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Original Research Article

Impact of AETCOM module 1.4 (foundations of communication) on the knowledge and perception of MBBS phase I students regarding effective doctor–patient communication: a pre-test post-test study

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ABSTRACT

Background: Effective doctor–patient communication is fundamental to high-quality healthcare. It supports accurate diagnosis, treatment adherence, patient safety, patient satisfaction, and shared decision-making. The Attitude, Ethics and Communication (AETCOM) program was introduced as part of India's competency-based undergraduate medical education curriculum. This study evaluated changes in Phase I MBBS students' knowledge following AETCOM module 1.4 (foundation of communication) and explored their perceptions of the module.
Methods: A single-group pre-test post-test educational evaluation with a student-feedback survey was conducted among 150 Phase I MBBS students at a university-affiliated medical college and tertiary-care hospital in Pune, India, between May and July 2023. Students completed an eight-item questionnaire before and after the AETCOM sessions. Their perceptions were assessed using a structured feedback questionnaire. Pre and post-test scores were compared using a paired t-test.
Results: The mean score increased from 2.86±0.84 in the pre-test to 5.52±1.38 in the post-test ($p<0.001$). Student feedback was favorable: all respondents considered AETCOM useful for highlighting the importance of the doctor–patient relationship, and most endorsed its potential contribution to communication skills and patient-centered care. Students also recommended greater use of activity-based, student-centered learning.
Conclusions: AETCOM Module 1.4 was associated with improved scores on a knowledge-based assessment and was positively received by students. These findings support its role in introducing communication principles early in undergraduate medical education. Further studies using observed communication assessments and longitudinal follow-up are needed to determine whether knowledge gains translate into sustained communication skills in clinical practice.

Keywords: AETCOM, Doctor–patient communication, Competency-based medical education, Undergraduate medical education, Student feedback

INTRODUCTION

Communication is the exchange of thoughts, opinions or information by speech, writing or signs (Webster's Dictionary). Effective doctor–patient communication is the heart and art of medicine and is central to the delivery of high-quality patient care.[1] Good communication helps the doctor to regulate patients' emotions, convey medical

information and identify patients' needs, perceptions and expectations. It is crucial for accurate diagnosis, adherence to treatment, patient and doctor satisfaction, patient safety and reducing the incidence of violence against doctors.[2] The principal goal of doctor–patient communication is to build a good interpersonal relationship, to facilitate the exchange of information and to involve patients in decision making.[1]

Verbal communication in a medical consultation is relatively easy to interpret and analyze: it has clear endpoints, occurs in a single mode, is largely under voluntary control and conveys cognitive content more efficiently than emotion. Non-verbal communication, in contrast, is harder to interpret. It is continuous even in silence, can occur through several channels at once, operates at a less conscious level, leaks spontaneous cues, and is the channel chiefly responsible for communicating attitudes, emotions and affect.[3,4] Non-verbal communication therefore plays a pivotal role in doctor–patient interactions: it helps to build the relationship, provides cues to unspoken concerns and emotions, and reinforces or contradicts what is said.[5] Patients and their relatives closely observe the doctor's tone of voice, eye contact, posture, movement, facial expression and speech pattern to judge whether the doctor is approachable and willing to listen, which is important for building trust and for the success of the consultation.[6]

Competency-Based Medical Education (CBME) was implemented in the MBBS curriculum in India from 2019. It is an outcome-based approach that integrates knowledge, skills, attitudes and ethics into observable and measurable competencies.[7,8] The overall goal of the undergraduate program, as envisaged in the revised Graduate Medical Education Regulations, is to produce an "Indian Medical Graduate" (IMG) with the requisite knowledge, skills, attitudes, values and responsiveness to function as a physician of first contact in the community while remaining globally relevant. To achieve this, the IMG must function effectively and ethically as a clinician, leader and member of the health-care system, communicator, lifelong learner and professional.[7–9] Medical ethics, behavioural science, communication skills and managerial skills received little attention in the traditional discipline-based curriculum.[7–9]

Poor communication with health-care providers increases anxiety and stress among patients, and a perceived lack of empathy can leave patients feeling isolated, with long-term psychological consequences. Communication is therefore vital to the delivery of health care because it improves patient satisfaction and compliance and reduces the likelihood of adverse events.[7-10] The most complaints against doctors relate to communication rather than to clinical competence.[11] The Kalamazoo Consensus Statement describes seven evidence-based essential elements of physician–patient communication, with skill competencies for each, to facilitate the teaching and assessment of communication skills at all levels of medical education.[12,13] The AETCOM module was introduced to address this gap. Its underlying principle is that changing a person's attitude can change his or her behaviour, and their successful implementation is expected to facilitate the transition to competency-based undergraduate education and to make medical education more relevant to the health needs of society.[7] Including AETCOM Module 1.4 in the first professional year, through departments such as Biochemistry, offers an early opportunity to lay the foundation of doctor–patient communication. Large-group discussions combined with role play may help students to understand the importance of communication in clinical practice.

