

Evaluation of Medical Students' Academic Ethical Values

Tıp Fakültesi Öğrencilerinin Akademik Etik Değerlerinin Değerlendirilmesi

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ABSTRACT Ethics, also called moral philosophy, is a branch of philosophy that researches, concepts and principles related to the essence and basis of moral. In this study, it was aimed to examine academic ethical values of medical faculty students. The study was designed as a cross-sectional descriptor in quantitative research design. Study's sample size was calculated as 313 at 95% confidence interval (n=313). The scale developed by Sevim was preferred for the study. In score analysis of scale, total score was calculated as 137.28±13.22 (minimum: 91, maximum: 165). In analysis of scale total scores by years, mean scale scores of second year students were calculated as 143.37±11.50 as highest. In evaluation of scale scores of participants according to education period (pre-clinical, clinical), it was found that mean score of preclinical students (139.75±13.15) was higher than clinical period students (134.76±12.85) in total score, and it was found that two groups were statistically significant. The difference has been shown. When findings of the study are evaluated, it is seen that values score of students for scientific research is at a good level. It is believed that most of the students participating in the study have basic knowledge on scientific research and publication ethics. It can be said that implementation of a horizontal and vertical integrated education program model, which is based on organ/system-based graduation goals, is effective for primary health problems of society by making use of domestic and international examples in the faculty where study was conducted.

Keywords: Medical education; academic values; ethical values

ÖZET Ahlak felsefesi olarak da adlandırılan etik, ahlaki olanın özüne ve temeline ilişkin kavramları ve ilkeleri araştıran bir felsefe dalıdır. Bu çalışmada, tıp fakültesi öğrencilerinin akademik etik değerlerinin incelenmesi amaçlanmıştır. Çalışma nicel araştırma deseninde kesitsel tanımlayıcı olarak tasarlandı. Çalışmanın örnek büyüklüğü %95 güven aralığında 313 olarak hesaplandı (n=313). Çalışma için Sevim tarafından geliştirilmiş ölçek tercih edildi. Ölçeğin puan analizlerinde toplam puan 137,28±13,22 (minimum: 91, maksimum:165) olarak hesaplanmıştır. Ölçek toplam puanlarının yıllara göre analizinde 2. yıl öğrencilerinin ölçek puanları ortalaması 143,37±11,50 ile en yüksek olarak hesaplandı. Katılımcıların ölçek puanlarının eğitim dönemine (klinik öncesi, klinik) göre değerlendirilmesinde, toplam puanda pre-klinik dönem öğrencilerinin ortalamalarının (139,75±13,15) klinik dönem öğrencilerine göre (134,76±12,85) daha yüksek olduğu ve 2 grup arasında istatistiksel anlamlı fark olduğu gösterilmiştir. Çalışmanın bulguları değerlendirildiğinde, öğrencilerin bilimsel araştırmaya yönelik değerler puanının iyi seviyede olduğu görülmektedir. Buradan çalışmaya katılan öğrencilerin büyük kısmının bilimsel araştırma ve yayın etiği konularında temel bilgiye sahip oldukları düşünülmektedir. Bunda çalışmanın yapıldığı fakültede yurt içi ve yurt dışı örneklerden yararlanılarak toplumun öncelikli sağlık sorunlarına yönelik, organ/sistem temelli, mezuniyet hedeflerine dayalı, yatay ve dikey entegre eğitim programı modelinin uygulanmasının etkili olduğu söylenebilir.

Anahtar Kelimeler: Tıp eğitimi; akademik değerler; etik değerler

Ethics, also called moral philosophy, is a branch of philosophy that examines concepts and principles related to the essence and basis of the moral.¹ According to the famous philosopher Aristotle (384-322 BC), being good and the happiness resulting from being good is the basis of ethical understanding.² Ethics has gone through various stages in the history of philosophy from ancient times to the present.³

There are basic concepts such as values, principles, rules, and codes in ethics, which is a measure of behavior that distinguishes good from bad and right from wrong.⁴ These are concepts that give personality not only to individuals but also to the professions, put them in certain standards and determine the behaviors and attitudes the members of the profession should abide by.⁵

