

Research Article

Knowledge and Attitudes Towards Medical Ethics Among Undergraduate Medical Students at the Defence Services Medical Academy, Myanmar

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Abstract

Background: Medical ethics education is central to professional formation and safe, patient-centered care. Evaluating students' knowledge and attitudes can identify curricular strengths and areas requiring reinforcement, particularly during implementation of an outcome-based integrated curriculum. **Objective:** To assess knowledge and attitudes towards medical ethics among undergraduate medical students at the Defence Services Medical Academy (DSMA), Yangon, Myanmar. **Methods:** An institution-based cross-sectional descriptive study was conducted from June to July 2025. A non-probability consecutive sample of 175 undergraduate medical students completed a pre-tested, structured, self-administered questionnaire adapted from a previously published instrument. Thirteen true/false items assessed knowledge and 13 five-point Likert items assessed attitudes. Results were summarized using frequencies and percentages. **Results:** Participants were predominantly male (161/175, 92.0%), and 104 (59.4%) were aged 18-20 years. Correct responses across knowledge items ranged from 73.7% to 99.4%. The strongest results concerned basic ethical principles and physicians' duties to patients (both 99.4%); comparatively weaker areas included cultural sensitivity (73.7%), privacy (78.3%), autonomous decision-making (80.0%), and consent for treating children outside emergencies (80.0%). Attitudes were generally favorable towards professional conduct, collegial ethics, ethics committees, and ethics education. However, only 53.1% rejected an explicitly paternalistic statement, and 45.7% rejected the view that ethical conduct matters only to avoid legal action. **Conclusion:** DSMA students demonstrated strong item-level knowledge and generally favorable attitudes, but important uncertainty persisted around autonomy, privacy, cultural sensitivity, consent, and the distinction between ethical and legal duties. Longitudinal, case-based, clinically integrated ethics teaching is recommended.

Keywords

Medical Ethics, Ethics Education, Knowledge, Attitudes, Undergraduate Medical Students, Outcome-based Education, Myanmar

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1. Introduction

Medical practice requires technical competence together with the capacity to recognize, analyze, and respond to ethical problems. The widely used principles of respect for autonomy, beneficence, non-maleficence, and justice provide a foundation for ethical reasoning, but applying these principles requires attention to clinical context, patient preferences, culture, law, and professional responsibilities [1]. International guidance therefore treats ethics as an essential component of undergraduate medical education [2, 3].

Contemporary healthcare exposes learners to difficult questions involving informed consent, confidentiality, privacy, shared decision-making, end-of-life care, reproductive health, emerging technologies, and the fair allocation of resources. Ethics education should enable students not merely to recall principles, but also to identify moral dimensions of practice, justify decisions, communicate respectfully, and reflect on professional conduct [2-4].

The Defence Services Medical Academy introduced an outcome-based integrated curriculum in 2017. Within this curriculum, Personal and Professional Development and Ethics is taught vertically from Medical Year 1 through Medical Year 5 [5]. This longitudinal design creates opportunities to connect ethical principles with progressively more complex clinical experience. Nevertheless, the effectiveness of a curriculum cannot be inferred from its written structure alone. Students' knowledge and attitudes provide useful evidence about how intended learning outcomes are being realized.

Studies from several settings show that medical students usually value ethics education, yet gaps often remain in confidentiality, informed consent, autonomy, and the practical application of ethical principles [6-17]. Evidence from Myanmar remains limited, especially among students educated through a newly integrated outcome-based curriculum. Locally generated evidence is therefore needed to guide curriculum review and teaching priorities.

This study assessed undergraduate medical students' knowledge and attitudes towards medical ethics at DSMA. The objectives were to describe participants' demographic characteristics, report item-level knowledge, and examine attitudes towards professional ethical practice, ethics committees, and undergraduate ethics education.

2. Materials and Methods

2.1. Study Design, Setting, and Period

An institution-based cross-sectional descriptive study was conducted at the Defence Services Medical Academy, Yangon, Myanmar, from June to July 2025. The study population comprised undergraduate medical students enrolled at DSMA.

