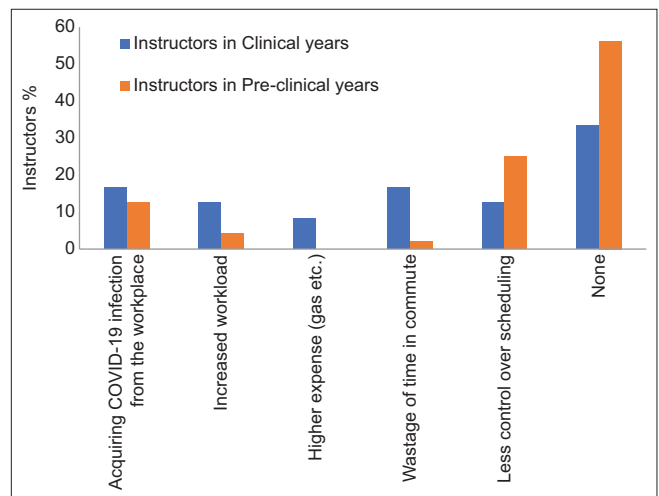
## Discussion

The present study was designed to explore students' and instructors' perceptions of challenges in the postpandemic learning period when students returned to college for 100% face-to-face teaching after a break of almost 2 years of virtual learning. The challenges identified were a fall in students' educational interest because of 2 years of virtual learning, a decline in students' scores, shyness in participation in class discussions, lack of clarity in instructors' articulation because of the face masks, a less empathetic attitude of teachers, inflexibility in teaching schedules, and fear of being infected with COVID-19. Students and instructors were both in favor of recording lectures. Students preferred a "hybrid model" of teaching.

Our results agree with Mese and Sevilen<sup>[18]</sup> who reported that e-learning had an adverse/negative effect on



**Figure 2:** Students' views about the biggest concern in face-to-face teaching and learning postpandemic. Chi-square (degree of freedom) ( $\chi^2$  [df]) = 17.955 (7)  $P = 0.012$ , Phi and Cramer's V coefficients 0.292 (very strong association)



**Figure 4:** Instructors' views on their biggest concern about face-to-face teaching and learning postpandemic. Chi-square (degree of freedom) ( $\chi^2$  [df]) = 13.629 (5)  $P = 0.018$

students' motivation because of the lack of interaction with peers and teachers. There is a direct and significant relationship between students' motivation and students' outcomes.<sup>[19]</sup> Reduced motivation might be the reason behind the reported decline in academic scores of our study participants. The problem of unclear articulation with face masks agrees with the systematic review of Gama *et al.*,<sup>[20]</sup> in which the authors concluded that the use of face masks alters vocal effort, vocal tract length, and speech articulatory movements. They also weaken the voice.<sup>[21]</sup>

During the pandemic, teachers were empathetic and flexible and understood the pressures faced by students globally.<sup>[22]</sup> In our study, about half of the students felt that the attitude of teachers was not as empathetic as it was during the pandemic. Teachers were no longer

**Table 2: Medical students' views on the extent of their fear of COVID-19 infection and their preferred mode of teaching and learning postpandemic**

Variables	Total (n=210) N (%)	Clinical (n=107) N (%)	Preclinical (n=103) N (%)	P-value
In postpandemic period, I often take leave from university purposely for fear of COVID-19				
Yes	20 (9.5)	9 (8.4)	11 (10.7)	0.576
No	190 (90.5)	98 (91.6)	92 (89.3)	
I am afraid of interacting with my teachers for fear of contracting COVID-19 infection				
Yes	18 (8.6)	5 (4.7)	13 (12.6)	0.04
No	192 (91.4)	102 (95.3)	90 (87.4)	
I am afraid of interacting with my classmates because of the fear of getting COVID-19 infection				
Yes	38 (18.1)	17 (15.9)	21 (20.4)	0.397
No	172 (81.9)	90 (84.1)	82 (79.6)	
Preferred platform for learning in current semester of postpandemic period				
Virtual learning only	22 (10.5)	14 (13.1)	8 (7.8)	0.435
F2F learning only	19 (9.0)	10 (9.3)	9 (8.7)	
Hybrid learning (a mix of online and F2F)	169 (80.5)	83 (77.6)	86 (83.5)	
Preferred mode for faculty office hours in current semester of postpandemic period (choose one)				
ONLINE	97 (46.2)	52 (48.6)	45 (43.7)	0.476
In-person	113 (53.8)	55 (51.4)	58 (56.3)	
Preferred mode of meeting with mentors and advisors in current semester of postpandemic period				
ONLINE	99 (47.1)	56 (52.3)	43 (41.7)	0.124
In-person	111 (52.9)	51 (47.7)	60 (58.3)	

F2F=Face-to-face

flexible with deadlines/teaching schedules. This agrees with Ionescu *et al.*,<sup>[23]</sup> who identified the flexibility of the work schedule as the most positive point of online education with teachers, students, and their parents. The greatest advantage of back-to-college face-to-face teaching was identified as socialization with peers, which is in agreement with Gherheş *et al.*,<sup>[24]</sup> who reported that students' main dissatisfaction with virtual learning was the lack of socialization with peers.

