

Identifying the Attitude of Pharmacy and Medical Students Toward Ethical Principles

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ABSTRACT

The aim of this study is to determine the attitudes of medical and pharmacy faculty students toward ethical principles. This cross-sectional and descriptive study was carried out at the University of Health Sciences between January and March 2023. Turkish version of the 'Scale for Attitudes of Ethical Principles' was directed to the first and last-year students at Health Sciences University Hamidiye Faculty of Medicine and Pharmacy via Google forms. As the score obtained from the scale increases (35-175), it is revealed that the awareness of the participant is high. The statistical analysis is performed by SPSS program. Cronbach Alpha internal consistency coefficient of the scale was calculated as 0.79. A total of 253 students (pharmacy n= 123, medicine n= 130) were included in our study. The difference between the total scale scores of the first and last year students in the medical and pharmacy faculties [(33.28 vs. 167.42), (45.36 vs. 150.24)] was found to be statistically significant ($p<0.0001$). We think it would be beneficial to start courses on ethical principles at an earlier stage of the education process in all faculties, those in health field, and to include them more in the education program.

Keywords: Pharmacy, Medicine, Ethical principles

1. Introduction

Ethics is a field that examines the nature of good and bad, right and wrong, as defined by moral values. Just as individuals may encounter ethical dilemmas in daily life, this is also a critical issue faced by healthcare professionals [1].

Healthcare services are a domain where ethical issues frequently arise, necessitating ethical evaluations to ensure the sustainability of practices [2]. Beyond possessing professional knowledge and skills, it is essential for healthcare professionals to cultivate an awareness of ethical principles. Professional ethics encompass the responsibilities of the profession towards service recipients, and adhering to these ethical principles is one of the key criteria of professionalism [3].

In recent years, global social changes—such as the evolution of human rights concepts—have further highlighted the significance of ethics in healthcare [4]. Furthermore, ethics education is widely regarded as essential for healthcare professionals, as it is for all professional groups [5,6]. Ethical principles are fundamental and universally accepted moral truths intended to guide behavior and inform decision-making [7].

Education on ethical principles enhances individuals' awareness throughout the process that begins with identifying ethical problems in their professional activities. It also contributes to a deeper understanding of the ethical dimensions involved in decision-making and behavioral processes, as well as to the recognition and development of personal and institutional values [8]. The goal of ethics education is to foster ethical awareness, sensitivity, and competence, while also developing the knowledge and skills necessary to address ethical challenges [9].

The presence of ethically driven decisions within the services provided by healthcare professionals has highlighted the importance of assessing the ethical awareness and approaches of students in health-related fields (medicine, dentistry, pharmacy, nursing, etc.) prior to graduation. Ongoing discussions focus on what should be included in ethics education for students before graduation and how it should be structured [10]. While various studies have examined nursing students' and nurses' attitudes toward ethical principles, there is a notable lack of research on other healthcare professions [10-14].

Despite the existing literature, the need for such a study targeting medical and pharmacy students—who are in the process of becoming healthcare professionals—has been identified. The originality of this study is reinforced by literature reviews [15,16]. The aim of this study is to assess the attitudes of medical and pharmacy students towards ethical principles, comparing students in their 1st, 5th, and 6th years within each faculty and between faculties. Additionally, the study seeks to evaluate the impact of ethics courses on students' attitudes toward ethical principles.

2. Materials and Methods

This cross-sectional descriptive study was conducted at the University of Health Sciences between January and February 2023, with the necessary approval obtained from the university's ethics committee "This cross-sectional descriptive study was conducted at the University of Health Sciences between January and February 2023, with the necessary approval obtained from the Hamidiye Scientific Research Ethics Committee on 30.10.2022, 28/22". The study targeted first and final-year students from the Hamidiye Faculty of Medicine and Pharmacy at the University of Health Sciences. Data collection was conducted online through Google Forms, which were distributed via email and WhatsApp.

2.1. Sample size

The sample size for this study was calculated using the Raosoft program. A total of 508 students were targeted, consisting of 101 first-year and 132 fifth-year pharmacy students, along with 120 first-year and 155 sixth-year medical students. This calculation was based on a 50% response distribution, with a 5% margin of error and a 95% confidence interval. A 10% attrition rate was anticipated, and it was therefore planned to include 129 pharmacy students and 153 medical students, for a total sample size of 282. Non-probability (purposive) sampling was employed in this study.

2.2. Data collection

The first section consists of five questions designed by the researchers to determine demographic characteristics.

The second section focuses on evaluating attitudes toward ethical principles. In this study, the "Scale

for Attitudes of Ethical Principles" (EİTÖ) was used. Permission to use the scale was obtained from the original author, who validated its reliability and validity. In this study, the Cronbach's Alpha value was calculated as 0.79, indicating that the items in the EİTÖ are highly reliable and measure the same construct [17].

