

Assessment of Hybrid Problem Oriented Approach in teaching AETCOM module 4.9 in final MBBS curriculum

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ABSTRACT

Background: AETCOM module 4.9 aims to sensitize students to legal aspects of care including negligence. It is a major public health issue related to patient safety. **Aims & Objectives:** This study was done to assess the effectiveness of the hybrid problem-oriented approach in teaching this module among phase 3 part-2 MBBS students and its perception among students and faculty. **Methodology:** Module-based educational prospective interventional study involving final MBBS students and faculty of Pediatrics Department. AETCOM Module was implemented as per NMC (National Medical Commission), India suggestions involving 1 hour of sensitization, 3 hours of self-directed learning 1 hour of role play and interactive lecture, and 1 hour of panel discussion. Pre- and post-test scores of pre-validated MCQs to assess knowledge, case closure, reflections and Likert's scale for perception were recorded. **Results:** 115 final MBBS students and 6 faculty of the Department of Pediatrics participated. Significant improvement in post-test score of MCQ (mean 6.2 to 7.2 $p < 0.0001$ on Wilcoxon signed rank test) and score on case closure ($n=97$, 84.3% scoring $>80\%$) was observed. It was well received by students ($n=112$, 97.4%- satisfied or very satisfied) and faculty ($n=5$, 83.3%- very satisfied). They also found it useful ($n=4$, 66.7%). Majority of students strongly agreed that it enhanced understanding ($n=88$, 76.5%), it was practical ($n=92$, 80%), interesting ($n=88$, 76.5%), interactive ($n=91$, 79.1%) and promoted learning retention ($n=78$, 67.8%). **Conclusion:** A hybrid problem-based approach for teaching AETCOM module 4.9 was found to be effective in imparting knowledge and comprehension and it was well appreciated by students and faculty members.

KEYWORDS

Kumaon; Panel Discussion; Medical Malpractice; Medical Negligence; AETCOM Module 4.9

INTRODUCTION

The new CBME (Competency Based Medical Education) curriculum focuses on previously neglected competencies covering AETCOM (Attitude, Ethics and Communication). They

cannot be taught or assessed in a conventional manner. NMC (National Medical Council) of India suggests hybrid based learning to teach these soft skills by exploring 'real life situations'.(1)

Knowledge of Attitude, Ethics, and communication skills (AETCOM) with the patients plays a vital role in the success of medical professionals. AETCOM module 4.9 on 'Medical Negligence' aims to sensitize students to legal aspects of care including negligence and malpractice. This presents several challenges. The whole focus is on students; however, teachers are expected to teach and assess these modules having undergone no training, or a single training at a regional centre. Regular sensitization and motivation are needed to overcome these challenges if it is to be implemented in spirit as on paper.(2) Medical negligence poses a great threat to patient care, resulting in injury, disease, disability, or death. The WHO (World Health Organization) as well as the medical fraternity has recognized it as a major public health issue and deficiency in patient safety as a cause of global health concern.(3,4) A study in Wuhan City, China found up to 36.6% of deaths occurring due to medical malpractice.(5) Integrating these skills in an Indian Medical Graduate (IMG) is vital to reduce incidences of violence and medico-legal cases and for a positive doctor-patient relationship. It aims to improve patient outcomes by ensuring 'delivery of standard of care' and addresses patient safety as a health care issue. It will also hopefully ensure more informed decision-making in all situations where possible. The aims & objectives of this study were-

- To study the effectiveness of the hybrid problem-oriented approach in teaching AETCOM module 4.9 in Final MBBS professional students
- To assess the perception of students and teachers about it.

MATERIAL & METHODS

Study type, design & study population: This was a module-based educational interventional study conducted among Final MBBS students.

Study duration: 6 months

Sample size & sampling: The universal Sampling technique was planned for all phase 3 part-2 MBBS students. Faculty feedback and perception was taken from the entire Pediatrics department faculty (4 Assistant

Professors, 2 Senior Residents) involved in teaching the module.

Exclusion criteria: Students unwilling to participate, absent on the day of panel discussion or unwilling to give pre or post-test were excluded.

Strategy for data collection

Pre-project: The faculty and the students were sensitized regarding the module and teaching-learning methods to be employed by the principal investigator. MCQs (Multiple Choice Questions) were prepared following a comprehensive review of the literature and pre-validated by department faculty.

