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A RETROSPECTIVE COHORT STUDY OF COVID-19 PANDEMIC IMPACT ON ACADEMIC PERFORMANCE OF FOURTH YEAR MBBS STUDENTS OF SIALKOT MEDICAL COLLEGE.

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ABSTRACT

Background:
The COVID-19 pandemic forced medical education for rapid transition from in- person learning to online learning. This change came with learning difficulties, social isolation, limited student/faculty relationships, and decreased academic performance.

OBJECTIVE:
The purpose of this study was to determine whether academic performance, study habits, student/faculty relationships, and mental health was different in fourth year medical students of Sialkot Medical College during the COVID-19 pandemic compared to Pre-COVID and Post-COVID cohorts.

METHODS:
In July 2022, a survey was sent to fourth-year medical students at Sialkot Medical College Sialkot asking them to reflect on their experiences during the COVID-19 pandemic including study environment, mental health, and relationships with peers and faculty. Exam scores for the three years 2019 pre-COVID, 2020 during COVID-19 and 2021 post-COVID were gathered and compared. Ethical committee accorded the permission to conduct this study.

RESULTS:
Sixty- seven students responded to the survey (25 males and 42 females). During the COVID-19 pandemic, students did not get score above the normal average i.e. (84%) but during year 2021 which was post-COVID era, the core was (90%).Most of the Students (70%) were not satisfied with the new learning method of online system and didn't find that new learning system suitable and effective for them. Mental health and relationships were all rated significantly lower in students during COVID-19 pandemic.

CONCLUSIONS:
Significant differences were found in students experiences and academic performances during the pandemic compared to pre-COVID cohorts and post- COVID cohorts.

Keywords:
COVID-19, Medical education, Online learning, Medical students, Academic performance

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INTRODUCTION

The COVID-19 pandemic forced medical education to quickly pivot from traditional, in-person learning to an online format[1,]. Most of the medical students felt difficulty to make them familiar with online learning system which was totally a new innovation for them. With the pandemic, they now had to face the unique challenge of abrupt changes to the structure of their education[2,3] while many impacts of these changes are still unknown. However, medical students had shown a range of attitudes toward remote and online learning. Some students had negative feelings toward online learning due to the perceived decline in education quality, lack of engagement, home distractions, and technical issues.[4,7],

Other students appreciated advantages of online learning including increased flexibility, less commuting time, and freedom to learn at their own pace. 4, 7 Exam scores were an important measure to judge students in medical college, even during a pandemic. A study by Syed et al. evaluated the effects of the COVID-19 pandemic on academic performance in 79 first-year medical students by comparing pre-COVID grades with grades during COVID8. They found that students were still able to perform well academically. There was no significant difference existed in students' final grades. This work evaluated exam performance within a cohort affected by the COVID-19 pandemic. However, it does not compare exam performance between different cohorts at the same point in their medical education with or without the impact of COVID-19. Another study suggested that no significant difference occurred in examination performance between non-COVID and COVID cohorts[29]. While this study compared exam scores between cohorts, it only assessed two exam scores from a single organ system course. Since many medical institutions were continuously making changes to their curriculum during the pandemic. Assessing examination scores across multiple courses would be a better representation of impact of COVID. Studies showed that medical students felt detached from their friends and families during the COVID-19 pandemic[10,11]. Medical students' mental health deteriorated significantly when comparing COVID with Pre-COVID cohorts [12,,]. Slivkoff et al. surveyed first-year medical students regarding their mental health concerns and methods they were using to maintain wellness2. Students started other hobbies and exercises to maintain positive mental health. Although these studies assessed COVID-19's impact on mental health among medical students, they did not investigate if academic performance was impacted. Our this study focused on comparisons in study habits, mental health, student/faculty relationships, and exam scores between the cohort that started medical studies during the pandemic and the cohorts pre-pandemic and post pandemic.

OBJECTIVE

The objectives of the study were to improve method of online education and to determine whether academic performance, study habits, student/faculty relationships, and mental health were different in fourth year medical students during the COVID-19 pandemic compared to pre-COVID & post-COVID cohorts. To assess whether online education was more effective and suitable

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or in-campus education for students and the factors affecting online education e.g.

- Studying in a Noisy Environment
- Keeping Up With Discomfort
- Poor internet connection
- Poor Sleeping Habits
- Bad Social Circle

METHODOLOGY

The method used for this retrospective cohort study was online questionnaire undertaken in June 2022, carried out on fourth year MBBS class of Sialkot medical college. The sample size was 80 student and response rate was 66 students (83.5%).

Results

Section:1 (Demographic details) Figure-I
What is the age of participants?

