



**ADDIS ABABA UNIVERSITY
COLLEGE OF HEALTH SCIENCES
SCHOOL OF PUBLIC HEALTH**

**Evaluation of Medical Ethics Education in Public Medical Schools
in Addis Ababa: a Mixed-Methods Study**

By

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Approval by the Examining Board

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LIST ABBREVIATIONS AND ACRONYMS

Abbreviation /Acronyms	Full Term
AAU	Addis Ababa University
AI	Artificial Intelligence
ANOVA	Analysis of Variance
CRC	Compassionate, Respectful, and Caring (Health Workforce)
CIPP	Context, Input, Process, Product (Evaluation Model)
EFA	Exploratory Factor Analysis
FGD	Focus Group Discussion
IRB	Institutional Review Board
KII	Key Informant Interview
LMIC	Low- and Middle-Income Countries
MoH	Ministry of Health
OSCE	Objective Structured Clinical Examination
PCA	Principal Component Analysis
SD	Standard Deviation
SPSS	Statistical Package for the Social Sciences
ToC	Table of Contents
WHO	World Health Organization

ABSTRACT

Background: Medical ethics education plays a crucial role in equipping physicians to manage the ethical challenges encountered in patient care. Although medical ethics has been formally integrated into the curricula of most Ethiopian medical schools, the quality, consistency, and impact of its implementation remain insufficiently explored.

Objective: The objective of this study is to assess how medical ethics education is implemented in public medical schools in Addis Ababa.

Methods: A mixed-methods cross-sectional design was utilized. Quantitative data were obtained from 302 students using a structured questionnaire administered via face-to-face interviews. Stratified random sampling was used to select participants, ensuring representation across academic years and institutions. Twelve key informants participated in interviews guided by a semi-structured tool. Quantitative data were analyzed using SPSS version 27, employing descriptive statistics, independent t-tests, ANOVA, and multiple regression analysis. Qualitative data were thematically analyzed using Dedoose version 10.

Results: Composite scores (on a 5-point Likert scale) indicated strong understanding of ethical principles (Mean = 3.98/5) and professional behavior (Mean = 4.01/5), but only moderate preparedness to manage ethical challenges (Mean = 3.48/5). Regression analysis revealed that preparedness was significantly associated with content coverage ($\beta = 0.325$, $p < 0.001$), ethical reasoning skills ($\beta = 0.146$, $p = 0.023$), and clarity of instruction ($\beta = 0.144$, $p = 0.010$). Qualitative findings highlight gaps in curriculum integration, limited faculty training, and a lack of experiential learning. Both students and faculty emphasized the need for longitudinal teaching, participatory methods, and standardized national guidance.

Conclusions: While students possess strong ethical knowledge, they feel only moderately prepared to navigate ethical dilemmas in clinical practice. Ethics education must evolve from theory-driven instruction to applied, contextually relevant, and clinically integrated learning.

Keywords: Medical ethics education, clinical preparedness, faculty perspectives, curriculum delivery, Ethiopia.

INTRODUCTION

Background

Medical ethics is a branch of applied ethics concerned with the moral principles that guide medical practice, including respect for autonomy, beneficence, non-maleficence, justice, and professional integrity(1). It plays a crucial role in shaping competent, compassionate, and accountable physicians. Globally, medical ethics has become an integral part of medical education, supported by international declarations and frameworks such as the World Medical Association's Declaration of Geneva and the UNESCO Universal Declaration on Bioethics and Human Rights (2,3). These frameworks emphasize the ethical responsibilities of healthcare professionals and the need for structured ethics education. Organizations such as the World Federation for Medical Education (WFME) have also identified ethical and professional behavior as core competencies for all medical graduates(4)

Medical ethics education is vital for preparing future physicians to uphold professional standards, navigate moral dilemmas, and build trust with patients(5,6). In the African context, ethics education remains fragmented and underdeveloped. Many institutions face challenges related to curriculum design, lack of trained faculty, and insufficient educational resources(7). In Ethiopia, ethics training has gained attention in recent years, especially with the rapid expansion of medical education through initiatives such as the Medical Education Partnership Initiative (MEPI), which aimed to strengthen human resource capacity in the health sector(8). Public medical schools in Addis Ababa, including Addis Ababa University Tikur Anbessa Specialized Hospital School of Medicine, St. Paul's Hospital Millennium Medical College, and Yekatit 12 Medical College, have introduced ethics as a formal course, generally delivered during the pre-clinical or early clinical years.

Although the Ethiopian Medical Association has developed a national Code of Ethics and the Ministry of Education's Harmonized Curriculum for Medicine includes medical ethics as a

required course, there are few detailed directives on course content, pedagogy, or assessment(9). Global evidence shows that interactive and case-based learning are effective methods for teaching ethics(10). There is an underutilization of these strategies in Ethiopia as a result of resource constraints and a lack of trained professionals (10,11). Although institutions acknowledge the importance of ethics education, its practical implementation is hindered by the absence of standardized curricula and effective monitoring systems. (12,13). In Addis Ababa, medical students face a growing mix of ethical challenges from handling informed consent in busy hospitals to dealing with cultural expectations during patient care (14). These experiences make it clear that strong, practical ethics training is more important than ever.

Statement of the Problem

Although courses on medical ethics are formally part of the medical school curricula, their teaching in Addis Ababa's public medical schools often lacks consistency and coherence. As a result, many graduates finish their training feeling unprepared to handle ethical situations in real clinical environments (15,16). Studies have reported limited familiarity and practical engagement with professional codes of ethics among Ethiopian doctors, and highlighted major gaps in the ethical qualities of clinical practice, which were presented as an indicator of a lack of adequate exposure to ethics training (14–16). Ethiopian physicians admitted to having limited familiarity with professional moral codes and reported challenges when trying to apply ethical principles during patient care (16).

Moreover, there is a lack of nationally standardized ethics curricula or evaluation frameworks tailored to the Ethiopian context. Existing training programs often rely on traditional lecture-based methods, with minimal student interaction, critical reflection, or clinical integration (10,15,17). Students have few opportunities to practice ethical reasoning in structured, scenario-based environments, which international evidence has shown as essential for effective learning (18,19). Additionally, there is little institutional support for faculty development in ethics education, and many ethics courses are taught by clinicians without formal training in the subject (20).

The consequences of inadequate ethics education can be significant. Physicians who lack sufficient ethical training may struggle with decision-making in morally complex situations, leading to breaches of patient rights, reduced quality of care, and a breakdown in patient–provider trust(21,22). Ethical lapses such as failing to obtain informed consent, violating confidentiality, or demonstrating bias have been directly linked to compromised care quality and diminished institutional reputation(22,23). Without proper guidance, students may also internalize unprofessional or unethical behaviors observed in clinical environments, perpetuating a cycle of poor ethical standards and further weakening patient safety initiatives.

Strong ethics education empowers medical students with moral reasoning, reflective practice, and communication strategies essential for compassionate and accountable care(6,24).This enhances physicians’ ability to engage in shared decision-making, uphold patient dignity, and manage complex ethical dilemmas with confidence(11).Multiple studies have demonstrated that practitioners equipped with ethical training tend to foster greater patient trust, higher satisfaction, and improved clinical outcomes, while also reducing provider stress and bolstering professional integrity within healthcare teams(25,26)

The problem is compounded by a lack of rigorous research evaluating the actual implementation and outcomes of ethics education in Ethiopia. While some assessments have examined knowledge levels or student attitudes, few have explored how ethics is taught, what challenges educators face, and how students perceive their preparedness to act ethically in practice (14,27). This lack of evidence hinders efforts to improve curriculum design and delivery in a coordinated and effective manner.

Rationale and Significance

This study aims to fill a critical evidence gap by conducting a comprehensive evaluation of medical ethics education in Addis Ababa’s public medical schools using a mixed-methods approach. While some research has highlighted problems in ethical practice or student knowledge (14,16,28), there

is still little understanding of how current curricula function in practice, how faculty approach teaching ethics, and how students perceive the training they receive.

Paying attention to Addis Ababa is particularly important because it's home to some of the country's most prominent and influential medical schools. These institutions have a strong impact on how medical education is shaped nationwide. Looking into how they handle ethics training could offer valuable insights and help guide improvements across Ethiopia's broader medical education system(29).

If these gaps remain unaddressed, future generations of healthcare professionals may continue to lack the skills and confidence required to uphold ethical standards in an increasingly complex healthcare environment(29). This could undermine not only the quality of care but also public trust in the medical profession.

This study's findings will serve as valuable input for informing curriculum design, instructional practices, and policy decisions. They may support the development of standardized, evidence-based frameworks for medical ethics education that are both globally informed and locally grounded. In doing so, this research contributes to broader efforts to enhance the ethical competence of Ethiopia's healthcare workforce.

LITERATURE REVIEW

Concepts and Definitions in Medical Ethics Education

Medical ethics, a core component of the broader discipline of bioethics, concentrates on the moral obligations and decision-making processes involved in clinical practice and patient care (1,6). In contrast, bioethics encompasses a wider interdisciplinary scope, examining the ethical, legal, and societal implications of advancements in medicine and the life sciences (6). Medical ethics education refers to the structured instruction that aims to instill ethical principles, reasoning, and professionalism among medical trainees (30). There is global consensus that the foundational principles of biomedical ethics consist of autonomy, beneficence, non-maleficence, and justice, which collectively guide ethical decision-making in healthcare (6,31).

Medical ethics education has a dual purpose: to transmit knowledge of ethical guidelines and theories and to shape the professional character of trainees(32). Medical ethics is widely recognized as a vital element of medical education, promoting professionalism and nurturing the development of morally responsible and virtuous practitioners. (10,11). Both bioethics and medical ethics education ultimately aim to ensure that healthcare delivery upholds core values such as human dignity, patient autonomy, and justice(33).

However, there remain conceptual inconsistencies in how core ethical principles are taught, contextualized within specific cultural and clinical settings, and assessed across medical education programs(34). Some scholars argue that ethics instruction should focus on abstract moral theory, while others emphasize applied, case-based learning integrated within clinical practice (34,35). In the Ethiopian context, ethics instruction is commonly embedded in bridging courses and delivered primarily through lectures, often lacking experiential or participatory elements (36).

Preparedness to practice ethically is considered a fundamental outcome of medical ethics education. It refers to the extent to which medical students and future physicians are equipped with the knowledge, skills, and attitudes necessary to recognize, analyze, and resolve ethical dilemmas

in clinical settings(37,38). Studies emphasize that ethical preparedness requires more than theoretical instruction; it demands the development of moral reasoning, communication skills, empathy, and professional identity through experiential and reflective learning(11,39).

Global Trends in Medical Ethics Education

Over the past two decades, there has been increasing global consensus that ethics education should be an essential and integrated component of medical training (40,41). As early as 1999, international organizations such as the World Medical Association (WMA) emphasized that instruction in medical ethics and human rights should be a required component of every medical school curriculum (27,40). Globally, there is increasing emphasis on strengthening ethics education within undergraduate medical training, driven by rising concerns about professionalism, patient safety, and ethical conflicts in clinical settings(11,42). More recent analyses confirm that there is no universal standard curricula differ in content (e.g., emphasis on philosophical theory vs. practical case studies) and pedagogy (didactic lectures vs. interactive small groups)(10,42,43).

In many low- and middle-income countries (LMICs), including those in Sub-Saharan Africa, Asia, and the Middle East, the integration of medical ethics education into medical curricula has been relatively recent and remains uneven or insufficiently systematic (12,44). A 2024 review highlighted that many medical colleges in Africa and South Asia still do not have a formal, integrated ethics curriculum or defined training standards(45). In Nigeria, for instance, it was reported that *most medical schools lacked a formal undergraduate ethics curriculum* well into the 2010s(27). Across much of Sub-Saharan Africa, similar patterns have been noted, while countries like South Africa integrated bioethics earlier, many other nations only began developing ethics curricula in the 2000s as part of broader healthcare training reforms(10,27)

Studies from the Middle East indicate that although the importance of medical ethics education is increasingly acknowledged, its practical implementation continues to face substantial challenges(46,47). In Saudi Arabia, all public medical colleges surveyed in 2013 had a dedicated ethics course, yet 92.8% relied solely on lectures, with limited student engagement and no

standardized evaluation beyond final exams(47). Similarly, a 2020 survey in Turkey reported that although 91% of medical schools included ethics curricula, one-third lacked specialized instructors, and in 30% of institutions, lectures were the only teaching method(10). Clinical ethics integration, such as bedside teaching, remained minimal. These findings suggest that despite broader inclusion of ethics education in LMICs, its delivery often lacks depth, diversity, and practical application(10,19,47).

