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Impact of online education on medical students

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Abstract---Introduction: - COVID-19 is the most significant viral disease spread by a coronavirus, is developing very fast all over the world, and it is becoming a world threat. Crisis e.g. pandemic situation harms the education process, and academic function. To destroy the barriers that covid-19 creates, the government decided to start classes on an online platform. Then in 2020, all universities and colleges will provide education through an online platform. This study aims to detect how medical students get classes, and what type of problems they face during online learning. Method: - The online questionnaire was developed with closed-ended questions. Email and social media were used to conduct a cross-sectional survey. Through a Google form, 512 answers were obtained from various medical colleges. Results: - Out of 512 responses 249 (48.6%) were male and 263 (51.4%) were female. The majority of the students who answered, 345 (67.6%), were taking online classes. Smartphones were used by the majority of the classes 321 (63.1%). The most of students (268 (52.7%) said the online classes were ineffective, 173 (34%), said they were as usual, and only 68 (13.4%) said they were effective. More than half of the participants 296 (58.3%) don't encourage this platform for medical students in the future as a reference. Conclusion: This study describes students' perception of the impact of online education and their experience while studying during this covid-19 pandemic. Students in our survey did not seem favourably disposed to online classes. One of the proposed solutions pertained to an interactive online discussion about the case study.

Keywords---COVID-19, medical students, online classes, education.

Introduction

In December 2019, the new Coronavirus pandemic disease (COVID-19) began in Wuhan, China¹. COVID-19 is caused by the coronavirus that causes severe acute respiratory syndrome (SARS-COV-2)². It's characterized by pneumonia-like symptoms. Within a few weeks, Coronavirus cases were found in other countries, and shortly, it becomes a world threat. Coronavirus has been declared a pandemic disease by the World Health Organization (WHO). The virus has spread to over 177 countries since March 29, 2020. To curb the situation, WHO recommended implementing a strict lockdown rule ³.

The number of casualties due to this disease still growing and it forces the government of India to control and stop the transmission. Mr Prime Minister of India "Shri Narendra Modi" called for community members to altogether obey the instruction that everybody should work and study from home, to avoid exposure and break the chain of transmission ⁴. On January 30, 2020, India verified its first case of covid-19. India has announced a nationwide lockdown, which will begin on March 24, 2020, to prevent the spread of illness⁵. COVID-19, a new contiguous illness, is on its road to emerging and spreading, causing dread, bewilderment, worry, and psychological suffering among the public⁶.

Coronavirus has an impact on every part of our life, including the economy and education. The global shutdown resulted in the lockdown of education institutions due to the new Coronavirus (pandemic illness condition). The closure of schools and universities was an extremely difficult event for educational administrators, with highly limited options. The Indian Ministry of Studies has launched online programmes to help students continue their education. To alleviate the critical situation, education authorities ordered that all institutions and colleges switch to online classes within days¹. Traditional face-to-face teaching techniques have been replaced by online teaching in colleges and universities ⁷. Medical institutions' strategies for offering courses to their students have altered as a result of the online learning system. During the twenty-first century every student who belongs to medical and other departments, they force by this situation to change their learning attitude, through the help of modules, live videos lectures, YouTube videos, etc.¹During the lockdown period online education is the only reason to continue the learning process by creating emails, what's app groups now communication is mainly by web-based live video conferencing and chat platforms (Skype, zoom, Google meet, Microsoft team)

During this period medical students don't have a problem with the theoretical portion, but practical knowledge is also must important for a medical student for purpose of diagnosis, interpersonal relationship with a patient, to maintain the learning process in continuation but it deeply affects a practical portion which became a vital part, especially for medical students. Medical students must take experience in various practical skills. Medical studies are skill-based professionals who require both clinical and theoretical parts equally but online education is making it difficult and limited. Final year students spend their most

time inwards, ICU, OPD, and Emergency for perfecting their diagnosis, general examination of patients, head to toe examination, and history taking before University exam.

