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Knowledge, Attitude, and Practices Regarding Ethical Mapping among Medical Students in Tertiary Care Hospital: A Cross-Sectional Study

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ABSTRACT

Background: Medical ethics is an essential aspect of healthcare that plays a major role in guiding the behaviour of healthcare professionals and ensuring patient health. Medical ethics originated with the Hippocratic Oath, a lengthy document that demonstrates the importance of moral considerations in medical practice. **Objectives**: This study aimed to determine level of knowledge, attitudes, and practices on ethical mapping among medical students. **Methodology:** A cross sectional methodology was used in this study to survey both male and female medical students. A validated Likert scale survey was employed to gather quantitative data on students' views on moral dilemmas, healthcare, and fundamental norms. Data were analysed using statistical software (Stata MP17, Serial No.:501706389923). Descriptive statistics was used to summarize participant characteristics and responses to knowledge, attitude, and practice questions. Inferential statistics, including chi square tests and one-way ANOVA, were used to investigate possible correlations. **Results:** Males made up 45.13% and 54.87% were females. The mean age of the participants was 20.20 ± 1.581 years, with a range of 17 to 24 years. The findings demonstrated increased awareness and attitudes toward ethical issues, enabling more sensible decision making. However, the findings showed that while managing patients and making critical decisions, healthcare professionals require more than just ethical awareness. **Conclusions:** The study highlights the need to put ethics into practice and emphasizes how crucial it is for institutions to prioritize practical ethical training over academic knowledge.

Keywords: Education, Professional Ethics, Professional-Patient Relationship, Narrative Ethics

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Introduction

Medical ethics is an essential aspect of healthcare that plays a major role in guiding the behaviour of healthcare professionals and ensuring patient health[1]. Concerns about unethical behaviour by residents, fellows, and consultant physicians had led to rise in the legal actions against healthcare professionals in recent years. Medical ethics originated with the Hippocratic Oath, a lengthy document that demonstrates the importance of moral considerations in medical practice[2]. Modern issues in the healthcare system have strongly highlighted the importance of maintaining ethical thinking and practice[3]. However, the rise in complaints made against medical professionals suggested disconnect between ethical theory and its practical application[4]. Growing public awareness and inappropriate healthcare system practices could exacerbate this disparity[5]. The purpose of conventional medical education has been to prepare medical professionals for clinical practice, a specialized discipline but it often fell short in addressing the complex moral issues that arose in day to day practice[6].Thus it becomes important to tailor medical ethics education to the particular socioeconomic and cultural context of every community[7]. Once the curriculum is revised with induction of ethics education to promote the learning and development of ethical competencies among healthcare professionals, the students shall also undergo practical training to work in healthcare scenarios[8].

The participation of human subjects in medical research became a topic of ethical concern for many years, which affect the international community need to establish ethical regulations, leading to the formulation of guidelines, declarations, codes, and reports[9]. Despite the existence of these ethical guidelines, numerous incidents were reported of unethical action by medical students and healthcare practitioners towards patients and colleagues[10]. Such action might have been impacted by the lack of beneficial ethical instruction during the learning process[11]. In India, the medical field is now established under the preview of the "Consumer Protection Act," resulting in an increase in complaints regarding poor ethical conduct by healthcare practitioners[12]. This may be the outcome of growing public awareness and inappropriate healthcare professional[13]. Medical professionals encountered various kinds of obstacles after they completed graduation from medical school and entered the workforce, which made it challenging for them to choose between human values and scientific knowledge[14]. The patient-physician relationship is the foundation of patient care and of paramount importance to gather information, establish diagnoses, and create treatment plans[15]. Clinical expertise by itself was not sufficient to address medical issues and patients preferred to consult physicians who possessed expert clinical knowledge, were aware of their needs and values, could effectively engage in dialogue, communicate clinical knowledge with empathy and understanding, and embrace their broader concerns[16]. The purpose of our survey was to find out more about the attitudes and ethical awareness of medical students toward behaviour at a health sciences university. The goals were to identify problem areas and develop solutions, such as adding ethics instruction to the curriculum and conducting workshops. Ultimately, this approach is to improve patient care while strengthening a moral and responsive healthcare system.

Material & Methods

Study Area: The present study was conducted at the tertiary care hospital, Ghaziabad, Uttar Pradesh, India.