In Ethiopia, although medical ethics has been formally incorporated into the curricula of medical schools as part of a national effort to promote a “Compassionate, Respectful, Caring Health Workforce (CRC),” implementation remains limited due to a shortage of qualified instructors and insufficient institutional support(48). Despite policy commitments, many students receive inadequate training, and this gap is reflected in clinical practice outcomes. Only 30.4% of physicians in a recent Addis Ababa study demonstrated good adherence to professional ethical standards, with prior ethics training strongly predicting better performance(16). Furthermore, persistent ethical breaches such as poor informed consent, confidentiality violations, and unequal care have been documented in Ethiopian healthcare settings, underscoring the disconnect between policy and practice Ethics remains a marginalized component in many institutions. (14,16).

Causes of Gaps in Medical Ethics Education

Several factors cause the underperformance of medical ethics education in low- and middle-income countries, shaped by multiple, interacting factors, including historical under-prioritization of ethics in medical training, fragmented curricula, weak policy enforcement, and significant resource constraints(39,47,48). In many medical schools, lectures remain the main method of instruction, not necessarily by choice, but often because there aren't enough faculty with training in ethics or interactive teaching methods (10,14). As a result, students tend to feel less involved, and opportunities to develop critical thinking are limited. Adding to the challenge, what students learn in ethics classes doesn't always reflect the ethical dilemmas they face during clinical rotations, which can make the subject feel less relevant and harder to apply in practice(14,24).

In many Ethiopian clinical settings, cultural expectations, particularly the persistence of medical paternalism, can make discussions around patient autonomy seem less relevant or applicable(47). Although ethics is formally included in the curriculum, ongoing faculty shortages and institutional constraints often mean superficial implementation of ethics instruction is typically concentrated in a brief course with limited follow-up or application in clinical rotations(48,49). For most students, there's little follow-up or integration of ethics into later clinical training, making it difficult to connect ethical theory with real-world situations(15,48).

Determinants of Poor Preparedness

Even when ethics is formally taught, a range of factors can shape how well medical trainees and professionals develop ethical competence. One major issue is that many students don't receive enough practical exposure to ethics, which leaves them feeling unprepared and less confident when they're faced with real ethical dilemmas, a concern reflected in studies from both Ethiopia and Nigeria (27,47,48). Cultural influences, including lingering paternalistic attitudes and the often unspoken messages of the hidden curriculum, can also weaken students' ability to reason through ethical issues and respect patient autonomy(10,50).

The impact of role models matters, too. When instructors ignore ethical standards in practice, it sends mixed signals that undermine classroom learning, while supportive mentors can reinforce ethical growth (27). Institutional challenges like overcrowded classrooms, lecture-heavy teaching, and the pressures of clinical training further limit the chances for meaningful engagement with ethical content (10,27,50). Personal qualities such as empathy, motivation, and maturity also play a part, though religious background seems to have a more variable effect (51). In the end, it's the interaction between educational quality, institutional culture, and personal traits that shapes ethical competence in future health professionals.

Methodological Approaches and Ethical Considerations

Researching medical ethics education involves significant methodological and ethical complexities, largely due to the abstract and value-laden nature of its intended outcomes, as well

as the variability of cultural and institutional contexts in which it is delivered(52,53). Measuring effectiveness is difficult because outcomes range from short-term knowledge to long-term behavioral change, and standard tools like the Moral Competence Test may not capture real ethical growth(51,53). Many studies lack control groups and rely on cross-sectional designs, making attribution difficult, though models like CIPP offer a more holistic evaluation approach(51,54)

Social desirability bias and ethical concerns about observing students in clinical settings complicate data collection(45). Additionally, cultural differences affect what counts as ethical competence, making Western tools potentially unsuitable without adaptation(35,47). Mixed-methods and empirical bioethics approaches are increasingly used to bridge these gaps, though more rigorous designs and culturally sensitive tools are still needed(55)

Most studies on ethics education utilize mixed-methods or qualitative approaches to explore learners' and educators' perceptions, lived experiences, and the broader institutional and cultural contexts in which ethics is taught (18,35,47). Quantitative approaches are useful for measuring perceived preparedness and attitudes, while qualitative data illuminate the processes and barriers underlying ethical development (56). In the Ethiopian context, mixed-methods approaches are particularly valuable given the complexity of educational systems and the limited documentation of program delivery.

Rationale for the Study and Identified Gaps

Despite increasing national and global emphasis on medical ethics as a core competency in professional training, the implementation of ethics education in Ethiopian medical schools remains understudied. As outlined earlier, current curricula tend to prioritize theoretical instruction, with limited emphasis on clinical integration, faculty preparedness, or institutional support. Previous studies have often been fragmented, overlooking how these components collectively shape students' ethical competence. Notably, the perspectives of students and frontline faculty those most directly engaged in ethics teaching and learning are rarely captured systematically.

his study seeks to fill these gaps by using a mixed-methods design to investigate both the pedagogical implementation and experiential aspects of medical ethics education. By triangulating quantitative and qualitative data, the study provides a broad understanding of how course content, pedagogical methods, and institutional environments influence students' preparedness to navigate ethical challenges in clinical practice. In doing so, it contributes empirical evidence to inform future curricular reforms and capacity-building efforts in medical ethics education in Ethiopia.

Summary of Literature Review

A review of the literature reveals widespread global recognition of the importance of medical ethics education; however, it also underscores significant disparities in its implementation, especially across low- and middle-income countries (LMICs) in regions such as Sub-Saharan Africa, South Asia, and the Middle East(27,45,51). While many high-income countries have integrated ethics as a formal part of medical curricula, LMICs often lack trained faculty, rely heavily on didactic lectures, and offer minimal opportunities for interactive or clinical ethics training(10,47). As a result, even where ethics is taught, there is often a disconnect between theoretical instruction and practical application, with hidden curricula undermining formal education(27)

Nonetheless, several countries such as Turkey, Saudi Arabia, and Pakistan have begun reforms that include case-based learning, longitudinal ethics integration, and national teaching standards, all of which have shown positive responses from students. These challenges raise important questions. How can ethics education lead to real changes in behavior? How can it be delivered meaningfully in settings with limited resources? And how can international ethical standards be adapted to fit the Ethiopian context? This study sets out to explore these issues by examining how ethics is currently taught in Addis Ababa's public medical schools and by identifying practical ways to improve it.

CONCEPTUAL FRAMEWORK

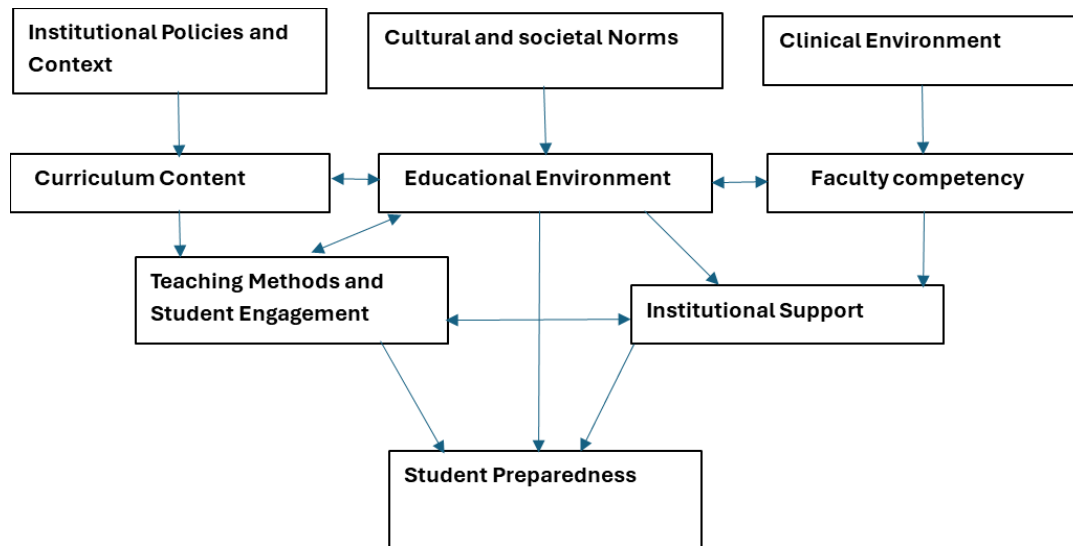


Figure 1: Conceptual Framework for Evaluating the Implementation of Medical Ethics Education among Clinical-Year Medical Students in Public Medical Schools in Addis Ababa, Ethiopia (2025)

Description of the Conceptual Framework

The conceptual framework was developed through a synthesis of relevant literature on ethics education in low-resource medical education settings and is structured according to the CIPP (Context, Input, Process, Product) evaluation model (54). It captures the key contextual, instructional, and institutional factors that shape the implementation and effectiveness of medical ethics education in public medical schools. At the core of the framework is the primary outcome, student preparedness, defined as the capacity to apply ethical knowledge, moral reasoning, and professional conduct within clinical practice.

Distal (Context)Factors

These include high-level structural and environmental influences that shape the broader context of medical ethics education:

Institutional Policies and Context: Refers to national curriculum mandates, accreditation requirements, and university-level guidelines that determine the presence and emphasis of ethics education.

Cultural and Societal Norms: Reflects prevailing community values, norms, and moral expectations that shape how students interpret and internalize ethical standards.

Clinical Environment: Includes the ethical climate of hospitals, role modeling by clinical supervisors, and the prevalence of observed ethical dilemmas, which strongly influence hidden curriculum learning.

Intermediate (Input) Factors

These variables mediate the delivery and structural quality of the ethics curriculum:

Curriculum Content: Refers to the depth, breadth, and contextual alignment of ethics course materials. Content that lacks practical relevance or cultural alignment undermines learning.

Faculty Competence: Includes the teaching staff's ethics training, experience, and ability to facilitate discussions, simulations, and mentorship in ethics.

Educational Environment: Represents the general learning atmosphere, including safety, inclusiveness, and openness to ethical discourse.

Institutional Support: Encompasses administrative commitment, availability of teaching resources, scheduled time, and the presence of focal units or ethics committees.

Proximal (Process) Factors

These are directly experienced by students and have an immediate impact on their ethical development:

Teaching Methods and Student Engagement: Includes instructional strategies such as interactive case discussions, role plays, problem-based learning, and simulations. These methods enhance ethical reasoning and prepare students for complex decision-making.

Outcome (Product)

Student Preparedness: Defined as the degree to which students feel confident, competent, and ethically grounded to navigate dilemmas encountered in real clinical settings. It is the cumulative product of the context, inputs, and instructional processes described above(11,24,39).

Arrows in the diagram represent the direction of influence among variables, with distal factors shaping intermediate structures, which in turn influence the teaching process and ultimately affect the preparedness of medical students.

OBJECTIVES

General Objective

To Evaluate the status of comprehensive implementation of the medical ethics education among public medical schools in Addis Ababa.

Evaluation of Medical Ethics Education in Public Medical Schools in Addis Ababa: a Mixed-Methods Study

Specific Objectives

1. To examine the content and teaching methods used in the teaching of medical ethics education among public medical schools in Addis Ababa.
2. To assess the teaching-learning process, faculty engagement, and the development of students perceived ethical reasoning and professional conduct in the medical education programs of public medical schools in Addis Ababa.
3. To explore the perspectives of students and faculty on the programmatic challenges of medical education programs among public medical schools in Addis Ababa.

METHODOLOGY

Study Design

This study utilized a cross-sectional design with a convergent mixed-methods approach to assess the implementation of medical ethics education in public medical schools in Addis Ababa. Quantitative and qualitative data were collected concurrently to generate complementary insights. The integration of findings during analysis and interpretation allowed for triangulation, enhancing the validity and depth of the conclusions.to ensure triangulation and a richer understanding.

Study Setting

The study was conducted in three public medical schools in Addis Ababa: Addis Ababa University's School of Medicine at Tikur Anbessa Specialized Hospital, St. Paul's Hospital Millennium Medical College, and Yekatit 12 College of Health Sciences. These institutions have included medical ethics in their undergraduate medical curricula.

Addis Ababa University's School of Medicine at Tikur Anbessa Specialized Hospital is part of Addis Ababa University (AAU), Ethiopia's oldest and largest institution of higher learning, established in 1950 (48,49). The School of Medicine, operating under the College of Health Sciences, has long been a cornerstone of medical training in the country(36). The school offers a comprehensive six-year curriculum that includes foundational biomedical sciences, clinical rotations, and exposure to professional ethics. Enrollment is competitive and based on national entrance examinations, with over 150 students admitted annually (MOE, 2022). Medical ethics is incorporated primarily during the bridging year (third year) through structured coursework.

