Review Article

Assessment of Attitudes, ethics and communication skills in a competency-based undergraduate medical curriculum

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Abstract

Affective learning outcomes are difficult to objectively analyze and assess as they refer to feelings and internal processes of the mind and heart. These cannot be quantified by traditional testing methods. The available methods rely on qualitative self-reflection and the observation of simple to complex internally consistent qualities of character. Just as in the other domains of learning, the validity and reliability of these assessments need to be ensured. The assessment of the affective domain requires careful observation of specified behaviours by multiple observers. Miller's pyramid, Krathwohl's levels and Epstein's conceptual frameworks can be used to devise suitable assessment plans for the complex and varied competencies in this domain. Many techniques including paper-based tests, self-administered rating scales, faculty and peer assessment, simulations, reflections, portfolios, observed clinical encounters, collated views of co-workers, records of incidents of unprofessionalism, critical incident reports, patient surveys, and global views of supervisor have been used for assessment of affective domain. The effective utilization of these assessment tools needs to factor in the ground realities that exist in different medical colleges. The acceptability and feasibility of using resource-intensive assessment methods need to be carefully balanced against their contributions toward increasing validity and reliability.

Keywords: AETCOM, assessment tools, India

Introduction

The affective domain of learning encompasses aspects such as attitudes, communication skills, ethics, professionalism, empathy and compassion (Singh *et al.,* 2013). This domain is as important as the cognitive and psychomotor domains in contributing to the quality of patient care (Rogers et al., 2017). Previous studies have shown that students who exhibit unprofessional behaviour during their training are more likely to do so in their subsequent clinical practice (Modi *et al.,* 2014). It is therefore critical that an Indian Medical Graduate (IMG) attains competence in the affective domain and that the associated value systems become internalized.

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The AETCOM (Attitudes, EThics, and COMmunication) modules introduced by the National Medical Council in India as a part of the new Competency Based Curriculum (CBC) is a step in this direction (Medical Council of India, 2018).

Teaching faculty across medical colleges in India face challenges in the teaching and assessment of the affective domain. Most faculty have limited training in the application of teaching-learning (TL) and assessment methods used for the affective domain. A toolkit containing different TL methods that can be used for the affective domain has been published earlier (Fathima et al., 2022). The aim of this article is to introduce some theoretical constructs and methods that can be applied for the assessment of the affective domain so that these can be effectively utilized by faculty members to implement the AETCOM modules.

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Need and challenges in assessment of the affective domain

There are compelling reasons for assessing the affective domain with as much rigor as the cognitive and psychomotor domains (Modi *et al.*, 2014). When learning objectives in the affective domain are assessed, they are taken more seriously by both teachers and students. If the affective domain is not assessed, there is a likelihood that ill-prepared students are allowed to graduate, thereby contributing to suboptimal patient care and its attendant consequences. The assessment of the affective domain requires careful observation of specified behaviours by multiple observers. This contributes to a greater emphasis being placed on these behaviours and consequently a positive change in the learning culture (Ten Cate and & De Haes, 2000).

Affective learning outcomes are difficult to objectively analyze and assess as they refer to feelings and internal processes of the mind and heart. These cannot be quantified by traditional testing methods (Wu *et a*l., 2019). The available methods rely on qualitative self-reflection and the observation of simple to complex internally consistent qualities of character. Just as in the other domains of learning, the validity and reliability of these assessments need to be ensured. The threats to validity in the affective domain include fake responses in self-reported assessments which may cushion failures by maximizing virtues and minimizing faults. Additionally, students with superior language skills may have an undue advantage over others (Ngozi, 2018).

Theoretical frameworks for assessing the affective domain

Miller's pyramid is a widely used four-level framework for assessment (Miller, 1990). These levels include 'knows', 'knows how', 'shows how', and 'does'. The level of competence being assessed increases as one moves from the 'knows' to the 'does'. Competencies that contain learning objectives related to the affective domain can be assessed at these four levels. An example of taking informed consent can be used to demonstrate how these four levels can be used. The basic theoretical components of taking informed consent ('knows') can be assessed using any of the numerous written assessment tools available such as multiple choice, short answer, and essay questions. A contextual application of this knowledge ('knows how') can also be assessed using the methods mentioned for the 'knows' component. The questions could be modified to include realistic case scenarios for taking informed consent. An objective structured clinical examination (OSCE) using a simulated patient from whom informed consent for a medical or surgical procedure must be taken could be utilized to assess the 'shows how' component. When students reach their internship, they could be observed taking informed consent from an actual patient ('does') using a workplace-based assessment method such as the mini-clinical evaluation exercise (mini-CEX).

