

# Humanizing the Cadaver- Awareness, Knowledge, Attitude and Perception of AETCOM among MBBS Students: An Observational and Mixed-Method Study

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## ABSTRACT

**Background:** The Attitude, Ethics, and Communication (AETCOM) module was introduced in medical education by Medical Council of India and emphasized by National Medical Commission to develop humane, ethical and empathetic Indian Medical Graduates (IMG). Module 1.5: The Cadaver as our first teacher of AETCOM emphasized the concept of Humanizing the Cadaver. Understanding student awareness, attitude, knowledge and perception toward AETCOM module 1.5 is crucial for enhancing its effectiveness and in this study, we aimed to assess it.

**Methods:** An Observational, cross-sectional, Mixed-Method and questionnaire-based study was conducted among 150 Phase III Part 2 MBBS students who completed AETCOM module 1.5. A structured questionnaire with closed and open-ended questions was used to collect both quantitative and qualitative responses. Data were analyzed using descriptive statistics and thematic analysis.

**Results:** 108 responses were recorded. Awareness based theme revealed, 108(100%) were aware about biological specimens but awareness about AETCOM, Cadaver and its handling were lacked before they underwent AETCOM 1.5. Knowledge based theme revealed, 108(100%) had expanded AETCOM and had been well informed about dissection technique, cadaver handling, disposal with its preservation and biomedical waste management. Attitude and Perception showed 108 (100%) had empathy towards cadaver. Students also lacked ideas in above themes.

**Conclusion:** The study highlights that AETCOM was well-received and effective in promoting professionalism and empathy among MBBS students. Strengthening experiential learning, Cadaver donation outreach programs with student- faculty collaborative participation will further improve its impact.

**Key-words:** AETCOM, Attitude, Awareness, Knowledge, MBBS, Perception, Students

## INTRODUCTION

The Medical Council of India (MCI) introduced the AETCOM (Attitude, Ethics and Communication) curriculum in 2017 across all phases of the MBBS programme.

The initiative aims to develop Indian Medical Graduates with the knowledge, skills, attitudes, values, and responsiveness required to function effectively as first-contact physicians while remaining globally relevant. Now National Medical Commission (NMC) had further evolved the importance of AETCOM across all the medical schools in India. In the AETCOM, module 1.5: The Cadaver as our first teacher emphasized the concept of Humanizing the Cadaver. The main objectives of module 1.5 were to educate the Phase I MBBS students: regarding the handling of cadavers and biological tissues, the nature of procurement of cadavers and the respect with gratitude that should be shown towards the donors

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and their families. Four hours of sessions were mandated for this module with the competency Demonstrate respect and follows the correct procedure when handling cadavers and other biologic tissues. The students were assessed formatively. In our Institute we implemented the module as prescribed in AETCOM guidelines by NMC<sup>[1]</sup>, with further reference to Yale proceedings<sup>[2]</sup> and Tamilnadu state biomedical waste management policy<sup>[3]</sup>. Many studies had recorded the significance of AETCOM modules,<sup>[4-7]</sup> among the students pertaining to their respective phases<sup>[8-19]</sup> of medical curriculum but in our study, we aimed to assess the extent to which the Phase III Part 2 MBBS students (final year) carried their awareness, knowledge, attitude and perception of the module 1.5 of AETCOM (which they learned during their Phase I MBBS) across their medical curriculum and the effect of it in their clinical practice.

## MATERIALS AND METHODS

**Study Setting, Design and Population-** This observational, cross-sectional, mixed method and questionnaire-based study was conducted among 150 Phase III Part 2 MBBS (final year) students by convenient and purposive sampling, during 2025 in the department of Anatomy, Karpagam Faculty of Medical Sciences and Research, Coimbatore, Tamilnadu, India.

**Inclusion Criteria-** All the students who had completed Attitude, Ethics, and Communication (AETCOM) module 1.5: The Cadaver as our First Teacher during Phase I MBBS, who had consented for the study and those who had submitted the complete responses for all the questions.

**Exclusion Criteria-** Students whose responses were incomplete despite 3 reminders from the date of submission and students, who are not consenting.

**Study Variables and Study Tool-** A self-administered, structured questionnaire developed in Google Forms was used to assess four domains related to the AETCOM Module 1.5, “The Cadaver as Our First Teacher”: awareness, knowledge, attitude, and perception among the participants.