St. Paul's Hospital Millennium Medical College (SPHMMC) was officially established in 2010, following the initiation of medical education activities in 2007. The institution is affiliated with St. Paul's Hospital, a major tertiary care and teaching facility originally established in 1968 by Emperor Haile Selassie to improve access to healthcare for underserved populations in

Ethiopia(57). St. Paul’s Hospital Millennium Medical College (SPHMMC) was the first institution in Ethiopia to introduce an integrated, modular, and hybrid problem-based curriculum, emphasizing clinical relevance, early patient exposure, and the development of professionalism(57). The college has experienced rapid growth, expanding its faculty and now offering both undergraduate and postgraduate medical programs. Medical ethics is taught for one week as part of the bridging course before students enter their clinical years.

Yekatit 12 College of Health Sciences (Y12CHS) has a long-standing presence in Ethiopia’s health education landscape. Originally established in 1923 as Bete Saida Be Teferi Mekonnen Hospital, it was renamed under the Derg regime in the 1970s. Today, the college functions as one of Addis Ababa’s six major public health training institutions (58). It has pioneered clinical services in areas such as burn care and dental health. The medical program admits approximately 60–70 students annually and emphasizes practical, service-oriented training. Ethics education is given as part of the Professionalism and Ethics course before medical students begin the medical sciences courses.

Source Population

Quantitative Component

The source population for the quantitative part of this study included all clinical-year medical students enrolled in the three public medical schools in Addis Ababa, Ethiopia. Addis Ababa University, Tikur Anbessa Specialized Hospital, School of Medicine, St. Paul’s Hospital Millennium Medical College, Yekatit 12 College of Health Sciences. These institutions represent the major public medical training centers in the capital and provide diverse clinical learning environments. All students in their third through sixth years of study were considered part of the source population, as they had completed the formal medical ethics course and had participated in various clinical rotations where ethical challenges are encountered.

Qualitative Component

The source population for the qualitative component included key stakeholders involved in medical ethics education, regulation, or practice. These included Faculty members who teach medical ethics or supervise students in clinical settings across the three medical schools, Representatives from professional associations, Members of professional ethics committees, Officials from the Federal Ministry of Health involved in the development or oversight of medical ethics education and standards.

Study Population

Quantitative Study Participants

The study population for the quantitative component consisted of clinical-year medical students (3rd to 6th year) who had already taken the medical ethics course and were actively participating in clinical placements. Participants were selected using a stratified sampling technique to ensure proportional representation from each medical school.

Qualitative Study Participants

For the qualitative component, the study population included purposively selected individuals from the source groups mentioned above. These participants were selected based on their roles and experiences in medical ethics education, policy, and clinical supervision.

Sample Size Determination

The required sample size for this study was calculated using the single population proportion formula, applying a finite population correction factor due to the limited size of the total population. Since no prior study was available to estimate the proportion of students adequately prepared in medical ethics, a conservative estimate of 50% was assumed to maximize sample size and ensure representativeness. The formula used is:

$$n = \frac{N \cdot Z^2 \cdot p \cdot (1 - p)}{e^2 \cdot (N - 1) + Z^2 \cdot p \cdot (1 - p)}$$

Where:

- n : Sample size
- N : Population size (928 students)
- Z : Z-value (1.96 for 95% confidence level)
- p : (0.5 since it's unknown)
- e : Margin of error (0.05 for 5%)

The initial calculated sample size was 272. To account for a projected 10% non-response rate and ensure sufficient data for analysis, the sample size was adjusted to 302. For the qualitative component, a total of 12 key informants were purposively selected based on their direct involvement in medical ethics instruction, curriculum design, or policy oversight, with sampling continued until thematic saturation was achieved.

Sampling Procedure

To ensure representativeness across institutions and academic years, a stratified random sampling technique was employed. The total population ($N = 928$) was first stratified by medical school based on the number of students each medical school has, as obtained from the registrar offices, and then further stratified by year level: Clinical year 1(C1), Clinical year 2(C2), and Interns. Proportional allocation was applied based on the number of students enrolled at each year level within the selected institutions, and students were then selected using simple random sampling from each stratum. The resulting sample distribution is shown in Table 1.

Table 1: Sample Size Allocation of Clinical-Year Medical Students by Institution and Year of Study in Three Public Medical Schools in Addis Ababa, Ethiopia (2025)

Institution	Year Level	Population	Sample Size
Yekatit 12 Hospital Medical College (Total Sample: 58)	C1	62	20
	C2	66	21
	Intern	52	17
Addis Ababa University, College of Health Sciences, School of Medicine (Total Sample: 140)	C1	120	39
	C2	85	28
	Intern	224	73
St. Paul's Hospital Millennium Medical College (Total Sample: 104)	C1	75	24
	C2	148	49
	Intern	96	31
Total	—	928	302

For the qualitative component, 12 key informants were chosen through purposive sampling. These included faculty members, curriculum experts, and academic coordinators who were directly involved in delivering ethics courses, mentoring students, or shaping the medical curriculum. Their practical experience and institutional roles made them well-positioned to provide deeper insights into how ethics education is implemented in real-world settings. Sampling continued until thematic saturation was reached that is, when successive interviews yielded no new themes or insights, indicating that the data were sufficiently rich and comprehensive to address the study objectives.

Data Collection Tools and Procedures

Data collection was conducted between March and April 2025. Quantitative data were gathered using an interviewer-administered structured questionnaire in English, adapted and modified from a previously validated CIPP-based instrument developed by Ahmadipour et al. (2023). The original instrument was revised to suit the Ethiopian context, with modifications in terminology, item grouping, and response options to ensure cultural and contextual relevance. The questionnaire was designed to measure students' perceptions of course content, instructional methods, faculty engagement, institutional support, and their perceived preparedness to address ethical challenges.

To ensure data quality, the principal investigator recruited experienced data collectors and conducted a one-day training session. The training covered the study objectives, informed consent procedures, detailed review of the questionnaire, interview techniques, and the importance of maintaining participant confidentiality. Questionnaires were then administered in person using the Kobo Collect app, which was linked to the KoboToolbox for digital data capture with robust privacy and confidentiality measures.

For the qualitative component of the study, the principal investigator conducted Key Informant Interviews (KIIs) using a semi-structured interview guide developed in alignment with the study objectives. These interviews explored faculty views on how ethics education is implemented, the challenges they face, how prepared institutions are, and what improvements they suggest. All KIIs were conducted in Amharic, recorded with the participants' permission, and later transcribed and translated into English to preserve meaning and allow for deeper analysis.

Instrument Validation and Reliability

This study used a structured questionnaire that was adapted from an evaluation tool originally developed by Ahmadipour et al. (2023), which was based on the CIPP model(54). The original version had been validated by experts and showed strong content validity, with a CVI of 0.97 and a CVR of 0.89 (54).

For this research, the questionnaire was slightly modified to better fit the local context. Changes focused on adjusting the language for clarity, simplifying technical terms, and reorganizing some items to reflect themes relevant to this study's objectives. Before it was used in the field, the revised version was reviewed by professionals in medical education and curriculum design. Their input helped ensure the tool was understandable, culturally appropriate, and well aligned with the realities of Ethiopia's medical training system.

Study Variables

This study examined a range of variables to explore the factors influencing undergraduate medical students' preparedness to practice ethically in clinical settings. Guided by both theoretical frameworks and empirical literature, the variables were classified into dependent and independent categories.

Dependent Variable

- ✓ Preparedness to Practice Ethically

Independent Variables

The independent variables were selected based on their conceptual relevance and empirical significance, as identified in the literature.

- ✓ Course Quality
- ✓ Content Coverage
- ✓ Ethical Reasoning Skills
- ✓ Understanding of Ethical Principles
- ✓ Faculty Qualification
- ✓ Timing and Integration of Ethics Instruction
- ✓ Institutional Support Mechanisms
- ✓ Opportunities for Practical Engagement
- ✓ Resource Availability
- ✓ Sociodemographic Variables

Composite Score Construction

In this study, several variables were assessed through composite scores derived from thematically grouped Likert-scale items. These composite scores were designed to capture multidimensional aspects of students' perceptions and learning outcomes related to medical ethics education. Composite scores were computed as the mean of responses to grouped items, each measured on a 5-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The specific items comprising each composite score are detailed in Annex 3. Internal consistency of each scale was assessed using Cronbach's Alpha to confirm reliability.

Course Quality Score: This variable measures students' perceptions of the overall quality and delivery of the medical ethics course. It includes items related to clarity of goals, appropriateness of workload, instructional materials, teacher-student relationships, and satisfaction with evaluation methods.

Content Coverage Score: This composite reflects how thoroughly students felt key ethics topics were addressed in the curriculum. It includes coverage of foundational ethical principles, cultural influences, case-based learning, decision-making, and emerging issues in ethics.

Ethical Principles Score: This scale captures students' understanding of core ethical domains such as respect for patient rights, informed consent, confidentiality, conflict of interest, and professional responsibilities in healthcare practice.

Ethical Analysis Skill Score: This score represents the degree to which students feel prepared to apply ethical reasoning tools and perform ethical analysis in clinical settings. It reflects abilities to interpret, evaluate, and respond to ethical dilemmas.

Preparedness to Practice Ethically Score: This composite assesses how confident students feel in handling real-world ethical challenges. It includes self-rated preparedness and practical readiness to act ethically in professional contexts.

Professional Behavior Score: This score evaluates students' attitudes toward professionalism, including responsibility, accountability, integrity, and appropriate conduct in response to both patient and colleague behaviors.

Construct Validity

To examine how well the adapted questionnaire measured what it was intended to measure, Exploratory Factor Analysis (EFA) was carried out to assess the underlying structure of the questionnaire items and ensure construct validity. Principal Component Analysis (PCA) with Varimax rotation was employed to explore the underlying factor structure of the questionnaire items and enhance interpretability of the constructs. The analysis was applied separately to each

composite scale that had been grouped within the questionnaire. Sampling adequacy for factor analysis was assessed using the Kaiser-Meyer-Olkin (KMO) measure, while the suitability of the correlation matrix was confirmed through Bartlett's Test of Sphericity.

The results indicated that all grouped constructs had satisfactory psychometric properties:

- ✓ KMO values ranged from 0.727 to 0.863, indicating good to excellent sampling adequacy.
- ✓ Bartlett's Test of Sphericity was statistically significant for all constructs ($p < 0.001$), confirming the suitability of the data for factor analysis.
- ✓ Each scale yielded a single factor with an eigenvalue greater than 1, explaining between 47.3% and 63.3% of the total variance.
- ✓ Factor loadings ranged from 0.60 to 0.79 across items within each construct, supporting unidimensionality and coherence of the composite variables.

These results provide robust evidence of the instrument's construct validity, affirming its appropriateness for assessing key domains of medical ethics education.

Reliability (Internal Consistency)

The internal consistency reliability of each composite scale was evaluated using Cronbach's Alpha coefficient, with the results presented in Table 2.

Table 2: Reliability Coefficients (Cronbach's Alpha) for Composite Score Measures Used in the Study of Clinical-Year Medical Students in Addis Ababa, Ethiopia (2025)

Composite Score	No. of Items	Cronbach's Alpha
Ethical Principles	6	0.840
Content Coverage	5	0.844
Preparedness	4	0.806
Course Quality	5	0.711
Professional Behavior	4	0.760

All composite scores exhibited acceptable to excellent internal consistency, with Cronbach's Alpha values exceeding the commonly accepted threshold of 0.70. These findings confirm the reliability of the instrument in measuring the targeted constructs associated with the implementation and outcomes of medical ethics education in the study context.

Data Analysis

Quantitative data were cleaned, coded, and analyzed using IBM SPSS Statistics version 27. Descriptive statistics including frequencies, percentages, means, and standard deviations, were computed to summarize participant characteristics and key study variables. Inferential statistical techniques, including independent samples t-tests, one-way ANOVA, Pearson correlation coefficients, chi-square tests, and multiple linear regression analyses, were employed to examine group differences and identify significant predictors of students' perceived preparedness to address ethical challenges in clinical practice. Assumptions for each test (e.g., normality, homogeneity of variance, multicollinearity) were checked and addressed where appropriate. A significance level of $p < 0.05$ was used throughout.