Study Design and Participants: The present study was hospital-based cross-sectional studies took place from August 2023 to January 2024 and evaluate the level of knowledge, attitudes, and practices of medical students regarding moral and ethical values. A pre-tested structured schedule was used for data collection via google form. A systematic sampling method was used to select study participants. Participants of this study are those who fulfilled the definition, inclusion criteria &provided written informed consent irrespective of gender. The questionnaire consisted of three sections:

The factor (knowledge related to ethical mapping) consisted of 4 - items, and the factor (attitude related to ethical mapping) consisted of 4 – items, and the factor (practices related to ethical mapping) consisted of 3 - items. We used a pretested and validated questionnaire of awareness, knowledge, and attitude related to ethical mapping.

Sample Size: The minimum sample size was determined by using the formula for single proportion:

$$N = Z\_(1 - \alpha/2)\text{^}2\ P * (1 - P)/\mathcal{E}\text{^}2,$$

we assumed that 50% prevalence (p) of the population to have adequate knowledge, favourable attitude, and good practice of ethical mapping, considering a 95% confidence interval, and 5% precision**.**The estimated minimum sample size was approximately 384 (Z= 1.96; P = 0.5; Ɛ = 0.05). Adding 1.5% of the minimum sample size for the expected non-responsive rate, a final sample size of 390 was obtained.

Study variables: The dependent variable was knowledge, attitude, and practices of ethical mapping. The independent variables were age, sex, year of study, prior healthcare experience.

Data Analysis: Data were analyzed using statistical software (Stata MP70, Serial No.:501706389923). Descriptive statistics was used to summarize participant characteristics and responses to knowledge, attitude, and practice questions. Inferential statistics, including chi square tests and one-way ANOVA, were used to investigate possible correlations.

Results

Table- 1: Basic characteristics of the participants

Variables	Category	No.	%
Gender	Male	176	45.13
	Female	214	54.87
Academic year	1st	131	33.59
	2nd	206	52.82
	3rd	9	2.31
	4th	44	11.28
Prior health experience	No	256	65.6
	Yes	134	34.4
Encounter with any ethical dilemmas during clinical experience	No	258	66.2
	Yes	132	33.8
Ethical values taught in curriculum align with real world medical practices	Yes	148	37.9
	No	144	36.9
	Not sure	98	25.1
Encounters in Communicating Sensitive information to Patients and their Families	No	157	40.3
	Yes	233	59.7
Emerging medical field posing the most significant ethical challenges in future	AI in healthcare	149	38.2
	Genetic engineering	164	42.1
	Telemedicine	77	19.7
Crucial factor when making ethical decisions in healthcare	Compassion	82	21.0
	Professional guidelines	129	33.1
	Patients best interest	72	18.5
	Personal beliefs	107	27.4
Responses to the scenario if a patient refuses a lifesaving treatment due to religious beliefs	Respect the patient's decision completely	152	39.0
	Attempt to persuade the patient	143	36.7
	Involve the patient's family in the decision-making process	95	24.4

A total of 390 replies were obtained using a Google survey. Males made up 45.13% and 54.87% were females. The mean age of the participants was 20.20±1.581 years, with a range of 17 to 24 years. Over the course of total academic years, the students were split into the following groups, 2nd (52.82%), 1st (33.59%), 4th (11.28%), and 3rd (2.31%). The participants, 65.6% had no prior clinical exposure (256/390), while 34.4% had experienced a clinical scenario (134/390) related to health care. Among those surveyed 33.8% faced ethical dilemmas during clinical experiences (132/390), while 66.2% did not encounter ethical dilemmas in clinical settings (258/390). 59.7% (233/390) of the participants had reservations pertaining to communicating sensitive information to patients and their families, compared to 40.3% (157/390) of the participants.

Concerning the opinions of the participants regarding the connections between the ethical principles covered in the curriculum and real-world medical practices, 37.9% agreed (148/390), 36.9% disagreed (144/390), and 25.1% were unsure (98/390). Genetic engineering was considered to be the medical field with the greatest ethical issues moving ahead (42.1%, 164/390), followed by artificial intelligence in healthcare (38.2%, 149/390) and telemedicine (19.7%, 77/390).