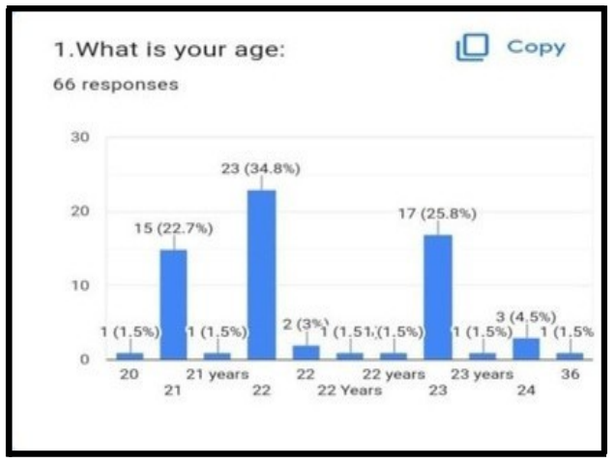

Figure-2
What is the Gender of the Participants?

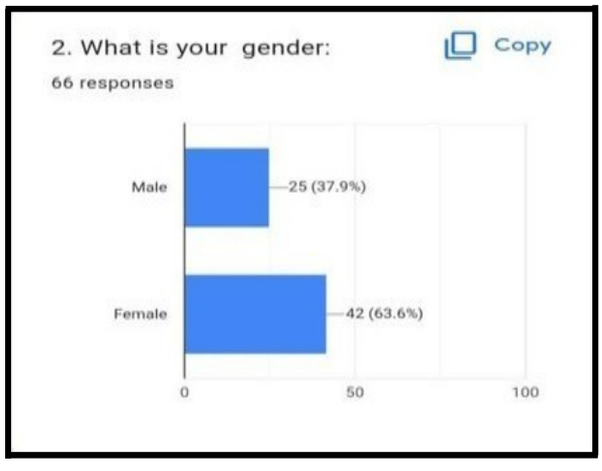

Figure-3
To what type of family structure do the participants belong?

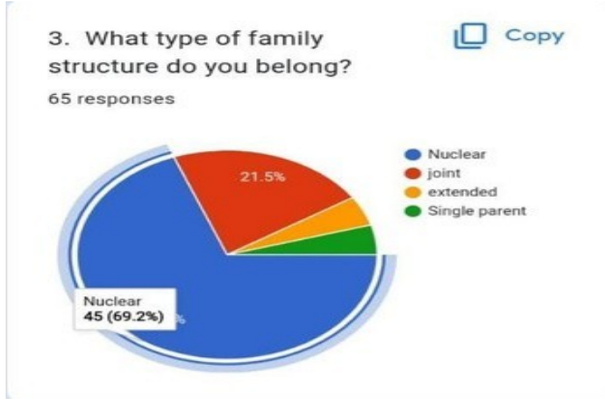

Figure-4
What is participants family income?

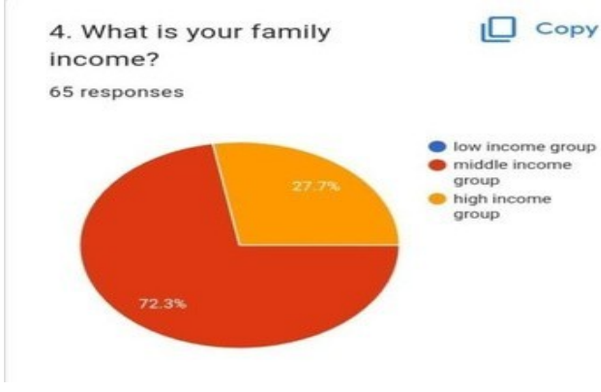

Figure-5
What is the residential location of participants?