The objective of this study was to evaluate the effectiveness of AETCOM Module 1.4 (Foundations of Communication-1) in Phase I MBBS as a tool for emphasizing the importance of good doctor–patient communication, by comparing students' pre-test and post-test scores, and to obtain students' feedback on the conduct of the module.

METHODS

Study design and setting

This was a single-group pre-test–post-test (before-and-after) study conducted in the Department of Biochemistry of Smt. Kashibai Navale Medical College and General Hospital, Pune, India, from May to July 2023. Institutional Ethics Committee approval was obtained (SKNMC/Ethics/App/2023/10), and written informed consent was obtained from all participants.

Participants

Phase I MBBS students who attended AETCOM Module 1.4 and consented to participate were included (n = 150).

Intervention

As per the CBME curriculum, AETCOM Module 1.4 (Foundations of Communication-1) forms part of the Biochemistry teaching in Phase I MBBS. The module was delivered as a large-group discussion (2 hours) and a small-group discussion (2 hours), supplemented by role plays performed by students as a self-directed learning (SDL) activity (2 hours). Emphasis was placed on language, voice tone, context, non-verbal cues, and the correct way to start and conclude a conversation with a patient. Videos on the importance of doctor–patient communication and the role of the doctor in society were also shown. The sessions were spread over three months according to the departmental timetable. Assessment of knowledge. A pre-test and post-test questionnaire was designed on the competencies listed for module 1.4 by faculty who had completed the Curriculum Implementation Support Program (CISP) for CBME, with attention to the components of communication, its barriers, and its effect on core clinical practice. The same

questionnaire, administered through Google Forms, was used for both tests (Table 1). It contained eight items: seven multiple-choice questions and one short-answer item asking for the full form of AETCOM, each carrying one mark (maximum score 8). The pre-test was administered before the large-group discussion, and the post-test after completion of all sessions.

Assessment of perception

Students' perception of the module, and of the inclusion of AETCOM in the curriculum as a means of acquiring good doctor–patient communication skills, was assessed with a pre-validated feedback questionnaire (Table 2). The feedback questionnaire was developed by the investigators based on the competencies listed for AETCOM module 1.4 and was content-validated by a panel of subject experts including faculty from the Departments of Biochemistry and Medical Education Unit, for relevance, clarity and appropriateness of the items. Their suggestions were incorporated into the final version. The feedback was anonymous so that students could express their true opinions.

Statistical analysis

Pre-test and post-test scores are presented as mean±standard deviation and were compared using the paired t test; $p<0.05$ was considered statistically significant. Responses to the feedback questionnaire are presented as percentages. Analysis was performed using GraphPad Prism 5.

Table 1: Questionnaire about AETCOM pre-test and post-test for the students.

	Questionnaire
1	Module 1.4 of AETCOM in first phase MBBS stands for_____
2	Non-verbal components of doctor-patient communication include all of the following EXCEPT: a) Facial expression b) Eye contact c) Warmth touch d) Tone of the voice
3	A relationship involving high doctor control and low patient control is termed as _____relationship. a) Default b) Paternalism c) Consumerist d) Mutuality
4	All of the following are elements of Kalamazoo Model except: a) Build a relationship b) Open the discussion c) Share information d) Avoid eye contact while listening to not to make patient conscious
5	All of the following can be used during building relationship to make positive first impression EXCEPT: a) Doctor should inform him/her self who the patient is by checking patient's medical record before he/she walks b) Make good eye contact c) Have assumption that patient will immediately know who the Doctor is d) Let patient tell their story in her/his own words
6	Following information should be extracted from patient during course of the interview? a) Open ended question about patient's problem b) Direct close ended questions in order to understand the problem c) Ask questions to learn about the patient's family, social & economic history d) Avoid repeating the information he or she received from the patient
7	Benefits of good doctor patient Communication are all except: a) Prevention of Malpractice b) Adherence to treatment c) Improved health care delivery d) Increased violence
8	Physician's Barriers of effective communication are all except: a) Attitude of doctor due to superiority b) Neglect to keep patient adequately informed c) Lack of sufficient time d) Multitasking doctor

Table 2: Feedback questionnaire about AETCOM for the students.