Ethical principles were determined to be the most significant factor (33.1%, 129/390) while making moral choice in the healthcare scenario. Patient's best interests (18.5%, 72/390), compassion (21%, 82/390), and personal convictions (27.4%, 107/390) were shown to be the next most significant factors. 39% of participants stated they would completely respect a patient's decision to refuse lifesaving treatment because of their religious convictions i.e. autonomy, 36.7% showed their willingness to persuade the patient, and 24.4% said they would prefer to involve the patient's family in the decision making process, as patient's life is more important than ethical principle (Table 1).

Table -2: The comparison between gender and different characteristics

Characteristics	Question	Gender	Mean ± SD	P value
Decision Making	Impact of Institutional policies and guidelines in ethical decision	Female	3.03±1.337	0.365
		Male	2.95±1.459	
	Impact of societal and cultural norms in ethical decision making	Female	2.83±1.461	0.064
		Male	3.05±1.423	
	Impact of personal moral beliefs and values in ethical decision making	Female	3.10±1.422	0.325
		Male	3.05±1.362	
Attitude	Medical professionals should prioritize patient autonomy	Female	2.61±1.014	0.367
		Male	2.45±1.024	
	In situations of limited resources, triage should be based solely on medical criteria, not on socioeconomic factors	Female	2.07±1.048	0.061
		Male	2.24±1.224	
	Effectiveness of ethics education	Female	2.98±1.401	0.244
		Male	3.02±1.396	
	Application of ethical principles in real life scenarios	Female	2.99±1.341	0.282
		Male	2.98±1.432	
Knowledge	Understanding of the ethical principles Autonomy	Female	2.64±1.055	0.293
		Male	2.55±.978	
	Understanding of the ethical principles Beneficence	Female	2.16±.936	0.149
		Male	2.20±.950	
	Understanding of the ethical principles non-malfeasance	Female	2.60±1.396	0.298
		Male	2.60±1.423	
	Understanding of the ethical principles Justice	Female	3.10±1.037	0.437
		Male	2.90±1.288	
Practice	How prepared do you feel to navigate ethical issues in emerging medical fields	Female	2.94±1.355	0.352
		Male	2.97±1.432	
	Do you believe ethical decision making in healthcare evolves over the course of a medical career?	Female	3.15±1.463	0.445
		Male	2.99±1.335	
	Importance of effective communication skills in resolving ethical conflicts in healthcare?	Female	3.09±1.359	0.478

Table- 2 shows the comparison between the gender specific understanding amongst the participants' specific feature and P values, which indicate statistical significance. There was no appreciable difference between gender participants understanding regarding decision making, attitude, knowledge and practice showing a p-value more than 0.05 in all the categories. With a non-significant P value of 0.365, the mean score for decision making regarding institutional policy framework on ethical decision was 2.95 for male and 3.03 for women. Regarding the influence of society and cultural norms on decision making, male scored 3.05 and female 2.83, with showing insignificant P value of 0.064. Males and females scored 3.05 and 3.10, respectively, for the category of decision makeup based on personal moral opinions and values, with a non-significant P value of 0.325.

Regarding the knowledge of patient autonomy, there was no statistically significant difference between the perspectives of the two genders with a p value of 0.367. Males scored 2.24 and females scored 2.07, indicating a near significant difference in resource restrictions and triage judgments (P = 0.061). However, the P value for the effectiveness of ethics teaching, which is 0.244, does not show a significant difference in opinion based on gender, with males scoring 3.02 and female scoring 2.98.

Similarly, when it came to applying ethical concepts in real life situations, male scored 2.98 and female scored 2.99, the P value is 0.282, meaning there was no difference significantly.

Additionally, Table 2 shows the data on how differently genders view autonomy, beneficence, non-maleficence, and justice as ethical principles. The P values for each category demonstrate that there is no statistical difference in knowledge level of ethical principles like domains of autonomy (P = 0.293), beneficence (P = 0.149), non-maleficence (P = 0.298), and justice (P = 0.437). Table 2 provides an overview of practice components pertaining to ethical issues in developing medical fields, with a particular emphasis on gender. male scored 2.97 and female scored 2.94 in terms of feeling ready to face ethical challenges, the non-significant P value was 0.352. Males scored 2.99 and females scored 3.15 on ideas on the evolution of ethical decision making, with a non-significant P value of 0.445. With a non-significant P value of 0.478, the results show that male scored 2.88 and female scored 3.09 on the relevance of having great communication skills in handling ethical dilemmas.