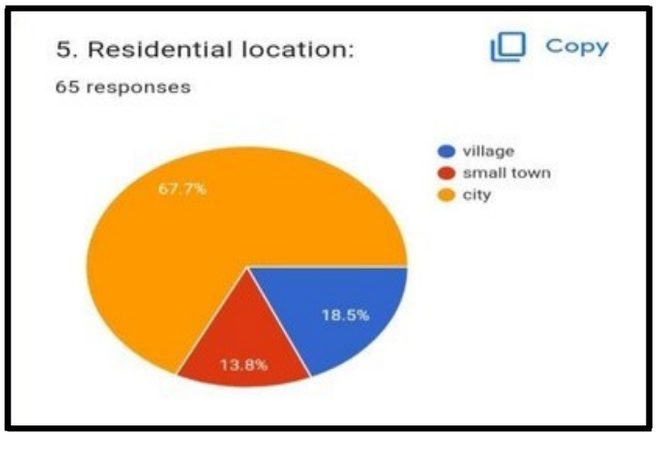

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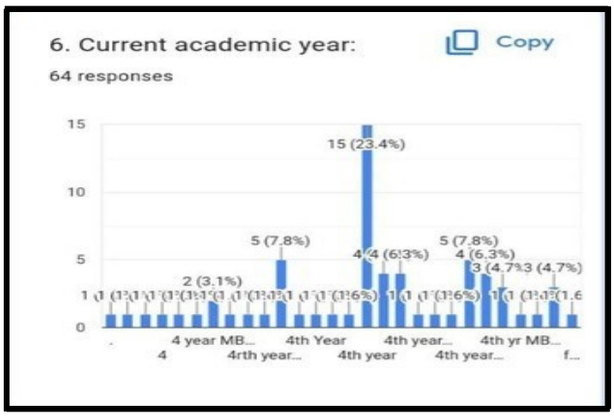
Figure-6

What is the current academic year of participants?



Section:2

Experience of online learning

Figure-7

How do the participants feel overall about distance education during COVID-19 pandemic (2020 lock down) period?

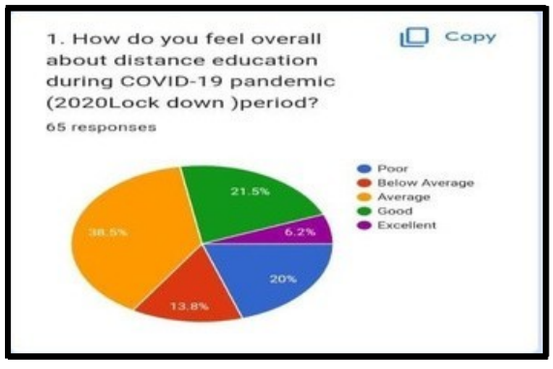


Figure-8

What device do the participant use for distance learning?

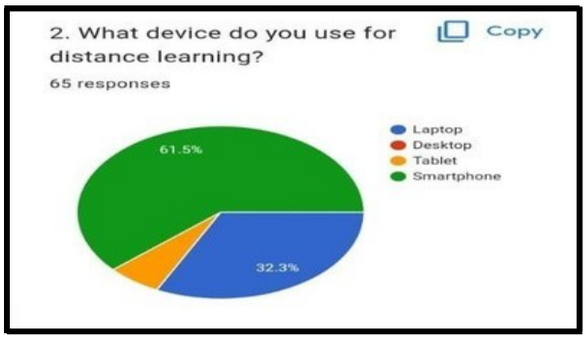


Figure-9

Did the participant experience any problem with internet connection for online learning during COVID-19 pandemic period?

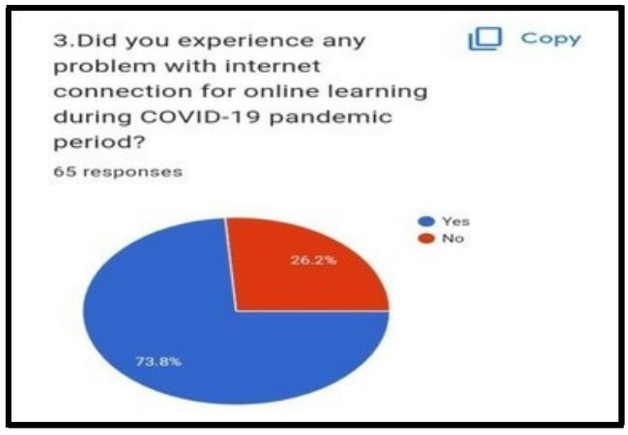


Figure-10

Do the participants enjoy learning remotely?

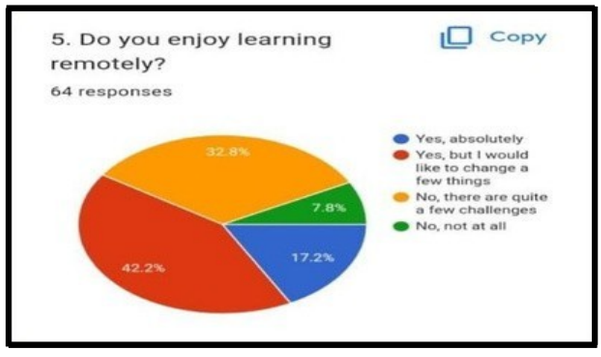


Figure-11

How helpful are participants' teachers while studying online?

