








# Emergency Medicine Physicians' Knowledge Level and Attitudes About Informed Consent in Invasive Procedures

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## ABSTRACT

**Objective:** Informed consent is an ethical concept defined in law, which is applied in all health-care institutions. Informed consent is also one of the reasons for the medical intervention to be legally appropriate. The aim of this study is to evaluate the attitudes and experiences of emergency medicine physicians about informed consent in invasive procedures and their level of knowledge about informed consent in our country.

**Materials and Methods:** This study is a cross-sectional descriptive survey study and was conducted on emergency medicine residents and specialists actively working in emergency services. A total of 429 emergency medicine physicians participated in our study. Statistical analysis was performed using the Statistical Package for the Social Sciences (SPSS) 25.0 (SPSS, version 25) program for the data obtained in the study.  $P < 0.05$  was considered significant.

**Results:** A total of 244 (56.9%) emergency assistants and 185 (43.1%) emergency specialists participated in the study. 60.8% of the emergency medicine physicians participating in the study were male and 39.22% were female. The number of physicians who obtained informed consent for invasive procedures is not sufficient. The number of physicians who knew that informed consent should be obtained in invasive procedures was not sufficient. The general knowledge level of physicians about informed consent was not sufficient.

**Conclusion:** The rate of emergency medicine physicians who know the necessity of obtaining informed consent in invasive procedures is higher than the rate of physicians who obtained informed consent. Although some emergency medicine physicians know that informed consent is required for invasive procedures, they do not receive informed consent.

**Keywords:** Emergency medicine, Informed consent, Invasive procedure

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## INTRODUCTION

Informed consent is an ethical concept defined in law, which is applied in all health-care institutions, and the basic criteria for informed consent are that the patient is capable of providing consent, has been sufficiently informed about the benefits and risks of the procedure to be performed and is not being forced to undergo medical intervention.<sup>[1]</sup> Legislation and practices regarding informed consent may show significant differences depending on the health system, legal structure, and cultural values of each country. Although written informed consent is not mandatory for minor surgical procedures in the laws of the Republic of Türkiye, it is recommended by health law professionals in respect of facilitating decision-making for the patient and providing proof for the physician in any potential case of medical malpractice.<sup>[2]</sup>

Informed consent is also one of the reasons for the medical intervention to be legally appropriate. An invasive intervention is illegal if made without obtaining informed consent. Other than emergency interventions such as cardiopulmonary resuscitation in the emergency department (ED), obtaining informed consent for invasive interventions is one of the pre-conditions for the medical procedure to be ethical and legal.<sup>[3]</sup>

Approximately 230 million invasive procedures per year are performed worldwide.<sup>[4]</sup> One of the most important obstacles in the process of obtaining appropriate informed consent is the limited time and number of patients in the ED.<sup>[5]</sup> When the indications and range of invasive procedures currently applied in EDs are taken into consideration, it is important to evaluate the level of knowledge about informed consent with the attitudes and experience of ED physicians.<sup>[6]</sup>

The aim of this study was to evaluate the level of knowledge about informed consent with the experience and attitudes toward informed consent for invasive procedures of emergency medicine physicians.

## MATERIALS AND METHODS

### Research Type and Planning

This study was designed as a prospective, cross-sectional, descriptive questionnaire-based study to measure the attitudes and level of knowledge of emergency medicine physicians about informed consent for invasive interventions. Approval for the study was granted by the Local Ethics Committee (decision no: 2022–275).

The study was conducted between October 15, 2022, and December 15, 2022. All the study participants were informed about the research, and consent of the physicians for voluntary participation in the study was obtained either through Google Forms or face-to-face. The study questionnaire was designed to be able to be completed in 5 min. The subjects

included in the study were emergency medicine specialists or emergency medicine residents who were actively working in EDs in Türkiye and provided consent for participation in the research.

### Sample Determination and Sample Content

In September 2022, a total of 4485 emergency medicine specialists and residents were working in Türkiye, and this was accepted as the study universe. The sample number representing this universe was calculated as 354 subjects with a 95% confidence interval  $\pm 5\%$  error margin.