Qualitative data from the key informant interviews were analyzed thematically using Dedoose software (version 10). An inductive approach was employed, allowing patterns and themes to emerge organically from the data without imposing pre-existing categories. All transcripts were first imported into Dedoose and read thoroughly to familiarize the researcher with the content. An initial codebook was developed based on repeated patterns in the data and refined through iterative coding. Similar codes were then grouped into broader thematic categories aligned with the study objectives. Dedoose tools, including code frequency counts, co-occurrence matrices, and excerpt mapping, were used to support theme development and enhance analytical rigor.

Data Quality Assurance

To ensure data quality and consistency throughout the study, several measures were implemented at various stages. Initially, the questionnaire was pilot-tested with a small group of clinical-year medical students from a private medical school to assess clarity, relevance, and timing. Their feedback helped identify and correct unclear wording, awkward phrasing, and response options that didn't fit well with the local context. These revisions helped make the final version of the tool more understandable and relevant to participants.

For the quantitative data collection, a team of trained data collectors was recruited. They took part in a one-day training session led by the principal investigator, where they were introduced to the study objectives, familiarized with the questionnaire, and guided through ethical procedures such as obtaining informed consent and protecting participant privacy. The training also included practice sessions and mock interviews to ensure a consistent approach across all interviews. During data collection, the principal investigator provided close supervision, including on-the-spot checks, feedback to interviewers, and regular reviews of the digital forms submitted through KoboToolbox to catch any inconsistencies early.

On the qualitative side, a number of steps were taken to ensure quality of the findings. Interviews were conducted carefully and respectfully, and all audio recordings were transcribed and translated with attention to preserving meaning. Coding was done using Dedoose, and the initial codebook

was refined through repeated reading and comparison across transcripts. To strengthen credibility, themes emerging from the key informant interviews were triangulated with survey responses, allowing the team to compare and explain patterns across the two data sources. Throughout the process, the researcher kept detailed notes and memos to reflect on emerging insights and to check for personal bias. Together, these quality assurance strategies helped ensure that both the quantitative and qualitative findings were reliable, meaningful, and grounded in the realities of medical ethics education as experienced by students and faculty.

ETHICAL CONSIDERATIONS

This study was conducted in full compliance with established ethical guidelines for research involving human participants. Before data collection, ethical clearance was obtained from the Ethics Review Committee (ERC) of the School of Public Health at Addis Ababa University (Ref. No. SPH/452/2025). Additional ethical approvals and formal permission letters were secured from the respective institutions: Addis Ababa University School of Medicine, St. Paul's Hospital Millennium Medical College (Ref. No. PM 23/586), and the Addis Ababa City Health Bureau for Yekatit 12 College of Health Sciences (Ref. No. AAHB/2/276/17).

Before participation, all respondents were informed both verbally and in writing about the purpose of the study, their right to decline or withdraw at any stage without consequence, and the measures taken to ensure confidentiality and data protection. Informed consent was obtained from each participant before administering the questionnaire or conducting interviews.

During data handling and analysis, privacy was carefully protected. Personal identifiers were removed or anonymized during transcription, and all responses were kept confidential. Access to raw data was restricted to the principal investigator and designated members of the research team. Audio recordings of interviews were stored securely and deleted immediately after transcription was completed. No identifying information was included in any report, presentation, or publication based on this research.

RESULTS

Quantitative Results

Description of Study Participants

This study involved a total of 302 clinical medical students drawn from three public medical schools in Ethiopia: Addis Ababa University, College of Health Sciences, School of Medicine (46.4%), St. Paul's Hospital Millennium Medical College (34.4%), and Yekatit 12 Hospital Medical College (19.2%) (Table 3) a total of 337 students have been reached out for a survey response to get a respondent of 302 with a response rate of 89.7%. The age of participants ranged from 21 to 32 years, with a mean age of 24.88 years (SD = 2.48). The majority were male (60.6%), while females made up 39.4% (Table 3). As shown in Table 3 in terms of academic level, 39.1% of participants were sixth-year students, 28.5% were fourth-year students, 25.5% were fifth-year students, and 7.0% were in their third year of study.

Table 3. Summary of Clinical-Year Medical Student Characteristics by Institution, Year of Study, and Gender in Three Public Medical Schools in Addis Ababa, Ethiopia (2025)

Category	Group	Number of students	Percentage
Addis Ababa University, College of Health Sciences, School of Medicine	Medical School	140	47%
St. Paul's Hospital Millennium Medical College	Medical School	104	34%
Yekatit 12 Hospital Medical College	Medical School	58	19%
3 rd Year	Medical School	30	10.3%
4 th Year	Medical School	80	27.6%
5 th Year	Medical School	70	24.1%
6 th Year	Medical School	110	38%
Male	Gender	183	60.6%
Female	Gender	119	39.4%
Total		302	

Students' Perceptions and Learning Outcomes

Table 4 presents the mean scores, standard deviations, and observed ranges for each composite variable. Overall, students felt most confident in their understanding of ethical principles (mean = 3.98, SD=0.63) and professional behavior (mean = 4.01, SD=0.56). On the other hand, course quality and content coverage received relatively moderate ratings, suggesting areas for further curriculum enhancement.

Table 4. Summary of Composite Scores for Key Dimensions of Medical Ethics Education among Clinical-Year Medical Students in Three Public Medical Schools in Addis Ababa, Ethiopia (2025)

Composite Variable	Mean	SD	Range
Course Quality Score	3.52	0.67	1.00–5.00
Content Coverage Score	3.35	0.82	1.00–5.00
Ethical Principles Score	3.98	0.63	1.00–5.00
Ethical Analysis Skill Score	3.66	0.82	1.00–5.00
Preparedness to Practice Ethically Score	3.48	0.79	1.00–5.00
Professional Behavior Score	4.01	0.56	2.33–5.00

Binary Responses Related to General Medical Ethics Course Experience

To explore specific aspects of students' exposure to ethics instruction, several binary (Yes/No) items were included in the survey. These questions assessed students' experiences with ethical guidance, faculty support, ethical conflict exposure, and applied learning during their clinical training.

As presented in Figure 2, the most frequently affirmed experience was receiving guidance on confidentiality (83.4%). Other highly reported experiences included participation in case discussions (78.5%), confidence in managing ethical dilemmas (78.8%), and practicing ethical reasoning (63.9%). A supportive clinical environment for ethical practice was reported by 70.2%

of students, while 69.9% felt that faculty were actively engaged in ethics education. In contrast, only 52.4% of students indicated they knew how to report ethical violations, making it the least frequently affirmed item. Additionally, 57.6% reported facing ethical conflicts during their training.

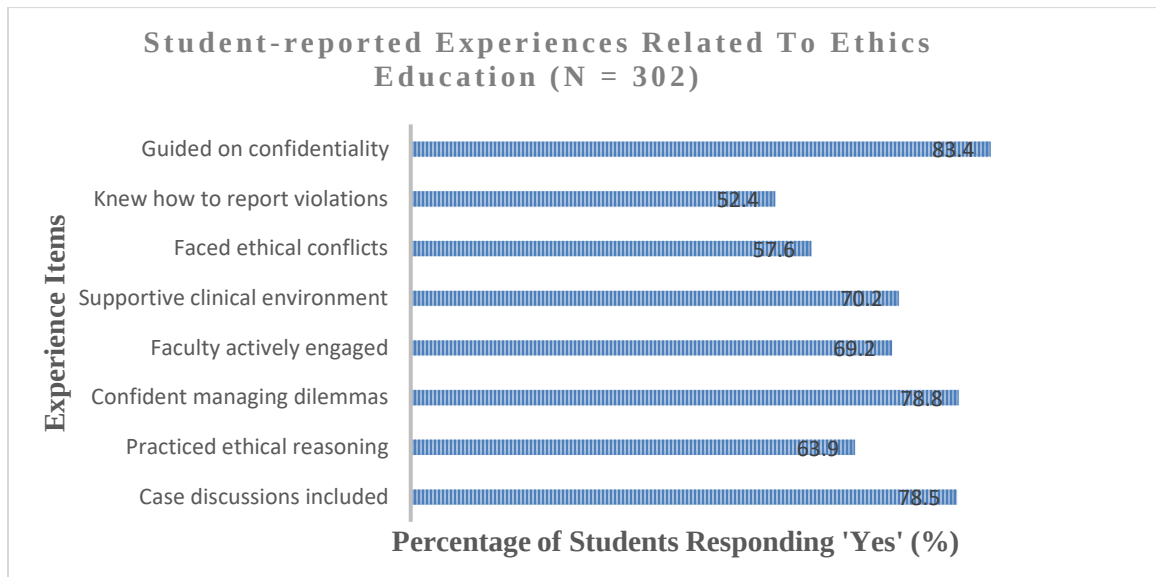


Figure 2: Percentage Distribution of Clinical-Year Medical Students' Key Experiences in Ethics Education in Three Public Medical Schools in Addis Ababa, Ethiopia (2025)

Challenges in Learning Medical Ethics

Students were asked to identify the primary challenges they faced in learning medical ethics using a structured, closed-ended, and open-ended question format. As shown in Figure 3, the most frequently cited challenge was limited time allocation (60.3%), followed by lack of practical examples (53.3%) and insufficient faculty expertise (18.9%). An additional 12.9% of respondents selected “Other,” with write-in responses referencing issues such as unclear assessment criteria, minimal clinical integration, and overlap with other courses.

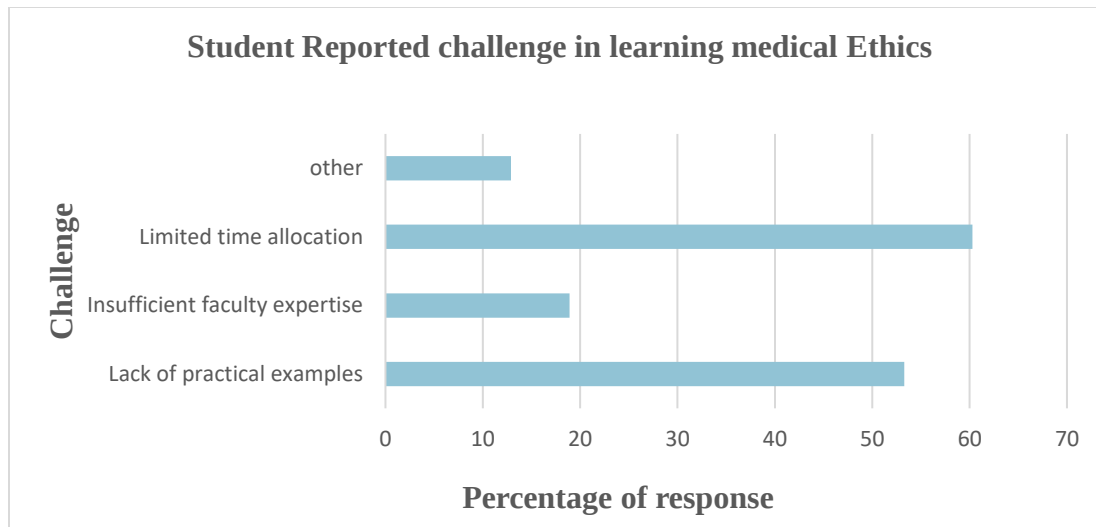


Figure 3: Percentage Distribution of Reported Challenges to Learning Medical Ethics Among Clinical-Year Medical Students in Three Public Medical Schools in Addis Ababa, Ethiopia (2025)

Comparative Analyses

All assumptions for independent samples t-tests and ANOVA (e.g., normality, homogeneity of variances) were checked and met.

Independent Samples T-Test

To understand whether certain binary characteristics affected student responses, several independent samples t-tests were conducted. The results revealed that students who reported being motivated to study ethics were significantly more prepared than their counterparts who were not ($t(300) = 4.823, p < 0.001$). Similarly, students who expressed satisfaction with their overall training reported higher preparedness scores ($t(228.90) = 8.328, p < 0.001$). Interestingly, those who felt the course lacked practical examples had lower preparedness ratings ($t = -3.793, p < 0.001$). When comparing institutions, students from Addis Ababa University, College of Health Sciences, School of Medicine scored significantly higher in preparedness compared to students from St. Paul's Hospital Millennium Medical College ($t(242) = 2.637, p = 0.009$).

