IJMS INTERNATIONAL JOURNAL of MEDICAL STUDENTS

Original Article

Teachers' View on Online Classes during the COVID-19 Lockdown – A Cross-Sectional Study

Andrew Thomas,[1] Mohan T. Shenoy,[2] Kotacherry T. Shenoy,[3] Sruthi Suresh Kumar,[1] Aboobakker Sidheeque,[1] C. Khovidh,[4] Jayakumar Parameshwaran Pillai,[5] Pramod Murukan Pillai,[6] Shana Sherin CH,[7] Anna Mathew,[8] Twinkle Zakkir,[9] Sreelakshmi Dileep,[10] Victory Mekha,[11] Sony Raju,[12] Mohammed Junaid K,[13] Sivendu P.[14]

Abstract

Background: Online classes have resumed in many colleges amidst the COVID-19 lockdown. Our study aimed to evaluate the opinions of medical teachers who conducted online classes and determine their views on the viability of these classes in a post-COVID-19 era. **Methods:** We carried out a cross-sectional study using an online survey. Teachers working in medical colleges who conducted online classes during the COVID-19 lockdown were included. Questionnaires were shared in WhatsApp groups of the medical teachers belonging to the states of Kerala and Tamil Nadu, India. Sampling was consecutive and convenient. **Results:** Respondents were 101 teachers, among which 89 were included in the analysis. The majority of the teachers gave classes after intense preparation. The participants felt that the quality of their work would have been better with enhanced Information Technology (IT) infrastructure. One of the major reasons for favoring online classes was the opportunity it gave them to access the content later (56.2%, n=50). More than half (63%, n=56) of the teachers faced network issues and felt discouraged by the lack of interaction. Thirty-six percent (n=32) of the teachers opined that online classes were very poor compared with regular classes. However, 49.4% (n=44) favored the continuation of online classes after the COVID-19 lockdown. **Conclusion:** Despite experiencing problems, most participants wanted to continue online classes in the future. The participants felt that the classes were less interactive and educational institutions should improve their IT infrastructure to address the increasing need for online education.

Key Words: Medical faculty; Online education; Attitudes; COVID-19 pandemic (Source: MeSH-NLM).

Introduction

On 31 December 2019, the World Health Organization (WHO) was notified about several cases of pneumonia with unknown etiology in Wuhan city of Huaibei province, China.[1] This was found to be caused by a single-stranded RNA virus of the Coronaviridae family. As this infection spread to other countries, the WHO declared a public health emergency and subsequently declared this outbreak a pandemic. Most countries worldwide closed their universities and colleges as part of lockdown in a bid to contain the spread of this infection, which impacted almost 70% of the world's student population.[3] As a result, the COVID-19 pandemic necessitated migration from regular to online classes in many countries.

Peter H. Martorella described technology in education as a "sleeping giant" over two decades ago.[4] However, low and middle-income countries like India have inadequate internet coverage and network infrastructure, which seriously affect the quality of online classes. Also, replicating pedagogic teaching is difficult in online education. One way of improving the efficiency of online classes is to promote interactive activities and conversations using virtual discussion groups on social media.[5]

A student-centered approach in education, with embedded opinions from teachers, is vital to sustaining the quality of education. Unfortunately, the opinions of teachers are often overlooked. Motivating the teaching staff to give online classes seriously and improving IT infrastructure is necessary for the success of online education.[6] IT infrastructure refers to hardware, software and network tools that support the delivery of certain

1 Medical student, Sree Gokulam Medical College and Research Foundation, Trivandrum, India.
2 MBBS, MD, DM Department of Endocrinology, Sree Gokulam Medical College and Research Foundation, Trivandrum, India.
3 MBBS, MD, DM, FRCP Head of Department of Gastroenterology, Head of Institutional Research Cell (IRC), Sree Gokulam Medical College and Research Foundation, Trivandrum, India.
4 Medical student, SRM Medical College Hospital and Research Centre, Chennai, India.
5 MSc Department of Biochemistry, Government Medical College, Trivandrum, India.
6 Medical student, Sree Narayana Institute of Medical Sciences, Ernakulam, India.
7 Medical student, Believers' Church Medical College, Thiruvalla, India.
8 Medical student, Pushpagiri Medical College, Thiruvalla, India.
9 Medical student, Travancore Medical College, Kollam, India.
10 Medical student, Government Medical College, Kannur, India.
11 Medical student, Malabar Medical College Hospital and Research Centre, Calicut, India.
12 Medical student, Government Medical College, Thrissur, India.
13 Medical student, Al Azhar Medical College & Super Specialty Hospital, Idukki, India.
14 Medical student, KMCT Medical College Hospital, Calicut, India.