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In professional ethics, people belonging to a profession are expected to act according to the same ethical rules.⁵ From this point of view, it is seen that the main purpose of ethics in the professional aspect is to gain the trust of the society while doing the same work as the members of the same profession.⁶

Physicians, together with other healthcare professionals, are the most crucial and indispensable constituents of a well-functioning healthcare system. Medical students who will become physicians and members of the healthcare profession in the future should be trained on a useful, sound, and consistent knowledge base.⁷ Today, it is the basic obligation of medical faculties to train physicians who comprehend and prevent health problems, produce solutions, improve health, and can intervene in determinants of health.⁸

Medical faculties are also places where students are taught the values of the medical profession with a structured curriculum or a method called implicit curriculum, and these are conveyed to the new generations within the framework of ethical principles and attitudes. In this way, while the students gain the identity of medicine on the one hand, they also receive values education.⁹ When students graduate from their school, which has a special social environment, far beyond merely being an educational institution, they learn to think, feel, and act like a physician.¹⁰

The functions of ethical values in their relations with patients, other healthcare professionals, and society in their medical life that they will start after graduation are explained to medical students at their school.¹¹ In fact, even in the opinions and discussions that there is no need for theoretical and applied clinical training to become a physician and that this profession can be learned through master-apprentice relationship within the concept of the art, it is generally accepted that ethics education is necessary.¹²

The concept of ethics in medicine determines the rules to be followed in scientific research in the field of healthcare as well as clinical practice. It examines situations that may arise if these rules are not followed. In addition, it evaluates scientific healthcare studies in terms of ethics and aims to find solutions to

moral dilemmas encountered.¹³ Medical ethics has a very different and privileged position as medicine is directly related to the human being, and recently it has been referred to as a part of or together with the concept of bioethics that concerns all living things.¹²

Besides these concepts, an important component of professional ethics is academic ethics. Ethical rules and principles to be followed in academic ethics can be listed as honesty, accuracy, attention, transparency, confidentiality, respect for colleagues, students, and intellectual knowledge, freedom, merit, legality, security, care for animals, protection of human subjects, avoiding conflict of interest, autonomy, publicity, and relations with the market.¹³

Choosing to be an academician is actually choosing the values of the university.¹² Likewise, choosing the medical profession is choosing the values of that profession. Because science and ethics must be considered together. Even if an activity or study is carried out in accordance with scientific rules, if it contradicts ethical principles, its results can no longer be scientific. So the first condition of science is ethics.¹³

Values such as being aware of the current developments in the world and values that have become indispensable, avoiding cutting corners, and keeping human health above all else are also among the requirements of being a good physician.⁴ Medical faculty graduates are expected to abide by social, scientific, and ethical values in the collection, interpretation, announcement, and application of data related to healthcare research.¹⁴ For this reason, it is of great importance that medical students, who are future physicians, are informed about academic ethical values and have awareness.¹⁴

Academic ethical values are the rules of behavior that should be abided by during research processes starting from determining the problem all the way to sharing the findings with the target audience. It would not be very accurate to associate a scientific publication or study with the process of its production alone. Other scientific studies of the person or persons conducting the study, their relations with colleagues, their obligations to the affiliated institution, and their relationship with the target audience, that is, all their

interaction with all the constituents, falls within the scope of academic ethical values. Compliance with academic ethical values is closely related to the acceptance of values seen separately in each of these aspects as an achievement and their application.¹⁵ The purpose of this study is to examine the academic ethical values of medical faculty students.

MATERIAL AND METHODS

The study was designed as a descriptive cross-sectional study, as a quantitative research. The students studying at the medical faculty of a state university in Turkey were determined as the universe of the study (n=1,659). The sample size of the study was calculated as 313 at 95% confidence interval (n=313). Stratified sampling was used in sample selection. Students were divided into 6 layers according to their years of education. Sample selection within the layers was made with “simple random” selection. The scale was delivered to students online (Table 1). The fact that the percentage of variance component estimated for individuals (7.7%) was found to be relatively low in the analysis of the scale conducted with generalizability theory indicates that the scale’s power to represent the true score is weak. The relative high percentage of variance component (26.6%) estimated for the items indicates that the item difficulty levels differ. The high percentage of variance component estimated for the individual-item indicates that systematic/unsystematic error sources cannot be controlled. In the reliability analysis of the scale, the G-coefficient was calculated as 0.80. In line with these data, it was decided that the scale was reliable for the population but was weak at generalization to the whole population (Table 2).