### Questionnaire Items

The first section of the questionnaire included demographic data such as age, gender, time working in the profession, duration of working in ED, professional title, type of institution where working, number of patients presenting at ED in 1 day, number of interventional procedures performed in the ED where working in 1 day, and whether or not training had been received about health law. In the second section, it was questioned whether informed consent was obtained before performing invasive procedures. The third section of the questionnaire measured the level of knowledge about the need to obtain informed consent before the application of invasive procedures. The fourth section included questions about informed consent in various conditions that would be encountered by the physicians. A 5-point Likert-type scale was used when responding to the questions. The 5-point Likert scale used was defined as “1 (Completely disagree), 2 (Partially disagree), 3 (Neutral), 4 (Partially Agree), 5 (Completely agree).” The answers to the question “Is there anything you would like to add about informed consent in invasive procedures performed in the emergency department?” were evaluated and coded independently by three different people. Then, the main themes and sub-themes were determined with the consensus of these three people. The questionnaire was prepared based on previous literature and national and international laws such as human rights, biomedical agreements, and the management of patient rights. The reliability of the scale was tested with Cronbach’s alpha coefficient, and the alpha value was found to be 0.88. This value shows that the scale is highly reliable.

### Statistical Analysis

Data obtained in the study were analyzed statistically using IBM Statistical Package for the Social Sciences version 25.0 software (IBM Corp., Armonk, NY, USA). Descriptive statistics were stated as number (n) and percentage (%) for categorical variables and as median (Q1-Q3) values for continuous variables. The conformity of numerical variables to normal distribution was examined with the Kolmogorov-Smirnov test. To visualize the data, Tableau version 2022.2 software (Tableau Software, Seattle, WA, USA) was used.

RESULTS

For the study, a questionnaire was administered to 446 emergency physicians, and the responses of 429 (96.19%) physicians who completed the questionnaire completely were included in the evaluation. 17 (3.81%) physicians were not included in the data analysis because their responses were incomplete. The 429 participating physicians comprised 261 (60.8%) males and 168 (39.2%) females, of which 244 (56.9%) were ED residents and 185 (43.1%) were ED specialists. The place of work was reported to be a tertiary-level training and research hospital by 312 (72.7%) physicians, a university hospital by 48 (11.2%), and a second-level hospital by 69 (16.1%). Health law training had been received by 144 (33.6%) physicians at congresses or symposia, and 285 (66.4%) stated that they had not received any training on health law (Table 1).

Table 1. Demographic data of physicians participating in the study

	Count (n)	Percentage
Gender		
Male	261	60.8
Female	168	39.2
Title		
ED resident	244	56.9
ED specialist	185	43.1
Institution		
Tertiary-level	312	72.7
University	48	11.2
Second-level	69	16.1
Health law training		
Yes	144	33.6
No	285	66.4

Descriptive statistics are given as n (%). ED: Emergency department.

The median age of the study participants was 31 years (Q1-Q3: 28–35 years), the median duration in the profession was 6 years (Q1-Q3: 3–10 years), and the median duration of working as an ED physician was 5 years (Q1-Q3: 3–8 years). The number of patients presenting at ED per day was reported to be a median 1,000 (Q1-Q3: 650–1800), and the median number of procedures performed in ED was 300 (Q1-Q3: 100–750) (Table 2).

When the ED physicians were questioned about their attitude to obtaining informed consent before performing selected procedures, 235 (54.8%) physicians stated that they completely agreed with the recommendation to obtain consent before a lumbar puncture. The response of complete agreement was given by 157 (36.6%) physicians for tube thoracostomy and by 143 (33.3%) for the placement of small diameter pleural drainage catheter and thoracentesis. For the invasive procedures that are performed more often in ED, such as nasogastric tube placement, 40 (9.3%) physicians responded that they completely agreed with the recommendation to obtain informed consent (Fig. 1).

