Original Article

Anatomy Section

A Study on Students' Perceptions for Online Zoom-app based Flipped Class Sessions on Anatomy Organised during the Lockdown Period of COVID-19 Epoch

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ABSTRACT

Introduction: In the present situation of containment for COVID-19 epoch, the physical classroom sessions in medical colleges were suspended by different Government advisories. Faculties have been guided by the university as well as institution to carry on the online teaching to the medical students. As the students were not present physically, so flipped class model has been implemented using the Zoom cloud app for teaching Anatomy.

Aim: To explore the perception of undergraduate students of Anatomy regarding online Zoom-app based flipped class sessions and to obtain the suggestions for improvement of such classes organised during the lockdown period of COVID-19.

Materials and Methods: Ten gross Anatomy topics and 10 histology slides (total 15 sessions; one session for each gross anatomy topics and five sessions covering two slides for each day) were discussed in flipped class mode. For each session, the text materials were served to the students two days before. On the third day, face to face interactive classes were undertaken using the Zoom platform; for the entire 199 students of Anatomy. After completion of one month, students' perceptions were obtained by semi-structured questionnaire made with Google form.

Results: Although the department has organised almost daily Zoom sessions with pre-shared study material; in flipped classroom mode, but majority of the students opined for maximum three days per week Zoom sessions instead of every day's classes. Total 92% preferred the current strategy of advanced sharing of study material instead of concurrent sharing of text. Almost 93.5% students felt the study material helpful to them, 79% students found the Zoom sessions helpful for their doubt clearance. Strikingly, 40% students confessed that they failed to keep up with the progress of the classes in daily mode. There was a mixed reaction for continuing such mode of teaching in the post-lockdown era. The network connectivity became a broad issue as constrain to almost all of them to participate in online discussion platform.

Conclusion: As the students and teachers were new in the online mode of teaching; so students feedbacks were felt need for future planning. The students had an opinion to lessen the number of classes so that they can cope up with the study material. However, majority of them wanted to move back to their classrooms rather than remain in the online mode of learning.

Keywords: Medical education, Net based learning, Networking in medical education, Undergraduate teaching

INTRODUCTION

Government of India issued orders prescribing lockdown for containment of COVID-19 Epidemic in the country on 24th March 2020; which is still in continuation [1]. Side by side almost at same time Medical Council of India (MCI) declared and clarified to follow the lockdown notification and to close all the educational institution with suspension of MBBS undergraduates' classes [2].

Subsequently, different advisories were issued by higher authorities to continue the online teaching for undergraduate medical students as far as possible. Initially, it was a bolt from the blue and all were unprepared about the planning of online teaching. Abiding by such circulars to carry on online teaching, in the Department of Anatomy of Institute of Post Graduate Medical Education & Research, Kolkata, West Bengal, India, it was decided to start with Zoom platform in flipped classroom mode i.e., the study material would be posted to the students earlier, followed by the discussion in Zoom sessions. By the policy of flipped class, the text materials must be shared before the class to the students and the students would attend the 'class' with their doubts. Here the traditional class is 'flipped' i.e., reversed where students speaks more for their doubt clearance, which was proved to be effective in medical education by earlier review studies [3,4].

Due to the lack of practical demonstrations which is not feasible in distant learning mode, this make-shift arrangement has been

done to carry on academics. Among the various available online teaching platforms like Google classrooms, Skype, Youtube videos, Udemy, Microsoft team etc., considering the easiness and free of cost provision to handle, Zoom was selected to use abiding by the advisories covering the safety issues for Zoom [5]. As this academic arrangement was new for both the teachers and students in the institute, so feedback from beneficiaries (students) was felt needed for further planning.

With this background, the aim was to explore the perception of undergraduate students of Anatomy regarding online Zoom-app based flipped class sessions and to obtain the suggestions for improvement of such classes organised during the lockdown period of COVID-19.

MATERIALS AND METHODS

This descriptive study was undertaken amongst the students of Phase 1 MBBS pursuing Anatomy by the end of April 2020; after implementing the flipped class mode of teaching followed by Zoom meeting for doubt clearance; in the first month after lockdown. Necessary permissions have been taken from higher authorities of the institute to conduct this survey. After the start of first phase of lockdown, the faculties of the Department of Anatomy, Institute of Post Graduate Medical Education &

Research, Kolkata, West Bengal, India over a Zoom meeting on 24th March 2020, reached a unanimous decision to carry on academics with the flipped teaching mode using Zoom as the platform for interaction. Enlistment was done with 10 topics of Gross Anatomy domain and 10 slides of Histology. Histology sessions were planned for two days a week and gross Anatomy topics for three days a week. The first session was taken on 27th March 2020.