TABLE 1: Samples.

Year	Students (n)	Sample size
1 st year	268	50
2 nd year	304	56
3 rd year	274	52
4 th year	279	54
5 th year	273	52
6 th year	261	49
Total	1,659	313

For the study, written permission from the developer of the scale was obtained, as well as the ethics committee approval dated 25.11.2020 and numbered 46/2 from the Health Sciences Ethics Committee of the Süleyman Demirel University where the study was conducted. “Academic Ethical Values Scale” developed by Sevim was preferred for the study.¹⁶ The scale developed for academics has been modified for students. Since the questions were not related to the students, all questions in the values related to the teaching process section and question no. 36 in the values related to society section in the original scale were removed.

The modified scale consisted of 35 questions in total, with 9 questions for values related to scientific research (questions 1, 2, 3, 4, 5, 6, 7, 8, and 9), 10 questions for values related to peers (questions 10, 11, 12, 13, 14, 15, 16, 17, 18, and 19), 9 questions for values related to the institution (questions 20, 21, 22, 23, 24, 25, 26, 27, and 28), and 7 questions for values related to community. Scoring of the scale, questions 1, 3, 4, 5, 6, 7, 9, 15, 18, 19, 21, 22, 23, 25, 28, and 34 are reversed questions. When these questions were evaluated for scoring, they were scored in reverse.

TABLE 2: Variance analysis.

Source	Sum of Square	Degrees of Freedom	Mean Squares	Components				Standard Error
				Random	Mixed	Corrected	%	
Participants	1546.42501	312	4.95649	0.11387	0.11387	0.11387	7.7	0.01131
Item	4207.62665	34	123.75373	0.39228	0.39228	0.39228	26.6	0.09319
Participants/Item	10302.31620	10608	0.97118	0.97118	0.97118	0.97118	65.7	0.01333
Total	16056.36787	10954					100	

The minimum score that can be obtained from the scale is 35, and the maximum score is 175.

JASP software was used in the analysis of the scale (<https://jasp-stats.org/>). In descriptive analysis, frequencies and means were calculated. T-test was used in the analysis of the groups.

RESULTS

When the study participants are evaluated, the mean age was calculated as 20.49 ± 1.75 (minimum: 18, maximum: 25). One hundred eighty six (59.4%) of the participants were female and 127 (40.6%) were male. Consistent with the sample selection, a total of 313 students, consisting of 50 students from the 1st year, 56 students from the 2nd year, 52 students from the 3rd year, 54 students from the 4th year, 52 students from the 5th year, and 49 students from the 6th year, participated in the research (Figure 1).

In the descriptive analysis of the scale, it was observed that the majority of the students gave answers in accordance with the questionnaire (Table 3).

In the analysis of the scale scores, the mean total score was calculated as 137.28 ± 13.22 (minimum: 91, maximum: 165). In the analysis of the total scores by years, the highest mean scale score was that of the second-year students, which was calculated as 143.37 ± 11.50 . The mean total scores and mean sub-dimension scores of all years are given in the table (Table 4).

While there was no statistically significant difference in the values related to scientific research by gender, it was found that the mean scores of women were higher in values related to peers, values related to the institution they work for, values related to society, and total scores, and there was a statistically significant difference between the two groups. In the evaluation of the scale scores of the participants according to the education period (pre-clinical, clinical), while there was no statistically significant difference in values related to scientific research, there was a statistically significant difference between the two groups in values related to peers, values related to the institution they worked for, values related to society, and the mean scores of the pre-

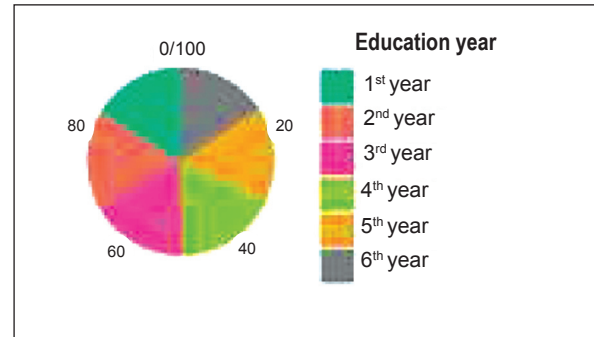


FIGURE 1: Education year of students.

clinical students in the total score (139.75 ± 13.15) was found to be higher than those of the clinical period students (134.76 ± 12.85) (Table 5).