2.2. Participants and Sampling

Students who were present during data collection and agreed to participate were eligible; students absent on the day of data collection were excluded. The minimum sample size was calculated using a single-population-proportion formula with an expected correct-response proportion of 0.72, a 95% confidence level, and a precision of 0.07 [6]. The calculated minimum was 159; allowing 10% for non-response produced a target of 175. A non-probability consecutive approach was used, inviting eligible students until the target was reached.

2.3. Instrument and Data Collection

Data were collected using an anonymous, structured, self-administered questionnaire adapted from Ibrahim et al. [6]. Section A collected demographic information on age and gender. Section B comprised 13 true/false knowledge items addressing basic ethical principles, the evolving and culturally situated nature of ethics, physician-patient relationships, confidentiality, privacy, autonomy, and consent. Section C comprised 13 attitude statements rated on a five-point Likert scale ranging from strongly agree to strongly disagree. These statements addressed professional ethical conduct, collegial relationships, paternalism, ethical versus legal motivations, context-dependent clinical situations, the role of ethics committees, and ethics education.

Before data collection, the questionnaire was pre-tested to assess the clarity and comprehensibility of the questions. Participants were informed about the purpose of the study and provided with clear instructions for completing the questionnaire before its distribution. The questionnaire was then completed anonymously and independently by the participants.

2.4. Variables and Analysis

For each knowledge item, responses were classified as correct or incorrect according to the instrument key. Negatively worded items were reverse interpreted. For attitudes, strongly agree and agree were combined as "Agree," strongly disagree and disagree as "Disagree," and the neutral category was retained. Data were entered in Microsoft Excel 2019 and analyzed using SPSS version 22. Frequencies and percentages were calculated. As no validated cut-off values were available for classifying overall knowledge or attitude scores, the findings were analyzed and interpreted at the item level rather than categorizing participants as having overall "good" or "poor" knowledge or attitudes.

2.5. Ethical Considerations

Approval was obtained from the Research Ethics Committee of the Defence Services Medical Academy before data collection. Participation was voluntary and written informed consent was obtained. No personal identifiers were

recorded; coded questionnaires were accessible only to the research team. Participants could omit questions or withdraw without penalty. The study was self-funded and no incentives were provided.

3. Results

All 175 participants provided complete demographic, knowledge, and attitude data.

Table 1. Demographic characteristics of participants ($n = 175$).

Characteristic	Category	n	%
Age (years)	18-20	104	59.4
Age (years)	>20	71	40.6
Gender	Male	161	92.0
Gender	Female	14	8.0

Table 2. Item-level knowledge of medical ethics ($n = 175$).

No.	Knowledge item	Correct, n (%)	Incorrect, n (%)
1.	Basic principles and guidelines govern medical ethics.	174 (99.4)	1 (0.6)
2.	Ethical principles guide the management of emergencies.	169 (96.6)	6 (3.4)
3.	An ethical framework guides physicians' duty to patients.	174 (99.4)	1 (0.6)
4.	An ethical framework guides physicians' duty to the community.	169 (96.6)	6 (3.4)
5.	Technological advances create new ethical challenges.	164 (93.7)	11 (6.3)
6.	Medical ethics continues to change over time.	151 (86.3)	24 (13.7)
7.	Medical ethical values are culturally sensitive.	129 (73.7)	46 (26.3)
8.	The physician-patient relationship requires truth-telling about wrongdoing.	152 (86.9)	23 (13.1)
9.	Ethical principles protect patients from undue influence in decision-making.	140 (80.0)	35 (20.0)
10.	A physician may ignore patient privacy. (False)	137 (78.3)	38 (21.7)
11.	Confidentiality is fundamental to medical ethics.	164 (93.7)	11 (6.3)
12.	Consent is not required for treatment. (False)	150 (85.7)	25 (14.3)
13.	Children should not be treated without parent/guardian consent except in emergencies.	140 (80.0)	35 (20.0)

Correct-response proportions ranged from 73.7% to 99.4%. The two highest values concerned the existence of basic ethical principles and physicians' duties to patients (both 99.4%). The lowest values concerned cultural sensitivity

(73.7%), privacy (78.3%), autonomous decision-making (80.0%), and consent for treating children except in emergencies (80.0%).

