|| ISSN(online): 2589-8698 || ISSN(print): 2589-868X ||
International Journal of Medical and Biomedical Studies
Available Online at www.ijmbs.info
PubMed (National Library of Medicine ID: 101738825)
Index Copernicus Value 2018: 75.71
Original Research Article
Volume 3, Issue 8; August: 2019; Page No. 212-219

A ROLE OF UNDERGRADUATE STUDENT FEEDBACK IN MEDICAL TEACHING EVALUATION: A CROSS SECTIONAL STUDY.

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Article Info: Received 28 July 2019; Accepted 22 August. 2019
DOI: https://doi.org/10.32553/ijmbs.v3i8.497
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Conflict of interest: No conflict of interest.

Abstract

Background: For medical student, first year is crucial in the academic's performance of students, as they enter in the medical education for the first time. The students should have solid understanding of first year MBBS subjects. Understanding the student's perspective is essential for understanding the subject knowledge. In this study we have taken students feedback for evaluation of teachers.

Aims and Objectives: to increase the quality of teaching by the instrument of students' feedback. To determine the first year MBBS student's perception understand topics with better concept and to the effectiveness of various teaching-learning methodologies during lectures.

Methods: 75 undergraduate students from first MBBS were included in the study. Cross sectional study was conducted with predesigned questionnaire with questions pertaining to students' perception of first year subject and the various teaching learning methods used by the faculties.

Results: In this study we have taken student's feedback for evaluation of teachers to understanding the student's perspective for understanding the subject knowledge. Feed was taken under 6 different domain of teaching 1) Command over subject 2) use of Black Board/AV Aids 3) Interaction & involvement 4) Voice/Language 5) Classroom Discipline 6) Teacher punctuality. Common adaptive modes of teaching learning methods were Power-point presentations (80%), black board teaching (20%). Based on the feedback, the changes suggested by the students were informed to the faculty about their strengths and weaknesses.

Conclusion: Student feedback in medical education is an effective technique for overall assessment of a faculty. It plays an important role to make modification and delivery in an effective form. By students feedback it revealed that they were positive and constructive in learning.

Key words: Feedback, learning methods, ANOVA test, Bonferroni test, Medical education

INTRODUCTION:

Evaluation is an integral part of the medical education. Teacher's evaluation has come to be known worldwide as a useful input to improve the quality of the teaching. These systems for evaluating teaching and course quality in medical education have long been established in the Western world but not used very effectively in our country. Recently, there has been a growth of interest in this area from a range of different perspectives driven both internally by institutions themselves and externally by national quality initiatives. [1]

Feedback could be defined in clinical education as: "specific information about the comparison between trainees's observed performance and a standard, given with the intent to improve the trainee's performance".[2]

Student feedback has been proven by research to be valid and reliable and can provide valuable information for faculty, students and administrators for improvement of various courses in higher education.[3]

However, in medical education in India it is still controversial, and its mechanism poorly understood. Even if data is collected it does not find useful application in improvement of the curriculum or its implementation.[4]

The teacher should be aware of the recent developments in medical education. Teaching is a process which facilitates learning by encouraging students to think, feel and do. Teaching is a skill and it should be judged for the passion and beauty of the performance and the meaningfulness of the message conveyed to the learners. Teaching is a multifaceted and demanding activity that involves mastery of content, classroom management, techniques of organization, and command of teaching skills. Teaching consists not only of mere instruction, but also of the systematic promotion of learning by the means that promote student retention and learning of the material conveyed during lecture.[5]

This study aims to study the student perception about Best teacher in their budding stage as doctors. Teaching in the medical profession requires proficient knowledge of motivating the learner; assess competence, and the skill to deal with competing demands of patient care, research and education. Teaching is a means of offering a unique, definite, and essential social service through specialized training. This service is in the form of facilitation of learning, based on the beliefs, needs, and practices of each community and each individual.[6]

Feedback can be either formative or summative. Formative feedback in clinical assessment may occur during the theme/module or clinical placement. The objective here is to enhance students' learning ability by informing them of the strong and weak aspects of their clinical performance, and providing suggestions for improvement in preparation for their summative examination. It does not include the rating of clinical skills performance but intends to shape the students' responses to the task being worked on. Summative feedback takes place at the end of a theme/module to determine whether or not overall goals have been achieved and includes explicit feedback with rating of clinical skills performance. It may help to shape the next performance or task but is often received too late to have an effect on the task being evaluated. [7]