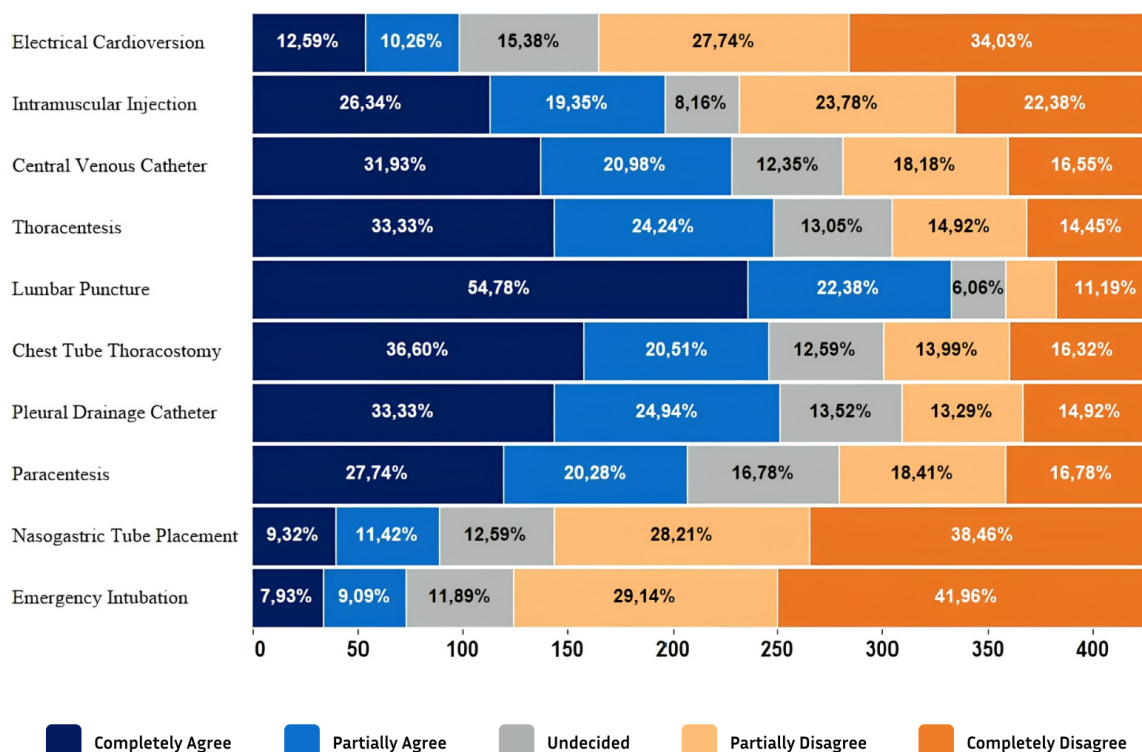
The ED physicians were questioned about the need for informed consent in selected procedures. The response of complete agreement with the need for informed consent was given by 261 (60.8%) of the ED physicians for lumbar puncture, 227 (52.9%) for thoracentesis, 219 (51%) for central venous catheter placement, and frequently performed procedures of nasogastric tube placement and intramuscular injection, by 147 (34.3%) and 179 (41.7%), respectively. The rate of physicians who knew that it was necessary to obtain informed consent was higher in all procedures than the rate of physicians who obtained informed consent (Fig. 2).

In the questions related to informed consent in ED, which were asked in the fourth section of the questionnaire, 216 (50.3%) of the study participants stated that the greatest obstacle to obtaining informed consent was the high number of patients and workload. To the statement that informed consent is a right of the physician and a responsibility of the patient, 150 (35%) participants replied that they were