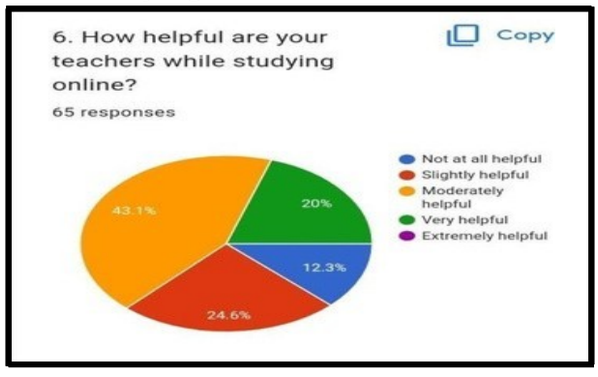


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Figure-12
How peaceful is the environment at home while learning?

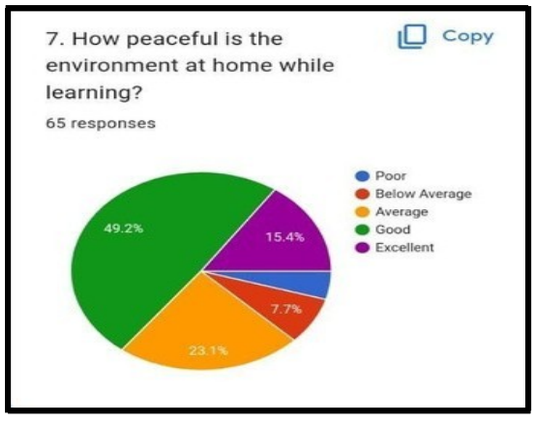

Figure-13
How effective has remote learning been for the participants?

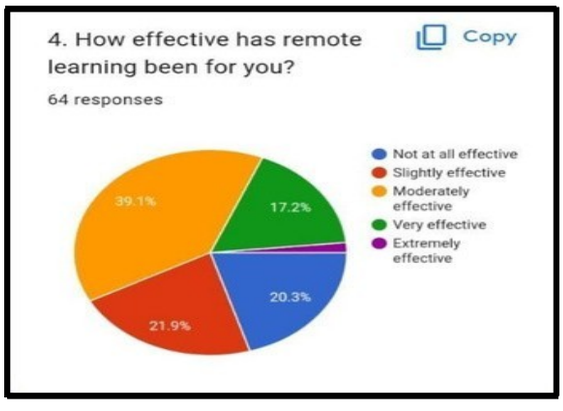

Figure-14
How important is face to face communication for the participant while learning remotely?

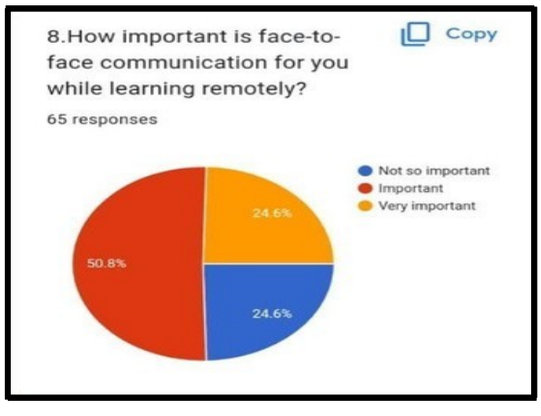

Figure-15
What is the experience of participants with online learning from home digitally?

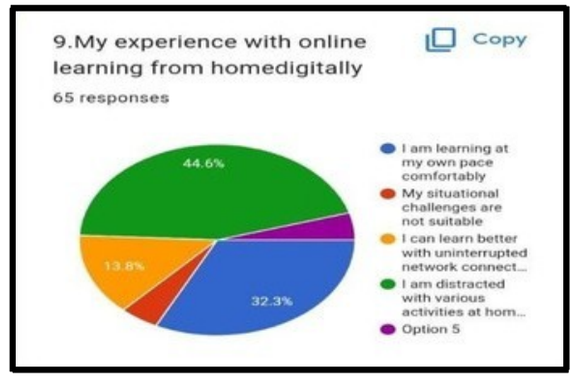

Figure-16
Which of the following statements is true of online learning off-campus?

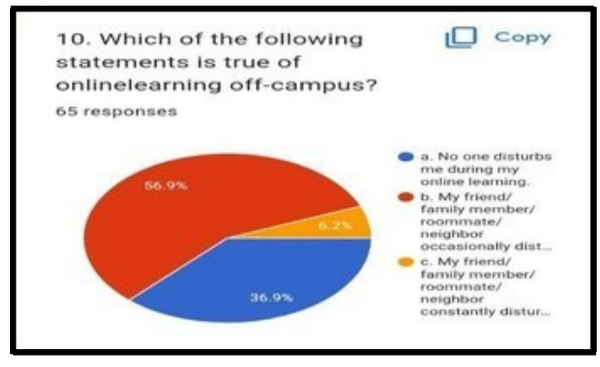

Figure-17
Which type of quiz is more effective for testing the understanding?