About the Author: *Andrew Thomas is currently a final year medical student of Sree Gokulam Medical College and Research Foundation, Trivandrum, India. He is a student reviewer for International Journal of Medical Students and Student British Medical Journal. He is also a recipient of Short-Term Studentship 2019 by ICMR (Indian Council of Medical Research), Best paper award at NATCON 2019, Government medical college, Trivandrum.*

Correspondence:
Andrew Thomas. https://orcid.org/0000-0002-2997-4525
Address: Aalamthara - Bhoothamadakki Rd, Venjarammoodu, Kerala 695607, India
Email: drandrewthomasj@gmail.com

Editor: Francisco J. Bonilla-Escobar
Student Editors: Azher Syed, Mohamed Fahmy Doheim, Purva Shah
Copyeditor: Sohaib Haseeb
Proofreader: Sebastian Diebel
Layout Editor: Annora Kumar

Submission: Oct 10, 2020
Revisions: Dec 17, 2020, Apr 17, Nov 3, 2021
Responses: Feb 1, 2020, Sep 17, Nov 9, 2021
Acceptance: Nov 14, 2021
Publication: Dec 6, 2021
Process: Peer-reviewed

services (e.g., online classes). The use of technology is no longer unusual among teachers. They use social media platforms, converse in WhatsApp and have basic knowledge regarding video editing and sharing.

Knowledge-sharing through social media networks, along with enrolment in web-based courses, will help increase interest and maximize participation in virtual teaching.[7, 8] The net result will be that teachers will be motivated to improve the quality of their online classes. As medical colleges have been actively involved in online teaching for more than a month now, we designed a study to capture the opinions of medical teachers who have conducted online classes and assess their views on whether to continue these classes post COVID-19 lockdown in India.

Methods

A cross-sectional survey was conducted from May 2020 to June 2020 during the COVID-19 lockdown. The survey questionnaire was distributed among medical teachers currently working in medical colleges in the states of Kerala and Tamil Nadu, India. These states were selected because they were the first to start online classes during the COVID-19 lockdown. Teachers who conducted at least one virtual class gave assignments or uploaded videos on social media platforms were included in the study. The sampling was consecutive and convenient.

The questionnaire was self-administered in English using Google Forms (Google LLC, CA, U.S.A). WhatsApp (WhatsApp Inc, CA, U.S.A) was used to distribute the survey links. The authors met with the Head of the departments (HOD) and used help from their fellow medical students to collect the mobile phone numbers of the medical teachers who were taking online classes. The links were shared in the WhatsApp groups used by the teachers. Furthermore, the respondents were encouraged to share the links to the questionnaire with their colleagues. The questionnaire was online for one week (03 to 10 May 2020). The participants were informed about the aims, benefits and implications of the study, and their consent was sought before beginning the survey. We included all eligible respondents who responded to the survey questionnaire. Restricting the number of responses from a single e-mail id was put to ensure there was no double entry. Participants who did not complete the survey questionnaire in its entirety and respondents who were not medical teachers were excluded. The study was conducted after getting approval from the Institutional Research Cell (IRC) of Sree Gokulam Medical College and Research Foundation, Trivandrum, India (SGMC/ IRC No:283/ 05/ 2020).

Sampling bias was addressed by including all the respondents who satisfied the inclusion criteria and who had completed the questionnaire in its entirety. There was no recall bias since we included respondents who were currently involved in giving online classes. The recall period was two months. There was no grouping and the variables analyzed were qualitative except the age of the respondents.

Questionnaire

The participants were asked to fill out a semi-qualitative questionnaire comprising 26 questions. The questionnaire was pilot tested and face validated among ten teachers.