Study tool: Pre-validated questionnaire had 3 parts. The first part comprised student details - gender, age, and address. The second part had 10 MCQs on important principles of AETCOM module 4.9. The third took feedback on the Module which included an assessment based on Likert's scale and space for reflections and a summary of the case, feedback, and program. The students were given the first part at the beginning of the study and the second part as a pre-test and a post-test at the end of the study.

Intervention

AETCOM module 4.9 was taught over 6 hours as a hybrid Problem-Based Learning (PBL) module as per details given below(1)-

1 hour- Sensitization of Students and Faculty and introduction of case.

3 hours- Self-directed learning, Link to relevant literature shared in Class WhatsApp group for self-directed learning (SDL).

1 hour- Role-play enactment by residents of the Department of Pediatrics followed by an interactive lecture on medical negligence and malpractice by departmental faculty. This was followed by a pre-test given as a Google form in the class WhatsApp group.

1 hour- An Interactive Panel discussion involving legal experts (Lawyer in High court, District Nainital dealing with such cases and members of Institutional ethical committee (IEC), Faculty from Forensic medicine and 3 senior clinicians from the surgical, medical and pediatrics department.

Post-intervention: This was followed post-test, closure of the case followed by submission of a written summary and

reflection on the topic by each student. The summary was scored on a scale of 1-5 by faculty to test the comprehension of the students on the subject. Knowledge of AETCOM module 4.9 was assessed at the end by post-test.

Reflections and suggestions regarding the implementation of the module were also taken. Reflections were made using a Rolfe's Reflective model. Step 1- What happened? (Students were asked to recall the event and write it down descriptively). Step 2- So What? (Reflect and interpret the event). Step 3- What Next? (Conclude what you can learn from the event and how it can be applied next time). The students as well as faculty were familiarized with reflective writing as part of module. A content and thematic assessment of reflective writing was done by Faculty of the department. Feedback of students was collected in written form in Likert's scale (1-very dissatisfied 2-dissatisfied 3- neither satisfied nor dissatisfied 4- satisfied 5- very satisfied) and their perception of the module in imparting a clear understanding of the topic, and practicality. They were also asked to assess the module for the interest it generated, retention and interaction. Reflections and feedback were duly documented. The reaction of the faculty regarding the conduction of the AETCOM module 4.9 on Likert's scale (1-verydissatisfied 2- dissatisfied 3- neither satisfied nor dissatisfied 4- satisfied 5- very satisfied) and perception regarding the usefulness of the module based on Likert's scale (1-very unimportant 2- unimportant 3-neutral 4-important 5-very important). Reflections and suggestions regarding the implementation of the module were also taken.

Ethical issues & informed consent: Written informed consent was taken from all before the commencement of the study. The study was conducted after the ethical approval from Institutional Ethical Committee of Government Medical College, Haldwani (731/GMC/IEC/2023/Reg. No. 747/IEC/R- 08-09-2023 dated 19/10/2023).

Statistical Analysis: The descriptive results of students and faculty feedback measured by the Likert's scale were shown as frequency & percentages using MS Excel software whereas

the association between MCQ pre-test and post- test was tested using the Wilcoxon Signed-Rank test through an online calculator. p-value <0.05 was considered as significant.

RESULTS

A total of 115 out of 124 students of Final MBBS students of the 2019 Batch who were present on the day of the physical lecture, role play, and panel discussion were included in the study. There were 61 Female and 54 Male students: 107 Hindu and 8 Muslim students. All willingly participated, consented to the study gave pre- test and post-test and submitted reflections on the case and feedback on the program. The entire faculty of the Department of Pediatrics (n=06) participated in the study. Student's feedback- The implementation was well received by the students with two-thirds very satisfied (n=70) and one-third satisfied (n=42) (Figure 1). The acquisition of knowledge showed a significant improvement from a mean pre-test score on the MCQ test of 6.2 to 7.2. (Table 1) There was no difference in score among both genders and neither religion. Self-directed learning, which is a key concept of the CBME curriculum is effective as pre-test scores following sharing literature with students was effective in giving them some basic knowledge of this topic as shown by a high pre-test score. The teaching-learning module was also effective in imparting practical knowledge as shown by high scores on interpretation of the case scenario-based question. (Figure 2) About 74% of students (n=85) were able to correctly interpret the case.

