

Original Article

Imparting Anatomy Doctrines to the Future Generation: an Amalgamation of Contemporary with Classical techniques: a study in Eastern India

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Abstract:

Introduction: This research is an effort to find out the causes behind the increasing trend of absenteeism of the First Year MBBS students in their Anatomy lecture classes, their attitude towards various aspects of the Teaching – Learning processes and the reflection of such practices in their Examination results.

Aims And Objectives: Assessment of Knowledge, attitude and practice of 1st Yr MBBS students towards Anatomy and its impact on examination performance

Methods & Materials: This study was carried out in the form of a Questionnaire based survey on the First year Medical students along with pooled data from last five years second semester examination score sheet and lecture attendance percentage.

Observations & Results : Students as such find the subject quite interesting (89%) but 68% students said they can assimilate most of the theoretical topics mostly from internet and text book, instead of attending regular lectures and 97% students voted for Demonstration Practicals based teaching practices. A large section of the students are in favour of restructuring of lecture topics to make them more interesting and thought stimulating. We also noted, that, there is a strong positive correlation between percentage of lecture classes attended and marks obtained in the semester examination ($r=0.9$).

Conclusion: We found that the modern medical student psyche is such that they tend to believe, though erroneously, that most of the theoretical concepts in Anatomy can be learnt from online resources leading to rising trend of lecture class absenteeism which is having a negative impact on their examination performance.

Keywords : Lecture class absenteeism of Anatomy students, Challenges and Solutions.

Introduction

The way in which medical education is imparted to undergraduate students has undergone several modifications in the recent past, ranging from didactic method of teaching in the form of lectures to newer models of teaching like Problem – Based – Learning and short group tutorial classes.^{1,2,3,4} The

current scenario has not been able to come to a consensus as to which should be the preferred mode of teaching learning process. Presently, all over the world including India, a mixed approach is being followed, trying to incorporate the pros of all the modalities. Over the years, it is being observed that lecture based instructional methods, are taking a

backseat and more interactive modalities are coming to the forefront.^{5,6}Students' absenteeism in lecture classes has recently become a cause of concern for Medical Colleges all over the world.^{7,8,9}Our experience in this part of the world is no different. We have commonly observed, that, the first year MBBS Anatomy students of our institute are more keen on attending the practical demonstration classes as compared to the routine lecture classes. This research is an effort to find out the causes behind such increasing incidences of Regular absenteeism of these students in their lecture classes, their attitude towards various aspects of the Teaching –Learning process followed in Anatomy and the reflection of such practices in their Examination results. As per our knowledge, an effort to gain such a detailed insight into the root of this problem has not been undertaken in this part of the country in the recent past.

Aims and Objectives

To assess and evaluate the following points:

1. Knowledge , attitude and practice of 1st year MBBS students towards anatomy.
2. Causes of rising trend of absenteeism of lecture classes.
3. Effect of lecture attendance on examination performance.

Methods And Materials

This study was carried out in the form of a Questionnaire based survey on the First year Medical students of our Institute in the Department of Anatomy of the session 2016-17.136 students volunteered for the study. A printed Questionnaire form in the form of Multiple choice Questions (Table 1,Annexure 1) was distributed to the students .Anonymity of the participants were strictly maintained so that the responses were completely

free and unbiased. The responses were than tabulated in Microsoft Excel Spreadsheet and appropriate statistical analysis was done to arrive at conclusions. The second part of the study was to analyse the attendance percentage of First year medical students in Anatomy Lecture classes and their correlation with Examination performance. For this purpose, last five years' data (2012-2016) was collected with regard to Anatomy lecture class attendance percentage upto the second semester examination and marks obtained in the second semester examination was tabulated against each. This data in turn was subjected to statistical analysis for drawing of conclusions.

Observations &Results:

Our study focus was to determine the current knowledge – attitude – practice (KAP) of 1st year MBBS students towards regular lecture and practical classes and various other aspects of the subject of Anatomy, as well as assessing the performance score, based on their attendances in lecture classes.

KAP towards the subject

A moderate percentage of students (34%) were well aware of the *nature of this subject from their pre-MBBS period*, while most of them (62%) had some idea regarding the same.

When asked about their *own opinion regarding the subject (post-MBBS admission)* around 21% students found it as “useful & interesting” while 26% opined it as “useful but boring”. Around 50% students said “very useful & interesting”. 89% students find the subject quite interesting, on overall basis and 9% students want to pursue anatomy as their future career options.

