



Original Article

Ethical Literacy in Medical Education: A Comparative Study of Medical Ethics among Undergraduate Students in Peshawar, Pakistan

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ABSTRACT

Medical ethics knowledge and practice by healthcare providers is an incredibly critical topic in today's highly advanced and demanding medical care. **Objective:** To assess the knowledge and attitude of undergraduate medical students regarding medical ethics, and to compare the results among the students of public and private medical colleges of Peshawar. **Methods:** Over the course of six months, 1203 undergraduate students from a variety of fields participated in an observational cross-sectional study. A standardized questionnaire about medical ethics knowledge, attitudes, and demographics was filled out by the participants. Descriptive statistics and the chi-square test were used in the analysis of the data using SPSS version 27.0 to look for differences between groups. **Results:** A total of 1203 undergraduate students were enrolled in the study; 60.2% of the participants were men and 39.6% were women. Of these, 66.9% have previously studied medical ethics. 2.1% of the participants had poor knowledge of medical ethics, 26.8% had average knowledge, and 71.1% had good knowledge. Furthermore, 76.2% of students thought that medical ethics ought to be taught in undergraduate programs. While 41.1% of respondents said that medical ethics were merely important to avoid legal issues, 42% of respondents believed that doctors may occasionally act unethically. **Conclusions:** The study concluded that students in the public and private sectors both possess an adequate amount of knowledge regarding medical ethics. Additionally, students in both fields demonstrate a positive attitude toward the application of medical ethics in the medical field.

INTRODUCTION

Medical ethics knowledge and practice by healthcare providers is an incredibly critical topic in today's highly advanced and demanding medical care [1]. The four core concepts of medical ethics are autonomy, justice, beneficence, and non-maleficence which serve as a base for health professionals to advise and determine what therapeutic practices are ethical [2]. A healthcare professional must have immaculate ethical and moral standards. However, the medical profession is currently experiencing integrity challenges as it transitions from an ethics-based profession founded on basic principles of empathy and humanity to a more marketed and business-

like structure fueled by figures and revenues [3]. An increase in ethical issues can be attributed to the commercialization of the medical profession, increased consumer awareness, and a lack of ethical understanding among doctors. [4, 5]. The noticeable loss of ethical and professional norms, combined with the worsening of the patient-physician relationship and growing public criticism of medical professionals, has increased the demand for undergraduate medical ethics curriculum. Hence, the content and delivery of medical curriculum must evolve in response to the evolving nature of medicine [6]. The literature also supports the inclusion of medical ethics in

undergraduate curricula, shown in studies conducted in Nigeria, Malaysia, Nepal, France, India [6, 1, 7, 8, 9]. Another study showed that in 1972, only 4% of US medical schools included a course in medical ethics; by 1994, that figure had risen to 100%. This shows the increasing trend of adding medical ethics to the medical curriculum [10]. Similarly, studies conducted in Pakistan by Humayun et al., concluded inadequate medical ethics practice [11]. Empathy in doctors is greatly influenced by their comprehension of medical ethics. Enhancing patient-centered care, it cultivates a greater respect for patient autonomy. Doctors who receive ethical training are better able to compassionately navigate difficult moral decisions and make decisions that put the needs of their patients first. In the end, more compassionate and understanding medical practice results from this ethical foundation's cultivation of trust and strengthening of the patient-physician bond. Because of this, medical professionals are more equipped to meet the emotional and psychological needs of their patients, encouraging holistic healing and raising patient satisfaction levels.

In view of the present literature a need was felt to assess the knowledge and attitude of undergraduate medical students regarding medical ethics, and to compare the results between the students of public and private medical colleges of Peshawar.

The aim of this study was to assess the effect of public awareness on audiology and hearing health in Islamabad and Rawalpindi.