Although the credibility of student feedback for decision-making is still debated, considering them as sources of information cannot be undermined. Students are appropriate sources of information on teachers when they are describing or judging the following: their views of the teachers' professional and ethical behaviour; what they have learned in the course; the fairness of the teachers the teachers' ability to communicate clearly. So with this background this study was planned to take the feedback of students regarding the teaching skills of the teacher.[8] And in order to understand the students' perspective and to assess the effectiveness of teaching/learning method used, here, we have used feedback from the students for this study. We hope that this study will help in improving the quality of teaching and contribute to overall faculty development in our institution as well as other upcoming institutions.

Aim and Objective:

1. This study was aimed at understanding the students' perspective regarding pathology as a subject and about the effectiveness of the various teaching-learning methods currently used by the faculty of our department.
2. To find out the students' response to the use of appropriate and latest available teaching tools in lectures, demonstrations and dissection hall

Materials and Methods

Study design: Cross sectional study

Setting: This study was carried in MNR medical college, Sangareddy, Telangana. The participants were 75 MBBS students (regular batch) who have taken First year MBBS.

Inclusion and exclusion criteria: 1st year MBBS students who have taken First Year MBBS in teaching and were going to appear for their university exams having more than 75% attendance. Students with less than 75% attendance were also excluded from the study.

Sample size: 75, first year MBBS students

Data source: Data was collected at the end of First Year MBBS by using a predesigned questionnaire.

Questionnaire: A predesigned, structured, pre-validated questionnaire after peer review was used to gather information regarding students' perception of first year subject and about the various teaching learning methods currently used by the faculty.

The questionnaire included 10 questions and space was also provided for any suggestions or changes recommended.

Statistical analysis of the data: Data entry and analysis was done using Microsoft Excel / Epi Info. Percentages were used to analyze the data.

Result:

A Total of 75 students (regular batch) who were going to appear for the First year MBBS university exams participated in our study. All of them returned the completed questionnaire. Of the 48 (64%) were female students and 27 (27%) were male students.

In this study we have taken student's feedback for evaluation of teachers to understanding the student's perspective is essential for understanding the subject knowledge. Feed was taken under 6 different domain of teaching 1) Command over subject 2) use of Black Board/AV Aids 3) Interaction & involvement 4) Voice/Language 5) Classroom Disciplane 6) Teacher punctuality amongst 16 teachers, 6 from Anatomy, 7 from Physiology & 3 from Biochemistry. Results of study as follows in 6 pillars of teaching.

Table 1: ANOVA test for Command over subject

Command over subject	Sum of Squares	df	Mean Square	F	Sig.(P Value)
Between Groups	.062	2	0.031	0.191	0.828
Within Groups	2.122	13	0.163		
Total	2.184	15			

