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Original Research Paper

Anatomy

STUDENTS FEEDBACK-- ON OFFLINE AND ONLINE HISTOLOGY TEACHING LEARNING METHOD

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ABSTRACT

Background and Objective: Histology is a sub branch of anatomy which deals with microscopic structure of human tissue and organ. Teaching histology as an image intensive science is one of the most difficult task encountered by medical educator. During Covid-19 pandemic teaching was replaced by online method and as the norms were relaxed it was shifted to onsite physical teaching as per the guidelines of University. So here primary aim of study is to investigate the perception of students on both online and offline mode of histology learning method and compare the online veruses offline mode of teaching. **Material and Method:** This study was done on total 624 students of government medical college Nagpur and government Dental college Nagpur. The survey was taken in the form of questionnaire. Questionnaire was put into electronic format using Google form. Out of 624 students 565 students responded. **Result:** It was seen that the responses were quite similar from 1st M.B.B.S and 1st B.D.S students, showing no significant differences in their opinion except few variables. **Conclusion:** So it is important for the teachers to modify the curriculum according to the feedback and help the students to improve the learning accordingly.

KEYWORDS : Teaching Learning Method Online, Offline, Students, Histology

INTRODUCTION

Anatomy is one of the subject in Medical curriculum for first year M.B.B.S and B.D.S students. There are many sub branches of anatomy. Histology is one of them which deal with microscopic structure of human tissue and organ[1]. So better grasping of normal microscopic structure of tissue and its functions is important not only in the early years of medical school, but also serve as a foundation for pathology[2] which deal with abnormal tissue.

Teaching histology as an image intensive science is one of the most difficult task encountered by medical educator[3]. In our institute we are using traditional method for teaching histology with the use of various audio visual aids. But during Covid -19 pandemic which was a unique situation with big challanges to conduct the classes with social distancing. So most of the universities were instructed to conduct online teaching via online videos and zoom platform[4]. To overcome this situation our institute also applied online method of teaching.

Many research has been done to show how important gross anatomy is in clinical practice[5]. However there have been few studies on the importance of histology in medical school. So our primary aim of study is to investigate the perception of students on both online and offline method of histology learning and compare them. So that we could know the difficulties faced by students and able to assess how the learning methodology should be planned that will fulfill the basic needs of new budding students in medical field to understand the basic histology in better way within allotted time period.

MATERIAL AND METHOD

Present study was conducted on 4 batches out of which two batches of 1st M.B.B.S and two batches of 1st B.D.S that includes (250 students –first M.B.B.S 2020 Batch, 250 Students -first M.B.B.S 2021 batch, 61 students- first B.D.S 2020 Batch, 63students- first B.D.S 2021batch). So this study was done on total 624 students of government medical college Nagpur. The survey was taken in the form of questionnaire, which was put into electronic format using Google form and distributed to the participants.. Questionnaire was open for each student to respond only once. Students who were not willing to participate or have not submitted the form were excluded from the study. Here the students identity was not revealed. Concept behind the study was properly explained to the students before giving questionnaire. Institutional ethics committee approval was obtained. The study was focused on first M.B.B.S and first B.D.S students who attended the histology classes by offline and online mode during pandemic -Covid19 as of march 2020.That included 2020 batch of 1 st M.B.B.S and 1 st B.D.S. For this 2020 batch the offline mode of teaching was replaced by online mode as per as guidelines of university. In our institute the online teaching was taken in the form of recorded videos of lectures and practical"s which were uploaded on official digital platform i.e is Google classroom created by anatomy department of government medical college Nagpur and intermittently online classes were replaced by offline classes as a Covid norms were relaxed. In the present study we also included 2021 batch students and provided them online recorded videos of lectures and practical"s as well as conducted offline classes so that we could compare which type of teaching is more effective.

