EVALUATION OF STUDENT'S PERFORMANCE AND EXPERIENCE AFTER UNDERGOING LECTURE BASED LEARNING AND CASE BASED LEARNING IN AN INTEGRATED SESSION OF THE II MBBS CURRICULUM

Dr. N. Kannan[1], Dr. D. Sudha[2*]

1. Professor and Head, Department of Physiology, 2. Associate Professor, Department of Physiology, Melmaruvathur Adhiparasakthi Institute of Medical Sciences and Research, Melmaruvathur

*Corresponding author – **Dr. D. Sudha**

Email id – ssudha91@yahoo.com

ABSTRACT

Background: Integrated sessions are traditionally followed in our medical schools as a combination of lectures from subject experts at the same time. Students get to listen to the same lectures heard over the years in a single session and are left dry to integrate them by themselves. Case-based learning gives the facilitators' liberty to include different methods of learning and can be an inquisitive tool to facilitate and teach students about integration at various levels. In this premise, we would like to see the difference in student's performance and experience regarding these two modalities of learning. **Aim:** To assess student's performance and experience in lecture-based learning of an integrated session in II MBBS curriculum and case-based learning of an integrated session in II MBBS curriculum and compare between these two groups. **Materials and methods:** 140 students undergoing II MBBS in MAPIMS was involved in the study. Group 1: (LBL) The first topic was discussed in traditional format (Lecture Based) for two Saturdays during which Pretest, Posttest and Feedback Questionnaire was done. Group 2: (CBL) Second topic was discussed in Case-Based Learning (CBL) format for two Saturdays during which Pretest, Posttest and Feedback Questionnaire were done. Test scores of students before and after sessions, Likert scale rating of experience by students were compared and statistically analyzed with an appropriate statistical tool like independent "t" test. **Results:** There was statistically significant (p< 0. 001) improved performance in case based learning sessions when compared to lecture based learning sessions. **Conclusion**: Case based learning stimulates the desire to learn, develop clinical reasoning, and build confidence among learners. So this system of learning can be used in addition to strengthening the teaching-learning methods through active learning.

Keywords: Lecture Based Learning, Case Based Learning

INTRODUCTION

The recent medical education standards are contingent on various factors like curriculum, college administration, infrastructure, patient exposure, faculty expertise in the subject and their knowledge, exposure and training in training-learning methodology. In the past years, medical education gives us a typical example in observing the shift towards student-centric from teaching-centered mode (**1**). Now–a-days, medical education gives more importance to the students and their opinions even before the introduction of any additions, deletions or modifications in the way the course is conducted. The medical students differ in age, place, ethnicity, level of preparedness, learning styles and preferences, etc. (**2**). The responsibility of any medical teacher is to encounter the individual educational needs of the medical student concerning the knowledge, attitude, and the skills. Physiology helps to understand the

basic functional aspects and also the applied medical sciences. Physiology should be taught and learned effectively by the students so that they can practice in the community **(3)**.
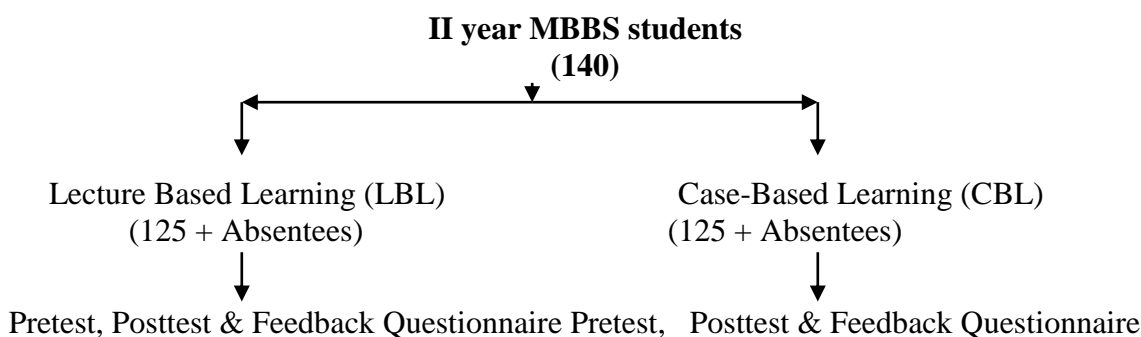
Conventionally, teaching is seen as a process of information transferred from teacher to student **(4)**. In the traditional lectures, objectives of teaching are more likely to make the students retain knowledge that is reproduced late in examinations. This didactic lecture puts complete importance on context knowledge of the students ignoring many other vitally important attributes **(5)**. The traditional lecture system is teacher centered with minimal or no active participation from the students, and also it has minimal or no integration of subject both horizontal and vertical. The instructor transfers knowledge to the student using skilled teaching/learning (T/L) exchange process **(6)**.

The most important change needed to the medical students is that the subjects should be taught with an understanding of concepts and mechanisms together with the orientation of clinical aspects of the disease **(7)**. Now-a-days, the educational system has advanced by the use of various new tools and methods which move the system towards student centered learning process. The students actively participate in the process of learning and prepare themselves for a lifelong self-directed learning process **(8)**.