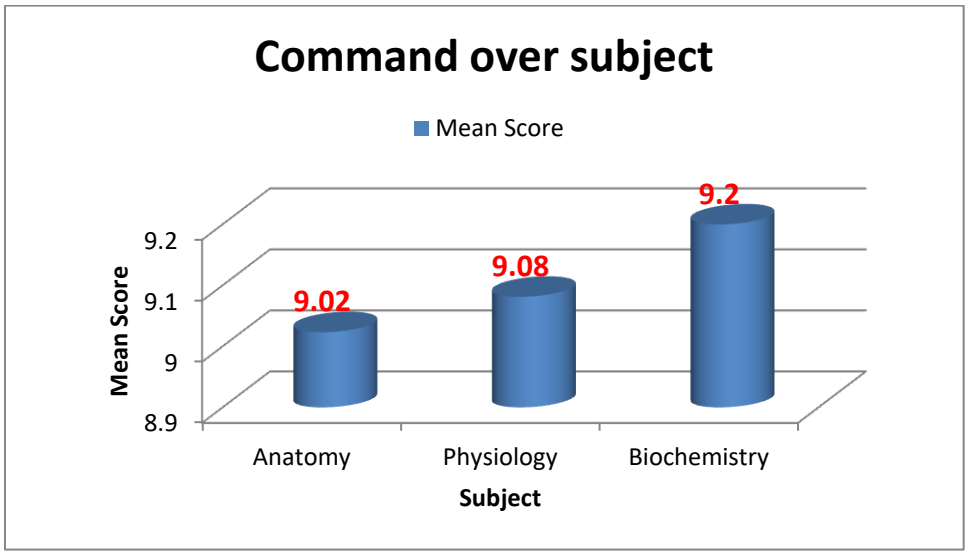

Figure 1: Command over subject

1) Command over subject- In command over subject, it was found that mean score of Anatomy teachers were 9.02, physiology teachers were 9.08 & Biochemistry teachers were 9.20. After applying ANOVA test to see the significance difference between three subject it was found not significant as P value was 0.828 (P value > 0.05) & similar no significance difference found when we applied Bonferroni test to see multiple comparisons amongst different subjects (P value > 0.05) which means that all teachers has equally effective command over subject as per feedback given by students.(Table 1 & Figure 1)

Table 2: Descriptive Statistics for Presentation (use of Black Board/AV Aids)

Presentation (use of Black Board/AV Aids)	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Anatomy	6	8.4450	.77154	.31498	7.6353	9.2547	7.27	9.36
Physiology	7	8.6986	.50085	.18930	8.2354	9.1618	7.97	9.46
Biochemistry	3	8.4400	.57663	.33292	7.0076	9.8724	7.89	9.04
Total	16	8.5550	.60017	.15004	8.2352	8.8748	7.27	9.46

Table 3 : Multiple Comparisons by Bonferroni test for Presentation (use of Black Board/AV Aids)						
(I) subject	(J) subject	Mean Difference (I-J)	Std. Error	Sig..	95% Confidence Interval	
					Lower Bound	Upper Bound
Anatomy	Physiology	-.25357	0.35005	1.000	-1.2148	0.7076
	Biochemistry	.00500	0.44490	1.000	-1.2167	1.2267
Physiology	Anatomy	.25357	0.35005	1.000	-.7076	1.2148
	Biochemistry	.25857	0.43418	1.000	-.9337	1.4508
Biochemistry	Anatomy	-.00500	0.44490	1.000	-1.2267	1.2167
	Physiology	-.25857	0.43418	1.000	-1.4508	0.9337

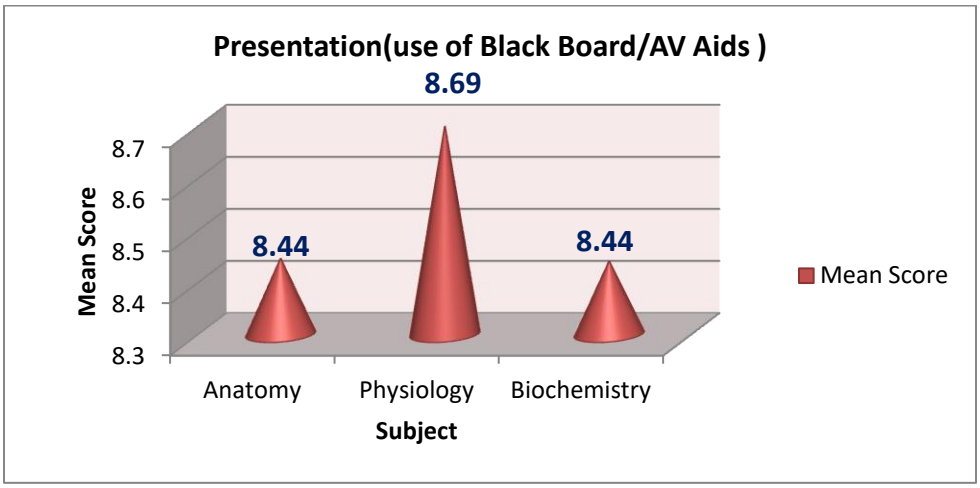

Figure 2: Presentation (use of Black Board/AV Aids)

2) Use of Black Board/AV Aids - In use of Black Board/AV Aids, it was found that mean score of Anatomy teachers were 8.44, physiology teachers were 8.69 & Biochemistry teachers 8.44. After applying Bonferroni test to see multiple comparisons amongst different subjects (P value > 0.05) which means that all teachers has equally effective by using black boards / AV aids as per feedback given by students.(Table 2-3 & Figure 2)