DISCUSSION

Academic scientific ethical values education are among the goals and objectives of the curricula of all medical faculties.¹⁷ Assessment of faculties' achievement of their goals and objectives is an important process in the context of program evaluation.^{18,19}

When the findings of this research are evaluated, it is seen that the scores of the students in values related to scientific research are at a good level. It is believed that most of the students who participated in the study have basic knowledge on scientific research and publication ethics. It can be stated that the implementation of a horizontal and vertical integrated curriculum model that is focused on the primary health problems of the society, based on organs/systems and focused on graduation goals, prepared by utilizing national and international examples, was effective in this result.

There are many studies in the literature about the place of scientific ethical values the curriculum and their effects.^{20,21} In our study, the fact that the students' scores in values related to peers as well as their scores in values related to scientific research are at a good level shows that the implementation of the concept of term friendship among the students studying in the same year has been quite successful. It is possible to say that besides the structured medical education curriculum, activities aimed at establishing both term friendship and faculty friendship culture

TABLE 3: Descriptive analysis of the scale.

Items*	1 I strongly disagree	2	3	4	5 I completely agree
S1. I can use an information or document that is not authorized by the author.	133 (42.62%)	74 (23.71%)	50 (16.02%)	36 (11.53%)	18 (5.76%)
S2. Whatever source I use, I will definitely state this in my report.	6 (1.92%)	12 (3.84%)	44 (14.10%)	74 (23.71%)	176 (56.41%)
S3. I can interpret the opinions of other researchers and write them as my own opinion.	133 (42.62%)	69 (22.11%)	73 (23.39%)	22 (7.05%)	15 (4.80%)
S4. I divide my research on any subject into sub-headings and publish each of them as a separate report.	44 (14.10%)	59 (18.91%)	97 (31.09%)	63 (20.19%)	49 (15.75%)
S5. When the statistical findings about my research are not what I thought, I can make changes to them.	210 (67.30%)	34 (10.89%)	20 (6.41%)	26 (8.33%)	22 (7.05%)
S6. I can put a source that I cannot reach as a citation in my bibliography.	195 (62.50%)	51 (16.34%)	34 (10.89%)	22 (7.05%)	10 (3.20%)
S7. After citing the source, I think it is possible to quote as many times as desired from the used work.	59 (18.91%)	52 (16.66%)	85 (27.24%)	60 (19.23%)	54 (17.30%)
S8. I try to give clear information about the resource I use.	-	7 (2.24%)	19 (6.09%)	88 (28.20%)	197 (63.14%)
S9. I think the scientificity of an article depends on the number of citations made.	76 (24.35%)	84 (26.92%)	92 (29.48%)	38 (12.17%)	20 (6.41%)
S10. I share the information I have obtained with other researchers.	2 (0.64%)	8 (2.56%)	52 (16.66%)	110 (35.25%)	140 (44.87%)
S11. I respect my peers' work.	1 (0.32%)	2 (0.64%)	14 (4.48%)	58 (18.59%)	237 (75.96%)
S12. I believe that the studies of other researchers will contribute to the literature.	-	3 (0.96%)	20 (6.41%)	57 (18.26%)	232 (74.35%)
S13. I believe that all researchers have the right to do research on any subject they want.	16 (5.12%)	27 (8.65%)	38 (12.17%)	57 (18.26%)	173 (55.44%)
S14. I care about my peers' opinions on scientific issues.	-	4 (1.28%)	35 (11.21%)	71 (22.75%)	200 (64.10%)
S15. When I need to prepare a report about my peers, I consider peer solidarity.	147 (46.96%)	78 (24.92%)	52 (16.61%)	22 (7.02%)	14 (4.47%)