Table 3. Attitudes towards medical ethics ($n = 175$).

No.	Attitude statement	Agree, n (%)	Neutral, n (%)	Disagree, n (%)
1.	Health practitioners must comply with professional ethics.	152 (86.9)	18 (10.3)	5 (2.9)

No.	Attitude statement	Agree, n (%)	Neutral, n (%)	Disagree, n (%)
2.	Adherence to ethical principles benefits patients.	153 (87.4)	17 (9.7)	5 (2.9)
3.	Ethical relationships among colleagues have positive effects.	157 (89.7)	12 (6.9)	6 (3.4)
4.	A health practitioner might sometimes behave unethically.	75 (42.9)	47 (26.9)	53 (30.3)
5.	Doctors know best irrespective of patients' opinions.	43 (24.6)	39 (22.3)	93 (53.1)
6.	Ethical conduct matters only to avoid legal action.	55 (31.4)	40 (22.9)	80 (45.7)
7.	Where abortion is lawful, doctors must not refuse to perform it.	62 (35.4)	47 (26.9)	66 (37.7)
8.	Clinically confirmed cases should routinely undergo laboratory investigation.	121 (69.1)	29 (16.6)	25 (14.3)
9.	A specialized college committee should establish ethical rules.	140 (80.0)	26 (14.9)	9 (5.1)
10.	Physicians need periodic intensive courses in medical ethics.	152 (86.9)	18 (10.3)	5 (2.9)
11.	Medical ethics should be incorporated into the undergraduate curriculum.	146 (83.4)	24 (13.7)	5 (2.9)
12.	Studying ethics supports reflective responses to ethical challenges.	153 (87.4)	17 (9.7)	5 (2.9)
13.	Studying ethics helps learners understand patients' rights.	152 (86.9)	14 (8.0)	9 (5.1)

Items 4–8 varied in direction and ethical interpretation and were therefore reported individually without calculation of an overall attitude score.

4. Discussion

4.1. Principal Findings

Students showed high correct-response proportions for foundational ethical principles, duties to patients and the community, emergency ethics, technological advances, and confidentiality. Comparatively lower correct-response proportions were observed for cultural sensitivity, privacy, autonomous decision-making, and consent involving children. Attitudes were generally supportive of professional ethical conduct and ethics education, while responses were more variable for statements concerning paternalism, legal motivation, abortion-related conscientious refusal, and routine laboratory investigation.

4.2. Knowledge of Medical Ethics

The overall item pattern is broadly consistent with reports that medical students commonly recognize general ethical principles while showing uneven understanding of confidentiality, consent, autonomy, and their practical application [6, 7, 10–13, 16, 17]. Ibrahim et al. similarly reported generally adequate knowledge among Saudi undergraduate students while identifying persistent misconceptions [6]. Studies among medical students and

postgraduate health-professions learners have also shown that conceptual knowledge does not automatically ensure appropriate reasoning in real clinical situations [10–13, 16].

The lowest correct-response rate in the present study concerned cultural sensitivity. This finding may reflect the complexity of applying ethical principles within different social and cultural contexts, particularly in relation to communication, family involvement, disclosure, and shared decision-making. The comparatively lower correct-response rates for privacy and autonomous decision-making may similarly indicate difficulty in applying these ethical concepts to complex clinical situations involving disclosure, family requests, and potential undue influence.

4.3. Attitudes Towards Ethics and Professional Practice

Strong support for professional ethics, collegial conduct, ethics committees, and formal ethics education was observed. These findings align with studies in which medical students affirmed the relevance of ethics to professional development and supported its inclusion in the curriculum [6, 10, 14, 15]. The positive endorsement of ethics education may provide a favorable foundation for continued longitudinal ethics education at DSMA.

However, only 53.1% disagreed that doctors know best irrespective of patients' opinions, while 46.9% either agreed or were neutral. This finding suggests uncertainty about the limits of paternalism and the role of patients in decision-making. Similarly, fewer than half of the students rejected the statement that ethical conduct matters only to avoid legal

action. Ethics and law overlap, but ethical professionalism is not reducible to legal compliance. This finding suggests that some students may not clearly distinguish professional values and moral reasoning from legal compliance.