Figure 1 Satisfaction score of students for teaching-learning methods of AETCOM module 4.9 (n=115)

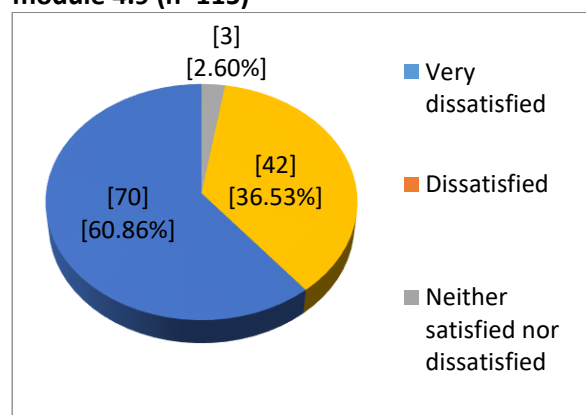


Figure 2 Score of students on closure of case scenario in AETCOM module 4.9 (n=115)

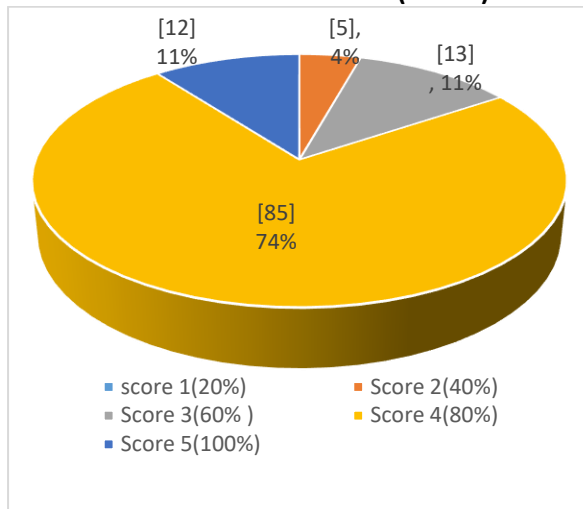


Table 1 Knowledge score of students on principles of AETCOM 4.9 before and after intervention (n=115)

MCQ Score	Pre-testn (%)	Post-testn (%)
1	0 (0)	0 (0)
2	0 (0)	0 (0)
3	0 (0)	0 (0)
4	16 (13.9)	3 (2.6)
5	10 (8.7)	6 (5.2)
6	38 (33.0)	25 (21.7)
7	32 (27.8)	28 (24.4)
8	16 (13.9)	32 (27.8)
9	3 (2.6)	20 (17.4)
10	0 (0)	1 (0.9)
Average score	6.27	7.25

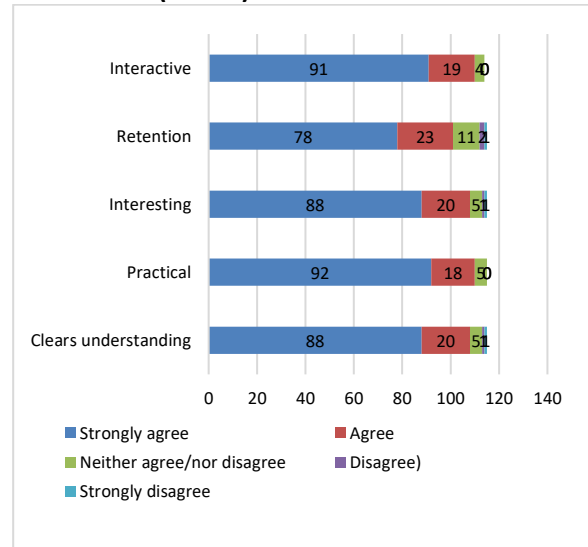
Wilcoxon Signed-Rank test, Z= -8.7677, p< .00001.