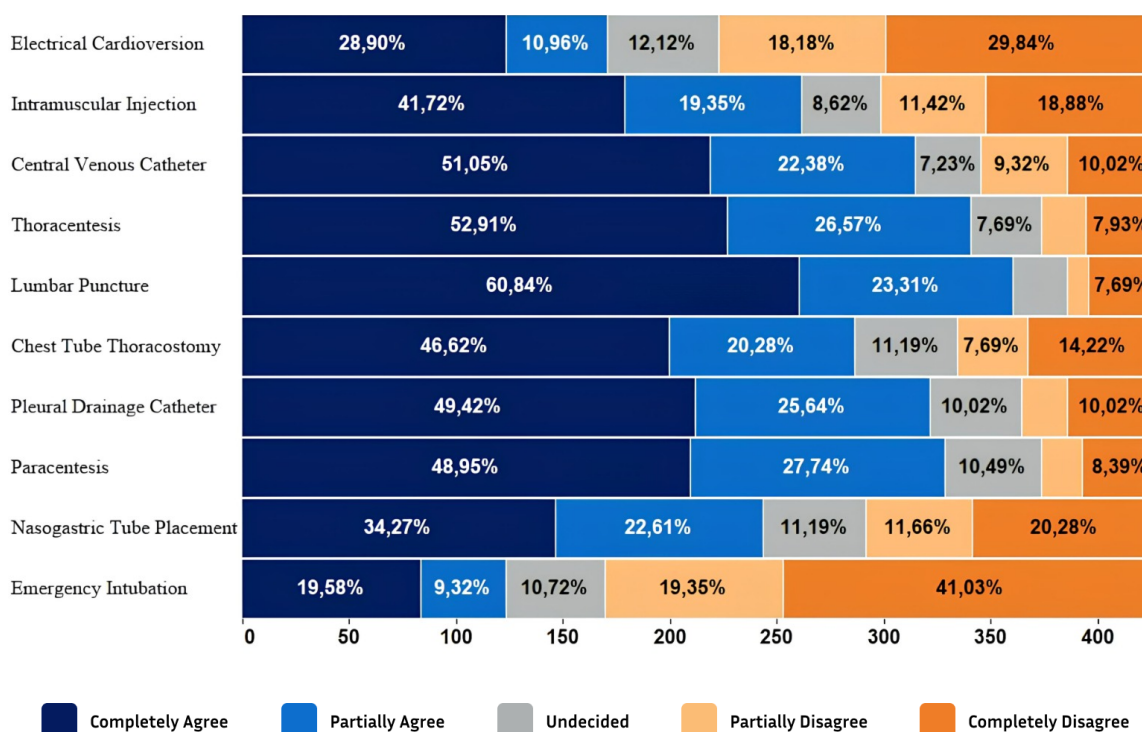
Table 2. Descriptive statistics

	n	Median	Q1	Q3
Age	429	31	28	35
Duration in the profession	429	6	3	10
Duration of working as an ED physician	429	5	3	8
The number of patients presenting at ED in 1 day	429	1000	650	1800
The number of procedures performed in ED in 1 day	429	300	100	750

Descriptive statistics are given as n (%) or median (Q1-Q3). ED: Emergency department.



