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RESEARCH ARTICLE

CONVENTIONAL V/S ONLINE TEACHING DURING THE COVID-19 PANDEMIC: PERCEPTION OF UNDERGRADUATE MEDICAL STUDENTS OF INDIA

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Abstract

Background: During COVID-19 Pandemic, conventional campus teaching was withheld in medical colleges throughout India for maintaining physical-distancing as a preventive measure to curb the spread of the SARS CoV-2 virus. Online teaching was started as a breakthrough in many medical colleges. We aimed to know the advantages and shortcomings of conventional and online teaching in undergraduate medical students of India, problems faced during online teaching and most preferred platform.

Methods: This cross-sectional study was carried out from March - July 2020 in UG medical students who were attending online teaching, via a Google Form. Total 700 students from 35 Medical colleges across India participated in the study.

Result: Out of 700 UG medical students 47% were likely to attend online classes while 53% chose conventional classes. 72.4% students missed social interaction with friends and teachers in current online teaching. 61.3% students experienced increased incidence of eye strain, eye redness, headache and fatigue due to online teaching. 79.7% students agreed that practicals are more convenient and informative when taken conventionally. 45% students agreed that teachers were incompatible with online teaching systems and needed training. Maximum students faced problems of unstable network, high data consumption and high expenditures on mobile data due to online teaching. For online teaching 324 students preferred Cisco Webex, 123 ZOOM, 96 YouTube, 81 Google.

Conclusion: A blended teaching method is convenient for students. Further research is required.

Introduction:-

With COVID-19 (SARS-CoV2) making a world-wide impact, unprecedented conditions have emerged globally affecting all spheres of life and medical education too has been forced to undergo a revamp. Given the Centers for Disease Control and Prevention's recommendations to cancel large conferences and limit regular meeting sizes, our

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traditional model of person-to-person educational didactics, lectures, and chalk talks has been compromised(1). Imposition of lockdown and prohibition of large physical gatherings has left traditional didactic learning disrupted like never before(2). Education at all levels has become uncertain due to the mass closures of schools and universities. Medical education, particularly at the medical school/ undergraduate level, has been no exception(3). This has led to a compelled and widespread adoption of Online Learning methods for UG medical students throughout India.

Online teaching is the delivery of instruction using different web-based technologies from the internet/ intranet and other communication technologies, that enable students to participate in learning activities beyond the campus, meaning there are no physical/ on campus class sessions(4). Conventional teaching refers to the pre-dominant regime of classroom lectures, practical sessions in labs, ward and OPD clinical postings; all involving a physical gathering. While Conventional Teaching provides a personal touch, interpersonal connect and sense of community; Online methods offer the versatility of time, duration, location, platform as well as personal space and most imperatively are indispensable to mitigate the spread of the COVID-19 infection by physical-distancing.

The ultimate goal of medical education is to raise a future generation of saviors against disease. The hurdles faced by students to cope from the status quo dominated by traditional chalk and talk or slide and arride to conference video calling has seen a precipitous shift. Contemplating against an inanimate screen in a time when isolation has become a part of life makes maintaining focus and interest in topic, a herculean task. However, the primary challenge of this novel method lies in the faculty's willingness to embrace technology(5).

The pandemic has driven students home to safety and online teaching methods provide the only practically possible, feasible solution to continue their process of edifice. It has allowed us to continue foster some sense of fraternity, hoping to promote wellness in times of isolation and channelize students' liberated energies towards innovations for the future. Now that students and teachers alike have been acquainted to Online Teaching Methods, future utility of this means is immense, provided infrastructural development and local technical support and knowhow follow hand in glove.

This opportunity arising from the COVID-19 adversity may prove to be the much expected cornerstone for "Blended Learning"- wherein didactic, informative instruction-sessions and talks are held online so that more time & efforts can be dedicated to the practical aspects and postings in actual sense. This period of 'no teaching' can be the period of 'greatest learning'.