The questionnaire had four sections. The first section sought information on the age, gender, and area of specialization of the participant, the type of institution (government or private) they are affiliated to, and the pin code of the institution. The second asked for details about the participants' previous experiences in online education and training. This included questions on the characteristics of the online classes that were conducted over the last two weeks (from 18 April to 02 May 2020), specifically about the duration of online classes, the time taken for preparation, the devices, platforms and type of accounts used, the place where they conducted their classes. The IT department referred to rooms made available for teachers for conducting online classes. The third section demanded that the participants rate their online classes. The Likert responses were organized under five categories: very poor, poor, average, good, and excellent. These were used to determine the quality of audio, video/ image/slide quality, the content, the extent of interaction, and the opportunities given to students for clearing doubts at the end. Questions were also asked about how online classes compared with regular classes, and this was done on the scale of five (with 'one' favoring regular and 'five' favoring online classes). The fourth section was on what they liked or disliked about online classes and sought suggestions to improve online classes. Finally, they were asked whether they wished online classes to continue after the COVID-19 lockdown. The participants were encouraged to select multiple answers for questions regarding experience, likes and dislikes, devices, platforms, practice and suggestions for online classes.

Data Analysis

Specialties were classified into clinical (Ophthalmology, Otolaryngology, Medicine, Surgery, Obstetrics and Gynecology (OBGYN), Pediatrics, Orthopedics, and Radiology) and para/non-clinical groups (Anatomy, Biochemistry, Physiology, Pharmacology, Microbiology, Pathology, Forensic medicine and Community medicine).

The data was exported from Google forms to Microsoft Excel (Microsoft Corp, WA, U.S.A). Descriptive statistics were used for data presentation because there was no prior hypothesis.

The degree of association was calculated using the Chi-square test, and a p-value of less than 0.05 was taken as statistically significant. SPPS v25 for Windows (Statistical Package for the Social Sciences, SPSS Inc, U.S.A) was used to compare the outcomes of clinical and para/non-clinical departments.

Ethical approval for the study was granted by the Institutional Ethics Committee (IEC), Sree Gokulam Medical College and Research Foundation, Trivandrum, India.

Table 1. Devices and Platforms used by Medical Teachers for Online Classes.

		Total (n=89) n (%)	Clinical (n=36) n (%)	Non-clinical (n=53) n (%)	p-value
Devices used for online classes	Smart Phones	50 (56.2)	16 (44.4)	34 (64.2)	0.066
	Tablets	12 (13.5)	8 (22.2)	4 (7.5)	0.047
	PC (Personal computer)	80 (89.9)	32 (88.9)	48 (90.6)	0.797
Platforms used	Google platforms	41 (46.1)	13 (36.1)	28 (52.8)	0.120
	ZOOM	52 (58.4)	23 (63.9)	29 (54.7)	0.389
	Skype	24 (27)	17 (47.2)	7 (13.2)	0.000
	YouTube	23 (25.8)	8 (22.2)	15 (28.3)	0.520
	WhatsApp	47 (52.8)	13 (36.1)	34 (64.2)	0.009
	Others	12 (13.5)	7 (19.4)	5 (9.4)	0.175

Results

Respondents' Characteristics

A total of 101 medical teachers responded to our survey questionnaire. We excluded 12 participants from the analysis because they did not satisfy the inclusion criteria. Out of 89 participants 65% (n=58) were females and 35% (n=31) males, most of them between 30 and 50 year of age (***Figure 1***). The private sector constituted 93.3% (n=83), whereas the government sector came to only 6.7% (n=6). 43.8% (n=39) had no idea about online classes before COVID-19 lockdown. 46.1% (n=41) had attended online classes earlier, and 18% (n=16) had the experience of conducting online classes before lockdown.

Online Class Characteristics

Table 1 shows the devices and platforms used for conducting online classes. Among the devices used, tablet use was significantly different between clinical and non-clinical teachers. (p= 0.47). Among the platforms used, Skype and WhatsApp use differed significantly between the clinical and non-clinical teachers (p=0.000; p=0.009). A total of 66.3% (n=59) used basic or free software, 23.6% (n=21) used premium or paid accounts, and 10.1% (n=9) of the participants did not know the details. There was no significant association between the time taken for the preparation and duration of online classes (***Figure 2***). While 70.8% (n=63) conducted classes from the IT department of their institution, 58.4% (n=52) taught from home and 22.5% (n=20) from their personal office.

Figure 1. Duration of Classes and Time Taken for Preparation of Online Classes by the Medical Teachers (Clinical and Non-Clinical Teachers).