Table 4: Descriptive Statistics for Interaction & involvement								
Interaction & involvement	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Anatomy	6	8.2517	0.59422	0.24259	7.6281	8.8753	7.50	8.83
Physiology	7	8.6257	0.57181	0.21612	8.0969	9.1545	7.89	9.37
Biochemistry	3	8.2633	0.78641	0.45403	6.3098	10.2169	7.62	9.14
Total	16	8.4175	0.60574	0.15144	8.0947	8.7403	7.50	9.37

Table 5: ANOVA test for Interaction &involvement					
Interaction &involvement	Sum of Squares	df	Mean Square	F	Sig.(P Value)
Between Groups	0.540	2	0.270	0.707	0.511
Within Groups	4.964	13	0.382		
Total	5.504	15			

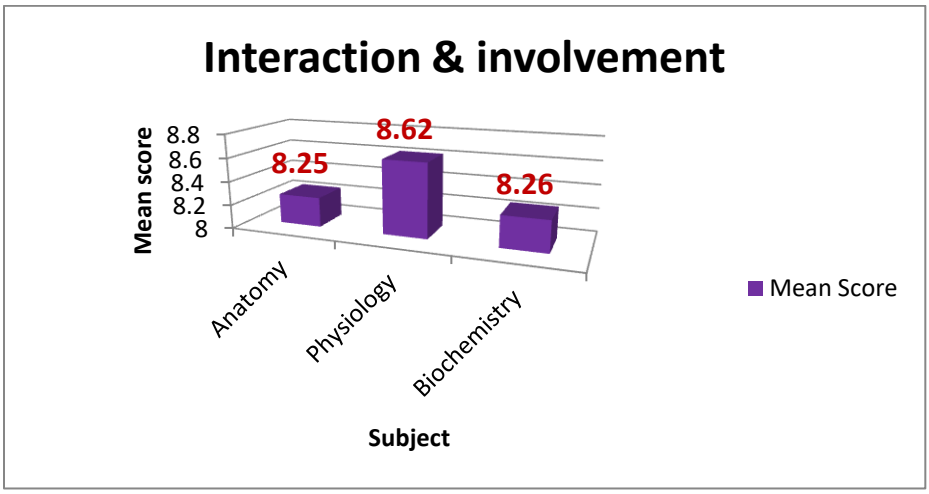

Figure 3: Interaction & involvement

3) Interaction & Involvement - In interaction & involvement, it was found that mean score of Anatomy teachers were 8.25, physiology teachers were 8.62 & Biochemistry teachers were 8.26. ANOVA test signifies that there was no significant difference amongst three subjects as P value was 0.511 (P value > 0.05). (Table 4-5 & Figure 3)

Table 6: ANOVA test for Voice/Language

Voice/Language	Sum of Squares	df	Mean Square	F	Sig.(P Value)
Between Groups	0.307	2	0.153	0.311	0.738
Within Groups	6.408	13	0.493		
Total	6.715	15			

Table 7 Multiple Comparisons by Bonferroni test for Voice/Language

(I) subject	(J) subject	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Anatomy	Physiology	-.30810	0.39061	1.000	-1.3807	0.7645
	Biochemistry	-.15667	0.49646	1.000	-1.5199	1.2066
Physiology	Anatomy	0.30810	0.39061	1.000	-.7645	1.3807
	Biochemistry	0.15143	0.48449	1.000	-1.1790	1.4818
Biochemistry	Anatomy	0.15667	0.49646	1.000	-1.2066	1.5199
	Physiology	-.15143	0.48449	1.000	-1.4818	1.1790