Reflections of the students gave us useful insight on the implementation and usefulness of the module. Some comments were

The students perceived the module to be comprehensive, versatile, informative. The implementation in the form of hybrid problem-based approach was appreciated as being interactive, with one-on-one discussions clearing concepts and giving insights into real life scenarios. It was found to be practical and would be helpful in key areas like communication, documentation, consent. This is likely to improve patient care by sensitizing future doctors to duty of care in emergency and life-threatening scenarios and role of written informed consent in routine cases. It

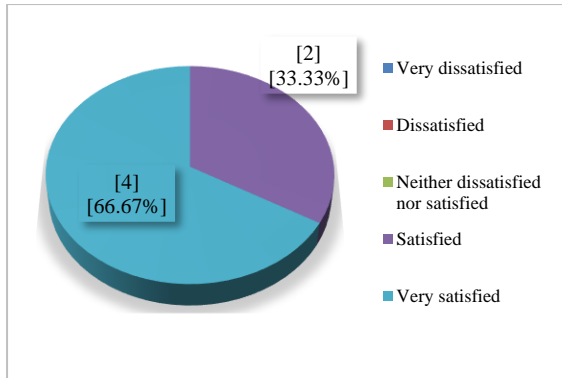
has the potential to reduce medico legal cases in future by sensitizing young medical graduates to their duty and liability. The module sensitized them to legal protection for doctors, gross negligence, and compensation. It will help in holistic development of future doctors by enhancing essential ethical base and improve patient safety with better doctor patient interaction. Most students strongly agreed that teaching-learning methods for AETCOM module 4.9 cleared understanding (n=88, 76.5%), practical (n=92, 80%), interesting (n=88, 76.5%), retention (n=78, 67.8%) and interactive (n=91, 79.1%). (Figure 3)

Figure 3. Perception of students regarding the teaching-learning methods of AETCOM module 4.9 (n=115)



Faculty perception and feedback- The faculty were very satisfied (n=5, 83.33%) with the implementation (Figure 4) and 66.7% found it very useful (n=4) and 33.3% useful (n=2) (Figure 5) and felt students learned a lot. They however opined that it was time-consuming (n=4, 66.7%). As it is a non-core competency, planning a panel discussion, role play and MCQ test is important but difficult to implement in the MBBS curriculum (n=5, 83.3%). They felt it would be more useful for interns and post-graduate students, so could be taken as an integrated class.

Figure 4. Faculty feedback and perception on usefulness of AETCOM module 4.9 (n=6)



DISCUSSION

The Judiciary and Legislature have relaxed norms for doctors regarding criminal liability by making negligence 'gross' and removing death due to negligence from the ambit of criminal proceedings as per *Bhartiya Nyaya (second) Samhita, 2023* from December 21. However, the culpability of doctors and patient safety has ensured huge compensation for patients, to the tune of 11 crores.(6,7) These judgments could herald frivolous litigations to get huge money and defensive practice from doctors. An urgent need was felt to address the issue to enhance patient safety and regulate the medical profession to protect the interest of all concerned.

The new CBME curriculum plans to impart soft skills related to attitude, ethics and communication to the Indian Medical Graduate (IMG), the doctor of first contact for the patient to improve patient care and make the IMG more globally relevant. These soft skills are critical for a positive doctor-patient interaction and the success of a clinician. Traditionally doctors acquired these skills through observing their seniors and through their experiences. Over the years, a need was felt to incorporate the teaching and document acquisition of these skills more formally and holistically. Hence the AETCOM module was introduced.

Different modules are to be implemented over the entire curriculum. The Final MBBS has 5 Modules allotted to different departments to be implemented in a hybrid teaching-learning method over 25 hours involving traditional lectures, self-directed learning, case-based scenarios, role plays and newer methods like a panel discussion.(1,8)

Medical negligence and malpractice are an important overlooked aspect of doctor-patient confrontations with adverse falls out for both. It is a global health concern as it is closely related to patient safety. It is believed to contribute to a significant percentage of patient deaths and adverse fallout in the form of disability, injury, and disability. For the doctor, it implies stress, monetary loss and in certain cases imprisonment. The rising cases of medico-legal cases and violence against doctors need to be addressed holistically. The medical professional needs to be sensitized to his duties of care, especially in case of emergency and his limitations.(9)