Questionnaire included 20 statements exploring the perception of online and offline mode of histology teaching. All the questions were closed ended. The collected data as of responded questionnaire from the students were entered using SSPS version and data were analysed to assess the difference between frequencies of M.B.B.S and B.D.S students observed in relation to the responses for particular question. p value <0.05 was considered as statistically significant for comparsion between online veruses offline teaching.

RESULT

Total 565 students amongst 624 students responded to all questions. Their percentage shown in Table 1,2,3.

Table1 – Showing Responses for Lectures in Both Offline and Online Mode of Teaching

Sr. no	Variables		Ist B.D.S n=124	Ist M.B.B.S n=441
1.	Audiovisual Aids-offline	Chalk and board	5(3.9%)	39 (9%)
		LCD projector	8(6.3%)	50(11.3%)
		Combination of both	111(89.8%)	352(79.7%)
2.	Audiovisual Aids-online	Online live Classes	64(51.6%)	175(40%)
		Recorded Video	60(48.4%)	266(60%)
3.	Tuotroial classoffline	S.A.Q	25(20.3%)	97(22%)
		L.A.Q	18(14.1%)	36(8.2%)
		M.C.Q	50(40.6%)	175(39.6%)
		Seminars	31(25%)	133(30.2%)

4.	Tuotroial classonline	Interactive live class	93(75%)	278(63%)
		Assignment on google form	31(25%)	163(37%)

Table 2- Showing Responses for Practical in Both Offline and Online Mode of Teaching.

Sr. no	Variables		1st B.D.S n=124	1st M.B.B.S n=441
1	Breifing of lecture	Yes	114(92.2%)	410(93%)
		No	10(7.8%)	31(7%)
2	Time required forbreifing	10min	47(38.3%)	136(30.8%)
		15min	51(40.6%)	204(46.3%)
		20min	26(21.1%)	101(22.9%)
3	Preffered person for briefing	Faculty	104(83.6%)	366(83%)
		student	20(16.4%)	75(17%)
4	Slide demonstration by	Faculty	95(76.6%)	333(75.5%)
		student	19(15.6%)	73(16.6%)
		Technician	5(3.9%)	17(3.9%)
		self	5(3.9%)	18(4%)
5	Slide demonstration clinically oriented	yes	120(96.9%)	430(97.5%)
		No	4(3.1%)	11(2.5%)
6	Slide demonstration correlated	Hand diagram	39(31.3%)	98(22.2%)
		Atlas	19(15.6%)	91(20.7%)
		Projecting slide on LCD	66(53.1%)	252(57.1%)
7	Mode of slide demonstration	Small group	57(46.1%)	194(44%)
		Projecting slide on screen	67(53.9%)	247(56%)
8	Microscope for observation	Individual	55(44.5%)	123(27.9%)
		Sharing among two	69(55.5%)	318(72.1%)
9	Slide for observation	labelled	113(91.4%)	393(89.1%)
		Unlabelled	11(8.6%)	48(10.9%)
10	Time for completion of journal	yes	101(81.2%)	411(93.3%)
		No	23(18.8%)	29(6.7%)
11	How much time	10min	24(19.5%)	47(10.7%)
		15min	36(28.9%)	117(26.5%)
		20min	64(57.6%	227(62.8%)
12	Online practical	Google meet	64(51.6%)	175(39.7%)
		Recorded veideo	60(48.4%)	266(60.3%)

Table 3- Showing Students Responses for Online Veruses Offline

Sr. no	Variable		1st B.D.S N=124	1st M.B.B.S N=441	P value
1	Better percepetion of subject	online	9(7%)	82(18.6%)	0.002 (H.S)
		offline	115(93%)	359(81.4%)	
2	Better concentration and utilization of time	online	12(9.4%)	115(26.1%)	0.001 (H.S)
		offline	112(90.6%)	326(73.9%)	
3	More confidence	online	10(7.8%)	75(17%)	0.014 (S)
		offline	114(92.2%)	366(83%)	