Aim:-

To study perception of Conventional V/S Online teaching during COVID-19 pandemic in Undergraduate Medical Students of India

Objectives:-

To study the advantages and shortcomings of conventional and online teaching
To enquire problems faced by students during online teaching
To know about the most preferred platform for online medical teaching

Material and Methods:-

Study Design: This is a cross-sectional study conducted among undergraduate medical students from different medical colleges in India
Study Period: March to July 2020
Study Setting: 35 Medical Colleges in India
Study Sample: 700 Undergraduate MBBS students (1^{st}, 2^{nd}, 3^{rd} MBBS) from 35 different colleges

Study Tool and Technique: For the purpose of the study, primary information was collected about online teaching in different medical colleges of India. Keeping in mind the advantages and disadvantages of online teaching; a self-developed, semi-structured questionnaire was prepared on Google Forms to interview the students. The link to the form was shared with students of different medical colleges online via their batch WhatsApp groups and emails. The data collected 72 hours after sharing the link was converted into an Excel spreadsheet and analyzed.

Google Form Online Survey Link: https://forms.gle/DEC4dSLJaMxmk7yo7
Inclusion Criteria: Undergraduate MBBS students attending online college teaching, giving an informed consent for the study and responding within 72 hours of sharing the form link.
Ethical Committee Approval was obtained from MGM Medical College & Hospital, Aurangabad (Maharashtra)

Result:-

Table 1 shows that maximum 278 (39.7%) students disagreed that online teaching provided a better understanding of course content. Maximum 364 (52.2%) students disagreed that their attention and focus stayed longer in online teaching. 449 (64.1%) students acknowledged that online classes were more convenient to attend. 338 (48.2%) students disagreed that it was easier to clear doubts through online discussions. 498 (71.1%) students admitted that it was easier to get distracted during online teaching than conventional teaching. 382 (54.5%) students agreed that following time table of conventional teaching was more convenient than online teaching. 452 (64.5%) students accorded that there was a lack of face to face communication, making online teaching less engaging and boring. 471 (67.2%) students acknowledged that greater amount of content was covered in lesser time duration during online teaching. 398 (56.8%) students admitted that it was inconvenient to discuss queries and take notes during online teaching. 429 (61.3%) students concurred that online teaching was less lively with no learning environment around and more monotonous than conventional teaching. 450 (64.3%) students disagreed that clinical postings and case discussions were better when taken online than conventionally.

Table 2 shows that only 31% (221) students agreed that teachers were less comfortable and less focused during online teaching. 39% (272) students were neutral about teachers needing to prepare and work more. 45% (317) students admitted that teachers were unable to handle and use online teaching systems and need a training.

Figure 1 depicts out of 700 students, 329 (47%) students were more likely to attend online classes than conventional classes. Figure 2 shows that maximum 507 (72.4%) admitted that they missed social interaction with friends and teachers in case of online teaching and this would make them an introvert in future. Figure 3 graphically represents that 476 (68%) students had experienced increased incidence of eye strain, eye redness, headache and fatigues due to online teaching. In figure 4 out of 700, 558 (79.7%) students agreed that practicals were more convenient and informative when taken conventionally than online. Figure 5 illustrates that in the present study 324 students were of the opinion that Cisco Webex best meets the needs for online teaching, followed by ZOOM (123), YouTube (96), Google Classroom (81), GoTo Meet (27), Jitsi Meet (16), etc.

Maximum students had faced problems of unstable network connection, unreliable internet speeds, high data consumption and resultant high expenditure on mobile data during online teaching.

Discussion:-

In the present study of perception of UG medical students about Conventional V/S Online Teaching, 700 students from 35 medical colleges in India participated. It was observed that 64.1% (449) students agreed online classes were more convenient to attend, furthermore 39.7% (278) students disagreed that online teaching provided a better understanding of the course content. David A Cook et al in their study observed that internet based learning is associated with large positive effects compared with non-internet learning(6). Maximum (52.1%) students disagreed that attention and focus stayed longer in online classes whereas Julith E Gallagher et al showed in their study that student retention of course material 6 months after completion of the course was greater in web based teaching than classroom(7). Out of 700 students, 53% were not likely to attend online classes over conventional ones. I M Shah et al showed that approach to blended learning was popular among UG medical students (47.1%)(8) and Carren Serra Bavaressco et al in their study observed that overall the participants were satisfied with distance learning course however no statistical association was seen(9).