Table- 3: The comparison between Prior clinical exposure and characteristics of samples

Characteristic	Question	Prior clinical exposure	Mean ± SD	p-Value
Decision Making	Impact of Institutional policies and guidelines in ethical decision	Yes	2.97±1.445	0.260
		No	3.01±1.366	
	Impact of societal and cultural norms in ethical decision making	Yes	2.87±1.359	0.200
		No	2.96±1.492	
	Impact of personal moral beliefs and values in ethical decision making	Yes	3.10±1.348	0.319
		No	3.07±1.420	
Attitude	Medical professionals should prioritize patient autonomy	Yes	2.51±1.053	0.182
		No	2.55±1.005	
	In situations of limited resources, triage should be based solely on medical criteria, not on socioeconomic factors	Yes	2.13±1.142	0.221
		No	2.15±1.129	
	Effectiveness of ethics education	Yes	2.92±1.404	0.173
		No	3.04±1.394	
	Application of ethical principles in real life scenarios	Yes	2.96±1.348	0.242
		No	3.00±1.400	
Knowledge	Understanding of the ethical principles Autonomy	Yes	2.51±1.031	0.074
		No	2.65±1.014	
	Understanding of the ethical principles Beneficence	Yes	2.16±.860	0.170
		No	2.18±.983	
	Understanding of the ethical principles non-maleficence	Yes	2.60±1.414	0.303
		No	2.60±1.405	
	Understanding of the ethical principles Justice	Yes	2.94±1.206	0.146
		No	3.04±1.135	
Practice	How prepared do you feel to navigate ethical issues in emerging medical fields	Yes	2.86±1.410	0.144
		No	3.01±1.378	
	Do you believe ethical decision making in healthcare evolves over the course of a medical career?	Yes	3.02±1.306	0.199
		No	3.11±1.459	
	Importance of effective communication skills in resolving ethical conflicts in healthcare?	Yes	3.09±1.453	0.443
		No	2.95±1.365	

Table-3 lists characteristics based on prior healthcare encounters, accounting for the effects of institutional policies, societal and cultural regulation, additionally personal moral beliefs and values. The scores of 2.97, 2.87, and 3.10 for experienced individuals and 3.01, 2.96, and 3.07 for novice individuals were not statistically significant, according to P values of 0.260, 0.200, and 0.319. Regarding topics like patient autonomy prioritization, triage decisions, the effectiveness of ethics education, and the application of ethical principles in real world contexts, there were no appreciable differences in attitudes toward ethical considerations based on past clinical exposure.

Furthermore, presented are data on knowledge attributes linked to an understanding of ethical principles, categorized based on prior work experience in the healthcare sector. Individuals with prior clinical exposure scored 2.51 and those without prior experience scored 2.65 in the knowledge of autonomy, with a marginally significant P value of 0.074. Those with and without experience scored 2.16 and 2.18 for beneficence, respectively, with a non-significant P value of 0.170. For both groups, the Understanding of Non-maleficence scores were 2.60, with a non-significant P value of 0.303. Lastly, the notion of justice had a non-significant P value of 0.146, with those who were experience scoring 2.94 and those who did not score 3.04.

Table-4: The relation between communicating ethically sensitive information to patients or their families is challenging and characteristics of samples