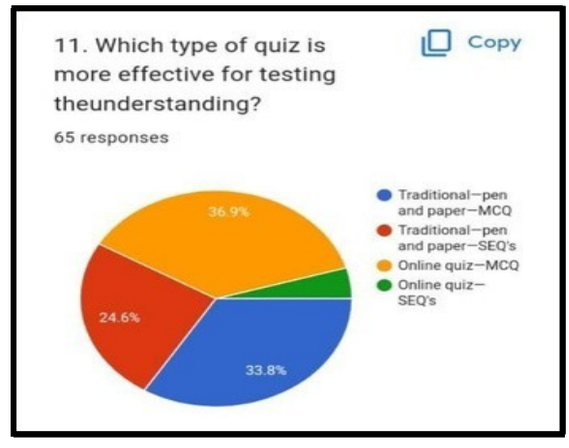

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Figure-18
Student version software (zoom or google classroom) downloaded from the internet is useful for learning?

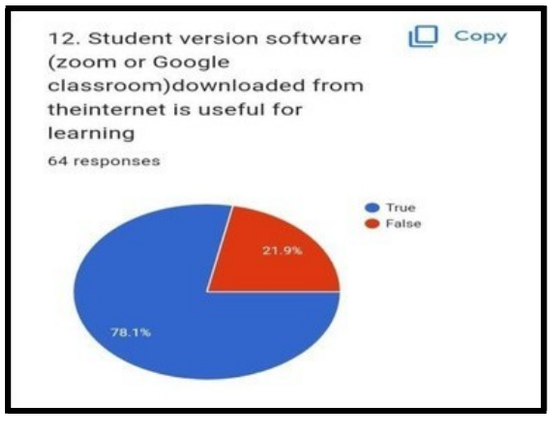


Figure-19
At home/ place of residence how many responsibilities do the participants have?

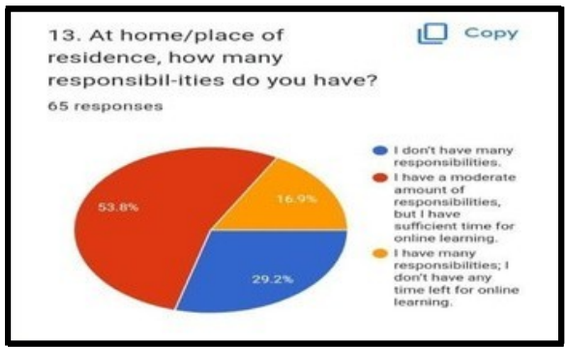


Figure-20
Which type of recorded video lecture is more effective for learning?

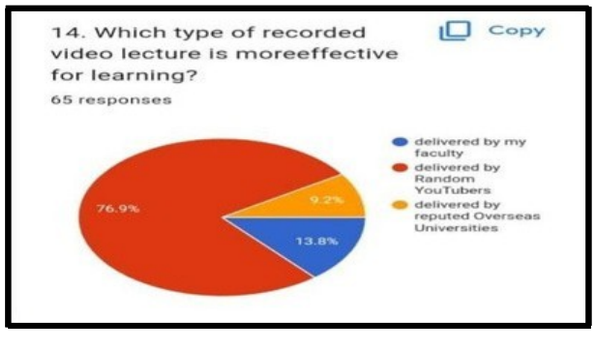


Figure-21
What is the participants most preferred method for clearing doubts in online learning?

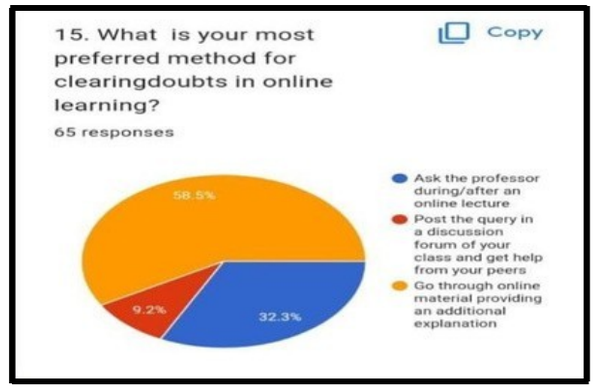


Figure-22
Online teaching-learning takes place effectively because?