Majority (64.5%) students agreed that there was a lack of face to face communication, making online teaching less engaging and boring. Daroedono et al also agreed in their study that lack of concentration (77.6%), lack of understanding (77.8%), lack of interaction (62.95) was common(10). Whereas Seema Dutt Bandhu et al too observed that all students agreed on the usefulness of e-learning in medical education, only 27.5% found the medium of e-learning to be interesting, 37.5% considered it to be easy and accessible and 25% found it to be fast and easy(11). Tanisha Jowsey et al further suggested in their study that when delivered purposefully, blended

learning could positively influence and impact achievements of students when utilised to manage and support distance education(12). Majority (56.8%) students agreed that it was inconvenient to discuss queries and take notes during online teaching and Seema Dutt Bandhu et al observed that 70% desired that e-learning should be used to provide important notes, questions, MCQs on all topics(11) and corroborated with the findings.

Table 1:- Table showing perception of students about Conventional and OnlineTeaching.

Sr. No.	Question	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1	Online teaching provides better understanding of course content	37 (5.3%)	152 (21.7%)	233 (33.3%)	197 (28.1%)	81 (11.6%)
2	Your attention and focus on the topic stays longer in online classes	33 (4.7%)	135 (19.3%)	167 (23.9%)	249 (35.6%)	116 (16.6%)
3	Online classes are more convenient to attend	172 (24.6%)	277 (39.6%)	140 (20%)	84 (12%)	27 (3.9%)
4	It is easier to clear doubts through online discussions	35 (5%)	128 (18.3%)	199 (28.4%)	247 (35.3%)	91 (13%)
5	It is easier to get distracted during online teaching than during conventional teaching	229 (32.7%)	269 (38.4%)	120 (17.1%)	64 (9.1%)	18 (2.6%)
6	It is more convenient to follow the time table of conventional teaching than online teaching	256 (36.6%)	226 (32.3%)	197 (28.1%)	95 (13.6%)	26 (3.7%)
7	Lack of face to face communication makes online teaching less engaging/ boring	203 (29%)	249 (35.6%)	143 (20.4%)	79 (11.3%)	26 (3.7%)
8	Greater amount of content is covered in lesser time duration during online teaching	171 (24.4%)	300 (42.9%)	140 (20%)	76 (10.9%)	13 (1.9%)
9	It is inconvenient to discuss queries or difficulties and take notes during online teaching	136 (19.4%)	262 (37.4%)	145 (20.7%)	127 (18.1%)	30 (4.3%)
10	Online teaching is less lively, less interactive with no learning environment around and more monotonous and didactic than conventional teaching	145 (20.7%)	284 (40.6%)	184 (26.3%)	77 (11%)	10 (1.4%)
11	Clinical Postings and Simulated Case Discussions are better when taken online than conventionally	77 (11%)	63 (9%)	110 (15.7%)	250 (35.7%)	200 (28.6%)

Increased incidence of eye strain, eye redness, headache and fatigues was seen in maximum (68%) students due to online teaching. In a similar study Joowon Kim et al observed higher prevalence rates for ocular symptoms in groups with greater exposure to smartphones(13) as well. Sukanya Jaiswal et al also observed that smartphone and tablet use is frequently associated with visual and ocular discomfort such as headaches, eyestrain, dry eyes and sore eyes(14) which is relevant to our findings.

Most (61.3%) students accorded that online teaching was less lively with no learning environment around and more monotonous than conventional teaching. In his study P A Cravener showed that active live environment among geographically separated members and learning groups was necessary and even highlighted that new opportunities for educational research arose from the use of active virtual learning environment(15). Ravindran et al too in their study of Facebook© teaching forum said it provided a safe environment for learning and discussions (92%) and was useful to achieve the learning objectives(16).