The EİTÖ consists of 35 questions, organized into six sub-dimensions: justice, non-maleficence, honesty, respect for autonomy, beneficence, and confidentiality. The total score ranges from 35 to 175. The scale follows a 5-point Likert format, with responses ranging from "strongly agree" (1), "agree" (2), "neutral" (3), "disagree" (4), to "strongly disagree" (5). Items 20, 26, 61, and 67 are reverse-scored. Before data collection, participants were informed about the study's purpose, and the estimated completion time for the scale was set at 20–30 minutes.

2.3. Statistical analysis

The collected data were analyzed using the Statistical Package for Social Sciences (SPSS) software. Results were evaluated with a 95% confidence interval, and significance was set at $p < 0.05$. A Kolmogorov-Smirnov test was conducted to assess whether the data followed a normal distribution. Appropriate statistical tests, such as the Mann-Whitney U test (for two groups) and/or the Kruskal-Wallis test (for more than two groups), were used to examine differences between demographic variables (e.g., gender) and total scores.

3. Results and Discussion

The collected data were analyzed using the Statistical Package for Social Sciences (SPSS) software. Results were evaluated with a 95% confidence interval, and significance was set at $p < 0.05$. A Kolmogorov-Smirnov test was conducted to assess whether the data followed a normal distribution. Appropriate statistical tests, such as the Mann-Whitney U test (for two groups) and/or the Kruskal-Wallis test (for more than two groups), were used to examine differences between demographic variables (e.g., gender) and total scores.

As indicated in Table 1, a total of 508 students participated in the study, comprising 275 from the Faculty of Medicine and 233 from the Faculty of Pharmacy. In addition, the age and gender characteristics of stu-

dents in both faculties were found to be similar both within each faculty and between faculties ($p > 0.05$). While the majority of senior students in both faculties reported having taken at least one course related to ethics, most first-year students indicated that they had not taken any such course. As indicated in Table 1, this difference was found to be statistically significant ($p < 0.0001$)*.

No significant differences were observed in the sociodemographic characteristics, including age and gender, among the participants ($p > 0.05$).

However, a significant difference was identified in the total EİTÖ scores among students in the 1st, 5th, and 6th years of both the medical and pharmacy faculties ($p < 0.05$). As indicated in Table 2, the increase in EİTÖ scores from the 1st to the 6th year in the medical faculty was greater than the corresponding increase in the pharmacy faculty.

The changes in the total EİTÖ scores, as well as the justice, non-maleficence, and beneficence sub-dimension scores, were more pronounced among first- and sixth-year medical students compared to pharmacy students. Conversely, the changes in the honesty, respect for autonomy, and confidentiality sub-dimension scores were more prominent in the pharmacy group. As indicated in Table 3, the changes in the justice, non-maleficence, respect for autonomy, and beneficence sub-dimension scores among first- and sixth-year medical students were statistically significant.

The changes in the justice, honesty, respect for autonomy, and confidentiality sub-dimension scores among first- and fifth-year students in the faculty of pharmacy were statistically significant, as demonstrated in Table 4.

The ethical attitudes of health sciences students—including those in medicine, pharmacy, dentistry, and nursing—who will assume critical roles in the provision of healthcare services, are a vital issue that warrants attention. It is essential to foster awareness of ethical principles among these individuals, as they will likely face ethical dilemmas alongside their patient care responsibilities throughout their professional careers [15,16]. In our study, the changes in the total EİTÖ scores, as well as the justice, non-maleficence, and beneficence sub-dimension scores, were more pronounced among first- and sixth-year medical students compared to pharmacy students. However, the changes in the honesty, respect for au-

Table 1. Demographic characteristics of participants

	Faculty of Pharmacy First class (n=101)	Faculty of Pharmacy Fifth class (n=132)	Faculty of Medicine First class (n=120)	Faculty of Medicine Sixth class (n=155)
Age X± S.D.	20 ± 1.1	24 ± 1.6	21 ± 0.7	26 ± 1.2
Gender				
Female	72 (%71)	100 (%76)	65 (%54)	81 (%52)
Male	29 (%29)	32 (%24)	55 (%46)	74 (%48)
Did you take an ethic course?				
Yes	6 (%6)	121 (%92)	4 (%3)	153 (%99)
No	95 (%94)	11 (%8)	116 (%97)	2 (%1)

x:average sd: standard deviation

Table 2. Intra-faculty EİTÖ score comparison

	Faculty of Pharmacy First class (n=101)	Faculty of Pharmacy Fifth class (n=132)	Faculty of Medicine First class (n=120)	Faculty of Medicine Sixth class (n=155)
EİTÖ total score (35-175)	146.15±13.12	(154.98±10.26)	138,98±10.02	148.97±11.15
p	0.0001		0.0001	