One-Way ANOVA

Differences in preparedness by school and year of study were assessed using one-way ANOVA. Preparedness scores varied significantly between schools, $F(2, 299) = 4.783, p = 0.009$. Students from Yekatit 12 Hospital Medical College reported the highest preparedness ($M = 3.64$), followed by Yekatit 12 Hospital Medical College ($M = 3.56$), and Yekatit 12 Hospital Medical College ($M = 3.30$) Figure 6 presents mean preparedness scores by medical school. Students from Yekatit 12 Hospital Medical College and Addis Ababa University, College of Health Sciences, School of Medicine reported higher preparedness compared to St. Paul's Hospital Millennium Medical College. Error bars indicate standard deviations. Post hoc analysis using Tukey's HSD indicated that students from Yekatit 12 Hospital Medical College and Addis Ababa University, College of Health Sciences, School of Medicine had significantly higher preparedness scores than those from St. Paul's Hospital Millennium Medical College.

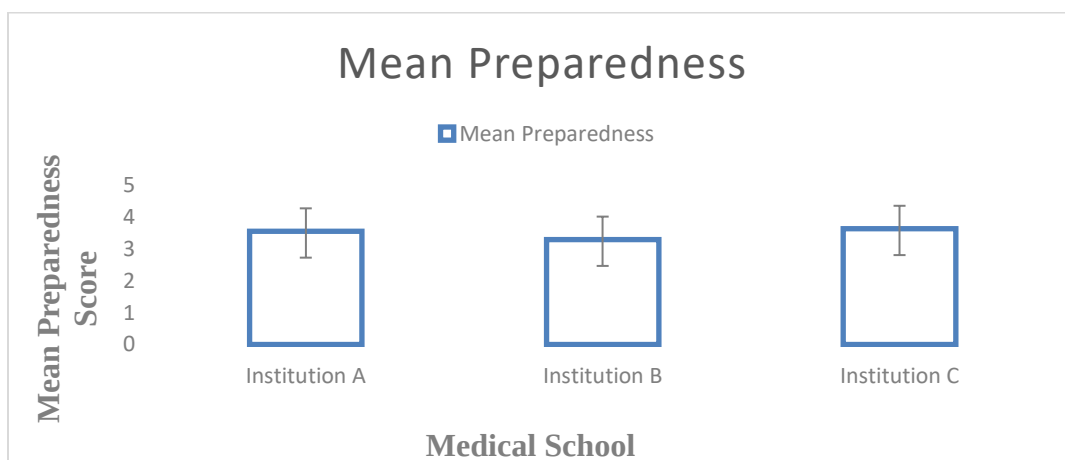


Figure 4: Mean Preparedness Scores (with Standard Deviations) by Medical School Among Clinical-Year Students in Three Public Medical Schools in Addis Ababa, Ethiopia (2025)

However, preparedness did not vary significantly by year of study, $F(3, 298) = 2.194, p = 0.089$, although fifth-year students tended to score slightly higher.

Chi-Square Tests

Chi-square tests were conducted to examine the association between students' satisfaction with ethics training and their institutional affiliation. The test result was statistically significant, $\chi^2(2, N = 302) = 6.353, p = 0.042$, suggesting that student satisfaction with medical ethics education was influenced by their school. Specifically, satisfaction was highest at Yekatit 12 Hospital Medical College(67.2%), followed by Addis Ababa University, College of Health Sciences, School of Medicine (57.1%), and lowest at St. Paul's Hospital Millennium Medical College(47.1%).

Table 5: Cross-tabulation of Student Satisfaction with Medical Ethics Training by Medical School Among Clinical-Year Students in Three Public Medical Schools in Addis Ababa, Ethiopia (2025)

School	Satisfied (n)	Not Satisfied (n)	Total (n)
Addis Ababa University, College of Health Sciences, School of Medicine	80	60	140
St. Paul's Hospital Millennium Medical College	49	55	104
Yekatit 12 Hospital Medical College	39	19	58
Total	168	134	302

Correlation Between Composite Variables

To examine the relationships among key learning outcomes, Pearson correlation coefficients were computed for six composite variables. Pearson correlation analysis revealed several significant associations. Preparedness was strongly correlated with Content Coverage ($r = 0.550, p < 0.001$), and moderately correlated with Course Quality ($r = 0.445, p < 0.001$), Ethical Analysis ($r = 0.413, p < 0.001$), and Ethical Principles ($r = 0.345, p < 0.001$). Professional behavior showed a weak positive correlation with preparedness ($r = 0.166, p = 0.004$). The strongest association observed was between Ethical Principles and Ethical Analysis ($r = 0.641, p < 0.001$), indicating a close connection between understanding principles and applying them in practice.

Table 6.Correlation Matrix of Composite Variables Measuring Medical Ethics Education Among Clinical-Year Students in Three Public Medical Schools in Addis Ababa, Ethiopia (2025)

	Preparedness	Course Quality	Content Coverage	Ethical Principles	Ethical Analysis	Professional Behavior
Preparedness	1	0.445	0.55	0.345	0.413	0.166
Course Quality	0.445	1	0.366	0.488	0.516	0.144
Content Coverage	0.55	0.366	1	0.273	0.245	0.048
Ethical Principles	0.345	0.488	0.273	1	0.641	0.193
Ethical Analysis	0.413	0.516	0.245	0.641	1	0.032
Professional Behavior	0.166	0.144	0.048	0.193	0.032	1

Multiple Regression Analysis

A multiple linear regression analysis was conducted to identify predictors of students' preparedness to practice ethically. The model was statistically significant, $F(28, 273) = 10.016$, $p < 0.001$, and explained approximately **51% of the variance** in preparedness scores ($R^2 = 0.507$). Significant predictors included Content Coverage Score ($\beta = 0.325$, $p < 0.001$), Ethical Analysis Score ($\beta = 0.146$, $p = 0.023$), Professional Behavior Score ($\beta = 0.100$, $p = 0.036$), Clarity of course materials ($\beta = 0.144$, $p = 0.010$), and Self-rated ability to handle ethical issues ($\beta = 0.128$, $p = 0.016$). The multiple regression analysis showed that preparedness to practice ethically was significantly predicted by content coverage, ethical analysis, professional behavior, clarity of course materials, and students' confidence in handling ethical issues

These results suggest that content coverage, ethical analysis, professional behavior, clarity of materials, and students' confidence in handling ethical issues were statistically significant predictors of preparedness. Variables such as school, year, and instructor qualification were not statistically significant once these predictors were included in the model.

Table 7. Summary of Multiple Linear Regression Predicting Ethical Preparedness Among Clinical-Year Medical Students in Three Public Medical Schools in Addis Ababa, Ethiopia (2025)

Predictor Variable	Unstandardized B	Standardized β	p-value
Content Coverage Score	0.325	0.325	<0.001
Ethical Analysis Score	0.146	0.146	0.023
Professional Behavior Score	0.100	0.100	0.036
Clarity of Course Materials	0.144	0.144	0.010
Self-rated Ethical Handling Ability	0.128	0.128	0.016

Qualitative Results

Background Information of Participants

This study draws on two qualitative data sources: (1) Key Informant Interviews (KIIs) with 12 stakeholders involved in medical ethics education, and (2) open-ended survey responses from clinical medical students. Table: 8 provides a summary profile of the key informants who participated in this study, illustrating the diversity of professional backgrounds and institutional roles.

Table 8: Profile Summary of Key Informants Participating in the Evaluation of Medical Ethics Education in Public Medical Schools in Addis Ababa, Ethiopia (2025)

Stakeholder Category	Number of Participants	Role/Expertise Area	Relevance to Study
Medical School Directors	2	Institutional leadership	Oversight of medical education, including ethics delivery
Ethics Instructors	3	Teaching and curriculum delivery	Direct engagement in ethics education
Faculty	2	Clinical instruction, academic leadership	Ethics integration into the broader medical curriculum
Ministry of Health Officials	1	Policy and standards development	Oversight of national curriculum and competency standards
Curriculum Coordinators	2	Program design and implementation	Technical expertise in structuring medical education
Professional Association Reps	2	Ethics and professional regulation	Linkage to national guidelines and professional ethics
Total	12		

In addition to these expert perspectives, the study also incorporated qualitative insights from students enrolled in clinical medical programs across three public universities. Their responses to an open-ended survey question on course improvement provided firsthand perspectives on the relevance, delivery, and effectiveness of ethics instruction. These student responses are

thematically analyzed and presented, offering a complementary viewpoint that reinforces and enriches the interview-based findings.

Thematic Overview

Thematic analysis of the interviews revealed four overarching categories (See Figure 5.6 for a visual representation of the thematic structure) that capture the current challenges and perceptions surrounding ethics education:

1. Curriculum Design and Relevance
2. Faculty Capacity and Teaching Practices
3. Institutional and Policy Support
4. Student Preparedness and Ethical Development

Each of these themes is elaborated in the sections below with analytical reflections and illustrative quotes from participants. These KII-based findings are further contextualized and complemented by student perspectives. This additional lens enriches the findings by providing learner-centered insights into course implementation and areas for improvement.

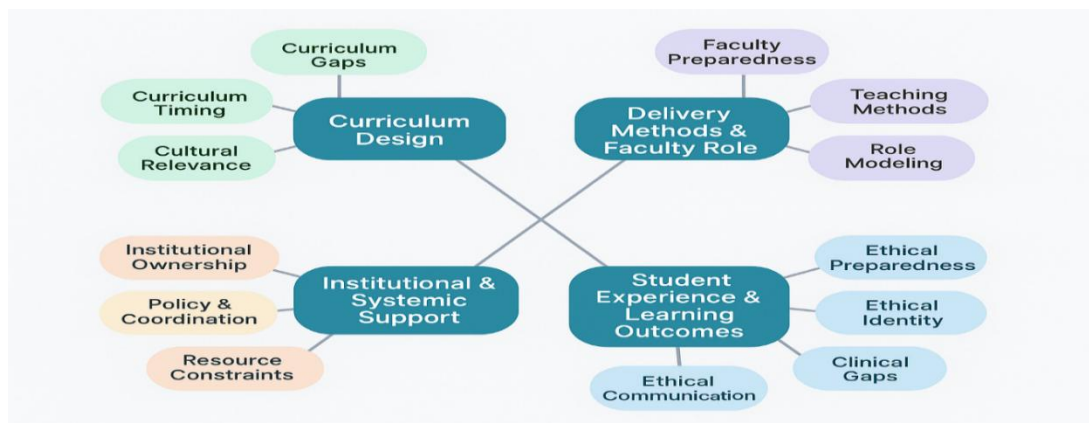


Figure 5: Thematic Cluster Map Illustrating Relationships Among Key Themes Identified from Qualitative Interviews with Faculty and Students on Medical Ethics Education in Public Medical Schools, Addis Ababa, Ethiopia (2025)

Theme 1: Curriculum Design and Relevance

Participants consistently described the medical ethics curriculum as underdeveloped, overly theoretical, and disconnected from clinical realities. The lack of needs-based curriculum development was widely cited, with respondents pointing to minimal contextualization and limited integration of experiential learning.

“One major gap is the curriculum. It’s underdeveloped and lacks experiential learning. Medical ethics is not something that can be effectively taught through lectures alone.” – (KI03,IB,Female, Instructor)

Several participants highlighted a mismatch between imported Western ethics frameworks and Ethiopia’s sociocultural context. This misalignment was seen as limiting the applicability and resonance of ethics education among students.

“The models we use don’t reflect our reality. Ethical practice should be rooted in local values, not just Western principles.” – (KI01,IA,Male,Instructor)

Concerns were also expressed regarding the suboptimal timing and lack of continuity in ethics instruction, which is often confined to the early pre-clinical years with little to no reinforcement during subsequent clinical rotations. Additionally, participants underscored the need to revise content to address contemporary issues such as artificial intelligence, digital health, and global bioethics.

“Now, if AI is deployed clinically, I think we should consider it in the future.” – (KI02,EA,Male, Director)

Theme 2: Faculty Capacity and Teaching Practices

The effectiveness of ethics education was perceived to be heavily constrained by the limited capacity and preparation of faculty. Many instructors lacked formal training in medical ethics, relying instead on personal values or clinical experience.

“Most of us received no formal training in ethics at either undergraduate or postgraduate levels.” (KI06, IC, Male, Instructor)

In several institutions, ethics was taught informally, often embedded within broader clinical instruction. While this created opportunities for real-time learning, it led to inconsistencies and subjective interpretations of ethical principles. Participants emphasized the importance of standardized teaching approaches and advocated for interactive, learner-centered methods such as case-based discussions, simulations, and role plays, though these were seldom implemented due to time constraints and limited institutional resources.

“There should be a structured module, adapted to Ethiopian realities, with active learning methods and standardized assessments.” – (KI04, IB, Female, Director)

Theme 3: Institutional and Policy Support

A recurring theme across the interviews was the absence of strong institutional ownership and limited national-level commitment to the prioritization and advancement of ethics education. Ethics was often described as a peripheral subject without dedicated leadership, budget, or monitoring mechanisms.