**Figure 1.** Physicians' attitudes about obtaining informed consent in the emergency department.

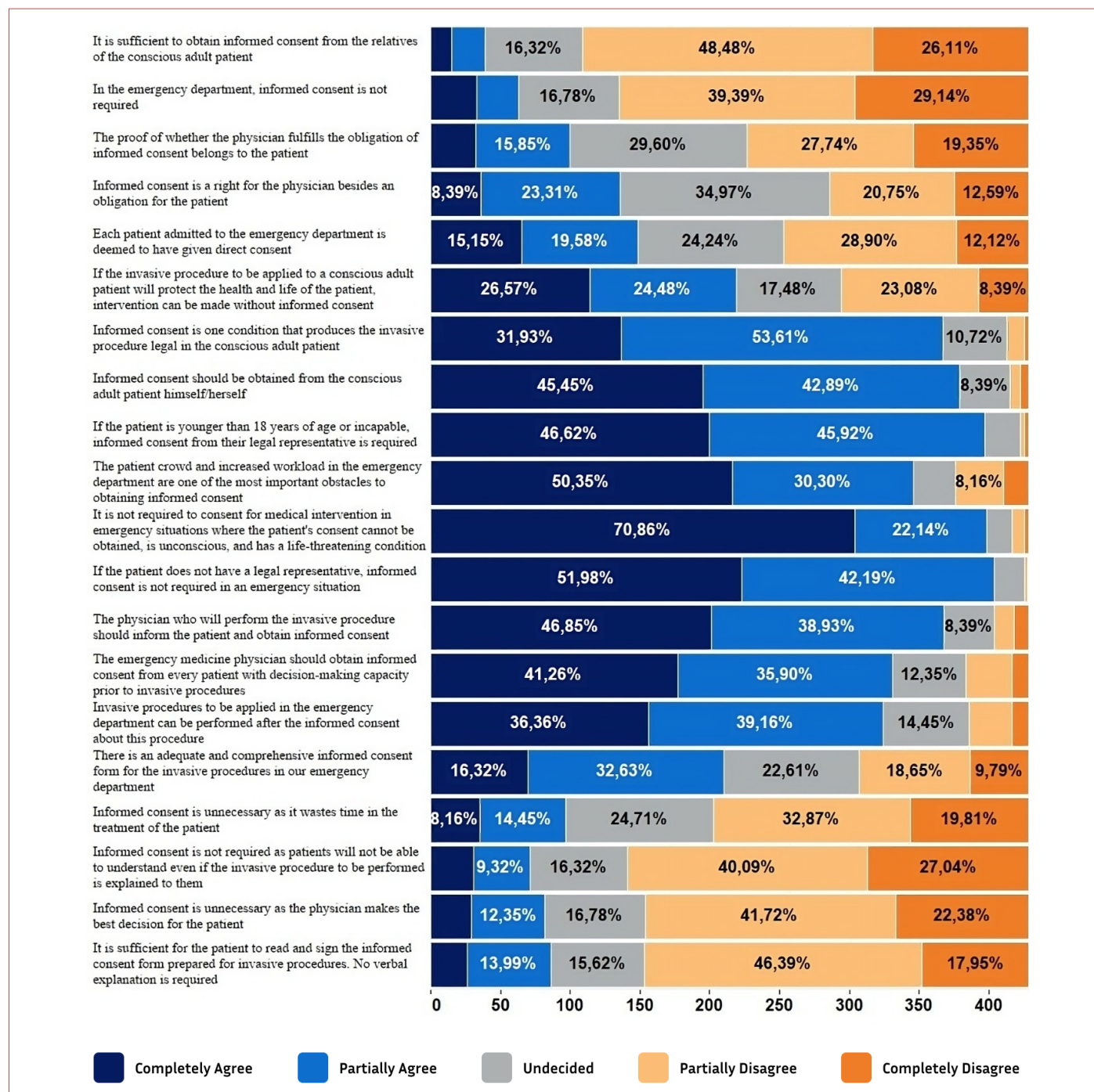


**Figure 2.** Physicians knowledge levels regarding the necessity of obtaining informed consent in the emergency department.



undecided. A total of 304 (70.9%) physicians completely agreed that medical intervention was not dependent on the patient's request in emergency conditions when consent could not be obtained from the patient, when the situation was life-threatening, or when the patient was unconscious (Fig. 3).

In the answers given to the question, "Is there anything you would like to add about informed consent in invasive procedures performed in the emergency department," the participants stated that it was difficult to implement informed consent in the ED. They do not have enough information about informed consent and they thought that consent was unnecessary (Table 3).