Table 3. Difference in attitudes for ethical principles by first class and sixth class of medicine students comparison

	Faculty of Medicine First class (n=120)		Faculty of Medicine Sixth class (n=155)		p*
	X± S.D.	Med (25 % - 75 %)	X± S.D.	Med (25 % - 75 %)	
Justice *	33.40±3.83 34 (32-36)		36.32±2.75 38 (35-39)		0.0001
Endamaging*	17.42±2.25	17 (16-18)	19.25±1.43	19 (18-20)	0.0001
Honesty	19.15±3.56	19 (18-20)	19.66±3.73	20 (18-22)	0.176
Respect to autonomy *	30.32 ±3.97	30 (29-32)	33.46±2.57	34 (31-36)	0.0001
Getting Benefit*	23.65±2.76	24 (22-25)	24.73±1.45	25 (24-25)	0.0001
Privacy-Secretion	15.04±5.22	15 (14-16)	15.55±5.66	16 (14-17)	0.157

tonomy, and confidentiality sub-dimension scores were more pronounced in the pharmacy group. Furthermore, no significant differences were observed between the groups in terms of demographic characteristics (age, gender). A study conducted by Uysal Kasap and Bahçecik (2020) with nurses, which aligns with the findings of our study, reported no statistically significant difference in EİTÖ scores based on gender. However, in contrast to these findings, Aydoğan and Ceyhan's (2019) study, which as-

sessed the ethical sensitivities of healthcare personnel working in emergency departments, found that female employees exhibited higher ethical sensitivity than their male counterparts. Similarly, Yorulmaz (2021) found that female nurses demonstrated significantly higher ethical sensitivity compared to male nurses [18,19]. It is suggested that these differences may be attributable to variations in the institutions where the participants worked, as well as individual differences or the influence of personal and profes-

Table 4. Difference in attitudes for ethical principles by first class and fifth class of pharmacy students comparison

	Faculty of Pharmacy First class (n=101)		Faculty of Pharmacy Fifth class (n=132)		p*
	X± S.D.	Med (25 % - 75 %)	X± S.D.	Med (25 % - 75 %)	
Justice *	37.58±3.83	38 (36-41)	38.87±2.25	40 (37-41)	0.002
Endamaging	19.12±1.35	19 (18-21)	19.95±1.46	20 (19-21)	0.122
Honesty*	17.15±1.56	17 (17-18)	18.20±1.87	19 (18-21)	0.0001
Respect to autonomy*	31.99±2.86	32 (29-34)	35.87±3.01	36 (33-38)	0.0001
Getting Benefit	18.05±1.66	18 (17-19)	18.62±2.03	19 (17-20)	0.156
Privacy-Secretion*	22.26±1.18	23 (22-25)	23.47±1.63	24 (23-24)	0.0001

sional experiences. Additionally, this disparity may be related to the fact that our study involved a student population. In another academic study using the Ethical Awareness Scale (AEFÖ) and the Moral Sensitivity Questionnaire (ADÖ), it was determined that nursing undergraduate students exhibited moderate levels of ethical awareness and moral sensitivity. Simultaneously, when the sub-dimensions of the AEFÖ were examined, statistically significant differences were identified in the confidentiality and respect for autonomy dimensions of the AEFÖ, which correspond to the respective sub-dimensions in the EITÖ [20]. In our study, significant differences were observed in the respect for autonomy sub-dimension among 6th-year medical students, as well as in both the respect for autonomy and confidentiality sub-dimensions among 5th-year pharmacy students. A study conducted with nurses using the EITÖ found that the non-maleficence sub-dimension was significantly higher among nurses working in intensive care and specialized units [17]. In our study, significant differences were also found in the non-maleficence sub-dimension of 6th-year medical students, who had the opportunity to encounter even the most severe cases during their internships in various units with diverse patient groups, compared to 1st-year medical students and pharmacy students.

The principle of justice, one of the fundamental ethical principles, aims to protect individual rights. In healthcare, it specifically seeks to ensure the equitable and fair distribution of medical resources based on patient needs [17,21]. In our study, the significant differences observed in the justice sub-dimension

across both student groups suggest that the students have internalized the principle of justice. A separate study utilizing the ADÖ examined the impact of ethics training on 4th-year nursing students, comparing an experimental group that received ethics training to a control group. The findings indicated that the training enabled students to better identify ethical violations and develop a more critical perspective on ethical issues [22]. Similarly, our study found that ethics courses significantly influenced changes in ethical sensitivity and attitudes among 5th- and 6th-year students in both faculties.