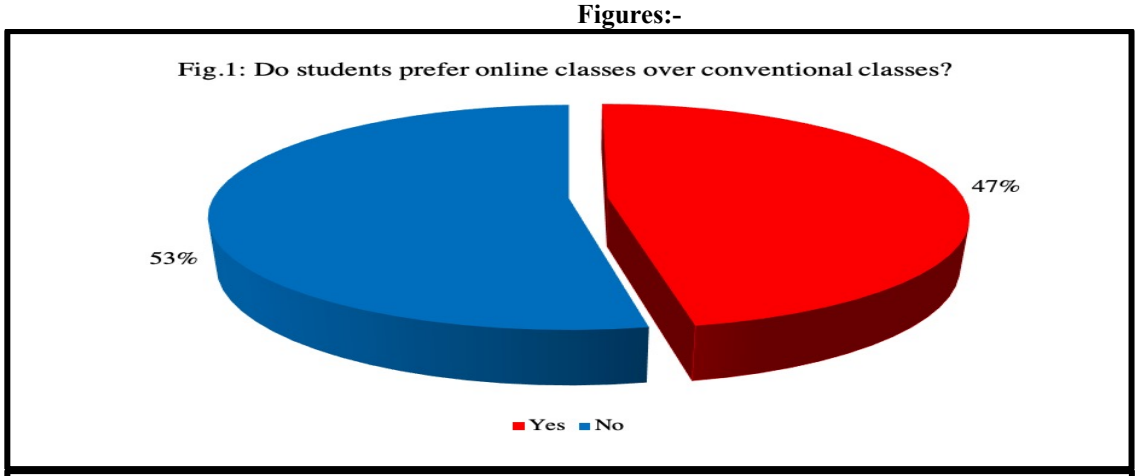
Majority (79.7%) students acknowledged that practicals were more convenient and informative when taken conventionally than online, Leisi Pei et al in their study showed statistically significant difference between online and offline knowledge and skills acquired, but there was no evidence that offline learning worked better(17). 64.3% (450) students disagreed that clinical postings and case discussions were better when taken online than conventionally and Rahul Ravindran et al too concluded that compared to ward rounds and clinics students felt more comfortable asking questions in the online teaching forum (56%)(16). However Karen McCutcheon et al in their

study showed that online learning for teaching clinical skills was no less effective than traditional means(18). Puneet Kaur Sahi et al concluded that whether online teaching becomes a standard mode of pre-clinical education and virtual simulation technology an integral part of clinical education is for time to see, but the seeds for a paradigm shift already seem to be have been sown(3). Only 31% (217) students agreed that teachers were less comfortable and less focused during online teaching. In a similar way P A Cravener in his study observed that challenges related to online teaching were mainly about faculty overload, adoption of new technology and course management(15). 317 (45.3%) students admitted that teachers were unable to handle and use online teaching systems and needed training, Daroedono et al had similar findings where 58% students agreed that specific preparation for teachers was needed for online teaching(10).

Table 2:- Table showing opinion of students about teachers involved in online teaching.

Sr.No.	Question	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1.	Teachers are less comfortable and less focussed during online teaching	68 (9.7%)	153 (21.9%)	262 (37.4%)	171 (24.4%)	46 (6.6%)
2.	Teachers need to prepare and work more for online teaching	76 (10.6%)	175 (25%)	272 (38.9%)	149 (21.3)	28 (4%)
3.	Teachers are unable to handle and use online teaching systems creating a hurdle in teaching and need training	107 (15.3%)	210 (30%)	246 (35.1%)	120 (17.1%)	17 (2.4%)