Characteristic	Question	Communicating ethically sensitive information to patients or their families is challenging	Mean ± SD	p- value
Decision Making	Impact of Institutional policies and guidelines in ethical decision	Yes	2.99 ± 1.383	0.276
		No	3.00 ± 1.410	
	Impact of societal and cultural norms in ethical decision making	Yes	2.97 ± 1.412	0.401
		No	2.87 ± 1.498	
Attitude	Medical professionals should prioritize patient autonomy	Yes	2.53 ± 0.991	0.184
		No	2.55 ± 1.065	
	In situations of limited resources, triage should be based solely on medical criteria, not on socioeconomic factors	Yes	2.15 ± 1.108	0.230
		No	2.15 ± 1.170	
	Effectiveness of ethics education	Yes	2.91 ± 1.386	0.056
		No	3.13 ± 1.406	
	Application of ethical principles in real life scenarios	Yes	2.97 ± 1.351	0.237
		No	3.01 ± 1.428	
Knowledge	Understanding of the ethical principles- Autonomy	Yes	2.55 ± 0.991	0.074
		No	2.68 ± 1.062	
	Understanding of the ethical principles- Beneficence	Yes	2.13 ± 0.940	0.082
		No	2.24 ± 0.943	
	Understanding of the ethical principles- non-maleficence	Yes	2.67 ± 1.410	0.458
		No	2.50 ± 1.399	
	Understanding of the ethical principles- Justice	Yes	3.02 ± 1.176	0.268
		No	2.99 ± 1.138	
Practice	How prepared do you feel to navigate ethical issues in emerging medical fields	Yes	2.99 ± 1.405	0.368
		No	2.90 ± 1.367	
	Do you believe ethical decision making in healthcare evolves over the course of a medical career?	Yes	3.14 ± 1.401	0.430
		No	2.99 ± 1.416	
	Importance of effective communication skills in resolving ethical conflicts in healthcare?	Yes	3.04 ± 1.388	0.393
		No	2.93 ± 1.410	
	Impact of personal moral beliefs and values in ethical decision making	Yes	3.10 ± 1.403	0.337
		No	3.04 ± 1.384	

Table-4 examines various characteristics based on how difficult it is to communicate ethically sensitive material. The effects of institutional procedures do not differ statistically significantly between people who have trouble communicating (2.99) and people who have no difficulty 3.0, (P = 0.276). In a similar vein, there is no discernible difference (P = 0.401) in the impact of society and cultural norms between people who find communication challenging (2.97) and those who do not (2.87). When comparing the impact of personal moral views and values between people who find communication difficult (3.10) and those who do not (3.04), there is no statistically significant difference (P = 0.337). The views of the respondents, sorted by agreement or disagreement, about the challenges of communicating morally sensitive content.

Both groups scored similarly when it came to patient autonomy and triage decisions, with P values that are not statistically significant. Conversely, perceptions about the value of ethics education showed a marginally significant P=0.056. While those who disagreed received a score of 3.13, those who agreed received 2.91. Similar evaluations were obtained when ethical ideas were applied in real life situations (P=0.237), non-significant. Table 4 demonstrates that those with a history in healthcare found it more difficult to communicate ethically sensitive information in the context of autonomy (2.55) than did those without such a past (2.68), with a marginally significant P value of 0.074. Justice (P=0.268) and Beneficence (P=0.082) displayed similar patterns with very little variance.

There was no significant variation (P=0.458) between those with clinical exposure (2.67) and those without (2.50) according to non-maleficence. Moreover, participants who find communication difficult (2.99) have significantly different beliefs (P = 0.430) about the formation of ethical decision making (2.99) in comparison with people who find it difficult to communicate.

A narrative analysis of the survey responses revealed that 136 (35%) of participants believed they had made morally right decision, while 45% (175) claimed they were unaware of how to align their actions with moral principles. Additionally, 79 (20%) of respondents claimed to have never faced morally difficult situations. Respondents also mentioned that making decisions in emergency situations was tough to them 20 (5.1%) and thus they tried to push and encourage patients to voice their doubts in a clear, calm manner.

Surprisingly, a few respondents admitted to being unsure of how to resolve particular ethical dilemmas. For example, several participants were unsure about how to respond when patients or their families insisted on possibility for a reduction in the cost of their care. The narrative evaluation concentrated on the varied perspectives and experiences of the participants in addressing moral dilemmas in the medical scenario. It's important to note that a variety of viewpoints on moral decision making were represented in the poll, and the findings provide insight on the difficulties faced by healthcare professionals in acting morally.