METHODS

The research was planned as an observational cross-sectional study that would take place over the course of six months, from July 2023 to December 2023, in a number of public and private medical colleges of Peshawar, Pakistan. Based on a population of approximately 1,000,000, a 99.9% confidence level, a 5% confidence limit, and an anticipated frequency of 50%, the sample size was calculated using the Open Epi Sample Size Calculator, yielding a total of 1082 participants. Questionnaires and Google form was circulated throughout various collages, and 1203 complete responses were received after 1100 questionnaires were distributed to account for sampling error. Using a non-probability convenient sampling technique, 303 participants came from Public medical institutions and 900 from private medical colleges were included in the study. Exclusion criteria included not being enrolled in the designated programs, refusing to participate willingly, being unable to give informed consent, and submitting incomplete questionnaires. All participants received detailed information regarding the research's purpose and objectives and were informed about their right to decline participation or withdraw at any point without

consequences. Assurances were made regarding the confidentiality and anonymity of their responses, and verbal consent was obtained. Approval for the study's design was obtained from the Institutional Review Board and Ethics Committee of the Northwest School of Medicine, Peshawar (IRB&EC/2023-SM/060) (Issuance date: 27th Feb, 2023). A standardized, self-structured, pilot-tested questionnaire that was created following a thorough literature review was used to collect data. The survey was divided into three sections: demographics, medical students' knowledge and their attitudes regarding medical ethics. The SPSS version 27.0[®] was used to analyze the data. Frequencies, percentages, means with standard deviations, and other descriptive statistics were used. Additionally, the chi-square test was applied to examine the relationship between the responses from medical students of public and private medical colleges, with a significance level set at 0.05 to discern any significant differences. Thirteen questions regarding the participants' knowledge of medical ethics were used to record the knowledge score. Every right response received one point, every wrong response received zero, giving a minimum score of 0 and a maximum score of 13. A score of 0–5 indicated poor knowledge, a score of 6–9 indicated average knowledge, and a score of 10–13 indicated good knowledge.

RESULTS

A total of 1203 individuals, ranging in age from 18 to 25, were included in the study from various medical schools. The participants' mean age was 21.37 ± 1.596 . Of the participants, 900 (74.8%) studied in private medical schools, and 303 (25.2%) attended public medical schools. There were 39.6% female participants and 60.4% male participants. 30% of the participants were in their first year, 34.7% in second year, 20.6% in third year, 11.9% in fourth year and 2.8% in final year. Among them 131 (10.9%) were married. Additionally, 66.9% of the participants had previously studied medical Ethics. The demographics are shown in (Table 1).

Table 1: Demographics of the Participants

Variables	Public N (%)	Private N (%)	Total N (%)
Gender of the Participants			
Male	163 (22.4)	564 (77.6)	727 (100)
Female	140 (29.4)	336 (70.6)	476 (100)
Year of Study of the participants			
First Year	57 (15.8)	304 (84.2)	361 (100)
Second Year	146 (35)	271 (65)	417 (100)
Third Year	58 (23.4)	190 (76.6)	248 (100)
Fourth Year	27 (18.9)	116 (81.1)	143 (100)
Final Year	15 (44.1)	19 (55.9)	34 (100)
Marital Status of the Participants			
Married	69 (52.7)	62 (47.3)	131 (100)

Single	234 (21.8)	838 (78.2)	1072 (100)
Have You Studied Medical Ethics Before?			
No	92 (23.1)	306 (76.9)	398 (100)
Yes	211 (26.2)	594 (73.8)	805 (100)
Total	303 (25.2)	900 (74.8)	1203 (100)

It was found that 90.1% of public medical students and 92.3% of private medical students agreed that addressing emergency situations had its own medical ethics, while 95% of public medical students and 96.9% of private medical students believed that there were fundamental rules and norms that governed medical ethics. 72.7% of private medical students and 76.9% of public medical students agreed that medical ethics had changed over time. A higher percentage of the private students 83.7% thought that the doctor-patient interaction consisted of the doctor acknowledging wrongdoing. Ethical principles guarantee that patients' decisions remain uninfluenced, as perceived by 57.8% of the public-school students. Physicians cannot disregard patients' privacy, according to 51.7% of public medical students and 72% of private medical students. 27.2% of private students and 37% of public students agreed that treatment does not require consent (Table 2).