To assess the external factors having an impact on their opinion,we tried to gather information regarding *opinion of senior students* in this matter. According to the participants around 41% senior students

opined, that the subject is “useful & interesting” while 32% opined as “useful but boring”. Around 21% of the senior students said “very useful & interesting”.

A response regarding comparison between Anatomy and other 1st year subjects (in terms of perceived subjective importance) was sought for and 51% students rated Anatomy as “Average” and 43% said it was “Above all other subjects”, in terms of their perceived importance. However, 4% students said Anatomy as “Useless and unimportant” while 2% students did not opine.

Students were asked whether they **need the subject to be taught after their first year curriculum**. The response was such that 54% students were in strong favor of the suggestion while 21% and 18% students said they need “orientation course during internship” and ‘only few lectures on recent advances’ respectively.

KAP towards Teaching

Question was set as to whether the **lectures are interesting and useful**. The opinions came out as follows : 41% agreed that the lectures are interesting and useful but they want the lectures to be more precise and touching only the examination related topics , while 34% do not find the lectures interesting. The results were as follows,

and want them to be more thought provoking. Interestingly 24% students want more elaborative lecture classes.

Popularity of lecture classes among students has been found to be lost when we put the next question regarding most effective method of teaching Anatomy. Not to our surprise ,97% students voted for Demonstration Practicals and 2% stood up for Lectures. 1% students said that Seminars are most appropriate mode of teaching the subject.68% students said they can assimilate most of the theoretical topics mostly from internet and text book, instead of attending regular lectures.

Regarding the **schedules of lecture classes**, which commence from 10am four days per week, only 25% students consider this as inappropriate while 41% are comfortable with present situation. Rest of the students were neutral.

Opinions regarding, if ‘**topics taught in lectures are interesting**’, did not vary widely since 57% consider lecture topics interesting while 33% stood neutral. Only 9% students lacked interest in lecture topics and 1% did not opine at all.

Students were asked to rate four different options about the **proper medium of teaching**, as per their consideration.

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| Mediums | Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
|------------------------|----------------|-------|---------|----------|-------------------|
| Black board with Chalk | 38% | 32% | 21% | 7% | 2% |
| Audio-Visual Aid | 49% | 34% | 11% | 2% | 4% |
| Problem based learning | 60% | 29% | 6% | 2% | 3% |
| Use of 3-D models | 74% | 22% | 3% | nil | Nil |

KAP towards Faculty Members

When students were asked whether faculties are approachable for clarifying doubts, 90% agreed.

94% students were happy with the overall communication skill of faculties.

“Faculties are making the lectures interesting and captivating” – 76% students were more than satisfied and 20% students were satisfied.

Scopes of further addendums

75% students think that hands on dissection should be made compulsory in their curriculum.

58% students consider lecture classes on recent advancements to be useful for them.

16% students are in favour of preparing histological slides by themselves during their course curriculum.

Given three options separately, 63% students felt Sectional Anatomy to be included in lectures, while 71% sought for Imaging and Radiology and 26% were in favour of including Biomechanics of the joints separately in lecture topics.

Students were asked for their needs regarding interactive sessions in purview of lecture classes.

Only 2% were against the suggestion. Majority

(45%) said they needed 10 minutes of closing sessions while 39% were in favour of opening 10 minutes of every lecture class. Rest of them (14%) asked for interactive sessions in middle of lectures (Fig1)

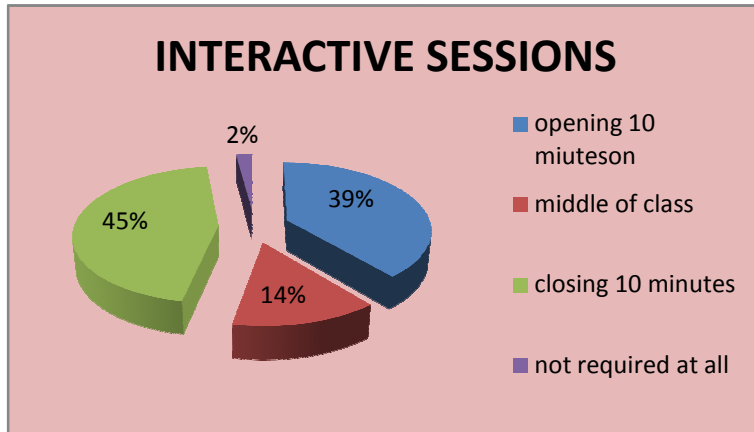


Fig.1:Pie diagram showing students' response for interactive sessions

95% students felt a need for brief language development and communication skill orientation programme in first semester for them-selves.

