Section: Dermatology, Venereology and Leprosy

Original Research Article

EVALUATION OF CASE-BASED LEARNING AND TRADITIONAL LEARNING IN DERMATOLOGY AMONG FINAL YEAR UNDERGRADUATE MEDICAL STUDENTS

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ABSTRACT

Background: Traditional learning (TL) is teacher-centric and didactic, so likely to be associated with low interest and superficial learning. Case-based learning(CBL) is an inventive, student-focused, facilitator guided instructional approach. The present curriculum being CBME, it is pertinent to integrate and assess the effectiveness of CBL. **Objective:** To evaluate CBL and TL among Final Year MBBS part I students in Dermatology theory classes.
Materials and Methods: The present study is randomized controlled trial with cross over design involving 50 students, categorized into two equal sized groups I and II to receive TL and CBL respectively on the same topic. A week later, the groups were crossed over for the subsequent session. Both the groups were assessed by 15 MCQs with 2 marks each at the end of each session. Students perceptions were assessed by a questionnaire using 5 point Likert scale.
Results: After the first session average scores were group I (24) and group II (25.52). After crossover, the average score was better in group I than group II (26.56 Vs 25.36, respectively). The difference in mean scores showed a higher score in Group I($p<0.001$) than in Group II($p=0.71$) suggesting that CBL possibly enhanced the performance. Majority of students perceived Case Based Learning as more helpful and interesting than Traditional Learning.
Conclusion: Case Based Learning amplifies student learning through knowledge retention and improves problem-solving skills.
Keywords: Case based learning, Traditional learning, Dermatology.

INTRODUCTION

Teaching Dermatology poses significant challenges due to its visually oriented nature within the realm of internal medicine. Given the complex nature of skin diseases, comprehending, clinically correlating, and managing numerous similar-looking conditions within the constraints of the curriculum's limited time is practically unattainable. Traditional learning (teacher-centric, usually lecture and/ or seminar based) is more of being didactic, so likely to be associated with low interest and superficial learning. Case-based learning (CBL) is an inventive, student-focused instructional approach, facilitator guided, and is increasingly integrated into medical education programs.[1,2]

Although dermatology is essentially a visual speciality with great potential to benefit from today's digital technologies, the conventional way of teaching still prevails.[3,4] At our university, medical education follows a traditional lecture-based curriculum, and this was the first time that documented clinical cases were included in the undergraduate academic teaching curriculum. Nearly all aspects of web-based education were new and had to be understood.[5] We know that e-learning offers medical schools powerful and flexible learning resources.[6] and presents several advantages, including (1) increased monitoring of student

progress in a simpler and more accurate manner,[7] (2) the possibility of watching classes several times at more convenient times and places,[7] and (3) allowance for more than one way of student-teacher communication by means of emails, chats, and online discussion forums.[8] This last point is an advantage from the students' point of view—although it may come at the expense of teachers' time, as it has the potential to consume more of their time when compared with classroom teaching alone (where teachers are only available during class time or office hours).[9] Web-based teaching also allows medical training to continue even in difficult situations (eg, the COVID-19 pandemic), and the greatest benefit is the flexibility offered by teaching platforms.[10] Despite existing evidence that web-based teaching tools associated with interconnected content, when carefully selected, can assist the learning process, conventional teaching methods are still mainstream in medical teaching.[10,11] Teaching is mainly conducted in the form of hall lectures and laboratory sessions.[12] Despite large investments, there is a lack of sufficient evidence to support the effectiveness of digital interventions in the education of health professionals.[13] The present curriculum being Competency Based Medical Education, it is more pertinent to integrate and assess the effectiveness of Case-based Learning.