Table 2: Knowledge of the Participants Regarding Medical Ethics

Variable	False N (%)	True N (%)	Total N (%)	p-Value	χ ² -Value
Medical Ethics are Governed by a set of Fundamental Concepts and rules.					
Public	15 (5)	288 (95)	303 (100)	0.136	2.225
Private	28 (3.1)	872 (96.9)	900 (100)		
The Management of Emergency Circumstances is Guided through Certain Medical Ethics Concepts.					
Public	30 (9.9)	273 (90.1)	303 (100)	0.221	1.498
Private	69 (7.7)	831 (92.3)	900 (100)		
The Obligations and Responsibilities of Doctors toward their Patients are Guided Bby an Ethical Framework.					
Public	25 (8.3)	278 (91.7)	303 (100)	0.093	2.817
Private	50 (5.6)	850 (94.4)	900 (100)		
A set of Ethical Guidelines Directs Physicians' Obligations and Responsibilities towards the Community.					
Public	40 (13.2)	263 (86.6)	303 (100)	0.582	0.303
Private	108 (12)	792 (88)	900 (100)		
With the Development of Technology, New Ethical Problems have Emerged.					
Public	62 (20.5)	241 (79.5)	303 (100)	0.629	0.233
Private	196 (21.8)	704 (78.2)	900 (100)		
Over Time, The field of Medical Ethics has Changed and Evolved.					
Public	70 (23.1)	233 (76.9)	303 (100)	0.148	2.095
Private	246 (27.3)	654 (72.7)	900 (100)		
Medical Ethics Principles are Culturally Contextual.					
Public	85 (28.1)	218 (71.9)	303 (100)	0.293	1.104
Private	225 (25)	675 (75)	900 (100)		

In the Doctor-Patient Interaction, it's important to be Honest about Mistakes.					
Public	83 (27.4)	220 (72.6)	303 (100)	0.000	17.930
Private	147 (16.3)	753 (83.7)	900 (100)		
Ethical Guidelines Guarantee that the Patient's choice is Unaffected.					
Public	128 (42.2)	175 (57.8)	303 (100)	0.157	2.000
Private	339 (37.7)	561 (62.3)	900 (100)		
Patients' Privacy can be Disregarded by a Doctor.					
Public	173 (57.1)	130 (42.9)	303 (100)	0.000	23.236
Private	648 (72)	252 (28)	900 (100)		
In Medical Ethics, Confidentiality is a basic concern.					
Public	72 (23.8)	231 (76.2)	303 (100)	0.786	0.074
Private	207 (23)	693 (77)	900 (100)		
Treatment does not require Consent.					
Public	191 (63)	112 (37)	303 (100)	0.001	10.308
Private	655 (72.8)	245 (27.2)	900 (100)		
Unless there is an emergency, Children Should never be treated without their Parents' or Guardians' Permission.					
Public	88 (29)	15 (71)	303 (100)	0.046	3.965
Private	210 (23.3)	690 (76.7)	900 (100)		

The minimum and maximum knowledge score of the participants was 1 and 13 respectively, with mean score of 10.2884 and a standard deviation of 1.90867. (Table 3)

Table 3: Knowledge of the Participants Compared with their Institutions

Variables	Poor Knowledge N (%)	Average Knowledge N (%)	Good Knowledge N (%)	Total N (%)	p-Value	χ ² -Value
Public	14 (4.6)	82 (27.1)	207 (68.3)	303 (100)	0.001	13.036
Private	11 (1.2)	241 (26.8)	648 (72)	900 (100)		
Total	25 (2.1)	323 (26.8)	855 (71.1)	1203 (100)		

The majority of medical students (92.5%), both from public and private universities, held the view that medical professionals had a duty to uphold their profession's ethics. The students also conformed to the idea that treating patients (87.3%) and coworkers (82.7%) with ethics in mind has a favorable outcome. It was also unexpected to learn that a few students (42%) thought that doctors could occasionally act unethically, and that moral behavior is only necessary to stay out of legal trouble (41.1%). Additionally, 76.2% students said that teaching medical ethics as part of the undergraduate curriculum was essential (Table 4).