As we all know that every bachelor's degree is incomplete without research work, so every medical student needs to visit or work in a hospital to get knowledge about research, and patients, but due to Coronavirus clinical postings are not possible, so it creates difficulties for medical students in research work. Many instructors are technophobic; for example, they are concerned about or lack confidence in the computer and software in their classroom⁸. Online teaching is a method of continuing education in which teachers and classmates share their interests and connect with one another⁷. The purpose of this study was to assess the influence of Covid-19 on medical education, such as laboratory exercises, clinical posting, and examinations.

Indians are not well versed with online education, but as the situation demands entire nations start to practice online teaching. India is a developing country, in India, there are many states, and communities, where networks are not available, and many students cannot afford extra costs for Wi-Fi connection and cellular data (3G/4G). During the lockdown period, people suffered from financial problems, then how they can afford the extra costs equipment's needed for online learning. Most of the international students came to India for higher education, but due to this pandemic situation they returned to their hometown, they were facing many problems associated with travelling within the Corona period, network issues, financial issues, etc.⁹ The aim of this study was to find out the impact of online education on medical students and analyse the impact of online learning on medical students

Method

The current online survey-based study enlisted the participation of 520 students from various medical colleges/universities, in Delhi, NCR, India. 512 respondents were included in the study based on inclusion and exclusion criteria, while the rest did not meet the study's requirements. The inclusion criteria in our study were the student's age should be between 18 to 16, gender was included male and female, in our study, only included medical students from every year and in this study those students were included who knows English languages. The exclusion criteria in our study were general public and non-medical students who were not involved in this study and those students who don't know the English language. Following a literature search on existing online teaching techniques and the impact of Covid-19 on medical education in Delhi NCR 10, a 21-item questionnaire was created¹¹.

Procedure

The survey involved a questionnaire that was distributed to various medical colleges and universities through online platforms such as personal email and messages, social media, WhatsApp groups, etc. As this study focused only on medical students, general public and non-medical students were not involved in this study. Closed-ended questions included queries regarding participants'

demographics and the impact of online education during the covid-19 pandemic⁷. Based on an online survey using Google forms every question related to medical student's requirement/enrolment introductory paragraph status, name of the college, school, and university through which they used to attend questionnaire because without proper information the questionnaire will not be verified and submit, it will automatically remove from the analysis. The questionnaire was sent to all students currently enrolled in the following programmes: MBBS, BPT, BAMS, BDS, Nursing, Pharmacy, and Optometry. It included general demographic questions such as name, age, and gender, as well as general questions about financial status, education status, level of education in medical college, psychological illness, and the-education. In addition, the survey asked participants about their usage and experience of online teaching during the covid-19 epidemic, as well as the benefits and disadvantages of online teaching^{3,10}. The responses were put into Microsoft Excel 2016 when the questionnaire was completed.

Result

The online self- information survey was conducted for medical students of different universities and colleges in Delhi NCR, India. A total of 522 respondents were collected. Out of them, 512 were considered for the study. The participants were majority female, including 263 females (51.4%) and 249 males (48.6%) making up the sample. The mean age of the participants was 22.58 years (figure 1).

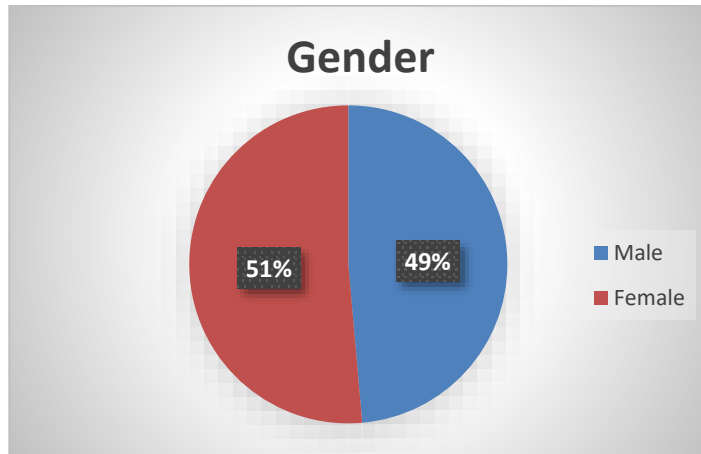


Fig: 1 -Gender

The total population of second-year medical students accounted for a higher percentage of responders 192(38.1%) and the rest of the First-year medical students accounted for 61 (12.1%), while second-year medical students accounted for 192 (38.1%), third-year medical students 92 (18.3%), fourth-year medical students 101 (20%), and fifth-year medical students 56 (11.1%). (Figure 2)