Table 4- Students Responses for Online Teaching Mode-

Sr no	Variable		1st B.D.S N=124	1st M.B.B.S N=441
1	Difficulties face during online	Technical error	12(9.7%)	62(14.1%)
		Network issue	42(33.9%)	176(39.9%)
		Clearity of veidio	70(56.4%)	203(46%)

DISCUSSION

Student feedback is a powerful tool for improving quality of education and understanding the difficulties faced by the students[6]. Thus through the feedback we can identify the areas of strength or weakness of teaching methodology used. So that steps can be taken to rectify the deficiency and to evaluate the curriculum and achieve intended goal. So here for the study four batches were taken out of which two were of 1st M.B.B.S and two were of 1st B.D.S. Total 565 students from four batches responded for questionnaire. It was seen that the responses were quite similar from 1st M.B.B.S and 1st B.D.S batches showing no significant differences in their opinion except at few variables. So it is important for the teachers to modify the curriculum according to the feedback and help the students to improve the learning accordingly.

In the present study 100% responses from B.D.S students and 88.2% responses from M.B.B.S students were collected. The responses of the students were high like other studies[6,7,8]. Except in the study by B.Kramer etal [9] which showed very less percentage of response as depicted in table 5.

Table-5

Studies	Present study		Amar Jyanti[6]	Sudipal etal[7]	Dr snigdha Das etal[8]	Kramers etal[9]
Students responses %	B.D.S 100%	M.B.B.S 88.2%	93.2%	93.06%	96.7%	34%

Here in the present study results from questionnaire can be discussed under the heading of students response for lecture and practical that were taken by both offline and online method.

For Lecture (offline mode) –Majority of 1st M.B.B.S and 1 st B.D.S students preferred mixed audiovisual aids i.e (chalk and board+LCD projector) , followed by only LCD projector and chalk board that is shown in table 1.This correlate with findings of Shaesta Iqbal somel etal [10]. In their study mixed auidiovisual aids were preffered for lecture by 45.1% students followed by animation by 27.4%students , PPT slides by 15.9% students and black board by 11.5% students. Even most of the researcher indicate mixed auidiovisual aids is the best and supporters claims that power point improve learning (Lowry 1999)[11] invokes audience interest (Szabo and Hasting 2000)[12] and aids explanations of complex illustration(Apperson etal 2006)[13]. Where as low responses for only blackboard may be because of hard to see the blackboard from last bench in the lecture hall.

In online mode of teaching 60.3% students of M.B.B.S and and 48.4% students of B.D.S preferred recorded videos where as 39.7% of M.B.B.S students and 51.6% B.D.S students preferred online live classes. This shows difference in there opinion. Preference of some students for recorded video because of easy access to the content at their own places with flexibility that will improve their learning ability by revising it and help them to concentrate better on subject. some students preferred online live classes may be because they can interact with teachers during live class to solve their queries.

To improve the teaching technology assessment methodology has been evolved. This assessment is the essential part of medical education. It gives the evidence of how the students are learning and indicating teaching standard. So for evaluation of histology knowledge , tutorial class has been conducted in our college in which majority of students of M.B.B.S and B.D.S students answered M.C.Q followed by, seminar, S.A.Q and L.A.Q this finding is shown in table1. Where as Reena Kumari etal[14] in their study found only 10% preferred M.C.Q and 3% preferred seminar.

Where as in online mode of teaching, students preferred histology tutorial classes should be conducted in the form of live interactive classes instead of assignment on Google form.

Responses for practical (Offline mode)- Question asked were "whether the briefing of lecture is needed or not" as if there is more time interval between theory and practical it will be

difficult for the students to remember the theory topic effectively. Here students preferred briefing of lecture is needed and preferred person for briefing should be faculty and duration of briefing should be 15mins followed by 10 mins. Where as Snigdha Das etal[8] in there study found that 85.5% showed the importance of prelab presentation the duration of presentation 20mins by 34.5% students followed by 15mins by 26.6% students. Acharya veena[15] showed that students mentioned the pre practical briefing by faculty as a good teaching tool and re explained the theory topic during practical which will create more impact on students.