**Methodology-** Total 150 Students consented and participated in the study. Out of it, responses which had answers for all the questions in the questionnaire, were included (n=108) in the study, while incomplete responses despite repeated reminders (3 times) (n=42) were excluded from the study. A Self-administered and structured questionnaire (Table 1) was distributed in google forms comprising both closed-ended and open-ended questions. It covered questions which elicited responses in terms of awareness, knowledge, attitude and perception regarding Module 1.5. The scientific and technical aspects of cadaver & its preparation, cadaver procurement, cadaver & biological tissue handling and maintenance, dissection experience with respect to emotional & empathy quotient and finally the AETCOM 1.5 influence over the patient care were the domains covered in the questionnaire. Demographic details were noted, some of the responses were recorded with binary response yes or no and most of responses were open ended. The responses were tracked by the observers appointed for it in small groups and feedbacks for the responses were also made, if the prompted questions warranted it.

**Table 1:** Prompted Questionnaire

Awareness
<ul style="list-style-type: none"> <li>• Acquaintance with AETCOM and its modules.</li> <li>• Awareness about Cadaver and biological specimens.</li> <li>• Awareness on biomedical waste management.</li> </ul>
Knowledge
<ul style="list-style-type: none"> <li>• Objectives and outcomes of AETCOM module 1.5</li> <li>• Understanding about etymology, procurement of Cadavers in Tamilnadu.</li> <li>• Knowledge about Anatomy act.</li> <li>• Technical details about dissection and preservation of cadaver and biological specimens with their handling and disposal.</li> </ul>
Attitude and perception
<ul style="list-style-type: none"> <li>• Views about AETCOM 1.5 in affective domain.</li> </ul>

- Personal viewpoints about cadavers, cadaveric oath and handling of cadavers and biological specimens.
- Perception about usage of cadavers in their medical knowledge.
- Empathising factors on cadavers, voluntary donors and their families.

**Statistical Analysis-** Data were compiled in Microsoft Excel for analysis. Quantitative data were analyzed using descriptive statistics — frequency, percentage and mean with standard deviation. Qualitative responses were documented using thematic analysis (Awareness, Knowledge, Attitude and Perception). Two assessors drafted the responses under appropriate themes independently and analyzed the inferences.

**Ethical Approval-** This study was carried out after obtaining due ethical approval from the Institutional Human Ethical Committee (IHEC). Student participation was made entirely voluntary and prior consent was obtained to answer the questionnaire.

**RESULTS**

Among the 108 participants, only 2 (1.85%) were aware of the acronym AETCOM before entering Phase I MBBS, while 27 (25.0%) had previously heard the term cadaver through movies, web series, friends, or family members. Four (3.7%) students had seen a cadaver before joining medical school, whereas all participants were familiar with biological tissues/specimens from school education. None of the participants had prior awareness regarding biomedical waste management before joining MBBS. Details of awareness-related responses are presented in Table 2.

**Table 2:** Awareness about AETCOM, cadaver and biomedical waste management (n=108)

Variable Measured	Prior to Phase I MBBS (n=108)	During/ After Phase I MBBS (n=108)
Awareness of AETCOM acronym	2 (1.85%)	106 (98.15%)
Acquaintance with the word cadaver	27 (25.0%)	81 (75.0%)
Visualizing the cadaver for first time	4 (3.7%)	104 (96.3%)
Awareness of biological specimens	108 (100%)	108 (100%)
Handling of cadaver/specimens	0 (0.0%)	108 (100%)
View on biomedical waste management	0 (0.0%)	108 (100%)

All participants correctly expanded the acronym AETCOM as Attitude, Ethics and Communication. Sixty-three (58.3%) students remembered that AETCOM Module 1.5 dealt with “The Cadaver as Our First Teacher,” while 45 (41.7%) could recall the concept but not the module number. All participants were aware of

the description and techniques of dissection, preservation of cadavers, and biomedical waste management practices. Most students were also familiar with embalming procedures and preservation chemicals used in anatomy departments. Details of knowledge-related responses are presented in Table 3.