S16. I criticize my peers' work objectively.	-	14 (4.48%)	22 (7.05%)	52 (16.66%)	77 (24.67%)
S17. I help my peers' work as much as I can.	1 (0.32%)	6 (1.92%)	47 (15.06%)	82 (26.28%)	176 (56.44%)
S18. The characteristics of my peers such as religion, politics, gender, language, race, sexual orientation affect my views about them.	177 (56.73%)	70 (22.43%)	35 (11.21%)	18 (5.76%)	10 (3.20%)
S19. I discuss with my peers about other colleagues' misconduct.	25 (8.01%)	34 (10.89%)	70 (22.43%)	110 (35.25%)	72 (23.07%)
S20. I try to help the boards, committees or commissions within the institution on matters related to my field.	8 (2.56%)	6 (1.92%)	51 (16.34%)	104 (33.33%)	141 (45.19%)
S21. I believe that the responsibility taken in scientific or cultural activities slows me down academically.	112 (35.59%)	103 (33.01%)	61 (19.55%)	22 (7.05%)	14 (4.48%)
S22. I do not believe that social, cultural or scientific activities within the institution will contribute to me scientifically.	172 (55.12%)	72 (23.07%)	31 (9.93%)	19 (6.09%)	16 (5.12%)
S23. The economic value of these projects is decisive in my participation in projects for or outside the institution.	65 (20.83%)	96 (30.76%)	80 (25.64%)	48 (15.38%)	21 (6.73%)
S24. I observe the principles of merit in scientific activities with my peers.	8 (2.56%)	14 (4.48%)	75 (24.03%)	96 (30.76%)	116 (37.19%)
S25. I participate in corporate projects to complete my deficiencies in terms of equipment.	51 (16.34%)	61 (19.55%)	99 (31.73%)	58 (18.59%)	40 (12.82%)
S26. I treat all personnel of the institution where I study with respect.	-	1 (0.32%)	10 (3.20%)	43 (13.78%)	257 (82.37%)
S27. I use the institution's resources as the management prescribes.	1 (0.32%)	3 (0.96%)	35 (11.21%)	85 (27.24%)	187 (60.93%)
S28. I see it as a chore for the institution to appoint me for different organizations.	88 (28.20%)	120 (38.46%)	72 (23.07%)	19 (6.09%)	11 (3.52%)
S29. Socially, I do my part in order to reach a certain intellectual capacity.	2 (0.64%)	10 (3.20%)	31 (9.93%)	108 (34.61%)	160 (51.28%)
S30. I make an effort to participate in cultural and scientific activities for society.	5 (1.60%)	28 (8.97%)	64 (20.51%)	93 (29.80%)	122 (39.10%)
S31. I believe that the scientific studies carried out in universities should be reflected in the society.	-	5 (1.60%)	37 (11.85%)	92 (29.48%)	177 (66.73%)
S32. I take a social stance when analyzing scientific findings on social issues.	20 (6.41%)	25 (8.01%)	118 (37.82%)	76 (24.35%)	72 (23.15%)
S33. I volunteer to develop socially and scientifically.	13 (4.16%)	41 (13.14%)	75 (24.03%)	81 (25.96%)	102 (32.69%)
S34. I believe that I have a social privilege because of my title or position.	96 (30.76%)	67 (21.47%)	83 (26.60%)	43 (13.78%)	21 (6.73%)
S35. I do not hesitate to clash with society about issues that I see as socially wrong.	5 (1.60%)	15 (4.80%)	78 (25.00%)	96 (30.76%)	118 (37.82%)

* Yellow colored ones are negative questions and scored reverse in scoring.

TABLE 4: Analysis of scores.

	Scientific research values score	Peer-to-peer values score	Values score for the institution employed	Community values score	Total score
1 st year	34.74±4.25	39.58±4.28	36.40±5.22	27.62±4.37	138.34±14.25
2 nd year	35.05±4.15	41.67±3.85	37.53±4.08	29.10±4.14	143.37±11.50
3 rd year	35.07±4.92	39.09±3.85	35.48±4.57	27.55±3.53	137.21±13.09
4 th year	33.25±5.79	38.25±4.75	35.11±4.72	26.48±4.26	133.11±14.66
5 th year	35.23±3.71	39.23±4.24	35.42±4.19	27.32±3.95	137.21±11.94
6 th year	34.04±4.32	39.14±4.14	34.53±4.48	26.26±3.75	133.98±11.43
Total	34.56±4.60	39.52±4.30	35.77±4.62	27.41±4.09	137.28±13.22

