



Ann Med Res

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Annals of Medical Research

journal page: www.annalsmedres.org

The importance of forensic medicine education: A questionnaire survey

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Abstract

ARTICLE INFO

Keywords:

Forensic medicine
Medical education
Medical faculty

Received: Apr 03, 2024

Accepted: Jun 06, 2024

Available Online: 28.06.2024

DOI:

[10.5455/annalsmedres.2024.03.059](https://doi.org/10.5455/annalsmedres.2024.03.059)

Aim: Forensic medicine is one of the basic areas of duty and responsibility of physicians just like the preventative, diagnostic, and treatment services of medicine. The aim of this study was to emphasise the importance of practice-based theoretical forensic medicine education by evaluating students who had taken and not taken forensic medicine internship.

Materials and Methods: Two groups were formed of students who had taken and not taken practice-based forensic medicine internship. A questionnaire of 24 items was administered to the students to evaluate their level of knowledge related to forensic medicine and expertise. The data obtained were analyzed statistically using SPSS vn. 24 software (IBM SPSS, Somers, NY, USA).

Results: There were seen to be statistically significant differences between the groups in the responses to many of the questions. Students who had not taken a forensic medicine internship felt that their knowledge was lacking on subjects related to forensic medicine, and the results showed deficiencies in these subjects.

Conclusion: Consistent with findings in literature, students who had not taken a forensic medicine internship felt inadequate in areas related to forensic medicine services and it was seen that their knowledge related to these subjects was lacking. Forensic medicine education should be an integral part of the medical faculty syllabus.



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Introduction

Medicine and the law are inseparably connected to each other. Forensic medicine is a science in which legal issues related to medicine are investigated within medical sciences, thereby combining law and medicine. Just as those working within the legal system need to have medical knowledge, healthcare professionals also need to have legal knowledge. Many legal cases include physicians as experts. Therefore, within medical education and subsequently, there is a need for education related to legal issues [1-3].

Forensic medicine lessons started to be given in medical faculties in France, Italy, and England in 1650, and in the USA in 1804. In Türkiye, forensic medicine lessons started to be given by Dr Bernard in 1839. The first autopsy was

performed by Dr Bernard in 1841. Following the University Reforms in 1933, the Department of Forensic Medicine was established in many medical faculties, with an initial rapid increase in numbers, and started to be staffed by faculty members [4].

When examining cases in a hospital, physicians should consider the possibility that they might be dealing with a forensic case. If a physician encounters a forensic event or suspects that a patient could be involved in a forensic case, they must examine the case and report it to the judicial authorities. According to the Turkish Penal Code, healthcare professionals who fail to inform the judicial authorities can be prosecuted. Expertise is one of the basic duties and responsibilities of a physician, just as it is in preventive, diagnostic, and curative medical services. This responsibility includes examining cases, writing reports, informing judicial authorities, and preparing opinion reports on questioned points [1,5].

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Expertise has an important place in the Turkish judicial system. At least 80% of court cases are decided on an expert report. According to Turkish legal terminology, when the solution for an issue requires expertise and specialised or technical knowledge, an actual person or special legal entity presenting to give a verbal or written vote and opinion is defined as an “expert” [6-7].

As a general rule, there is no legal obligation for the court to apply for an expert opinion, but there are some exceptions to this rule related to medical expertise [8]. As medical applications require experience with very detailed and especially technical knowledge, the correct decisions in malpractice court claims will be given with expert reports about medical malpractice [9].

The number of forensic medicine specialists in Türkiye has not yet reached the desired level. Due to the overall distribution of these specialists across the country, all physicians may be assigned the role of forensic experts in health-related matters [10-14]. Consequently, in Türkiye, forensic expertise in the medical field is often undertaken by physicians who are not forensic medicine specialists. Given the critical importance of forensic medicine education before graduation, education and training programs should be developed with the country’s specific needs in mind. Therefore, it is essential to recognize the unique significance of pre-graduation forensic medicine education in Türkiye [14].