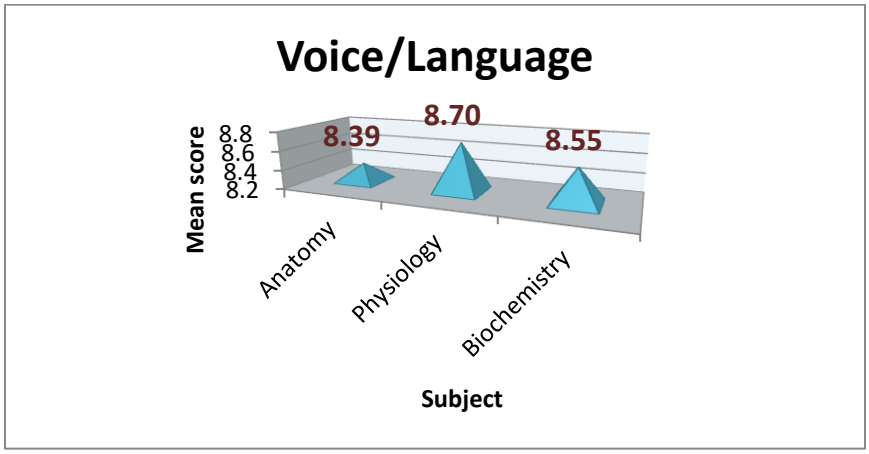

Figure 4: Voice/Language

4) Voice/Language - In Voice/Language, it was found that mean score of Anatomy teachers were 8.39, physiology teachers were 8.70 & Biochemistry teachers were 8.55. Application of ANOVA test signifies that there was no significant difference amongst three subjects as P value was 0.738 (P value > 0.05) & similarly there was no significance difference found when we applied Bonferroni test to see multiple comparisons amongst different subjects (P value > 0.05) which means that Interaction & involvement by all teachers has equally effective as per feedback given by students.(Table No 5-6 & Figure No.4)

Table 8: ANOVA test for Classroom Discipline

Classroom Discipline	Sum of Squares	Df	Mean Square	F	Sig.(P Value)
Between Groups	0.073	2	0.036	0.195	0.825
Within Groups	2.416	13	0.186		
Total	2.489	15			

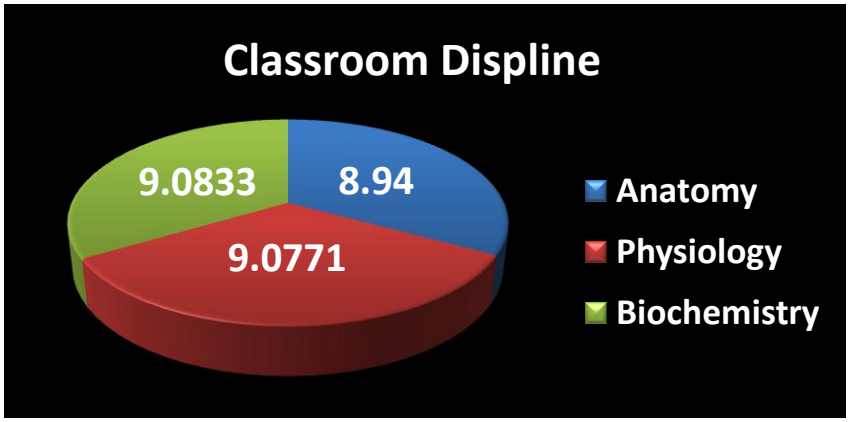

Figure 5: Class Discipline

5) Classroom Discipline - In classroom discipline, the mean score of Anatomy teachers were 8.94, physiology teachers were 9.07 & Biochemistry teachers were 9.08. Application of ANOVA test signifies that there was no significant difference amongst three subjects as P value was 0.825 (P value > 0.05) which means that Implementation of classroom displine by all teachers has equally effective as per feedback given by students. (Table no 8 & Figure no 5)

Table 9: Descriptive Statistics for Teacher punctuality

Teacher punctuality	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Anatomy	6	9.2183	0.37504	0.15311	8.8248	9.6119	8.73	9.69
Physiology	7	9.3400	0.26502	0.10017	9.0949	9.5851	8.93	9.68
Biochemistry	3	9.2733	0.44185	0.25510	8.1757	10.3710	8.81	9.69
Total	16	9.2819	0.32283	0.08071	9.1099	9.4539	8.73	9.69