**Figure 3.** Physicians' knowledge levels regarding informed consent.

Table 3. The themes and examples of the responses to the question “Is there anything you would like to add about informed consent in invasive procedures performed in the emergency department?”			
Main theme	Subtheme	Responder	Sample answer
The idea that it is unnecessary		A 32-year-old female emergency medicine assistant physician for 6 years. She works at a research and training hospital	I think it is an unnecessary practice
		A 34-year-old male emergency medicine assistant physician for 9 years. He works at a research and training hospital	It is an unnecessary practice. If patients apply to the emergency department, they feel that they are emergency patients. In emergencies, patient consent is not required
		A 38-year-old female emergency medicine specialist physician for 8 years she works at a research and training hospital	It is an unnecessary workload. Because I do not think that some of the people who sign informed consent forms are aware of what they are signing
Implementation challenge	Patient-related barriers (Language barrier, Cognitive impairment)	A 30-year-old male. Emergency medicine assistant. Physician for 5 years. He works at a research and training hospital	The patient needs to be informed, but because each patient has a different capacity to understand, we can never know whether the person fully understands the procedure and its necessity. I think that informed consent is not necessary, as not performing the procedure may also involve life-threatening risks for the patient
		A 28-year-old female. Emergency medicine assistant. Physician for 1 year. She works at a research and training hospital	There should be an easier method for illiterate people or a fingerprint signature should be enough. For those who do not speak Turkish, the hospital should be able to obtain informed consent in foreign languages
		A 31-year-old male. Emergency medicine assistant. Physician for 5 years. He works at a research and training hospital	Filling out informed consent forms increases the workload in emergency departments due to overcrowding
Lack of education	Intensity	A 38-year-old male. Emergency medicine specialist. Physician for 12 years. He works in a secondary private hospital.	Informed consent is obtained because I work in a private hospital, but I did not obtain consent from many patients when I worked in a public hospital
	Reasons arising from the organization and working environment	A 32-year-old male. Emergency Medicine Assistant. Physician for 8 years. He works at a research and training hospital.	I feel inadequate in terms of knowledge about informed consent
		A 41-year-old female. Emergency medicine specialist. Physician for 13 years. She works at a university hospital.	Due to overcrowding in the emergency department or lack of education/knowledge of physicians, the habit of obtaining informed consent in emergency department physicians is less than it should be. Training programs should definitely include topics such as giving bad news and information to the patient and his/her relatives, and physicians should be trained on forensic duties and forensic cases
		A 44-year-old male. Emergency Medicine specialist. Physician for 20 years. He works at a university hospital.	I think there should be more frequent training on informed consent in emergency departments and detailed informed consent forms should be available.

## DISCUSSION

The aim of this study was to evaluate the attitudes of emergency medicine physicians toward obtaining informed consent for invasive interventions and to question the levels of knowledge. Although obtaining informed consent for minor surgical procedures such as intramuscular injection is not mandatory in Turkish law, physicians should obtain written informed consent in respect of proof for a potential legal case.<sup>[7]</sup> In a study of physicians in a university hospital, Turla et al.<sup>[8]</sup> reported that a very low rate of physicians obtained consent for intramuscular injection or vaccination. In the current study, despite a higher rate of physicians who knew of the need for informed consent, the number of physicians obtaining consent was at a lower rate. The reason for this could be the high number of patients treated by physicians in ED and that they could not make the time for informed consent.

The results of the current study showed that the rate of physicians obtaining informed consent for lumbar puncture was higher than the rate of physicians obtaining consent for other procedures. In a study by Patel et al.,<sup>[9]</sup> the number of physicians who obtained consent for lumbar puncture in pediatric and adult patients was found to be similar to the rate in the current study. Gaeta et al.<sup>[10]</sup> reported that physicians knew of the need to obtain informed consent for lumbar puncture, and the tendency to obtain consent was seen to be at a parallel rate. In the current study, the physicians reported the need to obtain informed consent for lumbar puncture at a similar rate, but despite knowing the need to similarly obtain informed consent for other procedures, the tendency to obtain consent was seen to be at a lower rate.

In a study related to the use of written informed consent in the pediatric ED, Edwards et al.<sup>[11]</sup> found that written informed consent was obtained most often for procedural sedation, blood transfusion, and lumbar puncture. None of the physicians in the pediatric ED obtained informed consent for the placement of the urinary catheter, nasogastric tube, or arterial blood gas sample taking. The current study results showed that while informed consent was obtained most often for lumbar puncture, the rate for nasogastric tube placement was very low. Just as in other procedures, the rate of physicians obtaining informed consent for central catheter placement and tube thoracostomy was much lower than the rate of physicians who knew that informed consent should be obtained. Consistent with the literature, the findings of the current study showed that even when emergency medicine physicians knew of the need to obtain informed consent, the tendency to obtain consent was at a lower rate.<sup>[10]</sup> According to the current study results, the rate of physicians obtaining informed consent for central catheter placement and tube thoracostomy was at a higher level than that of physicians obtaining informed consent in pediatric EDs.<sup>[11]</sup>