In the next section of our study, we shifted our focus to the reflection of such attitudes and practices of our students in their examination performance. We compared the individual percentage of lecture classes attended by the first year students against the aggregate marks obtained in their second semester examination. We observed that 61.46% marks were obtained on an average by the students having

attended 86%-95% of the lecture classes as opposed to 42.58 % marks obtained by the students who attended 73%- 75% of the lecture classes. To reduce bias related to this finding and to note the prevalent trend we conducted a retrospective data search over the previous four years (sessions 2012-13, 2013-14, 2014-15 and 2015-16). There is a strong positive correlation between percentage of lecture classes attended and marks obtained in the second semester examination ($r=0.9$) (Fig.2)

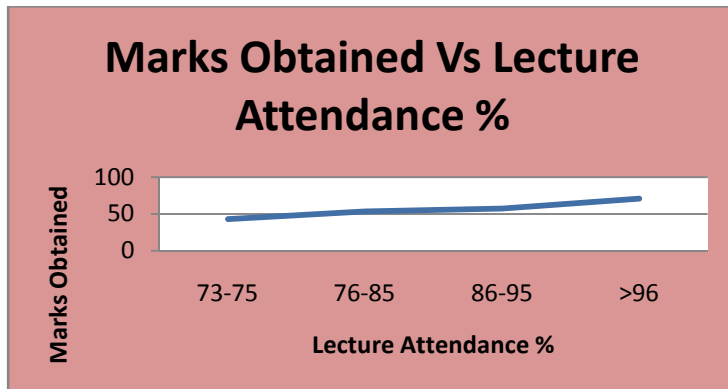


Fig.2.Line diagram showing Marks obtained Vs lecture attendance % in second semester examination.

Discussion

It was our aim to evaluate the students' perception about the subject of Anatomy that is being taught to them in the first year of MBBS curriculum, rising trend of student absenteeism and reflection of student attendance on their examination performance.

First of all we wanted to evaluate the perception of the students about the subject. Most of the students had some idea about the subject even before joining the course, probably by enquiring the seniors. Students as such find the subject quite interesting (89%) and seniors' motivation has also been positive regarding the usefulness of the subject (94%). In a nutshell, it can be stated that, our students do realize the due importance of this subject and its relevance in their future medical practice. Many of them are of the opinion (54%) that, there is a need for further refresher course after their first year curriculum, specially during their internship, with lectures on recent updates. This off course seems a feasible option in the form of CMEs, which can be conducted involving the junior doctors.

Coming to students' opinion regarding utility of lecture classes, a majority of them opined (41%) that, lectures should be more examination oriented. On the other hand about 24% students wanted them to be more elaborate. This makes a very difficult situation for the teachers, because the objective of a lecture class these days is based on specific instructional objective (SIO) module, which aims to provide the students with a panoramic view of the topic rather than in depth knowledge. In a previous study¹⁰, it was shown that, most of the students cite interest in the lecture topic as the most important reason for attendance. Study at the Liverpool Medical School⁹, demonstrated that a vast majority (93%) of students consider the lecture topic or title influence

their decision to attend. Hence, this aspect clearly remains a grey zone left to the expertise of the concerned teacher how he/she admixes the proportions of *Must Know and Good To Know* aspects of a particular topic in the lecture class in order to cater to the needs of the young minds. This off course calls for a paradigm shift in teaching approach, from *Topic based approach* to *Students' need based approach*.

In a previous Indian study Shreemanta Kumar Dash¹¹ opines that, 77.02% students agreed that normal lecture as the most effective method of teaching, followed by Group discussion 68.02%, tutorials 58.94% and Seminars 49.05%. However most of our students feel that specially in a subject like anatomy, method of teaching should be based mostly on demonstration practicals. 97% students voted for Demonstration Practical and 2% stood up for Lectures. 1% students said that Seminars are most appropriate mode of teaching the subject.