The case based learning (CBL) assist to enhance the knowledge-based and clinical application based examination **(9)**. Case-based learning (CBL) is an interactive and student centered, which promotes active learning by exploiting clinical case scenarios. The clinical case presentation was done in the case-based learning method, reflect life experiences that the medical students would face while they are in clinical postings of their medical education **(10)**. The case based learning method is a vital tool in advanced learning as it makes students realize the importance of the basic medical science subjects. It also improves the aptitude in students by encouraging them to solve different clinical case situations **(11)**. This study was planned to evaluate the student's performance and experience in lecture-based learning and case-based learning of an integrated session in II MBBS curriculum.

MATERIALS AND METHODS:

**II year MBBS students
(140)**

Lecture Based Learning (LBL)
(125 + Absentees)

Case-Based Learning (CBL)
(125 + Absentees)

Pretest, Posttest & Feedback Questionnaire   Pretest, Posttest & Feedback Questionnaire

In this study, 140 students undergoing II MBBS in MAPIMS was involved. Group 1: (LBL) The first topic was discussed in traditional format (Lecture Based) for two Saturdays during which Pretest, Posttest and Feedback Questionnaire was done. Group 2: (CBL) Second topic was discussed in Case-Based Learning (CBL) format for two Saturdays during which Pretest, Posttest and Feedback Questionnaire were done. Test scores of students before and after sessions, Likert scale rating of experience by students were compared and statistically analyzed with an appropriate statistical tool like independent "t" test. The data source is from Students. The Data were collected from Pretest and Post-test scores, Feedback questionnaire from students.

Ethical Considerations - Ethical committee approval was obtained from the Institutional Ethical Committee.

Statistics – Data were analyzed by using independent "t" test, mean standard deviation and percentage.

RESULTS

Table 1: Comparison of Lecture based learning and Case based learning in II MBBS students.

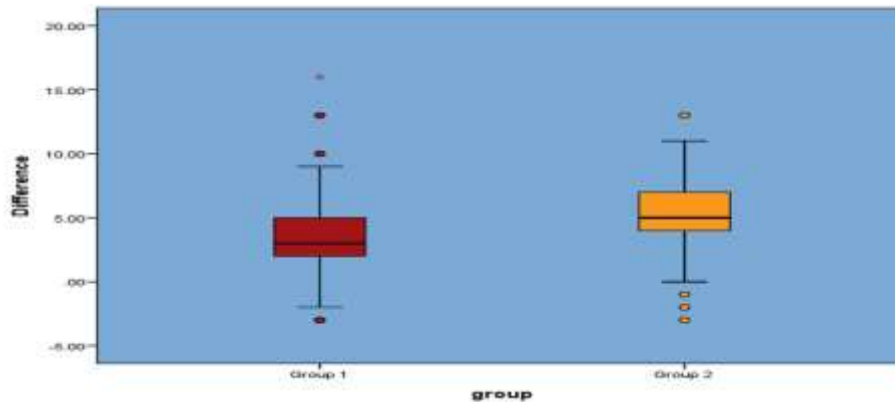| Group	N	Mean	Std. Deviation	Std. Error Mean	t - value	P value
Group - 1	125	3.7280	3.01442	.26962	4.317**	0.001
Group - 2	125	5.3360	2.87353	.25702		

Table 2: Analysis of percentage of student's feedback after Lecture-based learning (LBL) and Case-based learning (CBL) methods:

S.No	Questions	Groups (G)	SDA	DA	N	A	SA
		Feedback Analysis (125)					
1	The learning objectives were well defined	G - 1	4 (3%)	12 (9%)	15 (11%)	69 (50%)	39 (28%)
		G -2	7 (5%)	5 (4%)	10 (7%)	71 (50%)	48 (34%)
2	The objectives were easily achievable through the course of the session	G - 1	7 (5%)	10 (7%)	20 (14%)	56 (40%)	46 (33%)
		G -2	4 (3%)	5 (4%)	19 (13%)	76 (54%)	37 (26%)
3	Appropriate teaching aids were used	G - 1	10 (7%)	17 (12%)	25 (18%)	64 (46%)	23 (17%)
		G -2	5 (4%)	12 (9%)	24 (17%)	69 (49%)	31 (22%)
4	The teaching method made the subject/learning more interesting.	G - 1	5 (4%)	13 (9%)	36 (26%)	59 (42%)	26 (19%)
		G -2	4 (3%)	8 (6%)	25 (18%)	59 (42%)	45 (32%)
5	The teaching method satisfied your curiosity about the topic	G - 1	4 (3%)	10 (7%)	30 (22%)	70 (50%)	25 (18%)
		G -2	7 (5%)	13 (9%)	32 (23%)	59 (42%)	30 (21%)
6	The session solved all your queries/difficulties about the topic	G - 1	7 (5%)	17 (12%)	36 (26%)	55 (40%)	24 (17%)
		G -2	5 (4%)	10 (7%)	36 (26%)	66 (47%)	24 (17%)
7	Students were encouraged to participate.	G - 1	5 (4%)	10 (7%)	44 (32%)	59 (42%)	21 (15%)
		G -2	10 (7%)	11 (8%)	36 (26%)	55 (39%)	29 (21%)
8	The teaching method inspired/made you work harder for better results	G - 1	4 (3%)	13 (9%)	25 (18%)	76 (55%)	21 (15%)
		G -2	6 (4%)	7 (5%)	40 (28%)	67 (44%)	26 (18%)
9	The assessment tool was appropriate	G - 1	6 (4%)	11 (8%)	21 (15%)	72 (52%)	29 (21%)
		G -2	5 (4%)	10 (7%)	30 (21%)	72 (51%)	24 (17%)
10	The test helped in assessing all the objectives of the session	G - 1	4 (3%)	8 (6%)	30 (22%)	65 (47%)	32 (23%)
		G -2	7 (5%)	4 (3%)	21 (15%)	76 (54%)	33 (23%)
11	The components of the integrated session for this topic was adequate	G - 1	5 (4%)	4 (3%)	33 (24%)	70 (50%)	27 (19%)
		G -2	5 (4%)	4 (3%)	27 (19%)	75 (53%)	30 (21%)
12	You would prefer this teaching methodology again in future	G - 1	6 (4%)	13 (9%)	10 (7%)	76 (55%)	34 (24%)
		G -2	8 (6%)	7 (5%)	29 (21%)	63 (45%)	34 (24%)

SDA= Strongly disagree, DA = Disagree, N= Uncertain, A= Agree, & SA =strongly agree

Group -1: Lecture based learning (LBL); Group – 2: Case based learning (CBL)

Figure 1: Comparison ofmarks obtained after LBL and CBL methods:

In the results of this study, the Lecture based learning and Case based learning in II MBBS students were compared in table 1. In table 2, Analysis of percentage of student's feedback after Lecture-based learning (LBL) and Case-based learning (CBL) methods were done. In figure 1, marks obtained after LBL and CBL methods were compared.

DISCUSSION

The results of this study revealed that there was statistically significant improved performance in case-based learning sessions when compared to lecture based learning sessions. p< 0. 001 was given in Table 1 and Figure 1. In our study, there is no significance difference among two groups view in the 11 feedbacks except in "would you prefer this teaching methodology again in future 21% in group 2 was uncertain about the module of teaching but only 7 % was uncertain in group1, it is given in Table 2.Student's experiences were mixed concerning the two methods but slightly in favor of CBL sessions in most topics (statistically not significant).

A study was done by Kenchaiah et al., stated that traditional teaching method was non-interesting, didn't motivate the students to read more, doesn't increase any group discussion and learning through this method neither easier nor enjoyable among the students but case-based learning was interesting, motivate the students to read more, enhance self-learning, gives better understanding, helps them to memorize the facts easily, increases group interaction and made clinical learning easier and enjoyable. The students strongly agreed that case-based learning increased understanding of patient's problem **(12)**. Nair et al., in this study, revealed that students had a significantly higher liking for case-based teaching than conventional lecture-based teaching. This increased interest of students towards Case-based learning may be due to difference in individual ability of them towards various aspects like reasoning, finding resources, critical analysis etc., **(13)**.

In a study, by Johnson et al., they had done a randomized control trial to compare problem based learning with lecture-based learning methods. They concluded that problem-based learning was less effective at imparting knowledge than traditional lecture-based learning **(14)**. Another study was done by Smits in problem-based learning versus lecture-based learning in postgraduate medical education showed that the problem-based learning group was less satisfied with the course. This study showed a different conclusion on student's satisfaction **(15)**.

McParland M et al., from the Department of Psychiatry concluded that the performance of the undergraduate students, who underwent problem-based learning, was better on both multiple-choice questions and the viva. But in the learning style and attitude of the students, there were no differences between the two groups **(16)**. A study was done by Meo in which he evaluated knowledge and skills of undergraduate medical students in respiratory physiology course. He concluded that the group of students, who had undergone problem-based learning method, acquired significantly higher scores when compared with the group of studentswith lecture-based learning approach **(17)**.

Further in a research work conducted in the Department of Obstetrics and Gynaecology by Massonetto et al., concluded that most of the students preferred case-based learning as it encouraged them to improve other skills like group discussions, team learning apart from acquiring

knowledge in a particular topic **(18)**. By analyzing the above facts, it was observed that case-based learning not only gives the student the subject knowledge but also helps them in many ways like making them move towards good diagnosis, good communications, listening skills, counseling, teamwork, and leadership skills.

CONCLUSION

The student's experience was better overall during the case-based learning sessions.Many were uncertain whether the learning method satisfied their curiosity concerning case-based learning. Uncertainty regarding student's active participation may be due to lack of exposure to case-based learning and likely to improve with more sessions in CBL. However, it is proven that student's performance improved by following case-based learning method for integrated sessions.

Conflicts of interest – No

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