Krathwohl described five levels of affective learning, namely receiving, responding, valuing, organization, and characterization (Rogers *et al.,* 2017). At the receiving level, students become aware of certain aspects of an experience that may eventually result in effective learning. When students respond, some amount of reflection about an experience occurs and they exhibit some intellectual and emotional reactions to it. This may then lead to insight about oneself, termed valuing. The organization occurs when this insight can be related to future professional practice. Finally, characterization refers to a translation of a value system into professional behaviour. (Rogers *et al*., 2017) These levels of learning have been used to develop a scale for assessing student reflections (Rogers *et al.,* 2018).

Epstein's conceptual framework identifies three stages in affective domain development (Stephens & Ormandy, 2019). Stage 1 is compliance. In this stage, students exhibit certain attitudes or behaviours to earn praise or avoid punishment. The next stage (stage 2) is identification, where attitudes and behaviours are assumed to maintain rewarding relationships with individuals or a group. In stage 3 (internalization), new attitudes and

behaviours are imbibed as they are intrinsically fulfilling (Stephens & Ormandy, 2019). This framework has been used to identify progress made by learners in affective domain development. (Stephens & Ormandy, 2019).

Toolkit for assessment of the affective domain

Wilkinson classified assessment tools for professionalism into nine broad areas (Wilkinson *et al*., 2009). This classification has since been widely adopted by many authors (Goldie, 2013; Guraya *et al.,* 2016; Li *et al*., 2017; Smith *et al*., 2021). A similar classification could be used for assessment tools in the affective domain (Table 1). It was noted that many of these tools were used to assess residents and doctors rather than medical students. Miller's pyramid provides a convenient framework for selecting appropriate assessment tools based on the stage in the course where the student is placed (Modi *et al.,* 2014). It must be emphasized that specific learning objectives for each of the competencies mentioned in the AETCOM module need to be formulated for the selection of the most appropriate assessment tools (Andrusyszyn, 1989). The conceptual frameworks of Krathwohl and Epstein are useful to define and assess the depth of learning in the affective domain (Rogers *et al.,* 2017; Stephens & Ormandy, 2019; Yanofsky *et al.*, 2010). The effective utilization of these assessment tools needs to factor in the ground realities that exist in different medical colleges. The acceptability and feasibility of using resource intensive assessment methods needs to be carefully balanced against their contributions towards increasing validity and reliability. An example of an assessment plan using some of the previously mentioned tools for an AETCOM module is shown in Table 2.

Table 1: Assessment toolkit for the affective domain (Goldie, 2013; Guraya et al., 2016; Lee and Wimmers, 2015; Li et al., 2017; Smith et al., 2021; Wilkinson et al., 2009; Yielder et al., 2012)

Sl. No.	Tool use	Description	Example of tools	Level in Miller's pyramid
1	Paper-based tests	Students are required to write answers to questions related to the affective domain.	• Defining issues test • Objective structured video examination • Critical incident report • MCQ • Modified essay questions	Knows and knows how
2	Self-administered rating scale	Many self-administered questionnaires have been developed for individuals to gain an insight about different aspects of the affective domain.	• Time management inquiry form • Pharmacy professionalism instrument • Groningen reflection ability scale • Cross-cultural adaptability inventory • Cultural competence self-assessment questionnaire • Interpersonal reactivity index • Penn State College of Medicine professionalism questionnaire	Knows and knows how
3	Faculty and peer assessment	Faculty members assess students or peers assess each other on various aspects of the affective domain in a learning setting such as problem-based learning.	• Cottrell's peer assessment • Short PBL performance assessment tool	Shows how