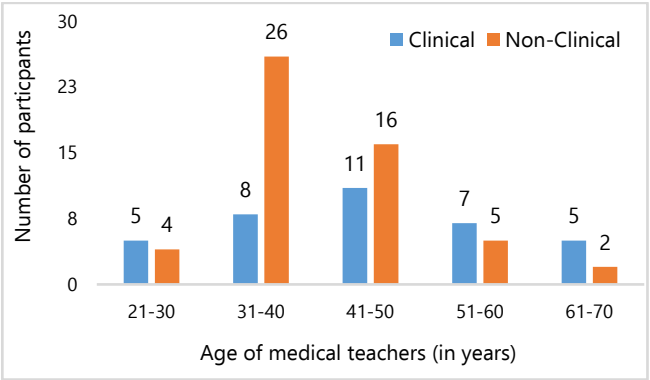


Table 2. Likes and Dislikes of Online Classes.

		Total (n=89) n (%)	Clinical (n=36) n (%)	Non-clinical (n=53) n (%)	p-value
Reasons to like online classes	Can access contents later	50 (56.2)	19 (52.8)	31 (58.5)	0.594
	More relaxed/ Flexible working hours	26 (29.2)	12 (33.3)	14 (26.4)	0.481
	Students are more regular/ attentive	40 (44.9)	23 (63.9)	17 (32.1)	0.003
	None	7 (7.9)	2 (5.6)	5 (9.4)	0.505
Reasons to dislike online classes	Network problems	56 (62.9)	26 (72.2)	30 (56.6)	0.134
	Insufficient time	15 (16.9)	3 (8.3)	12 (22.6)	0.077
	Lack of expertise	37 (41.6)	14 (38.9)	23 (43.4)	0.672
	Visual/ auditory fatigue	24 (27)	10 (27.8)	14 (26.4)	0.887
	Lack of interaction	56 (62.9)	21 (58.3)	35 (66)	0.460
	Too casual	43 (48.3)	16 (44.4)	27 (50.9)	0.547
	None	8 (9)	4 (11.1)	4 (7.5)	0.564

Teachers' Opinions on Online Classes

The reasons for liking and disliking online classes are summarized in ***Table 2.*** The participants were asked to give suggestions for improving online classes. The top suggestions were: improve IT infrastructure in the educational institution 59.6%, n=53), ensure good lighting in the environment [57.3% (n=51)]. A total of 57.3% (n=51) felt they would do better with training from peers, whereas 41.6% (n=37) felt having light refreshments would improve the online classes. The participants' rating of online classes as per the results of the Likert scale is summarized in ***Figure 3*** There were 49.4% (n=44) respondents who wanted to continue online classes after lockdown; 38.2% (n=34) were neutral whereas 12.4% (n=11) were against continuing online classes.

Discussion

We conducted a cross-sectional survey among medical teachers who gave online classes during the COVID-19 lockdown. Most of the participants – 93.3% (n=83) – were from private medical colleges. This was expected because many government medical colleges have not started online classes during the study period. The delay in starting online classes may be due to the increasing admission of COVID-19 patients in government set-ups and the lack of basic resources for starting online classes.

More than half – 56.2% (n=50) – of the participants told they liked online classes because it allowed them to access the contents of their class later. Network problem 62.9 % (n=56) was the top reason for disliking online classes. India is the second-largest online market, with over 560 million internet users. However, the internet penetration rate in 2020 is only around 50 percent[9]. This means that only half of the country's population has access to the internet. The internet speed in India also poses a problem. The average mobile download speed is 12 Mbps, which is significantly lower than the global average of 35 Mbps. India ranks 130th in mobile and 71st in broadband usage globally.[10] This might be the cause of network problems experienced by the participants.

Another interesting observation was that even though the participants voted 'average' for interactions in their class, lack of interaction, felt by 62.9 % (n=56), was also the top reason for disliking online classes, which was equal to the network problem. Interaction is an essential characteristic and a critical indicator of an effective online class.[11,12] An interactive class requires participation from both teachers and students. Discussion via platforms, giving assignments and timely feedback may be useful. When conducting virtual classes, interacting with students personally, permitting them to ask questions or raise doubts, and encouraging them in chat participation may increase the overall effectiveness of the class.

Unfortunately, 36% (n=32) of the teachers felt that online classes were very poor when compared to regular classes. Medical subjects are often discussed with cases observed and studied inwards. Even theory topics are complex to understand. Adding time constraints and network problems to this, and the overall efficiency of the online classes is reduced further. Online education is not inferior to regular classes. In a meta-analysis on undergraduate medical education, which included 16 studies, none concluded that online learning was less effective than regular learning[13]. Some aspects of online classes may not be as good as those of regular classes. However, this shortcoming can inspire students to develop self-learning capabilities through the internet[13,14]. There is a wide disparity in the resource types and

Figure 2. Duration of Classes and Time Taken for Preparation of Online Classes by the Medical Teachers (Clinical and Non-Clinical Teachers).