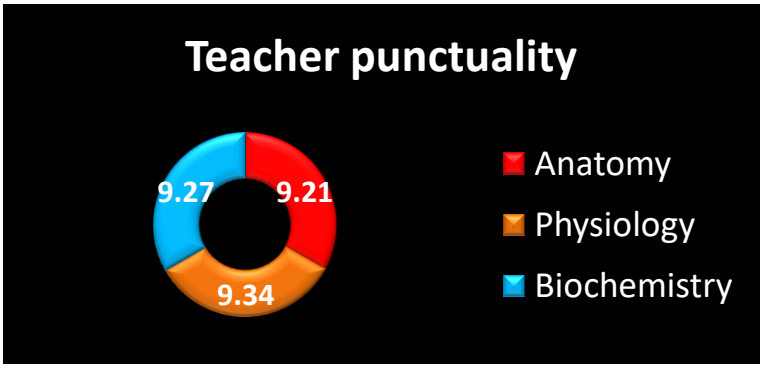

Figure 6: Teacher Punctuality

6) Teacher punctuality - In teacher punctuality, the value of mean score of Anatomy teachers were 9.21, physiology teachers were 9.34 & Biochemistry teachers were 9.27. when we applied Bonferroni test to see multiple comparisons amongst different subjects (P value > 0.05) which means that application of teacher punctuality by all teachers has equal effect as per feedback given by students.(Table 16-18 & Figure 6)

Table 10: Multiple Comparisons by Bonferroni test for Teacher punctuality

(I) subject	(J) subject	Mean Difference (I-J)	Std. Error	Sig.(P Value)	95% Confidence Interval	
					Lower Bound	Upper Bound
Anatomy	Physiology	-.12167	0.18993	1.000	-.6432	0.3999
	Biochemistry	-.05500	0.24140	1.000	-.7179	0.6079
Physiology	Anatomy	.12167	0.18993	1.000	-.3999	0.6432
	Biochemistry	0.06667	0.23558	1.000	-.5802	0.7136
Biochemistry	Anatomy	0.05500	0.24140	1.000	-.6079	0.7179
	Physiology	-.06667	0.23558	1.000	-.7136	0.5802

Discussion

Ongoing evaluation and audit of the effectiveness of a teaching program is essential to constantly upgrade and improve upon the teaching learning experience, and do course correction for appropriate learning outcomes.

In this study we have taken student's feedback for evaluation of teachers to understanding the student's perspective is essential for understanding the subject knowledge. Feed was taken under 6 different domains of teaching 1) Command over subject 2) use of Black Board/AV Aids 3) Interaction & involvement 4) Voice/Language 5) Classroom Displine 6) Teacher punctuality amongst 16 teachers, 6 from Anatomy, 7 from Physiology & 3 from Biochemistry.

Our study showed that Mean score for anatomy teacher in command over subject and teachers punctuality is above 9 where as in other domain it is between 8-9. For Biochemistry and Physiology teacher is almost same, mean score was above 9 in three domain command over subject, class discipline and teachers punctuality and in other remaining domain it was between 8-9.

After applying ANOVA test to see the significance difference between three subject in all 6 domain it was found not significant as P value > 0.05 & similar no significance difference found when we applied Bonferroni test to see multiple comparisons amongst different subjects (P value > 0.05) in all six domain which means that all teachers from three department are equally effective in all six domain of teaching as per feedback given by students.

So feedback in medical education is an integral and important constituent of teaching as it encourages and enhances the learners' knowledge, skills and professional performance. Student feedback has been proven by research to be valid and reliable and can provide valuable information for faculty, students and administrators for improvement of various courses in higher education.

Conclusion:

To conclude, interactive feedback is indispensable in bringing about professional development and overall improvement in doctors. The study is not judgemental. We are just trying to put forth the facts In front. It is not a complete picture. The information gained from evaluation can lead to changes in any aspect of teaching and evaluation methods. Interactive feedback is indispensable in bringing about professional development and overall improvement in doctors. It provides learners with information on past performances so that future performance can be improved[9]. In the absence of adequate feedback, good performance is not recognized and problems with regard to clinical competence go uncorrected for long periods of time[10]. In view of recent changes in medical working patterns, we have to create newer opportunities to observe trainees and thus provide quality & timely feedback to facilitate learning. Students definitely enjoy the interactive teaching methods which help to improve their attention span, arouse their interest in the subject and reduce monotony of the routine didactic lectures.

Ethical approval: The study was approved by the Institutional Ethics Committee.

Acknowledgement: Authors thankful to Management and Principal of MNR Medical College and Hospital for felicitating the data collection from their students.

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