The aim of this study was to determine the competency of students who have taken and those who have not taken a forensic medicine internship in the subjects of forensic medicine and expertise, which are relevant to all physicians throughout their professional lives.

Materials and Methods

Ethical approval for our study was obtained from the İnönü University Faculty of Medicine, Health Sciences Non-Interventional Clinical Research Ethics Committee, under approval number 2019/271 dated July 02, 2019. A 24-item questionnaire was administered to students to evaluate the level of knowledge of forensic medicine and expertise. Some of the items in the questionnaire could be answered with more than one response and others with only one. The first 5 questions were related to sociodemographic information of the students and their opinions of professional life. The following 5 questions were designed to measure forensic medicine knowledge, and the remaining questions to measure the knowledge of the students about legal responsibilities and expertise. The final item was left as an open question to evaluate the recommendations and expectations of the students about the duration, timing, and content of forensic medicine internship.

Care was taken to provide an appropriate environment during the study. The students were reminded that there was no time limitation for answering the questions on the form. Participation in the study was on a voluntary basis, and all the participating students provided verbal and written informed consent. While completing the questionnaire, care was taken to observe the rules of maintaining silence, not making any comments, and not discussing and giving any group opinions. The questionnaire admin-

istered had proven validity and reliability, and had been used in other studies [13].

Statistical analysis

Data obtained in the study were analyzed statistically using IBM SPSS vn. 24 software (SPSS Inc, IBM Inc, Somers, NY, USA). To calculate the required sample size for our study, we used an effect size of 0.22, a significance level of 0.05, and a power of 80%. This resulted in a minimum requirement of 158 participants to ensure adequate power for detecting significant differences. Continuous variables were stated as mean±standard deviation values, and categorical data as number and percentage. Questionnaire responses were analyzed using cross-tables for variables, and the relationships between these variables were examined with the Chi-square test. To account for multiple comparisons, the Bonferroni correction was applied to the Chi-square tests, and this is indicated in the tables with superscript letters. Categories with the same letter do not differ significantly at the 0.05 level. The Pearson and Fisher tests were used as required. A value of $p<0.05$ was accepted as statistically significant.

Results

The study included a total of 199 medical faculty students, comprising 86 males and 113 females with a mean age of 22 ± 1.71 years (range, 19-34 years). Of the total students, 90 had not taken forensic medicine internship and 109 had taken forensic medicine internship in the context of practice-based theoretical education.

A statistically significant difference was determined between the two groups in response to the questions (Table 1), “Do you think that delivering forensic medicine services is one of the basic duties of a physician?” ($p<0.001$), “Does the Department of Forensic Medicine come to mind when forensic medicine services are mentioned?” ($p<0.001$), and “How sufficient do you think your knowledge is of forensic medicine responsibility?” ($p<0.001$).

A statistically significant difference was determined between the two groups in the response to the question, “What are forensic medicine services?” in respect of preparing a forensic report, autopsy, examinations of written documents and signatures, determination of degree of disability, wound examination, and sexual assault examination ($p<0.05$). No statistically significant difference was determined between the two groups in respect of the responses of age determination, mental health evaluation of a victim or witness, and evaluation of medical errors ($p>0.05$). A statistically significant difference was determined between the two groups in respect of the responses given to the question (Table 2), “How knowledgeable do you think you are about the responsibilities of physicians to the judicial authorities?” ($p<0.001$).

A statistically significant difference was determined between the two groups in respect of the responses given to the questions, “When a physician encounters a sign that a crime has been committed during the course of duty, does he have to report this to the relevant authorities?” ($p<0.001$), and “Can a general practitioner legally be given the duty of performing an examination or autopsy in cases

Table 1. Responses of the students to question 10: “What do you think your level of knowledge is about forensic medicine responsibility?”