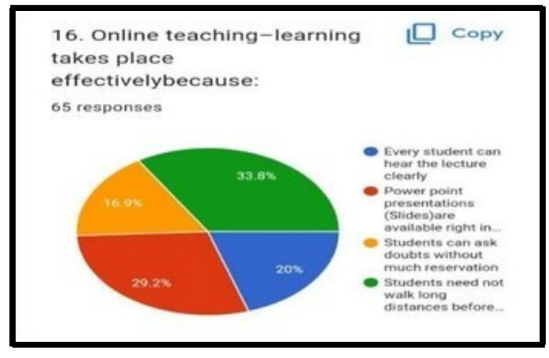
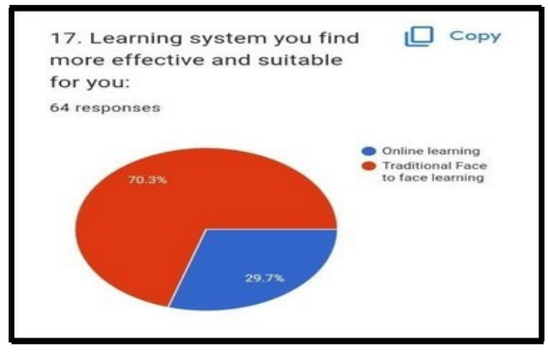


Figure-23
Learning system the participants find more effective and suitable for them?



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Section: 3

Academic performance during pandemic 2020

Figure-24

Have the participants been awarded distinction in any subject in professional MBBS exams held in 2020?

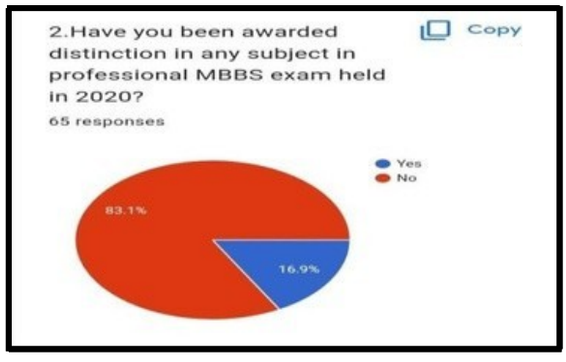
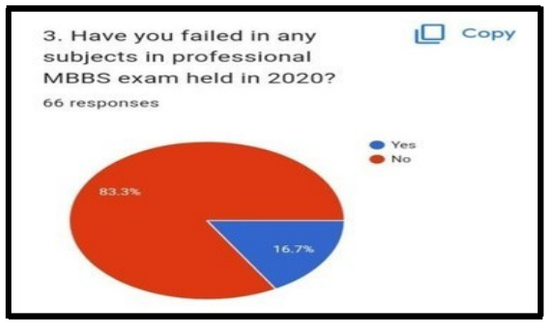


Figure-25

Have the participants failed in any subjects in professional MBBS exams held in 2020?



Academic performance before pandemic 2019

Figure-26

Have the participants been awarded distinction in subject in previous professional MBBS exams held in 2018-19?

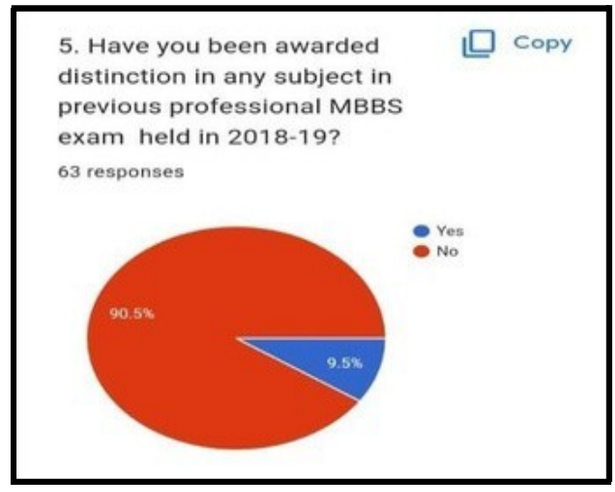
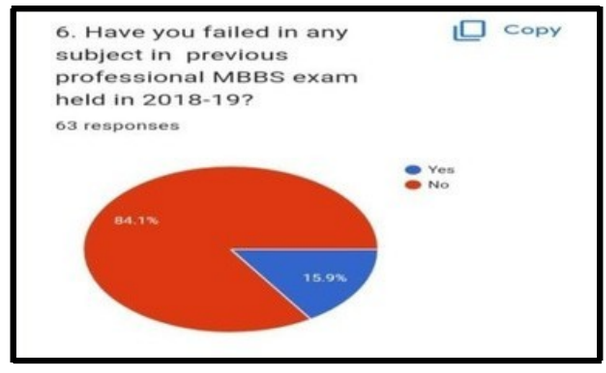


Figure-27

Have the participants failed in any subject in previous professional MBBS exams held in 2018-19?