“Ethics is seen as everyone's responsibility, but no one truly champions it.” (KI11, EM, Government Expert)

Stakeholders expressed the need for a clear governance structure that promotes collaboration among universities, regulatory bodies, and health institutions. The absence of national standards or guidance was seen as a barrier to consistent implementation.

“Bring together committee members from federal and local levels for a national dialogue.” – (KI11, EM, Government Expert)

Participants also pointed to critical resource gaps, including staff shortages, lack of teaching materials, and insufficient support systems. Ethics instruction was frequently managed by a single individual, without protected teaching time or institutional recognition.

“We have severe human resource shortages—currently, the entire course is managed by a single individual.” – (KII10, IB, Female, Coordinator)

Theme 4: Student Preparedness and Ethical Development

Participants expressed concern about students’ limited ability to apply ethical principles in real clinical settings. While theoretical understanding was generally acknowledged, practical application, particularly under stress, was a major challenge.

“They’re aware of the basic principles, but I don’t think they’re adequately prepared to navigate real dilemmas independently.” – (KI04, IB, Female, Director)

Role modeling by clinical supervisors was identified as a major influence on student behavior. Participants noted that students often mimicked both positive and negative practices they observed, including breaches in confidentiality, poor communication, and lack of informed consent.

“Many students fail to greet patients or treat them as individuals. They often do not explain diagnoses, procedures, or medications.” – (KI02, IA, Male, Instructor)

There was a strong call to embed ethics throughout the clinical years and to integrate it with mentorship, assessment, and reflective practice frameworks to support ethical development.

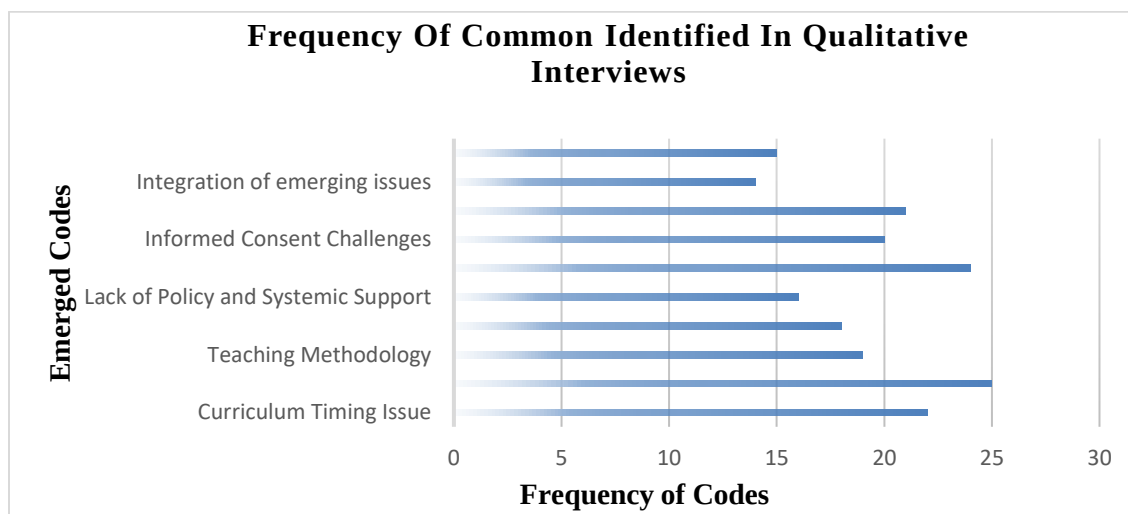


Figure 6: Frequency Distribution of Common Codes Identified in the Qualitative Analysis of Faculty and Student Interviews on Medical Ethics Education in Public Medical Schools, Addis Ababa, Ethiopia (2025)

Student Perspectives on Course Improvement: Insights from Open-Ended Survey Responses

In addition to Key Informant Interviews, open-ended responses from clinical medical students were analyzed to gain direct insights into perceived gaps and improvement priorities in the teaching of the medical ethics course. Thematic content analysis of these responses yielded six recurring areas of concern: practical teaching, time allocation, course content enhancement, teaching methodology, instructor qualifications, educational resources and institutional integration.

The most frequently cited theme (67 mentions) was the need for more practical teaching. Students felt that the current format was overly theoretical, with little relevance to real-world ethical challenges. They called for the use of clinical scenarios, practical exercises, and case-based learning approaches. Sample responses included: *“More practical sessions would be*

helpful, (SR 128, IB, Female, C2 Student)” and “Teach how to apply ethical principles in real-life situations. (SR 98, IA, Male, Intern)” This mirrors findings from KIIs, where faculty similarly emphasized the importance of experiential learning.

Time allocation emerged as the second most commonly suggested area (37 mentions). Students found the existing credit hours inadequate, especially for discussions and applications. One student wrote: *“More time for practical case discussions. SR 33, IC, Male, Intern.* Others suggested that the course should be integrated more seamlessly across academic years or aligned with internship timing for maximum relevance.

A third set of recommendations focused on enhancing the content. Students expressed a need for a broader, more detailed curriculum, which includes legal codes, current ethical guidelines, and standards specific to Ethiopia. One participant remarked, *“What we learned here is not enough to deal with the ethical issues we face in the future. (SR 113, IA, Intern)”* The inclusion of contemporary topics such as AI, telemedicine, and global ethics was also proposed.

Several students advocated for more interactive and engaging teaching methods. Preferred formats included seminars, in-person trainings, video-supported lessons, role plays, and ongoing webinars. As one student stated, *“Make it more interactive. Case-based and visual sessions help us understand better. (SR 245, IB, C2 Student)”*

Instructor qualifications were also a concern. Students recommended that the course be delivered by trained professionals, preferably those with clinical or legal backgrounds. Comments included: *“More trained personnel to teach us (SR 117, IB, C1 Student)”* and *“Should be delivered by someone with a clinical background (SR 228, IB, C2 Student)”*

Finally, educational resources and structural integration were emphasized. Students reported a lack of localized textbooks and teaching guides, with one noting, *“There are no well-organized textbooks according to our country laws (SR 212, IC, Intern).”* Others suggested better

scheduling, regular refresher sessions, and multi-sectoral collaboration with legal and health institutions.

This student-driven feedback complements the qualitative findings from faculty and stakeholders and reinforces the need for a practical, well-resourced, and contextually grounded ethics curriculum in Ethiopia.

DISCUSSION

This mixed-methods study evaluated the implementation of medical ethics education in three public medical schools located in Addis Ababa, Ethiopia. By integrating quantitative findings with qualitative insights from faculty and students, the study reveals both convergence and divergence across data strands and identifies areas for strengthening ethics training in clinical medical education. Although students report a foundational understanding of ethical principles, significant gaps remain in curriculum quality, instructional strategies, and institutional support, particularly with respect to equipping students with the skills necessary for ethical decision-making in real-world clinical settings.

Summary of Main Findings

The study identified five major factors that significantly predicted students' preparedness to practice ethically: content coverage, ethical analysis skills, clarity of instructional materials, professional behavior, and students' self-confidence in handling ethical dilemmas. These factors, identified through regression analysis, explained over half the variation in preparedness scores. Qualitative insights strongly supported these associations. Both students and faculty reported that ethics instruction was overly theoretical, poorly contextualized, and rarely integrated into clinical practice.

Institutional differences in preparedness were notable, with Yekatit 12 Hospital Medical College scoring higher than the others; however, this effect disappeared in the adjusted regression model, suggesting that delivery quality, not institutional affiliation, drives outcomes. Ethics instruction was frontloaded in the early clinical years with limited reinforcement later, and faculty frequently lacked formal training in ethics. Students also described unclear or absent systems for reporting ethical violations. Across both data strands, participants called for reform: more interactive teaching, localized course materials, and continuous ethics integration throughout clinical training.

The regression analysis showed that content coverage, ethical analysis, professional behavior, clarity of instructional materials, and confidence in handling ethical dilemmas significantly predicted students' preparedness to practice ethically. These quantitative associations were strongly reinforced by qualitative data. Both faculty and students emphasized that current ethics instruction is overly theoretical, disconnected from clinical practice, and poorly adapted to Ethiopia's sociocultural context. Participants noted that while students may memorize definitions, they often struggle to apply ethical reasoning under pressure, a classic theory-practice gap (59,60)

Qualitative findings reinforce this. Students and faculty alike emphasized that ethics courses are often theoretical, detached from clinical realities, and insufficiently grounded in Ethiopia's sociocultural context. This gap between knowledge and competence has also been observed in other LMICs, where ethics curricula are inadequately practice-oriented (11,27,61). Participants in this study highlighted that ethics instruction lacked real-life relevance, contributing to students' difficulty applying ethical reasoning in complex clinical settings.

Although students from Yekatit 12 Hospital Medical College reported higher preparedness in the ANOVA analysis, institutional affiliation did not remain significant in the adjusted model. This suggests that school-related differences are mediated through specific factors such as teaching quality, mentorship, and faculty engagement.

Qualitative interviews explained these differences. Students in Yekatit 12 Hospital Medical College described more mentorship opportunities, smaller class sizes, and regular discussion of ethical dilemmas. In contrast, respondents from St. Paul's Hospital Millennium Medical College described ethics education as fragmented and largely lecture-based, with little clinical relevance. These observations align with the argument that implementation fidelity, rather than institutional label, determines impact (55,62,63).

While year-of-study was not a statistically significant predictor, there was a slight upward trend in preparedness among fifth-year students. Qualitative responses explained this by noting that real-

world exposure during clinical years improves students' awareness of ethical challenges. However, because ethics teaching is largely limited to early clinical years, there is minimal reinforcement when students begin encountering ethical dilemmas during rotations. This weak vertical integration reduces the long-term impact of early instruction, a problem well documented in global literature (64,65).

Without longitudinal reinforcement, students' initial enthusiasm and ethical understanding are diluted by exposure to the “hidden curriculum” a term used to describe the informal and often conflicting ethical signals students observe in clinical environments. This phenomenon was evident in the qualitative data, where participants described witnessing breaches of confidentiality and poor communication modeled by senior clinicians.

Students rated their professional behavior highly, and it emerged as a significant predictor of preparedness. However, qualitative findings revealed that professionalism often referred to outward conduct (e.g., dressing appropriately or greeting patients) rather than ethical judgment. Faculty expressed that while students followed superficial codes of conduct, they often failed to engage in deeper ethical reflection or challenge unethical practices. This reinforces the view that role modeling, whether positive or negative, profoundly influences students' ethical development (65).

Confidence in handling ethical dilemmas was also associated with preparedness. Yet this confidence may be overstated, as qualitative interviews revealed limited understanding of institutional processes for resolving ethical conflicts. Many students did not know how to report ethical violations, and faculty acknowledged the lack of structured reporting systems or debriefing opportunities (66,67).

Although binary data (e.g., only 52.4% of students reported knowing how to report ethical misconduct) were not emphasized per advisor guidance, qualitative evidence substantiates that confidence may not reflect true preparedness in the absence of systemic support.

Both data strands highlighted common barriers: inadequate instructional time, limited faculty capacity, lack of teaching materials, and minimal use of applied learning strategies. Students requested more practical, interactive approaches, while faculty admitted that ethics was “squeezed in” and lacked formal support.

These findings align with global patterns observed in resource-limited settings, where ethics is often underfunded and de-prioritized (68,69). Students’ calls for more structured learning opportunities, including real-world scenarios, role-playing, and reflective writing, directly reinforce the importance of experiential learning as documented in international literature.

Concurrence and Deviance

Triangulating the quantitative and qualitative findings revealed several points of concurrence as well as important deviations, helping to deepen the interpretation of the data. Concurrence was observed in several domains. Content coverage, which was the strongest quantitative predictor of preparedness, was consistently described as shallow, outdated, and overly theoretical in interviews. Similarly, ethical analysis emerged both statistically and narratively as a core area of weakness due to the lack of applied teaching methods. Course clarity and the relevance of instructional materials were also cited by students and faculty as barriers to engagement, consistent with their predictive role in the regression model.

Although faculty limitations and weak institutional support systems were not included as standalone variables in the regression analysis, their influence was indirectly captured through the significant effects of teaching quality and students’ self-reported confidence. Both strands thus reinforce the interpretation that content alone is insufficient if not delivered through well-supported, reflective, and applied instruction.