**Table 3:** Knowledge about AETCOM 1.5, cadaver and biomedical waste management (n=108)

Variable Measured	Phase III Part 2 MBBS
AETCOM acronym expansion	108 (100%)
Recalling AETCOM Module 1.5 title	63 (58.33%)
Etymology of cadaver	3 (2.78%)
Cadaver procurement details in Tamil Nadu	101 (93.52%)
Knowledge of the Anatomy Act	7 (6.48%)
Technical description and techniques of dissection	108 (100%)
Cadaver preservation techniques	92 (85.19%)
Biomedical waste management procedures	108 (100%)

All participants remembered taking the cadaveric oath and understood its purpose. Gratitude and respect towards the cadaver were expressed by all students, and all reported maintaining appropriate etiquette while handling cadavers and specimens. Although every participant had handled a cadaver, 98 (90.7%) used

gloves whereas 10 (9.3%) reported handling without gloves. All students agreed that faculty discussions conducted during dissection helped them communicate professionally and scientifically with patients and enhanced their doctor–patient relationship during clinical postings (Table 4).

**Table 4:** Attitude and Perception about AETCOM 1.5 and cadaver (n=108)

Variable Measured	Phase III Part 2 MBBS Category A	Phase III Part 2 MBBS Category B
Remembering Cadaveric Oath and its purpose	Yes: 108 (100%)	No: 0 (0%)
Gratitude and respect to the cadaver	Yes: 108 (100%)	No: 0 (0%)
Maintained etiquette	Always: 108 (100%)	Never: 0 (0%)
Handling the cadaver	Touched: 108 (100%)	Did not touch: 0 (0%)
Use of gloves while handling the cadaver	With gloves: 98 (90.7%)	Without gloves: 10 (9.3%)
Faculty discussions using cadaver and specimens helped professional communication	Yes: 108 (100%)	No: 0 (0%)
Enhanced doctor-patient relationship technically during their postings	Yes: 108 (100%)	No: 0 (0%)

## DISCUSSION

The present study evaluated the awareness, knowledge, attitude, and perception of Phase III Part II MBBS students regarding AETCOM Module 1.5, “The Cadaver as Our First Teacher.” Unlike most previous studies that assessed students immediately after completion of AETCOM sessions, the present study examined the retention and long-term impact of the module after several years of medical training. The findings provide valuable insight into how effectively the principles introduced during the first professional year are carried forward into later stages of undergraduate medical education [8–12].

The awareness component revealed that only a small proportion of students had prior exposure to the concepts of AETCOM, cadavers, or biomedical waste management before entering medical school. This finding is not unexpected, as these concepts are generally beyond the scope of higher secondary education. Although some students had encountered the term “cadaver” through media, family members, or educational visits, structured understanding was largely absent before formal medical training. These observations emphasize the importance of introducing professionalism, ethics, communication, and cadaver-based learning early in the MBBS curriculum [8,9].

The knowledge assessment demonstrated satisfactory retention of concepts related to AETCOM Module 1.5. All participants correctly expanded the acronym AETCOM and were familiar with dissection procedures, cadaver preservation, and biomedical waste management. More than half of the students could correctly recall the title of Module 1.5, while the remainder remembered the concept but not the module number. This finding suggests that although students may not retain specific numerical identifiers of modules, the core educational message remains intact. Similarly, knowledge regarding embalming and preservation techniques was adequate, reflecting effective integration of theoretical and practical anatomy teaching [9,10].

An area that warrants attention was the relatively low awareness regarding the Anatomy Act and cadaver procurement procedures. Although students had been exposed to these topics during their first-year training, many were unable to recall the details during the present evaluation. This finding highlights the need for periodic reinforcement of legal and ethical aspects of body donation throughout the undergraduate curriculum. Reinforcement through seminars, memorial ceremonies, and voluntary body donation awareness programmes may improve long-term retention of these important concepts [10,11].

The attitude and perception domain produced the most encouraging findings. All participants remembered taking the cadaveric oath and understood its significance. Every student expressed gratitude and respect toward the cadaver and acknowledged its contribution to their learning process. Furthermore, all participants reported maintaining appropriate etiquette while handling cadavers and specimens. These observations indicate that the ethical and humanistic objectives of AETCOM Module 1.5 have been successfully achieved. The findings support the concept that cadaveric dissection is not merely an anatomical exercise but also an important experience in professional identity formation <sup>[8,11,12]</sup>.