Figures:-



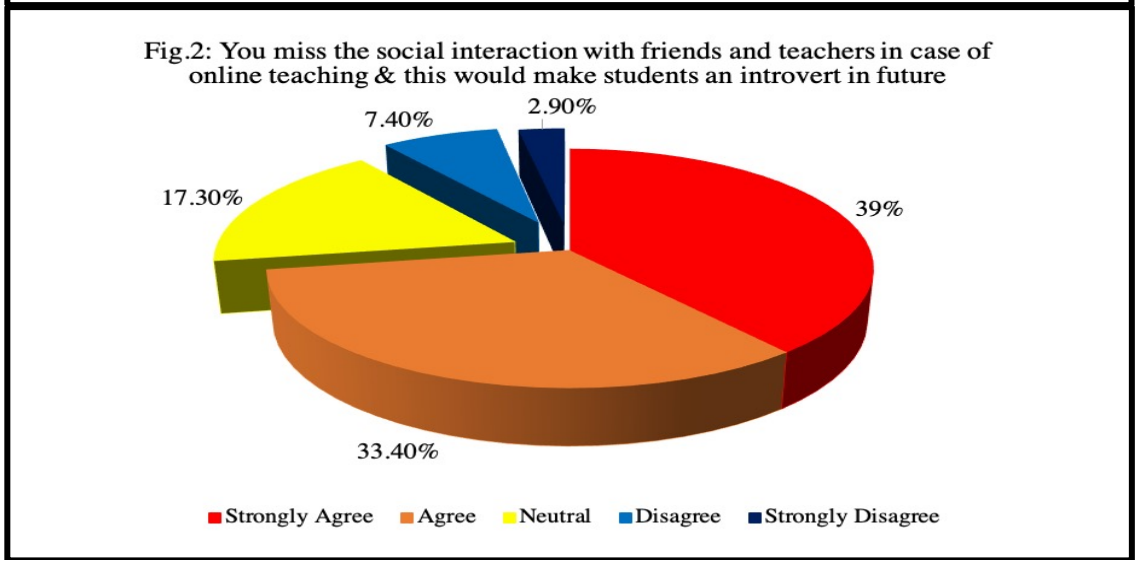


Fig.3: You experience increased incidence of eye strain, eye redness, headaches, fatigues due to online teaching