4	Simulations	As the name suggests, assesses are observed interacting with simulated patients.	• OSCE • Ethical dilemmas in high-fidelity patient simulations • Integrated performance procedural instrument (IPPI)	Shows how
5	Reflections	Students are required to think deeply about specific experiences and document their learning from them.	• Griffith University affective learning scale (GUALS) • Mayo evaluation of reflection on improvement tool (MERIT)	Does
6	Portfolios	Portfolios provides a glimpse of the personal and professional growth of a student over time.		Does
7	Observed clinical encounters	An actual interaction between a health care provider and patient is observed and various aspects related to the affective domain can be assessed using a checklist designed for the purpose.	• Mini-CEX • Professionalism mini-evaluation exercise • Standardised direct observation assessment tool	Does
8	Collated views of co-workers	This is a 360º assessment in which feedback is sought from colleagues who work with the individual being assessed as part of a health care team.	• Multisource feedback	Does
9	Record of incidents of unprofession alism	This is a method where incidents of unprofessional behaviour are documented and collated for subsequent action if required.	• Incident reporting form	Does
10	Critical incident reports	Individuals are asked to recall and reflect upon critical incidents that they might have encountered during their work.	• Critical incident report	Does
11	Patient surveys	Patients provide feedback about specific behavioural aspects of health care providers.	• FACE cards • Wake Forest physician trust scheme • Patient assessment questionnaire • Simulated patient rating scales • Humanism scale • Royal College of Physicians patient questionnaire	Does
12	Global view of supervisor	This is an overall assessment by a supervisor based on specific criteria.	• Global rating form • University of Michigan Department of Surgery professionalism assessment Instrument • Evaluation of professional behaviour in general practice (EPRO- GP) • Amsterdam attitudes and communication scale	Does

Table 2: A sample assessment plan for an AETCOM module (Attitude, Ethics and Communication (AETCOM) Competencies for the Indian Medical Graduate. Medical Council of India, 2018)

Name of the module	Competencies	Miller's pyramid level	Suggested teaching and learning (T-L) and assessment methods as mentioned in the module	Possible assessment plan
Module 4.4: Case studies in ethics, empathy and the doctor-patient relationship	1. Demonstrate empathy in patient encounters. 2. Communicate care options to patient and family with a terminal illness in a simulated environment.	Shows how	<u>T-L methods</u> 1. Introduction of case – 1 hour 2. Self-directed learning – 2 hours 3. Anchoring lecture – 1 hour 4. Discussion and closure of case – 1 hour <u>Assessment methods</u> 1. Formative: The student may be assessed based on their active participation in the sessions. 2. Summative: Short questions on a) Empathy; b) Doctor's responsibilities in the doctor - patient relationship; c) Doctor's responsibilities in the care of the terminally ill patient.	<u>Formative assessment</u> 1. During the introduction of the case and group discussions that follow, students' level of participation could be assessed by peers and teachers using appropriate checklists, rating scales and rubrics. 2. Students could be asked to complete a self-administered questionnaire on empathy such as the Interpersonal reactivity index during the SDL phase. 3. The anchoring lecture could have a quiz with MCQs' incorporated into it. 4. After the discussion and closure of the case, students could be asked to write their reflections. This could form part of an AETCOM portfolio. 5. An end-of-clinical posting OSCE could be conducted to assess the relevant communication skills. 6. During the internship, a workplace-based assessment tool such as a mini-CEX could be used. <u>Summative assessment</u> As mentioned in the previous column. Some components of the formative assessment could contribute to the summative assessment scores.

While formative assessment forms the mainstay in the affective domain, summative assessment too has a role to play (Andrusyszyn, 1989; Haes et al., 2005; Miller, 2014; Ten Cate & De Haes, 2000). Domains of assessment that can be assigned grades or scores are more amenable to summative assessments than qualitative methods (Andrusyszyn, 1989). Previous studies have shown that it is possible to calculate a composite score to make pass or fail decisions regarding communication skills and attitudes (Haes et al., 2005; Ten Cate & De Haes, 2000). It is important to note that five or six assessments with multiple assessors are required to arrive at a precise composite score. A global rating scale with nine categories was used for the observations (Haes et al., 2005; Ten Cate & De Haes, 2000). Portfolios have been shown to be a useful tool to document the learning progress of medical students (Joshi et al., 2015). It has been suggested that aspects of the affective domain be included in the portfolio and used for decision-making in summative assessments (Mueller, 2009).

Checklists, rating scales, rubrics and questionnaires are often used in the assessment of the affective domain (Table 1). (Haes et al., 2005; Li et al., 2017; Nittur & Kibble, 2017; Smith et al., 2021; Wilkinson et al., 2009). Checklists state the behaviours or steps that need to be performed and assessors indicate on the checklist whether these are

performed. Rating scales indicate not only the behaviours but also the extent to which they are exhibited. The most frequently used scale is the 5-point Likert scale. An example of a rating scale that is has been suggested for assessing the professionalism of first-year medical students in India is shown in Table 3 (RGUHS, 2019). A rubric is a scoring guide used to assess constructed responses like reflections. It contains specific criteria and performance levels for every criterion. Each performance level has a detailed description which assists assessors in accurately assigning a grade. Questionnaires are a convenient and flexible tool to gather information. The responses could be dichotomous, in the form of a rating, qualitative in nature, or a combination of one or more of these (Violato, 2019).