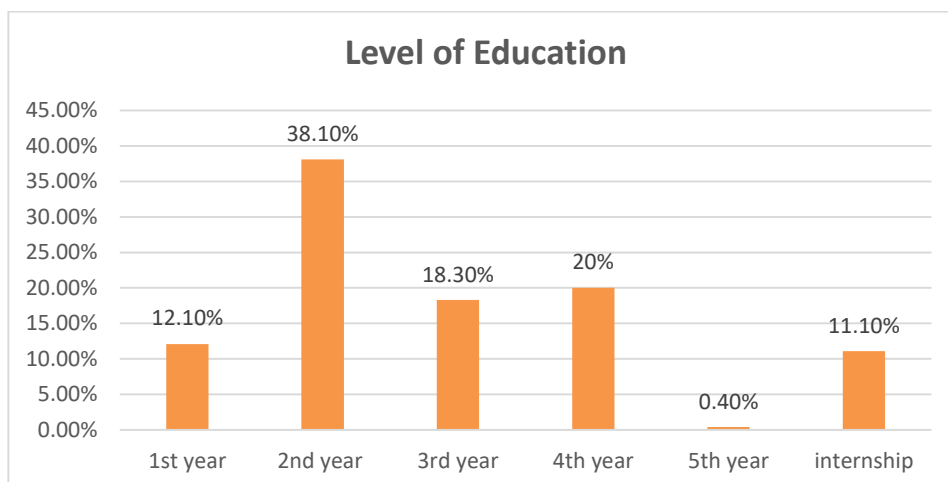


Figure: 2 -level of education in medical college

According to the questionnaire responses, 134 participants (26.5 %) that they experienced financial problems throughout the epidemic. Concerning the health-related issues, 150 respondents (29.7%) had a headache, eyesight problems 87(17.2%), depression 65(12.9%), anxiety 47 (9.3%), and 120(23.8%) students had all health-related issues mentioned in the question. (Figure 3)

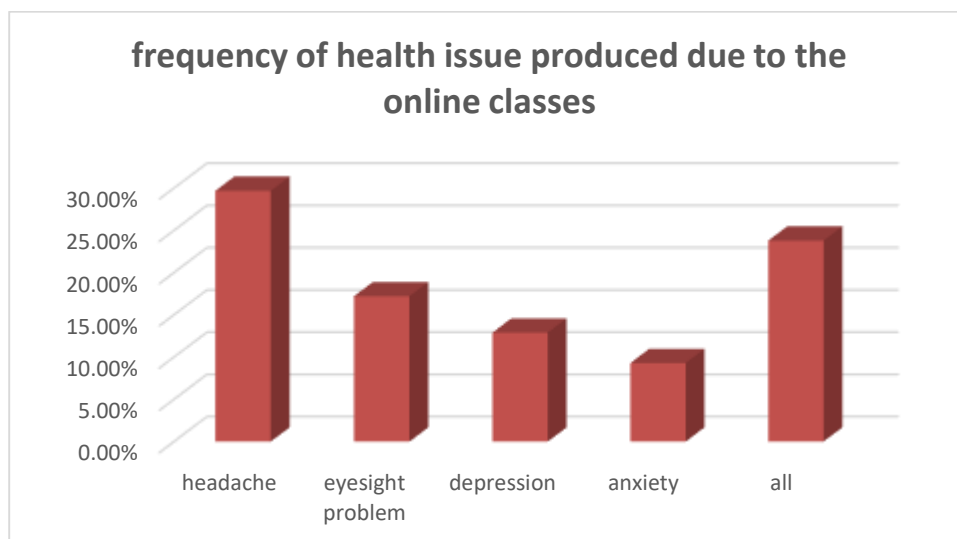


Figure 3: -frequency of health issues produced due the online classes

A total of participants 269(53%) from BPT, 115(22.6%) from nursing, 49(9.6%) from MBBS, and 26(5.1%) from the pharmacy program have participated in the study.