TABLE 5: Comparative analysis of scale scores.*

	Scientific research values score	Peer-to-peer values score	Values score for the institution employed	Community values score	Total score
Gender	0.488	0.002	<0.001	0.002	0.003
Preclinical/clinical	0.127	0.007	0.005	0.002	<0.001

*t-test.

are also effective in this. In addition, it is seen that it is important that there is a student council at the faculty, so that students actively participate in the planning, management, and evaluation process of pre-graduation education, and that students have a say in the evaluation and development of social and cultural activities for them.

In the literature, students' values related to the institutions where they study are also discussed.^{22,23} In our study, it is seen that the students' scores in values related to the institution are higher than the other scores. It is very important for students to have a high sense of belonging to their faculty and to see themselves as a part of the school, not just a student. Here, it is noteworthy that the above-mentioned students are included in the management processes, as well as the implementation of an effective one-to-one consultancy system, and the immediate correction of incomplete or insufficient issues by receiving their feedback after each activity.

In the literature, students are an important factor in the future projection of healthcare.^{20,21,23} In our study, the scores calculated for the students' values related to society is at a good level like the other dimensions of the scale. It is among the most important obligations of medical education that students reach the awareness that, as a physician, they are one of the fundamental so-

lution points in solving social problems. In order to achieve the desired level, it is very important to organize beneficial activities for the society as well as the standard curriculum and to participate in these as both organizer and practicing participants. It is seen that the faculty's increasing focus on this issue is very effective in raising awareness.

In our study, the highest score calculated among six classes belongs to the second-year students and the lowest score to the sixth year students. It is seen that this is a result of the effective implementation of the structured new education and training program for the first time in the year when the current second year students entered the faculty. In addition, it is possible to state that the strengthening of the academic side of the faculty by eliminating the weaknesses of the quantitative and qualitative academic staff naturally affects this process positively. Commissioning ready-for-use facilities such as new classrooms, professional skills laboratories, and simulated patient laboratories for the first time when current second year students entered the faculty has positively affected them.

In addition, students have begun to see medical history, ethics and deontology visuals equipped in all these spaces since entering the faculty. Scientific meetings on the history of general health and medi-

cine, to which they attend with their faculty ID, started to be held for the first time and students actively participated in all activities. Such situations affected other pre-clinical students as well as second year students, and enabled them to enter clinical process more confidently. Considering the total academic ethical values of the students, it is seen that the current preclinical score is higher than the clinical period.

Despite the fact that the cross-sectional descriptive design of our study is considered a limitation in terms of evaluating the process, considering that the faculty recently started this accredited process and continues to carry it out successfully, it is considered that it is important to conduct this research again when the current second year students reach their final year, when all the students will have received an education according to the new curriculum. Thus, the results of the current research can be compared with the results of the new research.

CONCLUSION

Medical students are becoming involved in the education process carried out at their faculties more than ever. Apart from their student roles and duties, they are expected to have various values in line with both the normal curriculum and the implicit curriculum. The willingness of the students to meet these expectations is undoubtedly very important. Therefore, it has become a necessity for students to find platforms where they can express themselves and to have an effective communication and cooperation with other medical education constituents.

In addition to the courses on medical history and ethics that aim to educate students with a retrospective perspective, it is now a necessity for students, each of whom is a scientist candidate, to be educated with academic ethical values. The most effective way to achieve this is to teach and explain the values related to scientific research, peer, institution, and society, both theoretically and practically, using various methods and techniques.

In this way, physician candidates will learn about professional ethics as well as academic ethical values as a part of it, and will be well prepared for the future in this way. They will find the opportunity to take their basic education one step further in every step they take and in all the work they do. Thus, one of the most important goals of medical education will be achieved.

Source of Finance

During this study, no financial or spiritual support was received neither from any pharmaceutical company that has a direct connection with the research subject, nor from a company that provides or produces medical instruments and materials which may negatively affect the evaluation process of this study.

Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

All authors contributed equally while this study preparing.

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