The importance of communication, consent and documentation needs to be taught to the IMG. This will help the patient make more informed decisions and be better informed about his condition and the treatment modalities available. It will also create trust between the doctor and patient, an aspect which has been found to be lacking late.(10,11) In the long run, this curriculum enabled doctors will hopefully face less violence and medico-legal cases. Patient safety should be enhanced by reducing incidences cases of litigations and negligence-a win-win situation for all. Communication skills can be effectively imparted by the AETCOM module has been documented by some studies.(12) The best way to reduce the number of medico legal cases is to prevent them. AETCOM module 4.9 is a small attempt to teach and assess the young Indian Medical graduate on this important topic. A 'good student' that is a top scorer may not necessarily be a 'good doctor' but is likely to have the knowledge and skills to be so especially with the help of the new AETCOM module.(13) Assessment and teaching of these AETCOM modules is not easy for a traditionally trained teacher as they may have acquired these skills by observing their seniors as a 'secret curriculum' and may be unfamiliar with new teaching learning and assessment tools.(14)

This is the first Batch of the new CBME curriculum in which this module is being implemented. This study documents a stepwise implementation of this module in MBBS final year students (6 hours as

recommended by NMC) and its effectiveness in imparting knowledge and understanding (mean pre-test score 6.2, mean post-test score 7.2, Wilcoxon Signed-Rank test, $Z = -8.7677$, $p < .00001$). This study documents the acquisition of knowledge as shown by statistically better post-test scores in the implementation of AETCOM module 4.9 by PBL and a critical understanding of finer nuances as shown by their interpretation of case-scenario given to the students ($n=85$, 74% of students scored 80% and $n=12$, 11% students scored 100%). It also shows success of self-directed learning by a high score on pre-test MCQ test. The hybrid module was very well received by students ($n=70$, 61% very satisfied and $n=42$, 36% satisfied) and faculty ($n=5$, 83.3% very satisfied and $n=1$, 16.7% satisfied) alike as shown by the perception of students and faculty. The success of the module augers well for the future. Over the years medical fraternity has recognized the need and importance of teaching ethics to medical graduates but the methodology needs to be standardized.⁽¹⁵⁾ It highlights the fact that soft skills can be taught effectively by this hybrid approach. The record review of faculty feedback revealed the challenges that are likely to emerge. Time, manpower constraints and lack of trained faculty are likely to be the roadblocks in its effective implementation. Motivated faculty can ensure its success. By implementing this module, we hope that patient safety, outcome, and quality of care will be enhanced and financial and criminal liabilities arising out of medical negligence cases will decrease. This study documents a standard module for undergraduate teaching of AETCOM module 4.9 and its assessment methodology which can help others involved in teaching this module. Medical institutions need to gear up to provide additional infrastructural, logistic and personnel support to implement this module. Integrating it with post-graduate and intern curricula is likely to be appreciated and valued.

CONCLUSION

This is the first time AETCOM module 4.9 was implemented with a novel TLM (teaching-learning method) in the MBBS curriculum. It was well appreciated by students and faculty

alike. A significant improvement in the post-test MCQ score showed its effectiveness in imparting knowledge. It helped in building concepts and understanding as evident from the high scores obtained by students on questions based on case scenario.

The faculty also found it useful. Students opined that, it enhanced understanding, was practical, interesting, interactive and promoted learning. A pre-test was conducted after sharing literature. Good scores in pre-test are testimony to the efficacy of self-directed learning as an effective learning tool for young medical students.

RECOMMENDATION

Long-term impact in terms of reduced incidence of medico-legal cases and doctor-patient altercations after this module would be relevant. The curriculum is also relevant for medical Interns and post-graduate students in clinical departments and NMC may consider including it in the post-graduate/ internship curriculum or as an integrated module in the future.

LIMITATION OF THE STUDY

The study had a small sample size of 115 out of 124 students; a more robust study to confirm findings is needed.

RELEVANCE OF THE STUDY

Students as well as faculty liked the implementation and appreciated the new teaching-learning method which we employed. However, manpower and planning for panel discussion -lawyers, forensic experts along with senior clinicians made implementation a little difficult. As it is a non-core competency for MBBS students the faculty was reluctant to put in so much time. However, it was attended by PG residents and interns of clinical departments voluntarily reflecting its relevance for, medical students.

AUTHORS CONTRIBUTION

All authors made substantial contributions to concept and design; acquisition, analysis & interpretation of data; drafting, revising & final approval of the article.

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Nil

CONFLICT OF INTEREST

None declared

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