Student perception of technology availability and usability among study participations

Through all our participants, their connectivity to the internet was as follows 240(47.1%) participants used cellular data, 81(15.9%) used Wi-Fi, and 189(37.1%) used a combination of cellular data and Wi-Fi. The majority of the students 240(47.1%) used cellular data. (Figure 4)

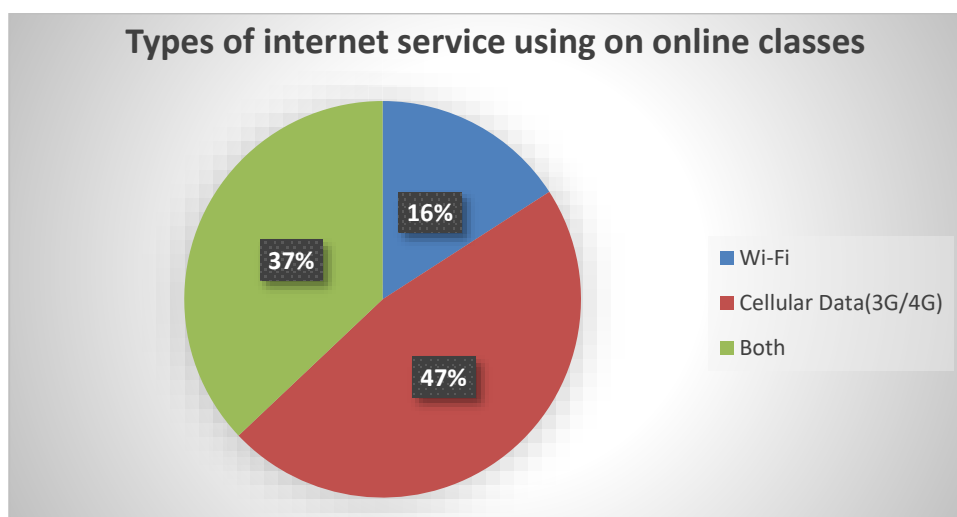


Figure 4: Types of internet service using on online classes

The device was used by the students during online classes, Smartphone (321, or 63.1%), laptops (132, or 25.9%), computers (44, or 8.6%), and tablets (12, or 2.4%) were all utilized to take online classes. When asked the students how was the internet facility you have at that time the larger part of the participants 223(43.6%) reported that they were good, 146 (28.6%) acceptable, 93(18.2%) very good, and 49(9.6%) bad connectivity.

Covid-19's impact on medical students

Despite the fact that the classes were participatory and non-disruptive, 268 (52.7%) of respondents said the online classes were ineffective, 173 (34%) said they were as usual, and only 68 (13.4%) said they were effective. Due to the covid-19 epidemic, medical colleges and universities have suspended their instructional programmes. However, when students were asked about their educational status and whether they had suspended or paused their education for any other reason, we discovered that the majority of students had no dues in the educational programme, 72(14.3 %) said yes due to civil issues, 33(6.5%) said yes due to financial issues, and 47(9.3%) said yes due to other reasons. While 393(78%) indicated that clinical and laboratory skills training had been discontinued at their medical colleges. Only 111(22%) of individuals said they were in training during Covid-19.

When asked participants whether they were attending online classes during the pandemic 345(67.6%) reported yes, 106(20.8%) reported may or may not due to internet issues and only 59(11.6%) were not attending.