Areas of deviance were also apparent. One major discrepancy was the high self-rated professional behavior in surveys versus the reported ethical shortcomings in clinical settings. While students

scored themselves highly, interviews revealed poor modeling and inconsistent practice, suggesting that self-perceptions may overestimate actual competence. Another deviant finding was the students' reported confidence in managing ethical issues despite limited institutional mechanisms to support ethical decision-making. This likely reflects a mismatch between classroom-based learning and real-world preparedness.

Institutional differences also presented a divergence: although statistically non-significant after adjustment, qualitative findings clearly described variations in mentorship, class size, and instructional commitment. The deviance suggests that institutional effects are mediated through delivery quality, a factor not fully captured by institutional labels alone.

Converging Calls for Reform

Both students and faculty proposed practical, actionable reforms. These included integrating case-based discussions, simulation exercises, reflective learning, and the use of local legal frameworks into the curriculum. These recommendations map directly onto the variables that were statistically significant in predicting preparedness, demonstrating strong convergence between qualitative insights and regression results.

Such alignment is also reflected in international best practices, which emphasize participatory learning, localized content, and ongoing assessment as key components of effective ethics education (64,69). These recommendations are especially urgent in Ethiopia's context, where high clinical workloads and limited faculty resources make passive instruction insufficient for shaping future physicians' ethical competence.

Implications

This study implies that while medical ethics is formally embedded in the curriculum, it is not consistently or effectively implemented. The findings show that students' preparedness to practice ethically depends not only on the content they are taught but also on how it is delivered, reinforced,

and supported institutionally. The most important predictors, content coverage, ethical analysis, clarity of materials, professional behavior, and student confidence, were strongly supported by qualitative feedback, underscoring the need for integrated, applied, and context-sensitive ethics education.

STRENGTHS AND LIMITATIONS OF THE STUDY

This study is strengthened by several methodological features that enhance the credibility of its findings. Notably, the use of a convergent mixed-methods design integrating quantitative survey data with qualitative insights from key informant interviews allowed for data triangulation and a more comprehensive understanding of the implementation and experiential dimensions of medical ethics education in medical schools.

The questionnaire, based on the CIPP evaluation model, was adapted with attention to local language and context. Its structure was validated using exploratory factor analysis, and reliability was supported by strong Cronbach's Alpha scores, all above 0.70.

Still, like all studies, this one had its limitations. As a cross-sectional study, it captures perceptions and experiences at a single point in time, which may not fully reflect changes or developments in ethics education over the students' full academic trajectory. Longitudinal insights would offer more robust evidence on how ethics training affects preparedness over time.

Additionally, although the study applied rigorous measures to ensure validity and reliability, there remains the possibility of social desirability bias, particularly in self-reported measures of ethical competence and professional behavior. Students may have been inclined to respond in a manner consistent with expected norms rather than their true experiences. While interviewer-administered surveys can minimize missing data, they may also inadvertently increase this bias.

From the qualitative side, while purposive sampling ensured information-rich participants, the relatively small number of faculty interviews (n=12) may limit the transferability of insights to all teaching staff. Moreover, interviews were conducted by the principal investigator, which, despite efforts to maintain neutrality, could introduce interviewer bias.

Finally, the study was limited to three public medical schools in Addis Ababa. Therefore, the findings may not fully represent ethics education practices in private institutions or medical schools located in other regions of Ethiopia.

In conclusion, while these limitations must be acknowledged, the methodological rigor and the use of complementary data sources substantially support the validity of the findings. The study provides a credible foundation for informing improvements in ethics education policy and practice within Ethiopia and comparable LMIC settings.

CONCLUSION

This study employed a mixed-methods design to assess the comprehensive implementation of medical ethics education across three public medical schools in Addis Ababa. The findings reveal that while ethics education is formally included across institutions, its delivery remains fragmented, overly theoretical, and insufficiently integrated into clinical training.

Students generally reported high confidence in understanding ethical principles and professionalism. However, their sense of preparedness to apply these principles in real-world clinical settings was modest. Regression analysis identified five key predictors of preparedness: content coverage, ethical analysis skills, clarity of instructional materials, students' confidence in handling ethical dilemmas, and self-perceived professionalism. These quantitative results were strongly reinforced by qualitative findings, which highlighted gaps in curriculum content, limited use of interactive teaching methods, and weak institutional support systems.

The study revealed implementation challenges, including a lack of trained instructors, minimal vertical integration of ethics across academic years, and the absence of structured opportunities for applied learning. Students echoed these concerns and called for more practical, case-based, and contextually relevant instruction.

RECOMMENDATIONS

This study has demonstrated that although medical ethics is formally embedded in the curricula of public medical schools in Addis Ababa, its implementation is inconsistent, overly theoretical, and insufficiently integrated into clinical education. The following recommendations are proposed at the national, institutional, and cross-institutional levels to bridge the gap between ethical knowledge and practical competence and enhance the quality, coherence, and impact of ethics instruction.

National and Policy-Level Recommendations

1. Develop a Standardized National Curriculum for Medical Ethics

The Federal Ministry of Education and the Ministry of Health, in collaboration with public universities and national bioethics experts, should develop a standardized, competency-based national curriculum for medical ethics. The curriculum should:

- Be vertically integrated across pre-clinical and clinical phases of medical education.
- Incorporate culturally relevant and context-specific case scenarios drawn from Ethiopia's healthcare realities.
- Promote participatory, reflective, and student-centered teaching methods.
- Include clearly defined learning outcomes, ethical reporting procedures, and structured assessment tools.

2. Strengthen Faculty Development and Certification in Ethics Education

A national professional development framework should be established to enhance faculty capacity in teaching medical ethics. This should include:

- Certification programs or postgraduate training in medical ethics or bioethics.
- Regular in-service workshops focused on interactive pedagogy and ethics facilitation.

- Faculty mentorship programs that promote ethical role modeling and clinical integration.

3. Integrate Ethics into Accreditation and Quality Assurance Frameworks

National regulatory and accreditation bodies, such as the Higher Education Relevance and Quality Agency (HERQA), should integrate medical ethics education into quality assurance processes by:

- Including ethics education as a core criterion in medical school evaluations.
- Assessing faculty qualifications and teaching effectiveness in ethics.
- Monitoring student learning outcomes and institutional structures that support ethical practice.

Institution-Level Recommendations

Each of the three participating institutions demonstrated distinct strengths and challenges in the implementation of medical ethics education. The following recommendations are proposed to promote effective and sustainable improvement:

1. Integrate Ethics Education into Clinical Training

- Designate departmental ethics focal persons to ensure consistent integration of ethics into clinical learning environments.
- Embed ethical reflection and discussion into morning sessions, ward rounds, and clinical debriefings.
- Align ethics education with real-time patient care experiences to reinforce ethical reasoning in practice.

2. Modernize Teaching Methods and Curriculum Delivery

- Transition from predominantly lecture-based instruction to more dynamic and applied modalities such as case-based learning, ethical simulations, structured role plays, and reflective writing exercises.
- Ensure that ethics instruction is delivered throughout the continuum of medical education, not restricted to early clinical phases.

3. Clarify Faculty Responsibilities and Enhance Accountability

- Clearly delineate faculty roles in ethics instruction within institutional job descriptions and workload plans.
- Include ethics teaching and mentorship responsibilities in faculty performance appraisals.
- Promote interdisciplinary co-teaching involving professionals from law, public health, and clinical disciplines.

4. Promote Structured Mentorship and Peer Reflection

- Facilitate regular small-group, peer-led discussions focused on ethical challenges encountered in clinical settings.
- Establish mentorship programs that pair students with experienced clinicians to foster reflective practice and ethical competence.

Cross-Institutional and System-Wide Recommendations

1. Promote Institutional Learning and Best Practice Exchange

- Establish cross-institutional platforms or communities of practice for sharing experiences, teaching innovations, and challenges in ethics education.
- Document and disseminate successful models, such as longitudinal integration and simulation-based ethics training, for adaptation across institutions.

2. Strengthen Institutional Structures for Ethics Oversight

- Establish dedicated ethics education units or assign ethics coordinators within each medical school.
- Create safe and confidential mechanisms for students to report and discuss ethical concerns.
- Ensure these structures provide ongoing faculty support and curricular monitoring.

3. Implement Continuous Feedback and Evaluation Mechanisms

- Introduce routine formative and summative evaluation tools such as student course evaluations, ethics-focused OSCEs, and feedback forums to assess the effectiveness of ethics instruction.
- Use student and faculty feedback to revise and improve curriculum content, delivery methods, and institutional support mechanisms.

4. Reinforce Ethical Role Modeling in Clinical Settings

- Encourage faculty and clinical instructors to consciously model ethical conduct during patient interactions and teaching encounters.
- Integrate real-life clinical cases into teaching to foster active ethical reasoning.
- Recognize and incentivize exemplary ethical behavior among faculty through institutional awards or commendations.

These recommendations aim to transition medical ethics education in Ethiopia from a formally acknowledged but weakly implemented curriculum component to a fully integrated, practice-oriented, and professionally supported element of medical training. By aligning national policy, institutional practice, and cross-institutional collaboration, medical schools can cultivate a new generation of physicians who are not only clinically skilled but also ethically grounded and prepared to meet the moral complexities of healthcare delivery.

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ANNEXES

Annex 1: Data Collection Tool – Questionnaire for Evaluating Medical Ethics Training in Medical Schools

Part 1: Background Information

1. Age: _____
2. Sex:
☐ Male ☐ Female
3. Current Year of Study:
☐ Clinical Year 1 ☐ Clinical Year 2 ☐ Internship ☐ Other: _____
4. Medical School Attended:
☐ Addis Ababa University, College of Health Sciences, School of Medicine ☐ St. Paul's Hospital Millennium Medical College ☐ Yekatit 12 Hospital Medical College
5. Have you completed the medical ethics course?
☐ Yes ☐ No
6. At what point in your medical education did you take the medical ethics course?
☐ Clinical Year 1 ☐ Clinical Year 2 ☐ Internship ☐ Other: _____

Part 2: Learning Context and Environment

Rate the following statements from 1 (Strongly Disagree) to 5 (Strongly Agree)

1. The goal of medical ethics education is clear to me.
2. Instructional resources are practical and appropriate.
3. The workload and content volume are appropriate.
4. There are effective teacher-student relationships.
5. Evaluation methods in ethics courses are satisfactory.
6. The course helped me learn ethical analysis in clinical settings.
7. I can apply ethical analysis tools in practice.
8. I understand the importance of patient rights.
9. I understand the role of informed consent.
10. I understand confidentiality and privacy in care.
11. I understand how to manage conflicts of interest.
12. The course improved my understanding of professional conduct.

Part 3: Course Content Coverage

Rate each topic from 1 (Not Covered) to 5 (Thoroughly Covered)

1. Core principles (autonomy, beneficence, etc.)
2. Ethical decision-making in practice
3. Cultural and societal dimensions

4. Practical cases and scenarios
5. Emerging ethical challenges in healthcare

Part 4: Input and Process Evaluation

Yes / No Questions

1. Were the materials clear and understandable?
2. Did instructors use auxiliary teaching tools (slides, media)?
3. Were interactive teaching methods used (discussions, Q&A)?
4. Did the teaching hospital contribute to ethics training?
5. Were faculty services for ethics training satisfactory?
6. Was the training relevant to your future role?
7. Were mentorship or one-on-one opportunities provided?
8. Was the overall experience in ethics training satisfactory?
9. Did the course help you recognize ethical challenges in clinical care?

Part 5: Outcome Evaluation – Preparedness

Rate from 1 (Not Prepared) to 5 (Very Prepared)

1. Ability to identify ethical issues in clinical practice
2. Ability to address ethical dilemmas confidently
3. Ability to balance cultural and ethical considerations
4. Feeling prepared for ethical responsibilities as a future physician

Part 6: Attitudes Toward Ethical Dilemmas

Rate agreement from 1 (Strongly Disagree) to 5 (Strongly Agree)

- A. Anonymous research samples do not require consent.
- B. Patient safety should not hinder student learning.
- C. Discussions should be private in multi-bed rooms.
- D. Patients must be informed of treatment-related harm.
- E. Unethical colleague behavior should be reported.
- F. All patients deserve equal professionalism, even if disrespectful.

Part 7: Challenges and Suggestions

1. What were the main challenges in learning medical ethics?
☐ Lack of practical examples ☐ Limited time ☐ Faculty limitations ☐ Other: _____
2. What improvements would you recommend? _____
3. Would real-life clinical scenarios enhance your learning?
☐ Yes ☐ No

Part 8: Final Comments

Please share any additional feedback or suggestions:

Annex 2: Key Informant Interview Guide

Title: Evaluation of Medical Ethics Education in Public Medical Schools in Addis Ababa

Introduction

Thank you for agreeing to participate in this interview. This discussion is part of a research study on the implementation of medical ethics education in clinical-year medical students across public medical schools in Addis Ababa. Your insights are vital for understanding current practices, challenges, and opportunities for improvement.