For slide demonstration majority of students of M.B.B.S and B.D.S showed the need of faculty guidance and demonstration should be more clinically oriented with the use of auidiovisual aids like LCD projector. Even Jyotsna etal [16] in their study 67% students rated the use of LCD projector as good to very good. Here in the present study for slide demonstration some students of M.B.B.S and B.D.S preffered slide demonstration should be by projecting the slide on screen with LCD projector for entire batch but some students preffered slide should be in the form of small group teaching. Preferance of small group teaching by some students may be because of healthy discussion created between students and faculties. Even Jytotsna etal appreciated that the small group teaching increases communication skill, better approach-ability to teachers and fruitful interaction with faculty.

For slide observation under microscope, in the present study 44.5% of B.D.S students showed the importance of use of individual microscope where as only 27.9% of M.B.B.S showed interest of use of individual microscope. Dr snigdha Das[8] in their study showed that 51% students preffered the use of individual microscope for slide observation. Provision of individual microscope will give students more chance and more time to see the whole slide more carefully and effectively and it will reduce the unwanted chaos in the practical class and identify and remember the slide better. But for sharing of microscope among two students, majority students of M.B.B.S students i.e 72.1% showed interest. Even Snigdha Das [8]in their study some students 46.9% students preffered on one microscope for a small group so that after seeing the slides the students can discusss the matter of slide amongst themselves and clear their doubts.

In the present study majority of students 92% M.B,B.S and 92% of B.D.S preffered labeled slide for observation, if they know the tissue then they view the real picture of tissue under microscope which will create positive pschyological impact on students mind.

Here in the present study question were asked "is there is need of time to draw the histology diagram in the journal during practical hours" for this majority of students of M.B.B.S (93.3%) and B.D.S(81.2%) showed the interest to complete drawing diagram during practical hours and time required to draw the diagram majority of students preffered 20mins followed by 15mins and 10mins. Only 6.7% of M.B.B.S and 18.8% of B.D.S did not showed any interest. Where as Dr Snigdha etal [8]in their study found that 50% students showed the interest, where as 34.5% did not showed any interest and 15.5% was not sure. Some students in their study opined that the time given for drawing the diagram in journal can be used for studying the tissue for better utilization of time during practical. According to Amar Jayanthi[6] 38 students out of 40 students in one batch think the histology practical as drawing class.

For online mode of practical 51.6% of B.D.S and 39.7% of M.B.B.S students preffered practical should be conducted on google meet where as 60.3% of M.B.B.S and 48.4% of B.D.S preffered practical should be conducted in the form of recorded vedios.

In the present study we also collected the responses of students for online veruses offline mode of teaching. Here it showed the significant difference between online and offline mode of teaching. Most of M.B.B.S and B.D.S students highest score goes in favour of offline mode of teaching that is shown in table no.4. Lowest score of online teaching may be because of difficulties faced by students like technical error, network issue, and clarity of videos and difficult to interact with instructor or with their colleague to solve their queries. For conducting practical via online mode it is not possible to handle the microscope and slide for students where as in offline mode students can interact with instructor for solving their queries and in practical they can handle the microscope and slide which makes the students more confident about practical examination. Even B.K Potu etal[17] in their study students responded face to face demonstration is better for good understanding of subject, that gives more confidence during practical examination. But few studies conducted on Nepalese[18] and Saudi[19] students 89.8% and 51.2% respectively these students prefer to continue the online lectures.

In the present study through the students feedback we came to know the lacunae and difficulty faced by the students during online and offline mode of teaching. So it is important for the faculties to plan necessary changes while teaching histology. If in future covid like conditions arises to overcome the challenges like student teacher interaction in online teaching can be solved by conducting post demonstration question and answer session through zoom platform to enchance their satisfication and to achieve active participation of the students with more interest.

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