Literature review presented with conflicting reports in this aspect of our study. One previous study conducted at a Scottish university¹² reported, that attendance is better at lectures compared to small group teaching. This study, however was not done upon medical students. Some modern studies¹³ have reported that, students prefer self study or smaller teaching sessions. This current trend among medical students to evade lecture classes stems from their belief that, they can assimilate everything pertaining to theoretical concepts from the internet, as currently evidenced by our survey. 68% students said they can assimilate most of the theoretical topics mostly from internet and text book, instead of attending regular lectures.

The picture is similar in other parts of the world as well. In the study by G. Preston¹⁴, it was observed

that ,if students believe that lectures are not a beneficial learning opportunity and that they can avail internet resources ,then attendance will fall .Liverpool study⁹ also showed that attendance is poor , when lecture slides are available to the students prior to lectures compared to when unavailable (median 69.2% and 93.3% respectively). We strongly disapprove of such student attitude because of a number of reasons. Firstly, not everything we see in the internet is correct. Strong discretion is to be maintained as to the acceptance of which information is correct and unbiased. Secondly, the aim of a lecture class is not to burden the young mind with a load of information, but to evoke interest for the topic in the students' mind. Thirdly, Anatomy is the basis of medical knowledge of most of the clinical subjects and online knowledge can never substitute the role of a good lecture class for proper vertical and horizontal integration of medical knowledge, so that the student can properly apply the same in future medical practice. Regular absenteeism causes the student to miss the mentoring role of their teachers who can shape their professional career^{15,16}. Last , but not the least, online resources flood the students with information and the student is not in a position to select the *Must Know and Good To Know* parts from that huge barrage of information which obviously is going to reflect negatively in their examination performance. According to the study by Dash¹¹ 46.94 % of the respondents disagreed to the point that the lessons can be learnt from the textbooks or internet even without attending the classes. Regarding the schedule of lecture classes our observation remains that most of the students are either satisfied or are neutral to the ongoing system. Similar to our finding Dash et al also noted that most

of the students (55.24%) did not agree to the point that class timing as a factor for student absenteeism.

When asked to mark on a Likert scale ,as expected, 83% of our respondents agreed for the Audio Visual Aids. Surprisingly 70 % of the students were also in favour of Black board teaching. A similar response has been noted by Dash where he noted that, 82.83 % students approved for blackboard teaching as a better mode of teaching as opposed to 55.87 % who approved for AV aids. A study conducted in North Bengal medical College by Maitreyee Kar et al ,noted , that overhead projectors and transparency sheets in association with boards and chalk was preferred by almost 46.94% of the students, whereas 23.47 % preferred the use of laptops-cum – LED projectors.

When enquired about their opinion about faculty members our respondents were highly satisfied with their communication skills and approachability in clarifying doubts.

Besides, the usual queries about their perceptions of the subject, we probed for some feedback regarding further addendums that can enhance student interest in the subject. This aspect has not been vividly studied in previous studies of similar nature. Quite interestingly, majority of our students (75%) are in favour of making hands on dissection to be made compulsory in their curriculum. A large section of the students are in favour of vivid discussion on sectional anatomy and joint biomechanics to be included in lecture topics in order to make them more interesting and thought stimulating. This observation has two noteworthy aspects. Special emphasis on detailed Sectional Anatomy and Biomechanics if inducted in our undergraduate curriculum can further enhance the scope of Vertical and Horizontal integration in medical education as well as ignite the flames of Basic Medical Research in the bright young minds.

To reduce fatigue during lecture classes, our observation is that, the 45% of the students opted for a 10 minute interactive break in the closing session of the lecture and 14 % opted for a similar break in the middle of the lecture. In a similar study by Lata H et al¹⁸, it was noted that the students opted for shorter class sessions ;not only that, they also preferred 10 min tea breaks instead of 1 hour lunch breaks.

In the study by Kar M et al,¹⁷ it was found that, 2/3 rd of the students faced a difficulty in understanding the lecture due to their delivery in the English language , 44.9 % students believe this could be due to their 10+2 standard studies which they had done in Bengali Medium. A similar problem was seen in our respondents which reduced their interest to attend the lecture classes. As a result 95% students felt a need for brief language development and communication skill orientation programme in first semester for themselves. This a very important observation in our study which can have definite positive impact on reducing student absenteeism.

The retrospective data analysis to study the impact of lecture attendance on student performance, our

observation was similar to other international studies,^{19,20} where it was noted to have a positive relationship between class attendance and academic performance. In our study there is a strong positive correlation between percentage of lecture classes attended and marks obtained in the semester examination (r=0.9).