Physicians do not have sufficient knowledge of the legal regulations related to informed consent and the outcomes of these, and the rates of applying informed consent in invasive procedures are low.<sup>[8]</sup> It has been previously reported that emergency medicine physicians would benefit from formal education about informed consent.<sup>[10]</sup> The current situation in Türkiye is that there are no lessons related to health law in the syllabus of medical faculties. Physicians obtain this information from training sessions at congresses and symposia and from experience in their professional life. Levels of knowledge about informed consent have been found to be low not only in emergency medicine but also in other branches.

In a study of surgical branch physicians, it was stated that importance should be given to education related to informed consent and that senior physicians should observe junior physicians.<sup>[12]</sup> Ashraf et al.<sup>[13]</sup> conducted a study with surgical branch physicians and concluded that young physicians did not have sufficient knowledge of informed consent. In another study of orthopedists, the conclusion was reached that even when there was consensus about the necessity for informed consent in ethical and legal respects, a significant proportion did not manage the consent process in daily practice, which was similar to the findings of the current study.<sup>[14]</sup> In a study by Wood et al.,<sup>[12]</sup> it was concluded that the experience of obtaining informed consent should be included in the medical faculty syllabus, and education should be given on this subject. Gong et al.<sup>[15]</sup> examined informed consent from the patient's perspective and concluded from that study that patients were never informed but that physicians made them sign the informed consent as required by the regulations and that, therefore, greater importance should be given to informed consent by making changes to the Chinese state medical faculty syllabus.

Not obtaining informed consent is an important factor in medical malpractice cases.<sup>[16]</sup> Krause et al.<sup>4</sup> found that informed consent had an important place among the reasons for patients starting medical malpractice cases. According to Turkish law, when a medical intervention is performed without obtaining informed consent or with incomplete information given, the physician is legally responsible and may incur punishment as the medical intervention did not conform to the appropriate legal conditions.

## Limitations

There were some limitations to the study, primarily that the physicians who were interviewed face-to-face stated that the questionnaire was long. The majority of the physicians in the study completed the questionnaire online. The subjective evaluations of the physicians may not have fully reflected the actual practices in daily life. In this study, it was not asked whether the participants had worked abroad or graduated

from a foreign medical school. This situation limits the possibility of evaluating the possible effects of differences in physicians' education and experience on the study results. A further limitation was that the majority of the physicians participating in the study worked in Istanbul, and this may have had a negative effect on the targeted sample.

## CONCLUSION

The results of this study showed that although physicians were required to obtain informed consent for invasive procedures, many physicians did not obtain informed consent. The rate of emergency medicine physicians who knew that it was necessary to obtain informed consent was determined to be higher than the rate of physicians who obtained informed consent. It can be considered that although some emergency medicine physicians know that informed consent should be obtained when performing invasive procedures, they have the attitude of not obtaining informed consent because of the intense workload in the ED.

## DECLARATIONS

**Ethics Committee Approval:** The study was approved by Istanbul Prof. Dr. Cemil Taşçıoğlu City Hospital Ethics Committee (No: 2022-275, Date: 03/10/2022).

**Informed Consent:** Informed consent was obtained from all individual participants included in the study.

**Conflict of Interest:** The authors declare that there is no conflict of interest.

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**Authorship Contributions:** Concept – MEF, AK; Design – MEF, YK, EBK, MS, AD; Supervision – AK, OB, MEF; Fundings – MEF, OB, AK; Materials – MEF, OB, AK; Data collection &/or processing – MEF, YK, EBK, AD, MS; Analysis and/or interpretation – MEF, AD, AK, OB; Literature search – MEF, EBK, AK, OB; Writing – MEF, MS, EBK, YK, AD, OB, AK; Critical review – MEF, MS, EBK, YK, AD, OB, AK.

**Peer-review:** Externally peer-reviewed.

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