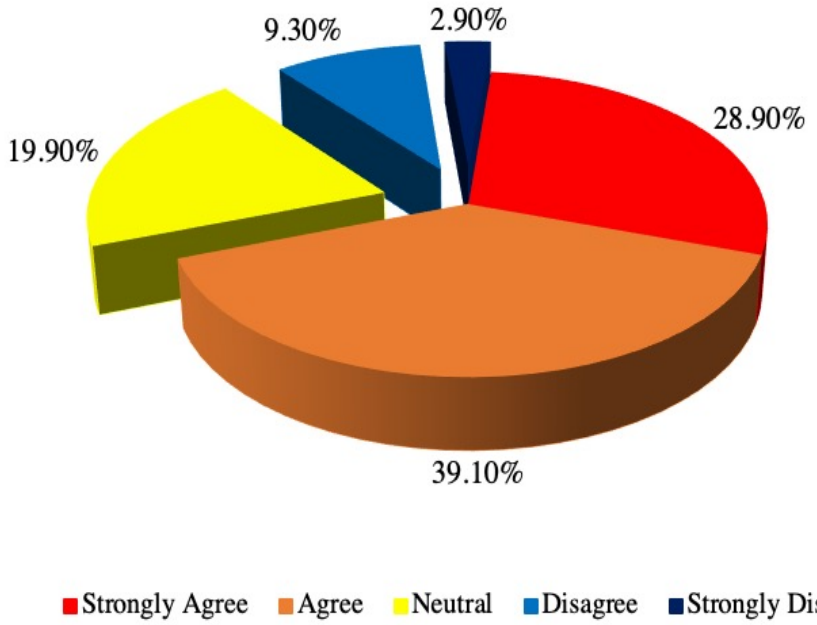
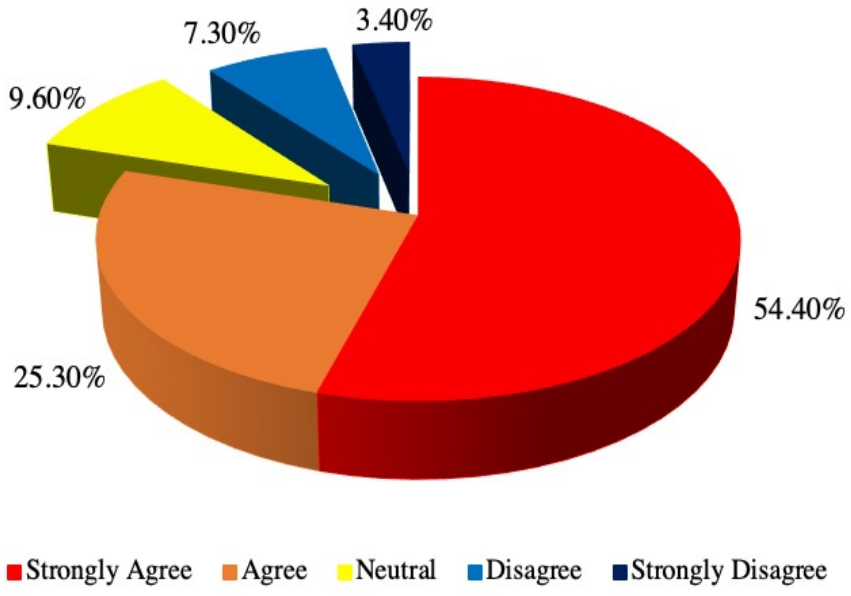
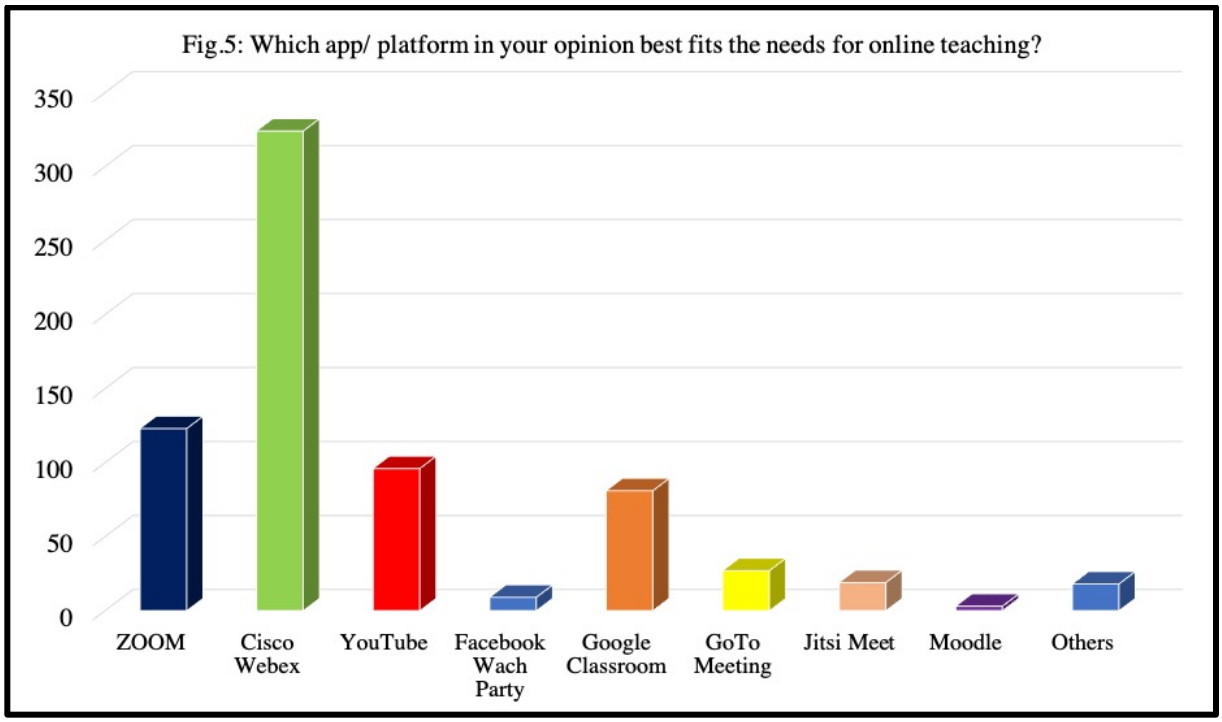


Fig.4: Practicals are more convenient, hands-on & informative when taken conventionally than online





Conclusion:-

From the present study it can be concluded that online teaching is the need of the hour during this COVID-19 Pandemic situation. It has been adopted by students and teachers alike. However faculty training in addition to good, affordable and reliable network connectivity is a pre-requisite. Both the methods conventional as well as online have their own advantages and shortcomings as discussed above. It has also been recognized that online teaching does not replace the need for procedural and experiential teaching but definitely complements existing virtual simulation platforms. So a blended method of teaching should be appraised which encompasses their respective advantages and mutually overcomes the shortcomings, as well as one which would also be a new horizon for medical education in times to come after the Pandemic is over and new, innovated teaching techniques arise.

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None

Conflicts Of Interest:-

None

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