MATERIAL AND METHODS

Study Area: MediCiti Institute of Medical Sciences, Ghanpur.
Study Period: December 2023 to January 2024
Sample Size: 50 students.
Inclusion Criteria: Final MBBS Part 1 students who gave consent.
Exclusion Criteria: Students absent on the day of the session.
Study Design: Randomized controlled trial with cross over design
Study Tool: Multiple Choice Questions after each session and Feed Back Questionnaire.
Implementation: After approval by MediCiti Ethics Committee vide EC/05/XII/2K23 (Expedited) dated 05/12/2023 and prior informed consent was obtained from participants. Students were randomized into two groups I and II based on odd and even roll numbers.
A total of 3 modules from a topic viz., superficial fungal infection were discussed over a period of 1 hour. In the first session, Group I received Traditional learning (TL), while Group II received CBL on the same topic. The two groups were crossed over after an interval of one week, for the subsequent session.
Both the groups were assessed by Multiple choice Questions at the end of each session. Five questions of 2 marks each were framed from each of the three modules, addressing most of the competencies and domains not merely memory recall with a total score of 30.
Perceptions of students were assessed by the feedback questionnaire using 5point Likert scale, scores ranging from 1- strongly disagree to 5- strongly agree.
Analysis: Statistical analysis was done by using SPSS software version 20.0. Data was analyzed and the two groups were compared using paired t test.

RESULTS

After the first session average scores were, Group I Traditional Learning (24) and Group II Case-based Learning (25.52)(Table-I). After crossover, there was significant improvement in Group I average score (26.56) as compared to Group II (25.36)(Table-II). The difference in mean scores was analyzed using paired t-test, which showed a better score in Group I (Traditional Learning followed by Case-based Learning), ($p<0.001$) suggesting that Case-based Learning possibly enhanced the performance. In Group II, ($p=0.71$) there was neither an improvement nor decline.Thus, we can infer that possibly recall of the topic was better as compared to Group I.
Analysis of the feedback questionnaire (Figure-1) indicated the majority of students perceived that Case-based learning as an intervention by teacher was very helpful, more interesting as compared to Traditional Learning, resulting in a better understanding of the disease process and confidence in applying the knowledge in real clinical situation.

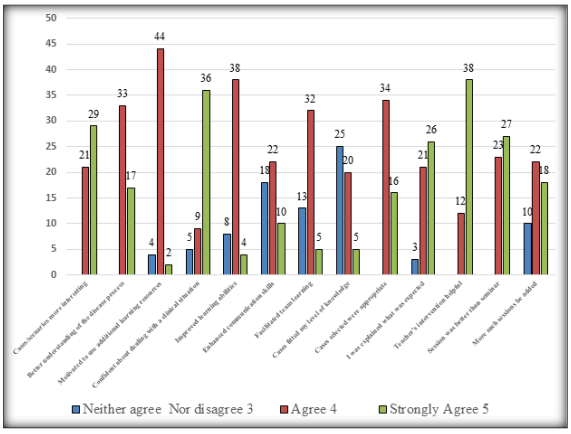

Figure 1: Students perception to feedback questionnaire

Table 1: Scores of group I and II after first session

Group I	Mean Score	Standard deviation	P value
Traditional Learning	24	2.550817	**<0.001**
Case-based Learning	26.56	2.592296	

Table 2: Scores of Group- I and II after cross over and Second session

Group II	Mean Score	Standard deviation	P value
Case-based Learning	25.52	3.07029	**0.71**
Traditional Learning	25.36	2.2151	

DISCUSSION

Significant difference was found in the mean scores of Traditional Learning versus Case-based Learning and similarly when Traditional Learning was followed by Case-based Learning as compared to Case-based Learning followed by Traditional Learning. Thus, the incorporation of Case-based Learning, coupled with targeted objective assessments, amplifies student learning through the consolidation of knowledge, improved problem-solving abilities, and enhanced clinical practice skills. Also the results of present study are similar to the studies available in the literature.[13]

Like Fordis et al,[14] we realized that the work spent on making web-based activities was more challenging than face-to-face teaching, especially when considering the design, organization, delivery, and engagement of participants in the discussion. A combination of both methods appears to be the best strategy.[15,16] In this study, these limitations were circumvented, as face-to-face activities were performed in both groups, and the students were given face-to-face contact time with both the teacher and patients seen at the clinic. Although some individuals report visual discomfort and others prefer reading a print book, both this study and the literature support the use of e-book technology in modern medical curriculum as an adjunct to traditional methods.[17].

CONCLUSION

Limitations: Small sample size and with limited time in the curriculum, the study could be done only on a single topic

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