Section 1: Contextual Understanding

1.1 Goals of Medical Ethics Education

- What are the main goals of medical ethics education in your institution?
- How clearly are these goals communicated to students and faculty?

1.2 Institutional Policies and Resources

- What institutional policies exist to support medical ethics education?
- Are current resources (e.g., trained faculty, instructional materials, infrastructure) sufficient?

1.3 Cultural and Societal Influences

- How do cultural and societal norms influence the teaching and application of medical ethics?
- What challenges arise when integrating local norms with universal ethical principles?

Section 2: Input Factors

2.1 Curriculum Content

- How well does the ethics curriculum align with the institution's overall medical education goals?
- To what extent does the curriculum address the practical ethical needs of students?

2.2 Faculty Qualification and Training

- How are instructors selected for teaching medical ethics?
- Are there opportunities for faculty training or continuing professional development in medical ethics?

2.3 Student Engagement and Motivation

- How motivated are students to participate in medical ethics courses?
- What factors affect their interest or level of engagement?

Section 3: Process and Delivery

3.1 Teaching Methods and Tools

- What instructional methods are commonly used (e.g., lectures, case studies, role plays)?

- How effective are these methods in achieving educational objectives?

3.2 Learning Environment

- How conducive is the institutional and hospital learning environment for teaching ethics?
- Does the clinical environment reinforce classroom learning?

3.3 Evaluation and Feedback

- How is student learning in medical ethics evaluated?
- Are the assessment methods appropriate, fair, and consistent?

3.4 Institutional Support

- What institutional mechanisms exist to support the ethics course?
- Are there any administrative or logistical challenges?

Section 4: Outcomes and Impact

4.1 Student Competence

- How prepared are students to handle ethical dilemmas in real-life clinical settings?
- Can you share examples of students applying ethics training in practice?

4.2 Program Impact

- What are the key strengths of your medical ethics education program?
- What areas require improvement?

Section 5: Recommendations

5.1 Curriculum Development

- What changes should be made to improve curriculum content or structure?
- Are there new or emerging ethical issues that should be included?

5.2 Faculty and Institutional Support

- What additional resources or support mechanisms are needed for faculty?
- How can the institution enhance its support for ethics education?

5.3 Teaching and Evaluation Innovations

- What innovative or alternative teaching methods could improve learning?
- How can student evaluation be enhanced to better capture ethical competence?

Closing Remarks

- Is there anything else you would like to add regarding medical ethics education?
- Are there other individuals you recommend we speak to for this research?

Annex 3: Composite Score Variables and Corresponding Likert Items

Course Quality Score

This composite evaluates the structural and instructional quality of the ethics course.

Items:

- The goal of medical ethics education is clear to me.
- The instructional resources and materials used in medical ethics courses are practical.
- The volume of work offered in terms of quantity and content is appropriate.
- There are appropriate and effective relationships between teachers and students in the medical ethics course.
- I am satisfied with the way I am evaluated in the medical ethics course.

Content Coverage Score

Assesses how thoroughly key topics were covered in the ethics curriculum.

Items:

- Principles of medical ethics (e.g., autonomy, beneficence, non-maleficence, justice)
- Ethical decision-making in clinical practice
- Cultural and societal influences on ethics
- Case studies and practical scenarios
- Emerging ethical issues in healthcare

Ethical Principles Score

Reflects students' understanding of key professional values and standards.

Items:

- Attending medical ethics classes helped me understand the importance of respecting patients' rights, especially in the educational environment.
- Participating in the medical ethics course helped me understand the importance of respecting other health services.
- Participating in the medical ethics course helped me understand the importance of obtaining informed consent for effective doctor-patient communication.
- Participating in the medical ethics course helped me understand the importance of maintaining confidentiality and respecting patient privacy to build effective physician-patient relationships.
- Participating in the medical ethics course helped me understand the importance of managing conflicts of interest to preserve patient confidence.
- Participating in the medical ethics class helped me understand the importance of professional behavior in maintaining public trust.

Ethical Analysis Skill Score

Evaluates students' capacity to apply ethical reasoning tools.

Items:

- Participating in medical ethics classes helped me learn how to perform ethical analysis in clinical settings.

- Participating in medical ethics classes helped me learn how to use ethical analysis tools in clinical settings.

Preparedness to Practice Ethically Score

Measures students' self-perceived readiness for ethical practice.

Items:

- Identify ethical issues in clinical practice
- Address ethical dilemmas confidently
- Balance cultural considerations with ethical principles
- Attending medical ethics classes helped me feel more prepared to accept my future role as an ethical physician

Professional Behavior Score

Assesses students' attitudes toward professionalism and ethical conduct.

Items:

- If patient tissue samples such as blood are used anonymously for research, there is no need to obtain the patient's consent. (*reverse coded*)
- In teaching hospitals, students' learning outcomes should take precedence over patient safety, but mistakes in the learning process should still be minimized. (*reverse coded*)
- Conversations about a patient in a multi-bed room should be discreet to prevent others from overhearing.
- If an error occurs during the treatment of a patient that leads to their injury, the patient must be informed.
- If a colleague behaves inappropriately towards patients, I must warn them or report the matter to the responsible authorities.
- If a patient behaves inappropriately towards me or the medical staff, I will treat them with the same professionalism as other patients.

Annex 4: Survey Participant Information Sheet and Consent form

Study Title: *Evaluating Medical Ethics Education in Medical Schools in Addis Ababa: Current Practices and Future Directions*

Principal Investigator: Simon Yigremachew (MD, MPH Candidate)

Introduction

You are invited to participate in a research study conducted by Simon Yigremachew, a Master's student at Addis Ababa University, School of Public Health. This study aims to assess the effectiveness of medical ethics education in public medical schools in Addis Ababa, Ethiopia.

Purpose of the Study

The study seeks to understand the content, teaching methods, and overall impact of medical ethics education on medical students. Your participation will provide valuable insights to enhance the curriculum and teaching practices.

Why Have You Been Invited?

You are invited because you are a clinical-year medical student currently enrolled in a public medical school in Addis Ababa who has completed or is enrolled in a medical ethics course.

What Will Participation Involve?

- You will complete a questionnaire that takes approximately 15–20 minutes.
- The survey includes questions about your experiences and perceptions regarding medical ethics education.

Confidentiality

Your responses are anonymous and confidential. No personally identifying information will be collected. Data will be securely stored and used only for academic purposes.

Voluntary Participation

Your participation is entirely voluntary. You may skip any question or stop participating at any time without any penalty.

Risks and Benefits

- **Risks:** There are no anticipated risks related to participation.
- **Benefits:** While there is no direct personal benefit, your insights will contribute to improving medical ethics education in Ethiopia.

Contact Information

If you have any questions, you may contact:

Simon Yigremachew

Email: simonyigremachew8@gmail.com

Phone: +251 921 618 677

For questions regarding your rights as a participant, please contact the Addis Ababa University Institutional Review Board (IRB).

Survey Consent Form

Study Title: *Evaluating Medical Ethics Education in Medical Schools in Addis Ababa: Current Practices and Future Directions*

Researcher: Simon Yigremachew (MD, MPH Candidate)

Participant Declaration

By agreeing to participate in this survey:

- I confirm that I have read and understood the Participant Information Sheet.
- I understand the purpose of the study and my role.
- I understand that participation is voluntary and I may withdraw at any time.
- I understand that my responses will remain anonymous and confidential.
- I agree to participate in this survey.

Participant's Name: _____

Participant's Signature: _____

Date: _____

Annex 5: Key Informant Interview (KII) Participant Information Sheet

Study Title: *Evaluating Medical Ethics Education in Medical Schools in Addis Ababa: Current Practices and Future Directions*

Principal Investigator: Simon Yigremachew (MD, MPH Candidate)

Introduction

You are invited to take part in a research study exploring the implementation of medical ethics education in public medical schools. Your experience and insights as a faculty member are vital to this study.

Purpose of the Study

The study aims to examine the structure, delivery, and effectiveness of medical ethics training from the perspective of educators and administrators.

Why Have You Been Invited?

You are being interviewed because you are a faculty member, academic coordinator, or administrator involved in the planning or delivery of medical ethics courses in Addis Ababa.

What Will Participation Involve?

- You will participate in a semi-structured interview, lasting 30–45 minutes.
- The discussion will cover your views on curriculum content, teaching practices, faculty support, and challenges.

Confidentiality

Your identity will remain confidential. Pseudonyms or codes will be used in all written materials. The interview will be audio-recorded with your consent and securely stored.

Voluntary Participation

Participation is voluntary. You may refuse to answer any question or stop the interview at any point without consequences.

Risks and Benefits

- **Risks:** Minimal; no personal or sensitive questions are asked.
- **Benefits:** Your contribution may guide improvements in medical ethics education across institutions.

Contact Information

Simon Yigremachew

Email: simonyigremachew8@gmail.com

Phone: +251 921 618 677

Key Informant Interview Consent Form

Study Title: *Evaluating Medical Ethics Education in Medical Schools in Addis Ababa: Current Practices and Future Directions*

By signing this form, I acknowledge that:

- I have read and understood the Participant Information Sheet.
- I have had the opportunity to ask questions and received satisfactory answers.
- I understand the interview may be recorded and agree to this.
- I understand that my participation is voluntary and I can withdraw at any time.
- I understand that all information will be kept confidential and used only for academic purposes.

Participant's Name: _____

Participant's Signature: _____

Date: _____

Annex 6: Qualitative Codebook (Selected)

This codebook presents the thematic structure developed during the analysis of key informant interviews for the study on medical ethics education in public medical schools in Addis Ababa. Codes were developed inductively and using Dedoose software.

Code Name	Definition / Description	Sample Excerpt
Curriculum Emphasis	References to the importance and weight given to medical ethics within the curriculum.	“Ethics is often sidelined... not treated with the same seriousness.”
Faculty Role Modeling	How faculty demonstrate ethical behavior in clinical and academic settings.	“We learn more from what our supervisors do than what they say.”
Ethical Preparedness	Student readiness to handle ethical dilemmas in clinical settings.	“I don’t feel confident when I face real ethical issues in practice.”
Institutional Ownership & Support	Institutional commitment and structure supporting ethics education.	“There’s no clear system in place to monitor or support ethics courses.”
Teaching Methodology	Pedagogical strategies used in ethics education (e.g., lectures, case-based learning).	“Interactive discussions help more than theory-heavy lectures.”
Integration of Emerging Issues	Whether contemporary ethical challenges (e.g., AI, pandemic ethics) are incorporated into the curriculum.	“The course didn’t touch on things like patient data and technology.”
Clinical Environment and Burnout	How the clinical training context influences ethical learning, especially under stress or time pressure.	“During rounds, there’s no time to reflect ethically—we just act.”
Cultural Integration	Alignment between medical ethics instruction and Ethiopian societal or cultural norms.	“Respecting elders sometimes contradicts patient autonomy in practice.”
Resource Constraints	Mention of lack of human, material, or time resources affecting ethics teaching.	“There are no materials or sessions dedicated just for ethics.”
Recommendations: Teaching Methods	Suggestions related to improving instructional strategies for ethics education.	“Use more case-based and real-life discussions.”

Assessment Gaps	Weaknesses or absence of formal evaluation in ethics education.	“There’s no real exam or evaluation for ethics like other courses.”
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Annex 7: Declaration

I, the undersigned, hereby declare that this thesis is my original work and has not been submitted to any other institution or university for the award of any academic degree or diploma.

All sources of information used in this work have been appropriately acknowledged and cited. Every effort has been made to ensure the academic integrity of this research, and I affirm that the data presented herein were collected and analyzed honestly and independently.

This thesis is submitted in partial fulfillment of the requirements for the Degree of Master of Public Health in Epidemiology and Biostatistics with a Specialization in Health Research Ethics at Addis Ababa University, School of Public Health. I take full responsibility for any errors or omissions that may appear in this work.

Name of the Candidate: Simon Yigremachew (MD, MPH Candidate)

Signature: _____

Date: _____

Annex 8: Turnitin Similarity Report

Evaluation of Medical Ethics Education in Public Medical
Schools in Addis Ababa: A Mixed-Methods Study

By: Simon Yigremachew

ORIGINALITY REPORT

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