Study materials were compiled by the faculties for each gross anatomy sessions covering one particular topic, histology sessions covering two histology slides (total 15 sessions; one session for each gross anatomy topics and five sessions covering two slides for each day). Respective study material was shared with the students in their WhatsApp group as PDF note; three days before the scheduled Zoom class, they were asked to frame their common query list. In the Zoom class, these queries were addressed. As the basic version of Zoom allows only 40 minutes time for 100 participants, so for each topic, the designated faculty was needed to arrange two subsequent meetings to address total 199 students. After continuing the same activity for almost one month, in the first phase of lock down, students' feedbacks were felt needed.

All 199 students were approached with the pretested questionnaire using 10 questions in Google form to obtain their responses. The Google form has been shared with students' whatsapp group and they were asked to submit by next four hours. Excluding the incomplete responses, in-total responses of 182 students were finally accepted and tabulated in the excel sheet and analysed accordingly.

RESULTS

Out of total 199 students in the class, 182 students have responded in the given period of time with fully filled up proforma. Total 92% of the students favoured the sharing of study material at least well in advance days before the class session; 6% students desired only sharing of study material without any online interaction. Students mentioned internet connectivity as the major constrain for their participation in online teaching (61%); 22.2% students perceived difficulty in understanding of the discussed topic due to shortage of time available in basic version of Zoom [Table/Fig-1].

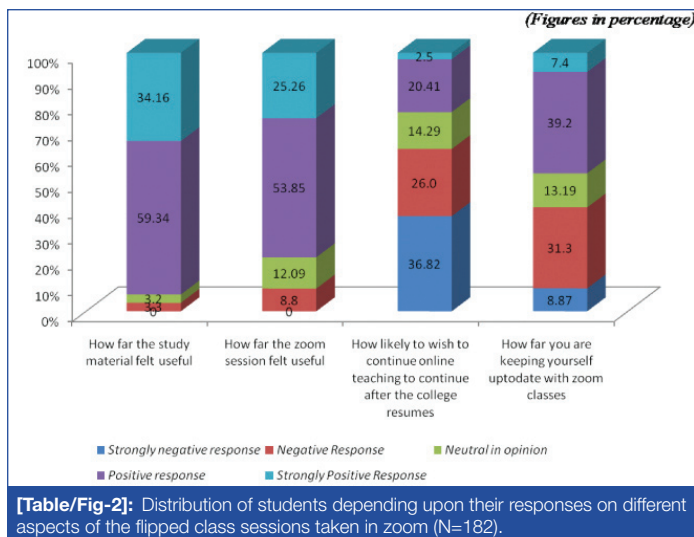On seeking suggestions for improving the Zoom sessions, students

Questions	Type of response	Nos. of respondent (percentage)
Distribution of students depending upon their preference of the type of on-line flipped Zoom class sessions. (N=182)		
Which type of teaching mode you most prefer? (single response structured question)	I prefer only sharing of study material, no need of any Zoom class	11 (6.04%)
	I prefer only Zoom class, with no need of sharing of study material	0 (0)
	I prefer the sharing of study material in the Zoom class	4 (2.2%)
	I prefer sharing of study material well in advance of Zoom class	167 (91.8%)
Distribution of students depending upon their responses on "single most vital constrain" as perceived by them in this flipped online Zoom class method. (N=182)		
Name the most vital constrain you feel for such teaching mode? (open ended question Coded qualitatively)	Missing the blackboard drawing by teachers	4 (2.2%)
	Tough to cover syllabus	2 (1.1%)
	Practical/demonstration part cannot be covered	6 (3.3%)
	Disturbance in Zoom class by insincere participants	5 (3.2%)
	Limited time of 40 minutes makes the understanding difficult	41 (22.2%)
	Disturbed Internet connectivity	111 (60.98%)
	Unintentional log out from Zoom class	13 (7.2%)

Distribution of students depending upon their responses on how could the Zoom class sessions be improved (N=182)		
According to you how the Zoom sessions can be made improved? (multiple response) (open ended question Coded qualitatively)	Supplemental sessions, when doubts of all students could not be addressed due to time constrain	2 (1.1%)
	Identifying the unwilling participants and to remove them	77 (42.1%)
	Muting the participants throughout the Zoom class	95 (52.1%)
	To have Zoom sessions with paid version to assure more security	133 (73.1%)
	To allow participants to join before host	152 (83.2%)
	To mention the must to know areas in the shared study material	22 (12.2%)
	To arrange classes in alternative days instead of daily	2 (1.1%)
	To make topics short for each session	137 (75.3%)
Distribution of students depending upon their responses on preference for frequency of Anatomy class to be organised per week. (N=182)		
How frequently you like to have Anatomy classes per week? (single choice, structured question)	Everyday	8 (4.4%)
	6 days/week	8 (4.4%)
	5 days/week	25 (13.3%)
	4 days/week	46 (25.6%)
	3 days/week	56 (31.1%)
	2 days/week	33 (18.1%)
	1 days/week	4 (2.2%)
	No classes/week	2 (1.1%)
Distribution of students depending upon their responses on their suggestions of 'added on' in present teaching mode? (N=182)		
In present mode of teaching, what can be further 'added on' to make it more effective? (open ended question, coded qualitatively)	Arranging online assessment	4 (2.2%)
	Sharing teaching material in e-mail to the students	6 (3.2%)
	Arranging quiz	6 (3.2%)
	Providing home assignments	37 (20.2%)
	Recording of Zoom sessions and sharing with students	129 (70.9%)
Distribution of students depending upon their responses on "most preferred" other online platform that could be used besides the Zoom for the class sessions. (N=182)		
Besides Zoom, which one you feel appropriate for online teaching? (structured, singe-response)	Udemy	2 (1.1%)
	Telegram	4 (2.2%)
	CiscoWebex	2 (1.1%)
	Skype video	24 (13.3%)
	Google classroom	26 (14.6%)
	MS team	6 (3.3%)
	Whatsapp only	4 (2.2%)
	Youtube video	114 (62.2%)