Discussion

In the current dynamic system, regular ethics in healthcare are becoming more complex and dynamic. It is imperative that aspiring physicians consistently enhance their ability to identify and evaluate typical ethical challenges that emerge in medical practice[17]. All learners, including medical students, trainees, and practicing clinicians, must get bioethics education since knowledge of the subject is essential to practicing medicine successfully[18]. The major goal of this study was to evaluate the knowledge, moral values, and attitudes of medical students studying in a tertiary care hospital linked with a health sciences university. The study's target group showed that they were aware of ethical concepts & their relation to patient care, but they still required further ethics training in a scenario base. In general, medical ethics are intended to help guide the behaviour of healthcare professionals and organizations towards the benefit and protection of patients and others who may be affected by their behaviour[19]. Global healthcare currently requires this ethical idea, which is widely acknowledged as a practice that ensures the protection of patient's rights[20].The findings of the present study, which is in line with those of a study by[21], showed that medical students understood medical ethics sufficiently. However, an important finding was that everyone included felt that maintaining medical ethics is crucial to the patient physician relationship and to build a trust factor. There is a chance that receiving medical care will make a patient worse off than they were before the procedure[22]. Thus, it is consistent with the core principles of medical ethics to provide medical care while honouring the duty of patient protection. Doctors need to follow state laws, professional ethics, and the guidelines set forth by the relevant government council to avoid getting into legal action.

The study on the moral and ethical values of above findings, provide significant information on the present state of ethical teaching among medical students. Using a cross sectional descriptive technique, the study aimed to assess medical students' knowledge, attitudes, and practices addressing moral and ethical principles in the context of healthcare practice.

The study findings demonstrate that majority of students in a medical set up show an understanding of ethical principles of justice, autonomy, beneficence, and non-maleficence however the levels of clarity is not sufficient. The student's positive attitude toward moral principles was also observed and analysis suggests an open mind set and recognition, towards the importance of moral concerns of students towards their future employment as medical professionals. However, the study also evident that real scenario decision making was a challenge even after they had a positive attitude and a strong understanding of ethical principles. During their clinical rotations, a significant proportion of students encountered ethical dilemmas, suggesting that a more comprehensive integration of experiential ethics instruction into the medical curriculum is required.

Another important conclusion of the study is the impact of prior clinical exposure on student's ethical knowledge, attitudes, and practices. Individuals with and without prior clinical exposure demonstrated discernible differences in their attitudes and comprehension of ethical ideas. This indicates that student's perceptions of moral quandaries may change through exposure to healthcare facilities. Considering these variations when designing ethics education initiatives could improve the overall efficacy of programs. In addition, the present study has shown how prescient students were recognising emerging moral conundrums in the medical industry. Future moral dilemmas in the domains of telemedicine, artificial intelligence in healthcare, and genetic engineering were mentioned. This expectation emphasizes to prepare future medical practitioners for number of dilemmas that arise from advancements in medical practice and technology.

The factors influencing moral judgment showed that professional regulations being the most crucial element, although personal beliefs, compassion, and the patient's best interests as significant factors. This all-encompassing perspective suggests that it is imperative to possess a sophisticated understanding of moral decision making that considers both institutional and personal factors which stated in Narsa et al.[23] study. One noteworthy and intriguing aspect of the study is its acceptance of the challenges associated with disclosing sensitive material to patients or their relatives. The seeming challenge in this area highlights how important effective communication skills are when dealing with ethical quandaries. Developing thorough ethical education programs to tackle these problems should be foremost. An educational program at the levels of schools can also be planned to sensitized the young minds.

In summary, this study provides a thorough analysis of the ethical instruction that medical students are now obtaining. The positive attitudes and knowledge of students provide additional proof of the effectiveness of the present educational programs. However, given the known barriers to practical application and the impact of prior clinical exposure, it is necessary to examine the current curricula. To make sure that students are suitably prepared to traverse the complex ethical landscape of healthcare, future medical education ought to focus on closing the gap between ethical understanding and its application in practice.

Conclusion

In conclusion, this study shows a solid theoretical foundation while also giving insight into the moral values and knowledge of medical students. However, it is evident that there is a gap between the theoretical understanding of ethics and how it is actually applied in clinical contexts. The importance of prior healthcare expertise emphasizes the need for individualized education and to prepare upcoming physicians for evolving moral quandaries. Professional regulations play a crucial part in moral decision making, which is a complex process that requires a thorough approach. The challenges associated with disclosing personal data underscore the need of effective communication skills in addressing ethical quandaries. In light of these findings, a thorough review of the current curriculum is recommended in order to enhance practical application. Experiential ethics training has to be prioritized in future, to strengthen the medical education for students to comprehend theoretical ideas and gain the abilities required to apply ethical principles in the dynamic healthcare setting.

Ethical Approval: Approved

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