The cadaver represents a student's first patient, first teacher, and first encounter with death in a professional setting. Respectful interaction with the cadaver promotes empathy, compassion, dignity, and ethical behaviour—qualities that are essential in clinical practice. The unanimous expression of gratitude observed in the present study demonstrates that students appreciate the selfless contribution made by body donors toward medical education. Such attitudes are likely to influence future interactions with patients and their families <sup>[11,12]</sup>.

Most students reported using gloves while handling cadavers, whereas a small proportion did not. Importantly, the responses suggested that glove usage was primarily influenced by practical and scientific considerations rather than fear or disgust. None of the students reported discomfort merely due to the presence of a cadaver. These findings suggest that early exposure to cadaveric dissection helps students overcome apprehension and develop a professional outlook toward human anatomy learning.

The study also explored the influence of cadaver-based teaching on communication and professionalism. All participants reported that faculty-guided discussions conducted during dissection sessions improved their ability to communicate professionally and scientifically with patients. Students further felt that these experiences enhanced their doctor–patient relationships during clinical postings. This observation reinforces the broader objectives of AETCOM, which extend beyond knowledge acquisition to include communication skills, ethical reasoning, and professional conduct.

Another important finding was the students' recognition of empathy as an integral component of medical

practice. The process of learning from a donated human body encourages reflection on mortality, altruism, and social responsibility. Such experiences help cultivate sensitivity toward patients and contribute to the development of compassionate healthcare professionals. The positive responses observed in the present study indicate that the values introduced through AETCOM Module 1.5 continue to influence students even during advanced stages of their training.

The findings of the present study are consistent with previous literature evaluating the effectiveness of AETCOM modules. Udgiri and Ganganahalli reported that first-year MBBS students perceived AETCOM modules positively and believed that they improved empathy, ethical understanding, and awareness of the physician's role in patient care <sup>[8]</sup>. Similarly, Sahanaa *et al.* demonstrated that AETCOM-based teaching improved students' understanding of healthcare systems, bidirectional communication skills, and patient-centred attitudes <sup>[9]</sup>. Bidikar *et al.* observed that exposure to AETCOM modules enhanced students' understanding of doctor–patient relationships and the importance of empathetic interactions in clinical practice <sup>[10]</sup>.

Comparable findings were reported by Sharma *et al.*, who demonstrated that AETCOM training significantly improved autonomy, empathy, and equanimity among undergraduate medical students <sup>[11]</sup>. Kumar *et al.* further highlighted that AETCOM contributes positively to professionalism and empathy, although challenges such as time constraints and faculty training requirements remain <sup>[12]</sup>. The observations of the present study closely align with these reports and provide additional evidence that the benefits of AETCOM are sustained beyond the immediate post-training period.

A unique strength of the present study is that it evaluated Phase III Part II MBBS students who had already completed clinical postings and multiple AETCOM modules. Consequently, the responses reflect not only immediate perceptions but also the long-term educational impact of Module 1.5. The positive attitudes observed among students suggest that early exposure to cadaver-centred ethics and professionalism contributes meaningfully to their development as future physicians <sup>[8,11,12]</sup>.

Nevertheless, the study identified certain areas requiring improvement. Knowledge regarding the Anatomy Act, cadaver procurement procedures, and the role of

donors' families was limited. While students expressed gratitude toward donors, greater emphasis should be placed on acknowledging the contribution of relatives and caregivers who facilitate voluntary body donation. Educational initiatives highlighting the ethical and social dimensions of body donation may further strengthen the humanistic objectives of the module <sup>[9,10]</sup>.

Overall, the findings indicate that AETCOM Module 1.5 effectively fulfils its intended objectives across both cognitive and affective domains. The module promotes empathy, professionalism, ethical conduct, communication skills, and respect for human dignity. Continued reinforcement of these principles throughout the MBBS curriculum may further enhance their long-term retention and practical application in clinical practice <sup>[8-12]</sup>.

## CONCLUSIONS

Quantitative results indicated positive attitudes among students. A majority agreed that AETCOM improves their communication with patients, enhances empathy, and strengthens ethical reasoning. Thematic analysis under the themes of awareness, knowledge, attitude and perception revealed that the major expected outcomes such as communication, empathy, ethics and professionalism has been achieved in AETCOM 1.5. AETCOM has been positively received by medical students and plays a crucial role in shaping professional identity and ethical reasoning. Strengthening experiential learning, faculty involvement, and practical assessment methods will ensure that the module continues to produce empathetic, ethical, and communicative doctors..

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