



Original Research Article

CASE BASED LEARNING VS CONVENTIONAL LECTURE AS A TEACHING LEARNING TOOL IN FORENSIC MEDICINE FOR SECOND YEAR UNDERGRADUATE STUDENTS - A COMPARATIVE STUDY

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Received : 08/04/2024
Received in revised form : 11/06/2024
Accepted : 26/06/2024

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DOI: 10.5530/ijmedph.2024.2.178

Source of Support: Nil,
Conflict of Interest: None declared

Int J Med Pub Health
2024; 14 (2); 920-923

ABSTRACT

Background: The traditional method of teaching undergraduate medical students includes series of didactic lectures. To improve the quality of medical education, the conventional lectures are being condemned and other newer teaching- learning methods are getting incorporated into the system. Case Based Learning (CBL) is an interactive, learner-centred approach that uses a guided stepwise inquiry method. It helps medical students to appreciate clinical applications of theoretical knowledge as well as it encourages learners towards questioning and critical inquiry. This study was done with an intention to analyse whether Case based learning compares well with conventional teaching among the second year MBBS students.

Material and Methods: A total of 96 second year MBBS students were included in the study and they were divided into two groups of 48 students each. The first group was taught the topic "examination of survivor of sexual assault" in the conventional lecture format of two hours duration. The second group was divided into four subgroups of 12 students each and two paper based cases on sexual assault examination of the survivor were given for discussion and resolution which was again summarized in a step wise manner by the faculty at the end. Both the groups were administered a Post-test questionnaire and feedback form to analyse the sessions.

Results: The performance of the CBL group was better than the lecture groups in different learning domains I.e., knowledge (41.2% vs 19.3%), skill (36.5% vs 31.3%) and attitude (35.4% vs 19.9%) as compared to CBL group. The CBL group students also gave more score in their overall experience, stimulation students' interest and scope of interaction with the teacher.

Conclusion: This study demonstrated that CBL was a more efficient teaching method for teaching undergraduate students compared to traditional lecture. It stimulated the students for more participation and improved the learning outcomes.

Keywords: Case based learning; MBBS student; Traditional lecture; Teaching learning method.

INTRODUCTION

The traditional method of teaching in Forensic Medicine included series of didactic lectures with

exposure to autopsy demonstration and practical skills in report writing.

The Competency Based Medical Education was a revitalizing step in a paradigm shift in medical

education. The emphasis on shifting focus to make learning an enjoyable experience and more stress on small group teaching. Case based Learning is an interactive, learner-centered approach that helps medical students to appreciate clinical applications of theoretical knowledge as it uses a guided inquiry method.^[1] Studies had stated that it also encourages questioning encouraging critical inquiry and student interactions.^[2,3]

While technology advances will play a crucial part in future teaching-learning approaches, educators will also be challenged by the next higher-education generation, the Alpha Generation.^[4] This study was an attempt to analyze whether Case based learning compares well with conventional teaching to second year MBBS students with the following objectives to determine whether Case based learning is as effective as didactic lectures in undergraduate teaching of forensic medicine and to determine the students' perception about Case based learning as an innovative learning tool.

MATERIAL AND METHODS

The study was undertaken after prior approval from the Institutional Research Protocol Evaluation Committee and Institutional Ethics Committee of SMIMS with informed consent obtained from the students. Study was conducted from 1st June 2019 to 30th June 2019 at Sikkim Manipal Institute of Medical Sciences at department of Forensic Medicine. The study involved 100 undergraduate students out of which 4 were excluded due to absence during the study.

The subject topic chosen was "Examination of Survivor of Sexual Assault", which is included as a core competency in the new CBME curriculum.

A pre-test was conducted for all the students by a single correct response questionnaire which comprised of ten items with four questions from knowledge domain, three questions from documentation and interpretation skill domain and three questions from attitude domain. The questionnaire was discussed and pre-validated by subject experts.

Then the students were divided randomly into two groups of 48 students each by chit box method containing number 1 and number 2. The students picking number 1 were assigned as first group (Lecture group) and students picking two were assigned as second group (CBL group).

The topic "Examination of Survivor of Sexual Assault" was taught in the conventional lecture format of two-hour duration using power point to the First group (lecture group) (n=48).

The other group (CBL group) (n=48) was divided into four small groups of 12 students each and one paper-based case was given for discussion and resolution followed by summarization. The session began with introducing the students with a story with reference to Vishaka & Others Vs State of

Rajasthan with focus on their interest and arousal of empathy by characterization of each steps involved. [5] Each small group was having a teaching faculty who served as facilitators who initiated the students to participate actively and observed how they reach a decision, criticized the procedural lapses and develop the critical skill to approach a case of sexual assault along with acquisition of content knowledge. After the class both the groups were administered post-test questionnaire. A pre-validated questionnaire was also given to assess session feedback at Kirkpatrick Level 1 and 2 as the evaluation framework. To abide by the ethical guidelines both the groups were swapped in the next class for the sessions.

The pre and post test score thus obtained from both groups were entered in excel and compared with in the group and between the groups as per three domains.