	Feedback	
1.	According to you, does introduction of AETCOM 1.4 module in the curriculum has positive effect on your communication skill as a medical student?	Yes/No
2.	Do you think, introduction of AETCOM in MBBS curriculum is useful in understanding and building good doctor-patient relationship?	Yes/No
3.	Which teaching-learning method was best suitable for AETCOM module 1.4?	PPT aided Lecture/ LGD/SGD/Role Play

Continued.

	Feedback	
4.	Do you think, AETCOM module 1.4 in the curriculum will help you to improve doctor-patient communication in future to upgrade quality of care and health outcomes?	Disagree/Agree/Strongly Agree
5.	Do you think miscommunication between Doctor and Patient can lead to violence?	Yes/No
6.	Do you think, to be a good doctor you need to have good communication skills as a part of holistic patient care?	a) Strongly Agree b) Agree c) Disagree
7.	Do you think to communicate in local language with patients or relative is of paramount importance to build the trust in doctor-patient relationship?	a) Strongly Agree b) Agree c) Disagree
8.	Any suggestions to improve the session?	Student centric activities should be included/ Session should be made interesting by Role play or involving videos by teachers /Others (Please Specify).

RESULTS

The study included 150 participants, with a mean age of 18.54±0.52 years. Of the total participants, 85 (56.66%) were females and 65 (43.34%) were males. The demographic characteristics of the study participants are summarized in Table 3. Pre-test and post-test scores: The mean score increased significantly from 2.86±0.84 in the pre-test to 5.52±1.38 in the post-test (mean difference 2.66; $p<0.001$; Table 4, Figure 1). In the pre-test, 20% of students scored 4 or more out of 8, and the highest score was 5, obtained by two students. In the post-test, 91.07% of students scored 4 or more, and two students obtained the maximum score of 8.

Identification of the module

In the item asking for the full form of AETCOM Module 1.4 (one mark), 16 % (n=24) of students answered correctly in the pre-test compared with 84% (n=126) in the post-test.

Student feedback

Students' perceptions of AETCOM Module 1.4 (Foundations of Communication) were assessed with a structured feedback questionnaire administered at the end of the sessions, and the responses were highly positive. Most students (96%) (n=144) felt that including the module in the MBBS curriculum would positively influence medical students' communication skills, and all (100%) (n=150) considered it useful for highlighting the importance of a good doctor–patient relationship. All students (100%) (n=150) also recognised that miscommunication between doctors and patients can lead to violence. Regarding the future impact of the module, 64.7% (n=97) strongly agreed and 35.3% (n=53) agreed that it would help medical graduates gain patients' confidence and improve the quality of care and health outcomes.

Students also stressed the need for engaging, learner-centred teaching methods. About 94.6% (n=142) recommended more activity-based, student-centred approaches, such as role play and videos, to improve the sessions. Nearly all students (98%) (n=147) strongly agreed that good communication skills are essential for becoming a competent doctor and providing holistic patient care. Communicating with patients and relatives in the local language was also considered important: 91.3% (n=137) strongly agreed that it is crucial for building trust and involving patients in decision making. Overall, students regarded AETCOM Module 1.4 as a valuable part of undergraduate medical education for developing effective doctor–patient communication and promoting patient-centred care.

Table 3: Demographic characteristics of the study participants (n=150).

Demographic parameters	Values
Age (years), mean±SD	18.54±0.52
Female, N (%)	85 (56.66%)
Male, N (%)	65 (43.34%)
Total participants, N (%)	150 (100%)

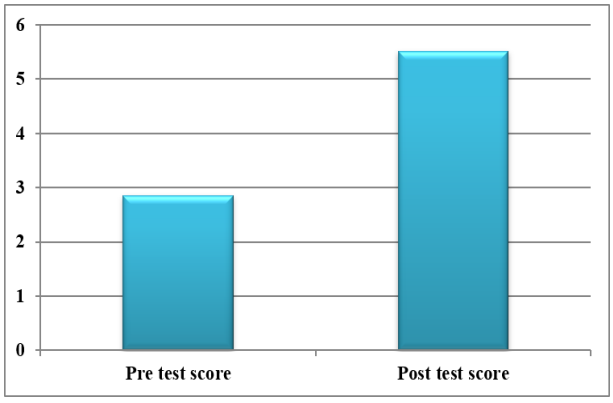

Figure 1: Comparison of pre-test and post-test score performance of students.

Table 4: Pre-test and post-test score (Mean±SD) performance of the students.

	Pre-test score	Post-test score
Mean	2.86	5.52
SD	0.84	1.38

P<0.001, Highly significant.