Several studies reported students' fear of COVID-19 during the pandemic.<sup>[25,26]</sup> A meta-analysis reported that college/university students suffered a moderate level of fear caused by COVID-19.<sup>[27]</sup> Our results show that although the pandemic is over, a small number of students are still afraid of COVID-19. A few students are taking a break from university or are afraid of interacting with the teachers/classmates because of the fear of COVID-19.

Most students and faculty favored recording lectures in face-to-face lectures because students could refer to the recorded lectures anytime and be more attentive during the lecture while not taking notes. Previous research has also reported medical students' appreciation for recorded lectures as a supplement or a beneficial adjunct to their learning.<sup>[28,29]</sup> In fact, lecture recordings are beneficial to

students because they can learn at their own pace.<sup>[30]</sup> By pausing, rewinding, or fast-forwarding, students are able to comprehend complicated concepts better and clarify any ambiguities.

Our students preferred the "hybrid model" of teaching (a combination of in-person and virtual classes). Educationists are encouraging a hybrid approach in medical education that is a combination of traditional face-to-face teaching with virtual learning using novel technological tools.<sup>[31,32]</sup> This would also reduce the time and money wasted in daily commutes.

The current study sheds light on the challenges faced by students and instructors in teaching and learning during face-to-face teaching postpandemic, limited to a single university and a single academic environment. Hence, our findings cannot be generalized. Sociodemographic data (age and gender) were not collected.

## Conclusion

Our study identifies the challenges faced by the students and instructors with the resumption of face-to-face teaching postpandemic. These challenges include unclear articulation on account of face masks, decreased interest in learning, increased diffidence, waste of time



**Table 3: Instructors' views on in-person learning in postpandemic period and the association between instructor's views and their specialty (clinical or preclinical)**

Variables	Total (n=72) N (%)	Clinical (n=24) N (%)	Preclinical (n=48) N (%)	P-value
Student's educational interest has diminished because of being at home during COVID-19 period for almost 2 years				
Yes	47 (65.3)	15 (62.5)	32 (66.7)	0.726
No	25 (34.7)	9 (37.5)	16 (33.3)	
I am more satisfied with F2F teaching than virtual learning				
Yes	63 (87.5)	20 (83.3)	43 (89.6)	0.665
No	9 (12.5)	4 (16.7)	5 (10.4)	
Students are shy and less comfortable participating in class discussions in F2F lectures than in virtual learning				
Yes	13 (18.1)	19 (79.2)	44 (91.7)	0.131
No	9 (81.9)	5 (20.8)	4 (8.3)	
In F2F teaching, if lecture recordings are made available for students, it will have a positive impact on their learning				
Yes	46 (63.9)	18 (75)	28 (58.3)	0.165
No	26 (36.1)	6 (25)	20 (41.7)	
Since I wear a face mask while lecturing, students have difficulty in understanding my words				
Yes	21 (29.2)	9 (37.5)	12 (25.0)	0.271
No	51 (70.8)	15 (62.5)	36 (75.0)	
In postpandemic period, I often take leave from university deliberately for fear of COVID-19				
Yes	5 (6.9)	4 (16.7)	1 (2.1)	0.022
No	67 (93.1)	20 (83.3)	47 (97.9)	
With F2F teaching in current semester of postpandemic period, I feel that my workload has increased				
Yes	35 (48.6)	14 (58.3)	21 (43.8)	0.243
No	37 (51.4)	10 (41.7)	27 (56.2)	
With F2F teaching in current semester of postpandemic period, I feel that my family time has decreased				
Yes	28 (38.9)	11 (45.8)	17 (35.4)	0.393
No	44 (61.1)	13 (54.2)	31 (64.6)	

F2F: Face-to-face

in commutes, lack of flexibility in schedules, increased workload, fear of being infected with COVID-19, and drop in scores. Most students and teachers are in favor of recording lectures in face-to-face teaching and prefer hybrid/blended learning in postpandemic times.

Based on our results, we recommend that institutions should adopt a hybrid model instead of 100% face-to-face learning. Students should be provided with online or in-person options for faculty office hours or meeting with their advisors/mentors. Instructors should continue to be empathetic towards students and be more flexible in teaching and learning postpandemic, as they were during the pandemic. They should incorporate new activities/strategies in their lectures to motivate students' interaction. Furthermore, instructors should record lectures for their students when appropriate.

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Nil.

### Conflicts of interest

There are no conflicts of interest.

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