Conclusion

Student absenteeism in lecture classes are on the rise and we tried to find some answers to this problem in our setting. We found that the modern medical student psyche is such that they tend to believe, that most of the theoretical concepts can be learnt from online resources. We have also noted that this rising trend of lecture class absenteeism has profound negative impact on their examination performance which perhaps can be extrapolated further to their future professional growth. It can thus be concluded , that , as teachers it is our primary duty to impress upon students the integrative role of good didactic teaching on personal growth and career development for their future medical practice.

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Annexure I

STUDY QUESTIONNAIRE FOR FIRST YEAR MBBS STUDENTS

Table 1

| |
|--|
| 1. Any idea about the subject prior to MBBS admission? |
| a. Knew many things b. Somewhat c. Not at all |
| 2. Opinion of seniors regarding the subject |
| a. Very useful and interesting. b. Boring and useless. c. Interesting and useless. d. Useful and interesting. e. Useful but boring. |
| 3. Own opinion regarding anatomy. |
| a. Very useful, practically important and interesting. b. Boring and useless. c. Interesting and useless. d. Useful and interesting. e. Useful but boring. |
| 4. Rating anatomy in comparison to other subjects of first year. |
| a. Average, same as others. b. Above all other subjects. c. Useless, not important. |
| 5. Need to teach the subject even after first year. |
| a. Only few lectures in recent advancements. b. Orientation course during internship. c. No, enough of anatomy. d. Regular theory and practical classes during surgery and allied specialities. |
| 6. Wish to be an anatomist |
| a. Don't know. b. May be c. No d. Yes. |
| 7. Lectures are interesting and useful |
| a. Yes, but needs to be more precise and examination oriented. |

| | | | | | |
|---|----------------|---------|----------|-------------------|-------------------|
| b. Yes, but needs to be more elaborative. | | | | | |
| c. No, needs to be more interesting and thought provoking. | | | | | |
| d. No, and cannot be made interesting. | | | | | |
| 8. Methods of teaching you feel most effective; | | | | | |
| a. Normal lectures. | | | | | |
| b. Demonstration practicals. | | | | | |
| c. Seminars. | | | | | |
| 9. Faculties are approachable and helping to clarify doubts: | | | | | |
| Strongly agree | Agree | Neutral | Disagree | Strongly disagree | |
| 10. Faculties are having good communication skill: | | | | | |
| Strongly agree | Agree | Neutral | Disagree | Strongly disagree | |
| 11. Faculties are making lectures interesting and captivating | | | | | |
| Strongly agree | Agree | Neutral | Disagree | Strongly disagree | |
| 12. Lessons can be learnt from textbook and internet: | | | | | |
| Strongly agree | Agree | Neutral | Disagree | Strongly disagree | |
| 13. Schedule of lecture class is not appropriate: | | | | | |
| Strongly agree | Agree | Neutral | Disagree | Strongly disagree | |
| 14. Subject is not interesting. | | | | | |
| Strongly agree | Agree | Neutral | Disagree | Strongly disagree | |
| 15. Topics for lecture classes are not interesting. | | | | | |
| Strongly agree | Agree | Neutral | Disagree | Strongly disagree | |
| 16. Medium of teaching and their application (Each option is to be evaluated) | | | | | |
| Mediums | Strongly Agree | Agree | Neutral | Disagree | Strongly disagree |
| Blackboard with chalk | | | | | |
| Audio visual aids | | | | | |
| Problem based learning | | | | | |
| Use of 3-D models | | | | | |
| 17. Addendums you feel useful (can choose multiple options) | | | | | |
| a. Lecture classes on recent advances. | | | | | |
| b. Hands on dissection to be made compulsory | | | | | |
| c. Compulsory preparation of histology slides. | | | | | |
| 18. Topics you feel should be included in lecture classes. (can choose multiple options) | | | | | |
| a. Sectional anatomy | | | | | |

| | | | | |
|---|-------|---------|----------|-------------------|
| b. Imaging and radiology | | | | |
| c. Biomechanics | | | | |
| 19. A brief interactive session is needed in lecture classes: | | | | |
| a. 10 mins at the start of class. | | | | |
| b. 10 mins in the middle of class | | | | |
| c. Closing 10 mins of the class | | | | |
| d. Not required. | | | | |
| 20. Need for a brief language development and communication skill orientation programme in the first semester | | | | |
| Strongly agree | Agree | Neutral | Disagree | Strongly disagree |