The abortion and routine-testing statements produced more variable response patterns. These items are context-dependent and may be interpreted differently according to legal requirements, clinical indications, conscientious objection, referral duties, resource use, and patient safety. Accordingly, these responses cannot be readily classified as favorable or unfavorable in the absence of a validated scoring framework and sufficient contextual information.

4.4. Implications for Higher Education and Curriculum Development

The findings support a spiral, vertically integrated approach in which ethical concepts are revisited with increasing clinical complexity. Early teaching can establish principles and professional duties; later learning should emphasize case analysis, structured reflection, simulation, small-group deliberation, and supervised discussion of authentic clinical dilemmas. Case-based instruction can make students' assumptions visible and connect ethical analysis with communication and patient care [9].

Curriculum evaluation should include both knowledge and ethical reasoning. Item-level surveys are useful for identifying misconceptions, but assessment should also examine how students justify decisions, recognize competing values, and communicate with patients and colleagues. Faculty development is equally important because clinical role modelling and the hidden curriculum can reinforce or undermine formal teaching [4, 8].

4.5. Strengths and Limitations

This study provides institutional evidence from Myanmar during implementation of an outcome-based integrated curriculum and achieved complete responses from the target sample. Nevertheless, the study was conducted at a single military medical academy using non-probability sampling, and the sample was predominantly male; therefore, the generalizability of the findings is limited. The cross-sectional design cannot determine change over time or attribute findings to the curriculum. Self-reported attitudes may also have been influenced by social desirability. Results were limited to descriptive item-level analysis, without comparisons according to year of study, previous ethics exposure, or clinical experience. The internal consistency of the adapted questionnaire was not assessed in the present study, and no validated scoring framework was available for deriving overall knowledge or attitude classifications. In addition, several attitude statements were ambiguous or context-dependent. These limitations should guide cautious interpretation and future study design.

5. Conclusion

Undergraduate medical students at DSMA demonstrated high item-level knowledge of many foundational aspects of medical ethics and generally favorable attitudes towards professional conduct and ethics education. Specific gaps remained in cultural sensitivity, privacy, autonomy, consent, and the distinction between ethical duties and legal compliance. The findings support continued longitudinal ethics education with greater use of contextualized cases, reflective learning, clinical discussion, and assessment of applied ethical reasoning.

6. Recommendations

DSMA should continue the vertical integration of medical ethics across pre-clinical and clinical years, with particular attention to autonomy, shared decision-making, privacy, confidentiality, informed consent, consent involving children, and culturally responsive care. Case-based discussions, simulations, structured reflection, and supervised discussion of clinical ethical dilemmas should be incorporated to strengthen the application of ethical principles to clinical practice. Future multicenter and longitudinal studies should use probability sampling where feasible, evaluate and report the psychometric properties of the study instruments, incorporate validated measures or vignette-based assessments of ethical reasoning, and examine differences according to academic year, gender, previous ethics exposure, and clinical experience.

Abbreviations

DSMA	Defence Services Medical Academy
SPSS	Statistical Package for the Social Sciences

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Author Contributions

Myo Zaw Thu: Conceptualization, Data curation, Formal Analysis, Investigation, Methodology, Writing – original draft, Writing – review & editing

Thu Thu Htike: Conceptualization, Methodology, Resources, Visualization, Writing – original draft

Ye Phyo Aung: Conceptualization, Methodology, Supervision, Validation, Writing – review & editing

Data Availability Statement

The data supporting the findings are available from the corresponding author on reasonable request, subject to ethical and institutional requirements.

Conflicts of Interest

The authors declare no conflicts of interest.

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Biography



Myo Zaw Thu is an Assistant Lecturer in the Department of Forensic Medicine at the Defence Services Medical Academy, Myanmar. He received his MBBS degree in 2006, MMedSc (Medical Jurisprudence) in 2013, Doctorate of Medical Science (Medical Jurisprudence) in 2023, and

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Research Field

Myo Zaw Thu: Medical and Health Sciences, Medical Education, Clinical Research

Thu Thu Htike: Medical and Health Sciences, Medical Education, Clinical Research

Ye Phyo Aung: Medical and Health Sciences, Medical Education, Clinical Research