Table 4: Attitude of Participants Regarding Medical Ethics

Variable	Strongly Agree N (%)	Agree N (%)	Neutral N (%)	Disagree N (%)	Strongly Disagree N (%)	Total N (%)	P- Value	χ ² - Value
The medical professional is required to uphold the ethics of his field.								
Public	195 (64.4)	71 (23.4)	28 (9.2)	4 (1.3)	5 (1.7)	303 (100)	0.000	22.418
Private	552 (61.3)	295 (32.8)	47 (5.2)	3 (0.3)	3 (0.3)	900 (100)		
Patient outcomes are improved when medical professionals follow ethical guidelines.								
Public	135 (44.6)	115 (38)	44 (14.5)	5 (1.7)	4 (1.3)	303 (100)	0.044	9.806
Private	430 (47.8)	370 (41.1)	89 (9.9)	7 (0.8)	4 (0.4)	900 (100)		
Interacting morally with colleagues provides advantages.								
Public	134 (44.2)	114 (37.6)	40 (13.2)	11 (3.6)	4 (1.3)	303 (100)	0.142	6.883
Private	466 (51.8)	281 (31.2)	121 (13.4)	21 (2.3)	11 (1.2)	900 (100)		
A medical professional may occasionally act unethically.								
Public	67 (22.1)	79 (26.1)	61 (20.1)	48 (15.8)	48 (15.8)	303 (100)	0.005	14.645
Private	135 (15)	224 (24.9)	235 (26.1)	189 (21)	117 (13)	900 (100)		
Regardless of what patients think, doctors always know best.								
Public	63 (20.8)	77 (25.4)	75 (24.8)	55 (18.2)	33 (10.9)	303 (100)	0.003	16.112
Private	156 (17.3)	304 (33.8)	245 (27.2)	143 (15.9)	52 (5.8)	900 (100)		
The only reason ethical behavior matters is to prevent lawsuits.								
Public	54 (17.8)	66 (21.8)	63 (20.8)	72 (23.8)	48 (15.8)	303 (100)	0.007	14.060
Private	144 (16)	230 (25.6)	222 (24.7)	225 (25)	79 (8.8)	900 (100)		
Doctors must provide abortions if the law permits them.								
Public	64 (21.1)	94 (31)	72 (23.8)	42 (13.9)	31 (10.2)	303 (100)	0.059	9.099
Private	160 (17.8)	264 (29.3)	282 (31.3)	131 (14.6)	63 (7)	900 (100)		
Laboratory studies should also be routinely conducted for clinically confirmed patients.								
Public	84 (27.7)	113 (37.3)	67 (22.1)	26 (8.6)	13 (4.3)	303 (100)	0.414	3.940
Private	238 (26.4)	370 (41.1)	205 (22.8)	64 (7.1)	23 (2.6)	900 (100)		
There should be a dedicated committee in my college to establish the moral guidelines.								
Public	107 (35.3)	122 (40.3)	51 (16.8)	16 (5.3)	7 (2.3)	303 (100)	0.031	10.601
Private	360 (40)	387 (43)	113 (12.6)	22 (2.4)	18 (2)	900 (100)		
It is imperative that doctors occasionally take in-depth training on medical ethics.								
Public	107 (35.3)	117 (38.6)	56 (18.5)	20 (6.6)	3 (1)	303 (100)	0.005	14.744
Private	391 (43.3)	345 (38.3)	127 (14.1)	26 (2.9)	11 (1.2)	900 (100)		
It is imperative that undergraduate curricula include medical ethics.								
Public	108 (35.6)	106 (35)	64 (21.1)	15 (5)	10 (3.3)	303 (100)	0.013	12.601
Private	386 (42.9)	316 (35.1)	161 (17.9)	26 (2.9)	11 (1.2)	900 (100)		
Learning about medical ethics helps doctors deal with moral dilemmas more skillfully.								
Public	116 (38.3)	121 (39.9)	44 (14.5)	15 (5)	7 (2.3)	303 (100)	0.087	8.128
Private	406 (45.1)	335 (37.2)	123 (13.7)	26 (2.9)	10 (1.1)	900 (100)		
Studying medical ethics has improved my understanding of patients' rights.								
Public	142 (46.9)	93 (30.7)	48 (15.8)	12 (4)	8 (2.6)	303 (100)	0.027	10.979
Private	503 (55.9)	261 (29)	99 (11)	22 (2.4)	15 (1.7)	900 (100)		