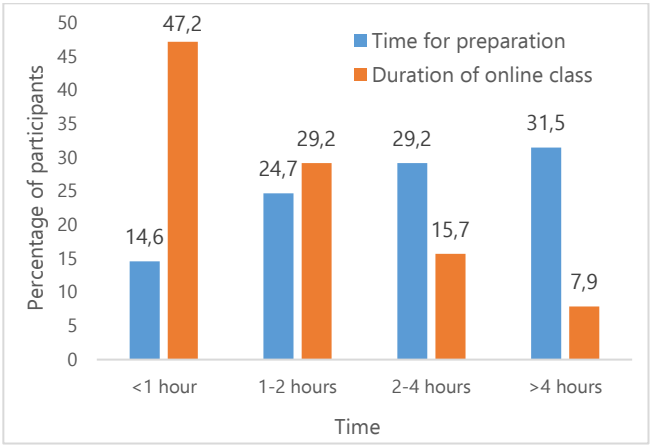
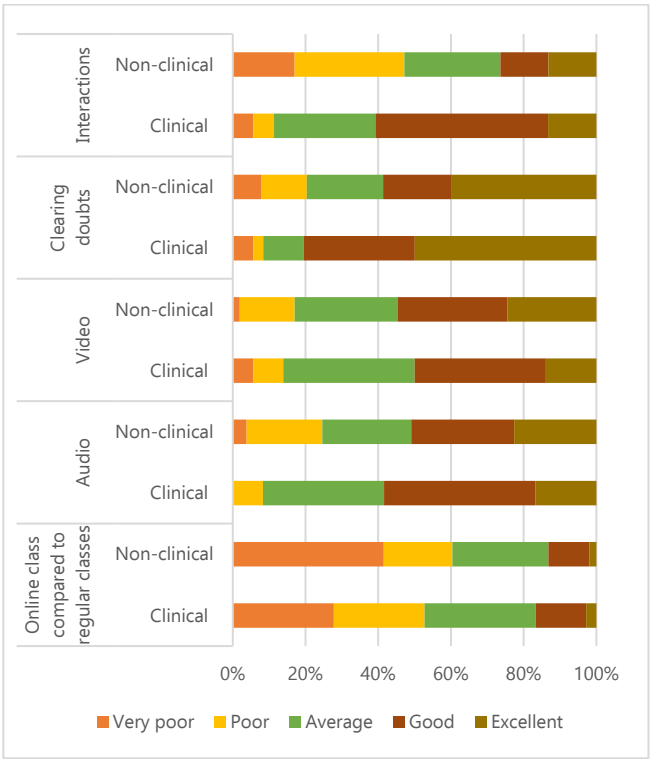


Figure 3. Opinions of Clinical and Non-Clinical Medical Teachers on Online Classes.



subjects. Addressing these will have good implications on online learning[15]. Mahadevan, a senior professor of Ophthalmology in Kerala, India, writes, "Online classrooms are here to stay and it has begun taking baby steps to become an integral part of education".[16] His view is consistent with our findings. Almost half of the participants – 49.4% (n=44) – wanted to continue online classes after COVID-19 lockdown compared with 12.4% (n=11) who did not want to continue.

Our study has some limitations. This was a one-sided study exploring only teachers' opinions. The sampling was not random, thus limiting the generalization of the results. The studied population is not representative of India nor those regions so results must be interpreted with care. There were no studies before the COVID-19 lockdown to compare our findings. We calculated the sample size of teachers and students to be 1:10. We anticipated 108 teachers and got 101 responses. However, we included only two states in the country because firstly, these states were the first to start online classes and secondly, they were relatively easier to access for data collection during the lockdown.

Though India has some experience in online education, the country is not equipped to handle this sudden and massive transition. However, our survey finds that even though more participants had network problems and had to endure a lack of sufficient interaction, they wanted to continue online classes after the COVID-19 lockdown. This shows teachers' willingness to adapt and incorporate newer modalities into the curriculum. Nevertheless, if this is to succeed, educational institutions should improve their IT infrastructure and consider training teachers to conduct online classes more efficiently. They should also try to incorporate online classes into the curriculum. Further studies should be conducted to evaluate the efficiency of online education in India.