In another study conducted with nursing students, it was shown that the caring behaviors learned and developed by the students led to notable changes in their ethical attitudes toward patient care [11]. A parallel study also found that ethical sensitivity was closely linked to learned caring behaviors [23]. In our study, 6th-year medical students who had taken ethics courses demonstrated significantly higher ethical sensitivity compared to 1st-year medical students, particularly in the dimensions of beneficence, which emphasizes patient care quality, and respect for autonomy, which upholds patient rights.

During undergraduate education, pharmacy students typically have less direct patient interaction compared to medical students. As a result, the significant difference observed in 5th-year pharmacy students, compared to 1st-year students, in the respect for autonomy sub-dimension may be attributed to the ethics courses taken in their later years. Once again, these results underscore the importance of ethics education in shaping students' ethical perspectives

A study conducted with 305 community pharmacists in Ethiopia found that ethics education significantly impacted the ethical attitudes and perceptions of pharmacists [24]. Additionally, a focus group study involving pharmacists, intern pharmacists, and 5th-year pharmacy students highlighted that various factors—such as personal values, moral and cultural beliefs, mentoring, practical training in managing ethical dilemmas, and undergraduate ethics courses—play a significant role in shaping ethical reasoning and attitudes [25]. These findings align with our study, which emphasizes the importance of pharmacy ethics courses (covering topics such as ethical decision-making, utilitarian ethics, bioethics, virtue ethics, care ethics, and deontological ethics) in influencing the ethical attitudes of 1st- and 5th-year students. Similarly, topics in medical ethics, including bioethics, medical deontology, and health policies, were also found to shape students' attitudes toward ethical principles.

Supporting this, a study by Karaca (2018) revealed that students who took ethics courses had lower median survey scores compared to those who did not, indicating a statistically significant difference between the groups. Likewise, Kırca and Özgönül (2020) found that nurses who received ethics training demonstrated higher ethical sensitivity [26,27]. In our study, both pharmacy and medical students who had taken ethics courses showed statistically significant differences in their mean survey score medians compared to those who had not. Further research has shown that moral sensitivity and professional values positively influence ethical decision-making processes [28,29]. Studies using the ADÖ, which parallels the EİTÖ in terms of scale and dimensions, indicate that individuals who received ethics education during their undergraduate studies exhibit higher moral sensitivity [26].

However, some studies conducted with physicians and nurses show no significant difference in ethical sensitivity scores between those who had taken ethics courses during their professional education and those who had not [30,31]. Interestingly, another study found that dentistry graduate students demonstrated a lower commitment to healthcare ethics compared to medical graduate students [32]. In our study, the increase in total EİTÖ scores between 1st- and 6th-year medical students was greater than that observed among pharmacy students. This difference is thought to arise from the closer patient relationships developed by medical students during their

practical training, which fosters greater empathy and sensitivity

4. Conclusions

The question of whether students had taken a course on ethics was posed to 1st, 5th, and 6th-year students in the faculties of medicine and pharmacy. The vast majority of 5th and 6th-year students from both faculties responded affirmatively. Correspondingly, an examination of the scores obtained from the relevant scale indicates that ethics courses have a significant positive impact on the ethical attitudes of 5th and 6th-year students in both faculties.

It is believed that practical courses incorporating active teaching strategies—such as case discussions, simulation exercises, ethical dilemma workshops, mentoring sessions, and the use of films—within the ethics and legislation curricula of medical and pharmacy faculties will enhance students' critical thinking, ethical decision-making processes, and ability to exhibit ethical behavior. Consequently, this is expected to increase their ethical sensitivity.

It is recommended that ethics education programs be further developed both before and after graduation, and that additional research be conducted in this area. The importance of ethics education in fostering ethical awareness among students in medical and pharmacy faculties has thus been demonstrated.

This cross-sectional descriptive study with the necessary approval obtained from the university's ethics committee "This cross-sectional descriptive study was conducted at the University of Health Sciences between January and February 2023, with the necessary approval obtained from the Hamidiye Scientific Research Ethics Committee on 30.10.2022, 28/22".

Although the fact that the study was conducted at a single university limits the generalizability of our results, it also presents an advantage, as the university hosts students from a wide range of cities and countries. This diversity enhances the representativeness of the sample.

Conflict of Interest

The author/editor has no conflicts of interest, financial or otherwise, to declare.

Statament of Contribution of Researchers

Concept – F.U.Y., R.C., S.T., E.K.; Design – F.U.Y., R.C., S.T., E.K.; Supervision – S.T., E.K.; Resources F.U.Y., R.C.; Materials – F.U.Y., R.C.; Data Collection and/or Processing – F.U.Y., R.C.; Analysis and/or Interpretation – F.U.Y.; Literature Search – F.U.Y., R.C.; Writing – F.U.Y., R.C.; Critical Reviews – F.U.Y., R.C.

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