DISCUSSION

A total of 1203 participants from different colleges participated in our study; 60.4% of them were men, and 66.9% of them had studied medical ethics before. In comparison, just 22% of the 110 fourth-year medical students in another study conducted at the University of Pennsylvania had previously received training in medical ethics [12]. In a different study conducted in Iran, which included final-year nursing and midwifery students, 98.7%

of the participants had a positive attitude toward information confidentiality, whereas in our study, 924 students 76.8% thought confidentiality was a crucial component of medical ethics; 231 of these students attended public medical schools and 693 attended private ones [13]. In a study among doctors in Sri Lanka 81.2% participants had poor knowledge score, with a mean of 49.83 ranging from a minimum value of 12 to a maximum

vale to 88, In comparison to this our participants had a mean score of 10.2884 (ranging from 1 to 13), where only 2.1% of the participants had poor knowledge and 26.8% had average knowledge [14]. Among our participants 35.6% among the students belonging to public sector and 42.9% of the students belonging to the private sector, total 41.1% strongly agreed that medical ethics should be incorporated into medical curriculum. This was in accordance with a study in South India where 57.4% strongly agreed to include medical ethics in the curriculum [15]. In contrast to our study, where 80.9% of medical students believed that the patient-physician relationship requires the telling of the truth about wrongdoings, Pais *et al.*, found that truth telling was reported by 45% of physiotherapy students and 0% of medical and dental students [16]. Health workers who learned medical ethics were shown to be more likely to have a positive attitude toward patient confidentiality, according to a study by Tegegne MD *et al* [17]. In a study conducted in Pakistan it was concluded to emphasize the importance of including medical ethics in the curriculum of undergraduate medical students [18]. Ninety-five out of the 299 participants in a study by Tenenbaum A *et al.*, stated that they would follow the patient's decision even if it was not medically justified [19]. When asked if doctors could not refuse an abortion if the legislation permitted it, 18.6% of our participants strongly agreed, 28.6% of them were from the public sector and 71.4% were from the private sector. When asked if they agreed to obtain parental consent before treating a child, 84.5% of interns, 74% of junior residents, and 76.5% of senior residents in Pakistan answered in the affirmative [20].

CONCLUSIONS

In conclusion, the study on medical students' understanding of medical ethics in Peshawar, Pakistan, indicates that both public and private sector students have an adequate level of knowledge. Regardless of their institutional affiliation, the results highlight a uniformity in the ethical knowledge base across these aspiring healthcare practitioners. Furthermore, students from both sectors exhibit a good attitude toward the application of medical ethics within the health profession, which bodes well for the future of medical practice in the area. This implies a strong basis for encouraging moral behavior in medicine, which could improve the standard of care.

Authors Contribution

Conceptualization: KK, SZ

Methodology: KK, SZ, MS, AMA, MA, SRS, SA, MN, KI

Formal analysis: KK, SZ, MS, AMA, MA, SRS, SA, AAK, MN, SM, KI

Writing, review and editing: KK, SZ, AAK, SM, JS

All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

The authors declare no conflict of interest.

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