[Table/Fig-1]: Student responses to the questionnaire.

came out with replies to have option to join before host in Zoom (83.2%), removing the unwilling distracting participants (42.1%), even opting for using the paid version of Zoom to ascertain better security (73.1%). Only 4.4% students supported present 6 days/week teaching. Majority of the students opined for teaching sessions in 3 to 4 days a week. They expressed their interest to have the recordings of the Zoom meetings (71%). Only one fifth of the students (20.2%) asked for home assignments and 2.2% opined for assessments based upon the teaching calender [Table/Fig-1].

Almost two-third of the students (62.2%) desired asynchronous mode of teaching by uploading lectures in Youtube video. Amongst the rest one-third, they mentioned Google-classroom, Skype portal as the next to think platforms, besides the present Zoom based

[Table/Fig-2]: Distribution of students depending upon their responses on different aspects of the flipped class sessions taken in zoom (N=182).

flipped class plan [Table/Fig-1].

Total 93.5% students perceived the study material helpful to them. Similarly, four students out of each five (79.11%) found the Zoom sessions helpful to grasp the topic. To note, approximately 77% students expressed no interest to continue the online teaching after the resumption of regular college and almost 40% of the students could not keep themselves up-to-date along with the teaching in flipped class sessions taken in online mode [Table/Fig-2].

DISCUSSION

Students' opinions have thrown light on different aspects of this teaching activity. They expressed willingness for three to four days class in a week instead of departmental policy for six classes per week. Though, better lesson planning and trimming of topic can be done to make it appropriate for the 40 minutes discussion; but their desire to allow the participants before joining host goes against the Government advisory of safe Zoom practice [5]. Option for using the paid version of Zoom depends upon the decision of the higher authorities, and personal choice of the faculties; so could not be incorporated as a whole. Considering the probability of ghost participants and to run the session smoothly, the department directed the students to mention their roll numbers, names with the video, so that the faculty could see everyone's face.

Except a small amount of students, almost all others (approx 80%) were not in favour of continuing the online mode of teaching in post lockdown era; which might be due to their bitter experience with disturbed net connection, potential threats for security in Zoom; for which they were ever scared. The honest confession of the students to fail to keep up with class might be due to non-availability of books with them.

Online teaching in medical education is not a new concept and gradually spreading with the dominance of internet everywhere. The role of e-learning in medical education was found to be joyful to the students and propagated them towards self-directed learning [6].

Limited inadequate preparation phase, infrastructural weakness and ill expertise of the participants have been found by Doherty OD et al., as constrains in online teaching programme [7]. Study by Schimming LM in 2008 explored that the online teaching has proven to be effective after proper sensitisation and training for handling online platforms; which were not possible to conduct in scenario of present study [8].

In this scenario, when lockdown started, neither all the faculties, nor all the students were sensitised to the online teaching, using Zoom or other platforms etc. So department needed to start the

online teaching with a trial version of the flipped class mode and followed by interaction in Zoom. Feedbacks from the students were felt essential for future corrective measures.

Even at school level, in 2011, Biag AM conducted a randomised trial of introducing the Online learning in Physics for a batch of Class X students at school in Aurangabad, India; where online teaching was found more effective than the traditional classroom teaching in terms of academic achievement [9].

Brurke BL and Hall RW published the probable ways of using the telemedicine in education, consultation, practice and research in the domain of Pediatric Medicine [10].

Review research work published in 2019; reflected the widespread use of telemedicine in preclinical teaching in undergraduates medical education, in atleast 70 institutions throughout the USA [11]. Those mainly emphasised and moduled with cases integrating with ethics, clinical correlations etc.

Limitation(s)

This study reflects students' feedback in one particular institution. Moreover, the free version of Google-form does not allow long explicit questionnaire to include. This gives scope to carry feedback in all other institutions of the state regarding the online teaching experience in this lockdown era, using more structured schedule.

CONCLUSION(S)

So, in almost all existing research works on online teaching in medical education, it was seen to be effective and helpful to the students; whereas in contrary to this study, a broad section of students wished not to continue online teaching in post-lockdown era. This might be due to lack of proper planning, making of teaching-modules, supporting infrastructures (like uninterrupted internets etc.,).

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