RESULTS

Comparing the Median scores for the groups, it was found that pre-test scores were same for both group while CBL group scored better than the lecture group in the post test with median score of 8 with S.D of 1.03. [Table 1]

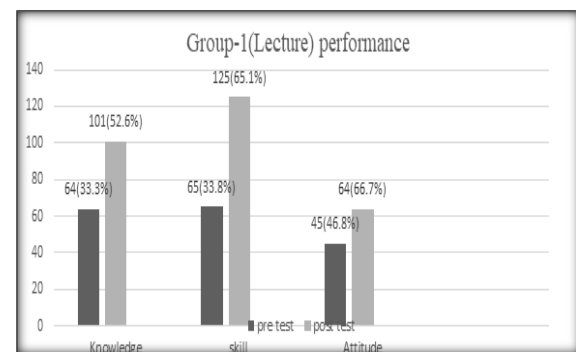


Figure 1: Group-1(Lecture) performance

Table 2: Pre and Post-test performance of Group 1 (Lecture group)

The performance of lecture groups based on pre & post-test questionnaire as looking into different learning domains shows comparatively lesser increase in knowledge (19.3%), skill (31.3%) and attitude (19.9%) as compared to CBL group. [Table 2]

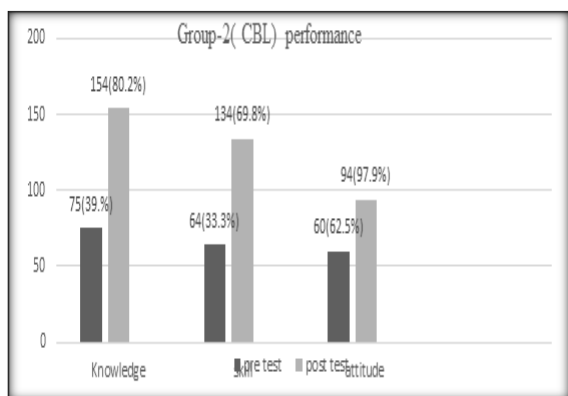


Figure 2: Group-2 (CBL) performance

The performance of CBL groups based on pre & post-test questionnaire as looking into different learning domains shows marked increase in

knowledge (41.2%), skill (36.5%) and attitude (35.4%). [Table 3]

Table 4: Session Feedback of both Lecture and CBL group

Majority of the students (45.8%) from the CBL group marked “Excellent” as compared to 22.9% in Lecture group on the point that the teacher was able to stimulate them to create interest on the topic, followed by 41.7% of the students in CBL group who marked the session as “Very good” in stimulating their interest. While 25 % of the students stated that the CBL provided them excellent opportunities for interactions, 41.7% stated the experience as “Very Good”. In the lecture group, 8.3 % of students found lecture session left very less opportunity for interaction. Overall session feedback for the CBL type was more than the Lecture group.

Table 1: Pre and Post-test in lecture group and CBL group

	CBL group pre-test	CBL group post test	Lecture group pre test	Lecture group post test
Median	4	8	4	6
Std. deviation	1.46	1.38	1.29	1.03
25 percentiles	3	7	3	5
50 percentiles	4	8	4	6
75 percentiles	5	9	4	7

Table 2: Session Feedback of both Lecture and CBL group

Points	Groups	Excellent	Very good	Good	Satisfactory	Not satisfactory
How successful was the teacher in stimulating your interest	CBL	45.8 %	41.7 %	12.6 %	-	-
	Lecture	22.9 %	35.4%	31.3 %	10.4 %	-
The session provided the opportunity to interact	CBL	25%	41.7%	29.2%	4.2%	-
	Lecture	6.3%	14.6%	35.4%	35.4%	8.3%
Overall how was the entire session	CBL	35.4%	58.3%	6.3%	-	-
	Lecture	12.5%	47.9%	37.5%	2.1%	-

DISCUSSION

The students of Case based learning scored higher in all domains which is an encouraging trend similar to earlier studies where CBL generate the knowledge and skill needed in patient care and can bring the improvement.^[6]

The study reiterated that case-based learning provided more clarity on topics, more room for interaction and established connection between practical and theoretical knowledge which reinforces that finding of other studies where CBL offers students to take part in adaptable, learner-focused teaching which encouraged greater interaction.^[7]

CBL challenges students to analyze information, make diagnoses, and develop management plans based on the presented case. This promotes the development of critical thinking and problem-solving skills, essential for effective medical practice. CBL involves active participation by students as they discuss and analyze the presented case. This engagement enhances student motivation

and involvement in the learning process, leading to better retention and understanding of the material.

Another advantage of CBL is that it is often conducted in small groups which help the students learn to communicate effectively, share ideas, and appreciate diverse perspectives. These skills are crucial in the healthcare setting.

CBL helps students transition from theoretical knowledge to clinical practice by simulating real-world patient encounters. Other than the pharmaceutical treatment, the clinical cases in CBL also may incorporate ethical considerations and dilemmas. This helps the students to explore and discuss ethical aspects related to patient care.^[8-11]

CONCLUSION

Many topics of Forensic Medicine are predominantly taught by means of didactic lectures at the undergraduate level. Changing circumstances require the need for continuous reviewing and improvement of existing teaching learning methods. The results clearly point out that Case based learning reinforces active learning and enhance

critical thinking which can serve as valuable adjunct to interactive lectures on varied topics which can create further interest in forensic medicine.

Limitation

The short duration and small sample size of the study are the limitations of the study.

Acknowledgement

The authors are highly indebted to Sikkim Manipal University for support and Shree Ramachandra Medical College and Research Institute, Chennai for guidance throughout the education project.

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