When questioned about did the covid-19 affect their career plans and future interest, the majority of the students 275(53.8%) reported that yes covid-19 affected their career plans and future interest, 169(33.1%) reported May or may not, and only a few 67(13.1%) to No. When asked if they had any previous online experience before the pandemic, 363(71.6%) of medical students said they had no, while 144(28.4%) said they had taken online classes. The study's key question was what major kind of problem faced by students regarding practical classes. Remarkably, 85(16.7%) hand on exposure issues, 54(10.6%) demonstration issues, 15(2.9%) patients history taking difficulties 36(7.1%) communication gap between patient and students, and a majority of responses 320(62.7%) all of above. (Figure 5)

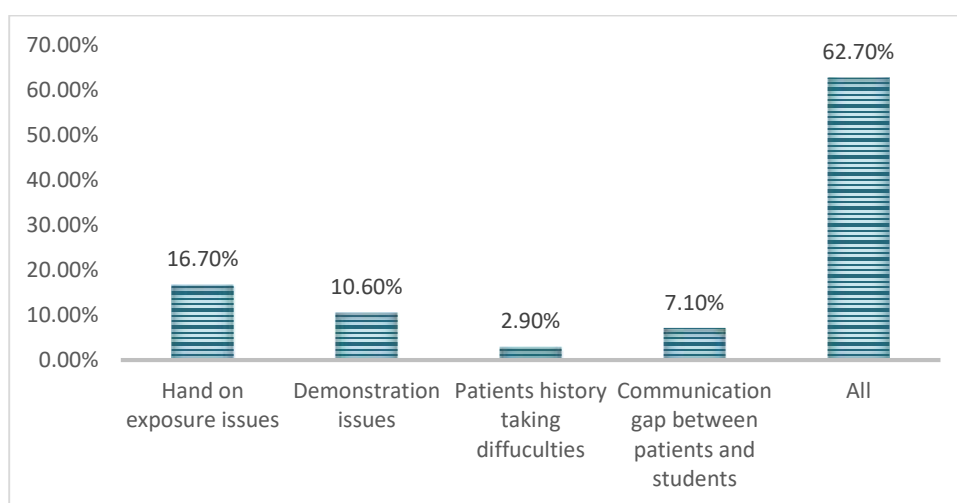


Figure 5: problem faced by students regarding practical classes

When questioned about the future consideration to encourage this online platform for medical students, the majority of the students 296(58.3%) not agreed, 142(28%) may or may not, and only 70(13.8%) agreed with this platform preferred it.(figure 6)

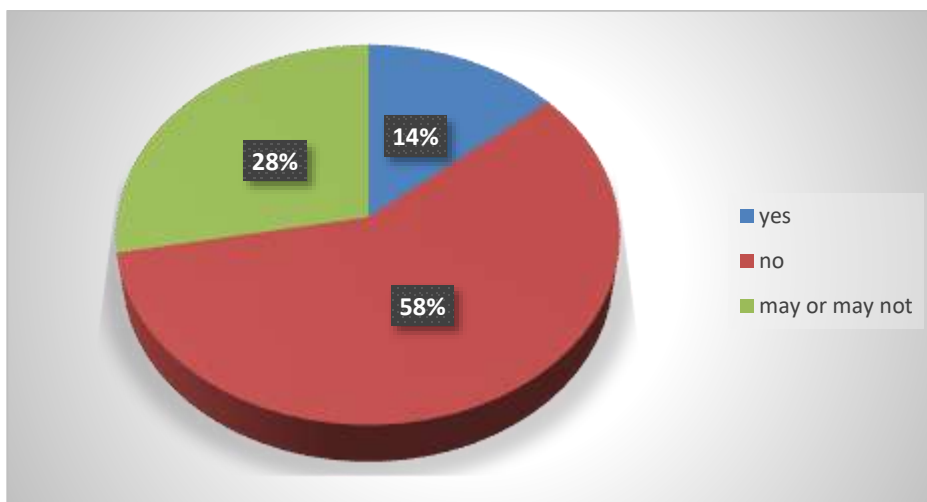


Figure 6: - frequency of encourage this online platform for medical studies in future as reference