	Students with no forensic medicine internship	Students with forensic medicine internship	Total	p
	n (%)	n (%)	n (%)	
I am very knowledgeable	2 ^a (2.2)	5 ^a (4.6)	7 (3.5)	<0.001*
I think I am knowledgeable	8 ^a (8.9)	31 ^b (28.4)	39 (19.6)	
I have some knowledge	41 ^a (45.6)	70 ^b (64.2)	111 (55.8)	
I have no knowledge	39 ^a (43.3)	3 ^b (2.8)	42 (21.1)	
Total	90 (100)	109 (100)	199 (100)	

* Pearson Chi-Square test. The values in the table are calculated using column percentages. A Bonferroni correction has been applied for comparisons between columns. Categories with the same superscript letter do not differ significantly at the 0.05 level.

Table 2. Responses of the students to question 13: “How knowledgeable do you think you are about the responsibilities of physicians to the judicial authorities?”

	Students with no forensic medicine internship	Students with forensic medicine internship	Total	p
	n (%)	n (%)	n (%)	
I am very knowledgeable	0 ^a (0.0)	6 ^b (5.5)	6 (3.0)	<0.001*
I think I am knowledgeable	7 ^a (7.8)	31 ^b (31.2)	41 (20.6)	
I have some knowledge	42 ^a (46.7)	66 ^a (60.6)	408 (54.3)	
I have no knowledge	41 ^a (45.6)	3 ^b (2.8)	44 (22.1)	
Total	90 (100)	109 (100)	199 (100)	

* Pearson Chi-Square test. The values in the table are calculated using column percentages. A Bonferroni correction has been applied for comparisons between columns. Categories with the same superscript letter do not differ significantly at the 0.05 level.

Table 3. Responses of the students to question 21: “Can the judicial authorities (courts, public prosecutor, etc) ask for an opinion about a medical subject from you as a general practitioner?”

	Students with no forensic medicine internship	Students with forensic medicine internship	Total	p
	n (%)	n (%)	n (%)	
No. Only a forensic medicine specialist can be asked for an opinion	16 ^a (17.8)	11 ^a (10.1)	27 (13.6)	<0.001*
Only specialist physicians can give an opinion	15 ^a (16.7)	7 ^b (6.4)	22 (11.1)	
An opinion can be taken from a general practitioner	26 ^a (28.9)	87 ^b (79.8)	113 (56.8)	
I don't know	33 ^a (36.7)	4 ^b (3.7)	37 (18.6)	
Total	90 (100)	109 (100)	199 (100)	

* Pearson Chi-Square test. The values in the table are calculated using column percentages. A Bonferroni correction has been applied for comparisons between columns. Categories with the same superscript letter do not differ significantly at the 0.05 level.

of forensic death?” ($p < 0.001$), and “If you are asked by official authorities (courts, public prosecutor, etc) to give an opinion on a medical subject, do you think you are obliged to do so?” ($p < 0.001$), and “Can the judicial authorities (courts, public prosecutor, etc) ask for an opinion about a medical subject from you as a general practitioner?” ($p < 0.001$) (The response “I have no knowledge” was given by 27.8% of students with no forensic medicine internship and 4.6% of students with a forensic medicine internship) (Table 3).

No statistically significant difference was determined between the two groups in respect of the responses given to the question, “Do you think the medical profession has more legal responsibility than other professional groups?” ($p > 0.05$) (Students with no forensic medicine internship: 83%, students with forensic medicine internship: 90%).

Discussion

This questionnaire study was conducted with a total of 199 medical faculty students, comprising 86 males and 113 females with a mean age of 22 ± 1.71 years (range, 19-34 years). Of the total students, 90 had not taken forensic medicine internship and 109 had taken forensic medicine internship in the context of practice-based theoretical education. These data of the students were seen to be consistent with those of other medical faculties in Türkiye [13].