References

1. Harapan H, Itoh N, Yufika A, Winardi W, Keam S, Te H, et al. Coronavirus disease 2019 (COVID-19): A literature review. J Infect Public Health. 2020 May;13(5):667-673.
2. WHO (World Health Organization). Coronavirus disease (COVID-19) Pandemic. Available from: https://www.who.int/emergencies/diseases/novel-coronavirus-2019. Last updated 11 July 2020; Cited 11 July 2020.
3. UNESCO (The United Nations Educational, Scientific and Cultural Organization). COVID-19 Impact on education. Available from: https://en.unesco.org/covid19/educationresponse. Last updated 11 July 2020; Cited 11 July 2020.
4. Pearcy M. Student, Teacher, Professor: Three Perspectives on Online Education. Hist. Teach. 2014 Feb;47(2):169–85.
5. Northrup PT. Online learners' preferences for interaction. Q. Rev. Distance Educ. 2002 Jun;3 (2): 219–226.
6. Vogelsang M, Rockenbauch K, Wrigge H, Heinke W, Hempel G. Medical Education for "Generation Z": Everything online?! - An analysis of Internet-based media use by teachers in medicine. GMS J Med Educ. 2018 May;35(2):Doc21.
7. Daniela P, Minet C, Herbst S, Albrecht. Use of Social Media and Online-Based Tools in Academia,- Science 2.0 Survey. Jun 2014 n.d., 101.
8. Panahi S, Watson J, Partridge H. Social media and physicians: Exploring the benefits and challenges. Health Informatics J. 2016 Jun;22(2):99-112.
9. Statista Research Department. Internet usage in India- Statistics & Facts. Available from: https://www.statista.com/topics/2157/internet-usage-in-india. Last updated 11 July 2020; Cited 11 July 2020.
10. India's Internet Speed Is Falling Since Jan 2020, Globally Rank 130th For Mobile Data Speed. Available from: https://www.indiatimes.com/technology/news/indias-internet-speed-is-falling-since-jan-2020-globally-rank-130th-for-mobile-data-speed-510505.html. Last updated 11 July 2020; Cited 11 July 2020.
11. Kalman YM, Ravid G, Raban D, Rafaeli S. Pauses and Response Latencies: A Chronemic Analysis of Asynchronous CMC. J Comput Mediat Commun, 2006 Oct;12(1), 1–23.
12. Kuo YC, Walker AE, Schroder KEE. Interaction, Internet self-efficacy, and self-regulated learning as predictors of student satisfaction in online education courses. Internet High.Educ, 2014 Jan;20, 35–50.
13. Pei L, Wu H. Does online learning work better than offline learning in undergraduate medical education? A systematic review and meta-analysis, Med. Educ. , 2019 Dec;24:1.
14. Friedman CP, Donaldson KM, Vantsevich AV. Educating medical students in the era of ubiquitous information. Med Teach. 2016 May;38(5):504–509
15. Kim KJ, Kim G. Development of e-learning in medical education: 10 years' experience of Korean medical schools. Korean J Med Educ. 2019 Sep;31: 205-214.
16. Mahadevana K, Nair TR. Aftermath of Covid's Forray Into The Educational Scene. Kerala Medical Journal. 2020;13(2):55-56.

Acknowledgments

We thank Dr Radhika for the language editing of final draft.

Conflict of Interest Statement & Funding

The Authors have no funding, financial relationships or conflicts of interest to disclose.

Author Contributions

Conceptualization – AT, KTS. Data Curation – AT, MTS, KTS, SSK, AS, CK, JPP, PMP, SSCH, AM, TZ, SD, VM, ST, MJK, SP. Formal Analysis – AT, MTS, KTS, SSK, AS, JPP. Investigation –AT, MTS, KTS, SSK, AS. Methodology – AT, KTS, SSK, AS. Software – AT, MTS, KTS, JPP. Project Administration, Resources, Supervision, Validation, Visualization, Writing – Original Draft Preparation, Writing – Review & Editing: AT, MTS, KTS.

Cite as

Thomas A, Shenoy MT, Kotacherry TS, Kumar SS, Sidheeque A, Khovidh C, et al. Teachers' View on Online Classes during the COVID-19 Lockdown – A Cross-Sectional Study. Int J Med Stud. 2022 Jan-Mar;10(1):32-37.

ISSN 2076-6327

This journal is published by Pitt Open Library Publishing