

## **Case-Based Learning (CBL) as a Teaching-Learning Methodology (TLM) for undergraduate students of physiology in a large classroom setting**

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**Background:** The competency Based Medical Education (CBME) curriculum is highly beneficial across the globe and was implemented by National Medical Council (NMC) in 2019 in India. CBME has emphasized the inculcation of active student-driven learning strategies rather than traditional didactic lectures. Case-Based Learning (CBL) is a useful teaching-learning methodology (TLM) to address the drawback of didactic lectures. Studies have been conducted in a small classroom setting on various topics of physiology, and all of them have shown better learning in CBL compared to traditional lectures. But successful CBL in a large classroom setting had not been explored yet.

**Aim:** To assess the feasibility and effectiveness of CBL as a TLM for undergraduate students of physiology in a large classroom setting.

**Methodology:** A study was conducted on 180 first-year MBBS undergraduate students by the Department of Physiology, VMMC & Safdarjung Hospital, New Delhi, India. One important topic in hematology, blood coagulation and related disorders was chosen for CBL, and specific learning objectives were decided two months prior by three subject experts. Pre-class assessments of individual students were done using eight predesigned-MCQs. Students were divided into twelve separate groups during the actual class time, comprising fifteen students in each group. A simulated case scenario on hemophilia was given to each group. Discussion and critical thinking exercises were done with the participation of different groups on hemophilia, keeping in mind the specific learning objectives. At the end of the session, another assessment for objective scoring and subjective feedback of students and teachers was also taken.

**Results:** In the pre-class assessment, students responded pretty well with a mean mark of 75%, indicating the students knew the fundamental concepts of the topic, to begin with, the problem-solving exercises. Although the post-class assessment didn't show significant improvement of performance in terms of marks (74%), it had to be noted that post-class assessment questions were of a higher cognitive domain than pre-class assessment. Almost all students (94%) reported that CBL could promote the application of their knowledge in problem-solving and enhance their learning efficiency. Teachers also agreed that CBL could encourage students' active learning, analytic, and problem-solving skills.

**Conclusion:** CBL appeared to be an effective TLM for a large class group by providing an opportunity for the students to relate the knowledge learned during lectures.

Keywords: Teaching-Learning Methodology (TLM), Case-Based Learning (CBL), Active Learning, Large classroom learning, undergraduate teaching