Academic performance after pandemic 2021

Figure-28

Have the participants been awarded distinction in subject in professional MBBS exams held in 2021?

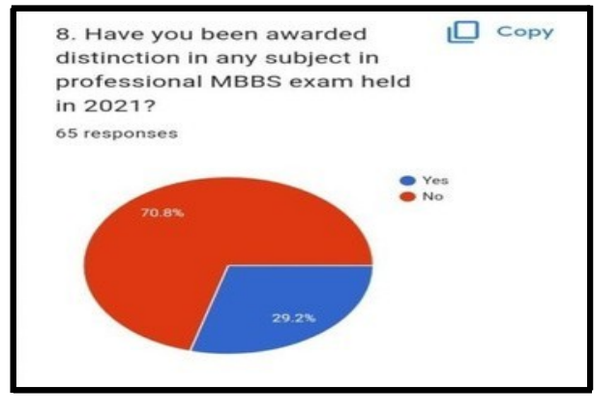


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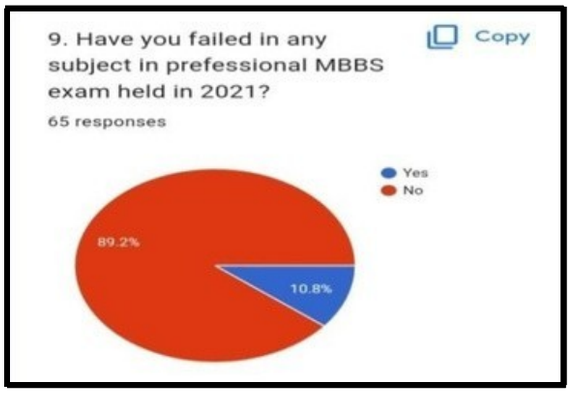
Figure-29

Have the participants failed in any subject in professional MBBS exams held in 2021?



ACADEMIC PERFORMANCES & COMPARISON

The survey Questionnaire was distributed among 80 students out of which 67 responded. The questionnaire aimed to identify the effectiveness of various online tools and technologies, the preferred learning methods of students and effectiveness of online learning during COVID-19 pandemic. Exam scores for the three consecutive years (before during & after) pandemic were gathered. After assessing the survey outcome, following information was obtained regarding the grades and academic performance of students.

Before pandemic (2019) 1st professional MBBS exam

1. Percentage of students got distinction in professional MBBS exam held in 2019 was 9.5%. Numbers of students were 6.
2. Percentage of students failed in professional MBBS exam held in 2019 was 16%. Number of students were 10.
3. Overall class result in 1st professional exam was 70%.

During pandemic (2020) 2nd professional MBBS exam

1. Percentage of students got distinction in professional exam held in 2020 was 17% and Number of students were 11.
2. Percentage of students failed in professional exam held in 2020 was 17% and number of students were 11.
3. Overall class result in 2nd professional exam was 84%.

After pandemic (2021) 3rd professional MBBS exam

1. Percentage of students got distinction in professional exam held in 2021 was 30% and number of student were 20.
2. Percentage of students failed in professional exam held in 2021 was 10% and number of students were 6.
3. Overall class result in 3rd professional exam was 90%

DISCUSSION

The novel COVID-19 disease identified in (Wuhan city) China in December 2019, which spread rapidly not only in China, but also worldwide. Therefore, governments around the world had either temporarily closed or implemented localized closures of educational institutions affecting over 60% of student population worldwide[13]. About 155 countries, worldwide, had introduced various tools and learning plate-form a solutions to continue the education process during the pandemic.[14]

Many universities around the world had minimized gatherings by suspending or cancelling all campus activities including suspension of classroom teaching to decrease the rapid spread of virus. Consequently, several colleges and universities worldwide switched to the online teaching for students15 to minimize

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either the contact between the students and lecturers or between students themselves.[16]

Our data showed that students of 4th year MBBS from Sialkot Medical College answered the questionnaire, which represented an overall response rate of 83.5%. As shown in figure: 2 Participants were 25 males and 42 females, respectively. The current data showed that COVID-19 pandemic lockdown affected the academic performance of most of the students. Reduction of students' progress and success had been reported to be associated with taking online college courses, instead of traditional in-person courses.