Discussion

The coronavirus 2019 (Covid-19) is a pandemic disease that can create life-threatening diseases and be extremely stressful for the entire civilization¹². With covid-19, it's unsurprising that the majority of medical institutions have opted for an online platform⁸. During the covid-19 pandemic, online meeting applications like Zoom, Microsoft Teams, and Google Meet were recommended as a platform for delivering medical students' online lectures. This study aimed what is the impact of online education on medical students³. This was to be expected, given that, in addition to their prior use of online teaching technologies, students' primary source of instruction and interaction with their medical institutions was over the internet⁸. The sudden transition from the offline platform to the online platform increases the stress among the students. The study comprised 512 students from various medical colleges/universities in Delhi, NCR, including 407 (80.3%) from private colleges, 40 (7.9%) from semi-government institutions, and 58 (11.4%) from government colleges⁵. As per our study, 345 students (67.6%) were taking online classes. Smartphones were the most often utilized medium for online learning accounting for 321 (63.1%) of all. These findings support the necessity for smartphone apps that provide users with access to online learning and lectures in medical education.^{3,10, 5}.

Medical colleges in India confront a variety of obstacles, via our study 134 (26.5%) reported financial difficulties and 35 (6.9%) reported psychological illness. These are severe concerns, and government involvement may be necessary to lessen the severity of the situation. While also guaranteeing that medical students receive immediate assistance in the event of a pandemic³. It is true, that we must overlook the fact that online teaching or classes are extremely difficult in rural regions, with the majority of students 397 (78.5%) in urban areas and 109 (21.5%) in rural areas. Students who were unable to attend online classes were from rural areas with limited access to the internet. Theoretical, practical, and clinical training are all part of medical education. During the covid-19 pandemic,

students only attend theoretical classes. The program's lack of integration of a theoretical, practical, and clinical component may have hampered understanding. Despite the challenges students faced during the Covid-19 shutdown, 350 (69.4%) of them completed their studies at their respective medical institutions, while others suspended their studies due to civil concerns, financial troubles, and other causes.

However, due to the covid-19 outbreak, 393 students (78%) stated that their medical institutions had paused clinical training, while just 111 students (22%) continued clinical training.^{3, 9} When online and offline lessons are combined carefully, students do well. This is referred to as blended learning⁵. One of the suggested options was an interactive online discussion about the case study. Students are provided with a weekly sequence of immersive online cases to simulate a clinical role in this method. They then offer a review of the patient's history, physical tests, investigations, and care plans via an online platform³. If instructors are prepared for the online education system, the barrier to online teaching can be reduced. It will not be able to cover the whole curriculum online in medical education¹⁰. Another challenge for the medical education process is examining the same colleges/universities, such as Galgotias University Greater Noida, UP, India, which began implementing an online examination platform for final year medical students during the lockdown to prevent further disruption and postponement of student graduations³. The general frustration of the covid-19 lockdown made 296 (58.3) feel that they did not encourage this online platform for medical studies as a reference in the future.⁵ The novel coronavirus impacts not only physical health but also mental health, as well as industries such as business, sports, tourism, entertainment, culture, hospitality, and commerce¹⁴. Although several studies have looked at the impact of education, this study intended to look at a variety of outcomes in order to analyse their present position and see how the epidemic has affected them.

Conclusion

Students' perceptions of the impact of online education and their learning experiences during the covid-19 epidemic are investigated in this study. Although the concept of online classes is still developing, students have had problems with internet connectivity because of network problems. Online classes did not appear to be useful for the students in our survey. An interactive online conversation regarding the case study was one of the recommended alternatives. When the students return to offline classes, they will need to review some of the subjects presented during the online lectures.

Limitation

Only medical students were included in this study, which was confined to medical institutions in Delhi and the NCR. Students who are familiar with the English language were included in this study.

Conflict of Interest: None

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Ethical Clearance: Expedited ethical approval was taken from the local ethical board, Galgotias University, Noida, Uttar Pradesh.

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