DISCUSSION

Doctor–patient communication encompasses many facets of the interaction between the health-care provider and the patient, including the provider's bedside manner, the use of verbal and non-verbal communication by either party, and the exchange and comprehension of medical information and advice.[14] It serves both clinical and human needs: clinically, it is used to understand symptoms, patient histories and needs, and to discuss the optimal treatment path, including any self-care tasks the patient must undertake; on the human side, it builds rapport, trust and empathy and leads to greater satisfaction for all parties.[15] Transforming a young medical student into a competent health-care professional requires training across the cognitive, psychomotor, affective and communication domains, yet the traditional curriculum neglected the communication and affective domains in favor of the cognitive domain.[16–19] The IMG is expected to communicate effectively with patients and relatives in a manner that respects the patient's preferences, values, beliefs, confidentiality and privacy and the competency-based undergraduate medical education curriculum 2019 introduced the AETCOM program to impart the knowledge and skills needed for this.[7,20]

In the present study, students' scores rose significantly after the AETCOM sessions (mean 2.86 to 5.52 out of 8; p<0.001), and the proportion who could correctly identify the module increased markedly. Our findings are consistent with those of Jain et al who found higher post-test than pre-test scores after medical interns were trained using the AETCOM module and concluded that it was effective in improving their communication skills, which may in turn help prevent malpractice and litigation.[10] Sharma et al., in an interventional pilot study on third-year MBBS students, concluded that the AETCOM module was effective and well perceived by stakeholders.[21] Structured communication-skills training for interns has similarly been reported to be useful.[22] Because we used the same questionnaire before and after the module, part of the improvement may reflect familiarity with the test, and the result should be read as a gain in knowledge rather than a proven change in communication behavior.

Students' perceptions were equally favorable. All students felt that AETCOM is useful for building a good doctor–patient relationship, and 96% felt that it would improve their communication skills. This agrees with Dixit et al whose students felt that AETCOM would help them gain confidence and develop good communication skills in the long term and with Vijayasree, who studied first-year MBBS students' perception of AETCOM as a learning tool in the foundation course and reported that students felt such training should be integrated into the regular curriculum across semesters.[23,24] Shilpa et al in a study of 150 first-year MBBS students who underwent training on various AETCOM modules, found through reflection and feedback that students realized the importance of empathy in building a good doctor–patient relationship and in effective patient management.[25] Bidikar et al likewise examined first-year students' perception of the AETCOM module on empathy and Zayapragassarazan et al in a record review of participant feedback, found that participants valued the changes in the curriculum introduced by the Medical Council of India.[20,26] Two further observations from our students deserve attention: about 94.6% asked for more activity-based, student-centered sessions, and 91.3% strongly agreed that communicating in the local language is crucial for building trust and involving patients in decision making. These suggest that future sessions should make greater use of role play and be contextualized to the languages patients actually speak.

Active listening, empathy and the use of open-ended questions are examples of skillful communication emphasized in Module 1.4. Patients often regard their doctors as one of their most important sources of psychological support, and empathy is one of the most powerful ways of providing it, by reducing feelings of isolation and validating patients' thoughts and feelings as normal and expected.[1] Better communication is associated with greater patient involvement and adherence to recommended therapy, with improved patient satisfaction, quality of care and health outcomes and with more informed participation in treatment decisions.[27-29] Introducing these principles in the first professional year therefore seems appropriate, and our findings suggest that the module is feasible to deliver within the Biochemistry curriculum and is valued by students.

Limitations

This study has several limitations. It was conducted at a single institution, used a single group without a control group, and relied on the same questionnaire for the pre-test and post-test, which may have introduced a testing effect. The tests assessed knowledge, and the feedback captured self-reported perception; neither measured actual communication behaviour or patient outcomes. The effect was assessed immediately after the module, so retention was not evaluated. The psychometric properties of the test questionnaire (for example, reliability and item difficulty) were not reported. We did not use a simulated-patient approach, which allows direct assessment of communication skills. Longitudinal prospective studies extending to the internship period could better define the long-term effect of the individual AETCOM competencies. Future studies could also compare teaching–learning methods such as role play, panel

discussions and guest lectures by experienced clinicians, and explore newer approaches such as virtual reality.

CONCLUSION

AETCOM Module 1.4 (Foundations of Communication-1), delivered in the Biochemistry curriculum through large-group and small-group discussions, role play and videos, produced a significant short-term improvement in Phase I MBBS students' knowledge of doctor–patient communication. Students perceived the module as useful for understanding the doctor–patient relationship and as a preparation for future clinical practice, and they favored more activity-based sessions and emphasized communication in the patient's local language. These findings support the early introduction of structured communication training in the first professional year, with reinforcement in later phases of the course. As this was a single-center study without a control group that assessed knowledge and perception rather than observed behavior, multicenter and longitudinal studies with skill-based assessment, such as simulated patients, are needed to establish whether the module improves communication in clinical practice.

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