There was found to be a statistically significant difference between the two groups in the responses given to the questions of whether or not the students had a sufficient level of knowledge of forensic medicine services being a primary duty or not of the medical profession and the responsibility associated with this ($p < 0.001$). Previous studies have reported that those who have not taken a forensic medicine internship and practicing physicians who have not renewed their knowledge felt inadequate on the subjects of forensic

medicine services [4-13]. Forensic medicine services are primary duties of the medical profession just like diagnostic, treatment and preventative healthcare services. However, insufficient importance is given to these subjects during the student years and subsequently, and physicians do not feel the need to refresh their knowledge on these subjects. In respect of the questions asked about reports written in the context of forensic medicine services, although there was a statistically significant difference between the groups in terms of reports about written document and signature examinations, determination of the degree of disability, wound examination, and sexual assault examination ($p < 0.05$), no difference was found between the groups in respect of the reports for age determination, mental health evaluation of a victim or witness, and evaluation of medical errors ($p > 0.05$). Sometimes there is great interest in the media about forensic cases, and it has been seen that students who have not taken forensic medicine internship have more knowledge about subjects that occupy a greater place in the media related to forensic medicine services [13-15].

In the responses to the questions asked about the obligations when a forensic case is encountered during the normal course of professional life and whether one can be called for duty related to autopsy, there was found to be a statistically significant difference between the two groups ($p < 0.05$). The steps that must be taken when healthcare workers encounter a criminal component and by whom the autopsy procedures can be taken are clearly stated in the Turkish Penal Code, and in Item 4 it states that “not knowing the law is no excuse” [5].

In previous studies it has been seen that as autopsy procedures are thought to require more specific specialisation, specialist physicians are predominant when an opinion is required. However, because of the lack of forensic medicine specialists and the need to collate information before evidence is lost, it is sometimes necessary to perform the autopsy procedures quickly. For all these reasons, these items are included in Turkish law. It has been shown in previous studies that those who have not taken a forensic medicine internship and practicing physicians who have not renewed their knowledge felt inadequate on the subjects of forensic medicine services [12-14,16,17]. In this context, the importance can be seen of the lessons during forensic medicine internship in which legal regulations are explained. It also reveals how important postgraduate forensic medicine lessons are.

In the questions related to expertise, there was seen to be a significant difference between the two groups in the responses to the question of compliance to being called upon for an opinion ($p < 0.05$), while there was no significant difference between the groups in respect of the obligation to give an opinion ($p > 0.05$). Previous studies have shown that although students and practitioners had very good knowledge about some subjects, there were significant deficiencies in other subjects [3,18,19]. The subjects in the lessons given about expertise within the forensic medicine internship will be encountered by physicians throughout their professional life. There is a need for refresher courses to be given to practising physicians when necessary.

The questionnaire responses showed that both groups of

students thought that the medical profession had more legal responsibility than other professional groups ($p > 0.05$). It was also thought that as the subject of malpractice is widely reported in the media and court cases against physicians are discussed more, this suggests that the medical profession has greater legal responsibility. No correlation was determined between the responses to this question and the responses given to other questions related to the legal responsibility of the medical profession [20]. This shows once again the importance of the lessons about legal responsibility given in forensic medicine education, because the media does not always reflect reality and what should be known.

Conclusion

Forensic medicine services are primary duties and responsibilities of the medical profession just like diagnostic, treatment, and preventative healthcare services. From the results of this study and a scan of the relevant literature it can be seen that medical faculty students who have not taken forensic medicine internship and practising physicians who have not refreshed their knowledge felt inadequate on this subject and needed education. Therefore, practice-based theoretical forensic medicine education should be an integral part of the medical faculty core syllabus.

Ethical approval

Ethical approval for our study was obtained from the İnönü University Faculty of Medicine, Health Sciences Non-Interventional Clinical Research Ethics Committee, under approval number 2019/271 dated July 02, 2019.

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