SCORES	Overall attendance	Timely submission of records	Takes the trouble to complete record book	Behaves respectfully with peers and teachers
1	< 80%	Never submits record on time	Diagrams are of unacceptable standard with grossly inadequate labelling	Never speaks politely and demonstrates appropriate body language with peers and teachers
2	80-84%	Rarely submits record on time	Diagrams are below average with inadequate labelling	Rarely speaks politely and demonstrates appropriate body language with peers and teachers
3	85-89%	Sometimes submits record on time	Diagrams are average with partial labelling	Sometimes speaks politely and demonstrates appropriate body language with peers and teachers
4	90-94%	Often submits record on time	Diagrams are above average with nearly complete labelling	Often speaks politely and demonstrates appropriate body language with peers and teachers
5	95-100%	Always submits record on time	Diagrams are neatly drawn with complete labelling	Always speaks politely and demonstrates appropriate body language with peers and teachers

Table 3 – An example of a rating scale used to assess the professionalism of first-year medical students in India. (RGUHS, 2019)

Guidelines for assessing the affective domain

(Andrusyszyn, 1989; Goldie, 2013; Lynch *et al.,* 2004; Miller, 2014; Modi *et al*., 2014; Mueller, 2009; Nittur & Kibble, 2017).

- Student awareness

  Students need to be informed in advance that the affective domain is going to be periodically assessed along with the other domains.

- Clear objectives

  Specific learning objectives need to be framed that are in alignment with the competencies stated in the AETCOM modules. The competency framework of the CBC provides ample opportunities to frame specific learning objectives in the affective domain outside the ambit of the AETCOM modules as well.

- Formative and summative assessment

  A categorization of the specific learning objectives that are suitable for formative and summative assessment needs to be made. The assessment tools used for formative and summative assessments are likely to be different.

- Framework for assessment

  Miller's pyramid provides a convenient framework for assessment. Assessment tools should be in alignment with the specific learning objectives and the level in Miller's pyramid being assessed.

- Longitudinal assessment

  Assessment of the affective domain should start in the first year and continue till the end of internship. The introduction of the CBC provides students and faculty members with multiple opportunities to

engage with learning in the affective domain. In addition to the formal and systematic AETCOM module that is being longitudinally implemented, there are many other opportunities where the affective domain can be formatively assessed. This includes aspects such as punctuality, timely submission of assignments, participation in small group sessions and interactions with patients during bedside teaching to name a few.

- Multiple tools and settings

  Assessing the affective domain is a complex endeavour and requires the utilization of multiple tools in multiple settings to improve the validity and reliability of the assessment. Qualitative assessments add to the richness of data and should be used in conjunction with quantitative methods.

- Feedback

  Timely and constructive feedback provided to students encourages the adoption of desirable professional behaviours. This behavioural change occurs because of reflection on the part of the student in response to the feedback. Faculty mentors are well-placed to provide feedback to students allotted to them. Logbooks and portfolios too can greatly assist in this process.

- Assessor training

  Assessment of the higher levels in Miller's pyramid for the affective domain requires careful observation of behaviours that are difficult to quantify. The interpretation of behavioural endpoints defined in rating scales and rubrics requires formal assessor training to ensure standardization.

- Remediation

  Professional lapses that have been noted in formative assessment require early remediation. It has been observed that unprofessional behaviour among clinicians is often preceded by such behaviour during their training period.

- Tool revalidation

  Cultural contexts are especially important in the affective domain. It is therefore important that tools that have been validated in one setting be revalidated prior to their use in different cultural contexts.

Conclusion

The affective domain is as important as the cognitive and psychomotor domains in patient care. This hitherto neglected domain has now been formally introduced into the undergraduate medical curriculum in India in the form of the AETCOM modules. Although there is a consensus that assessment of the affective domain is important, there are many challenges that need to be surmounted for its effective implementation. Miller's pyramid, Krathwohl's levels, and Epstein's conceptual frameworks can be used to devise suitable assessment plans for the complex and varied competencies in this domain. Assessment tools for every level in Miller's pyramid are available ranging from written tests to workplace-based assessments. The numerous opportunities that the CBC provides for formative assessment of the affective domain need to be utilized by students and faculty members. The quality of these assessments can be improved if certain evidence-based guidelines are followed. It is hoped that this article provides some pointers to healthcare educationists working in contexts like those in India to improve the quality of assessments of the affective domain.

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