According to figure: 07, 38.5% students had an average experience of online learning during pandemic 21.5% good 13.8% below average and 6.2% excellent. The current study showed that the most popular device, that students used to access the online materials was the smart phone 38.5% as shown in figure:8, followed by laptop 32%. It was worth mentioning that many students had no access to the online teaching due to lack of either the means or the instruments because of economic constraints. Unequal access to computers and internet altered the effectiveness of online learning, as shown in figure: 9, 73.8% students faced problem in internet connection during online lectures. According to figure-10, remote learning was moderately effective for 39.1% of students, very effective for 17.2% slightly effective for 21.9% and not at all affective for 20.3%. While we see in figure-11, 42.2% of students enjoyed remote learning but wanted to change a few things. 40.6% did not enjoyed remote learning and found it quite challenging.

Figure-12 elaborated that 43.1% students thought that teachers were moderately helpful during online lectures, 24.6% thought that teachers were slightly helpful and 12.3% thought that teachers were not at all helpful.

Figure-13, described that 49.2% students had peaceful environment at home during learning but 23.1% had poor environment at home.

Figure-14 narrated that 50.8% students thought that face to face communication was important for learning, 24.6% thought very important and for 24.6% students it was not so important.

Figure-15 told us that 44.6% students were distracted with various activities at home during the period of online learning while 32.3% students were comfortable at learning from home.

Figure-16 revealed that 56.9% students felt that during the online learning their family members/ friends/roommates distracted them occasionally while 36.9% students were those who claimed that during the period no one disturbed them and they learnt at their own pace.

Figure-17 confirmed that for 36.9% students the online quiz of MCQs was more effective mean for testing their understanding while 33.8% students found the traditional in campus pen and paper MCQs were more effective tool and 24.6% of students believed the pen and paper SEQs better than others.

In figure 18, we saw that majority of the students were in favour of zoom or google classroom as useful mean of learning during online learning.

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Figure 19, elaborated that majority of the students said that they were having little trouble during the online session regarding the household work but they managed to balance both the home responsibilities and the online learning session. 29.2% students did not have any home responsibilities and 16.9% students were those who could not find enough time for online learning due to home responsibilities.

Figure 20, ascertained that majority of the students 76.9% were those who found the recorded video lecture delivered by random youtubers were more effective for learning.

Figure 21, described that 58.5% of students cleared their doubts in the online session through online material, some did this by asking teacher after the online lecture delivered.

In figure 22, 33.8% of students thought that the online learning session was better than in campus learning because they found it easy and comfortable at home rather going to campus. 29.2% of students found that during the online session availability of power point slides made the session effective , 20% of students thought that the online session was effective as every student could hear the lecture clearly.

Figure 23 narrated that 70.3% of students were those who found the traditional face to face learning more effective for themselves than the online learning session. Figure 24 confirmed that in the academic performance during the pandemic 2020 83.1% of students got distinction. While figure 25 revealed that during the pandemic 83.3% students passed the MBBS exam 2020 in first attempt with no supply.

Figure 26 shows that academic performance before pandemic 2019 in which 9.5% of students got distinction.

However, according to figure 27, Majority of the students passed the exam 2018-2019 before pandemic.

While figure 28, ascertained that academic performance after the pandemic in 2021 29.2% of students got distinction.

According to figure 29, 89.2% of students passed the examination 2021 after the pandemic.

CONCLUSION

Online Learning has many pros and cons but majority of students have better results during in campus period that's why they preferred face to face and in campus learning over online learning because of internet issues and moderately less effective way of teaching by the teachers.

RECOMMENDATIONS

The survey undertaken provides an estimate of the effectiveness and pitfalls of online teaching that has been taking place during the pandemic. The study done paves the way for educators to understand the effectiveness of online teaching.

The universities should provide platforms

1. for online learning with easy access to the study materials, and provide students with electronic devices, such as computers, and tablets to access the internet.
2. Improvement of internet speed and providing cheaper or even free internet packages during any disaster, and provide training for lecturers on e-learning tools and computer skills.
3. Government should take initiative to improve the way of teaching to encourage students and provide virtual resources to mimic the laboratory work or live streaming

directly from the laboratory.

4. Enhancement of the interaction between students and teachers is required, and practical learning throughout interactive tools, such as videos and 3D animation, which are significantly more effective than text materials such as power point and pdf, so, the voice recordings should be provided with the lecture's text.
5. Provision of accessible online resources such as e-books and instructional videos for practical lessons should be managed and decrease the amount of classwork which could help reducing students' stress.
6. Institutions should provide online quizzes and assignments after every lesson to easure the degree of students' understanding and increase the available time to solve the online tests.

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