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Evaluation of Medical Intern Doctors' Knowledge and Attitudes on Medical Law and Emergency Department Practices

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ABSTRACT

Medical interns frequently encounter legal and ethical challenges in clinical practice, especially in emergency departments. However, structured legal education remains underrepresented in undergraduate medical curricula. Understanding interns' level of medical law knowledge is crucial to improving patient safety and reducing malpractice risks. This study aimed to evaluate sixth-year medical students' knowledge of medical law and attitudes towards emergency department practices and to examine how these outcomes vary by demographic characteristics and career intentions. This cross-sectional, descriptive study was conducted at Ankara Yıldırım Beyazıt University Faculty of Medicine and involved 282 eligible final-year medical students in the 2024–2025 academic year. Data were collected through both online and paper-based surveys. Statistical analyses were performed using Statistical Package for the Social Sciences (SPSS) version 22.0. The Mann-Whitney U test and Kruskal-Wallis H test were used for group comparisons. Results indicated that participants demonstrated high awareness of malpractice and informed consent, but notable gaps remained in their understanding of emergency department regulations. Only 1.4% of respondents considered themselves highly competent in health law. Knowledge and attitude scores were significantly higher among those planning to work in emergency departments ($p < 0.001$ and $p = 0.035$, respectively). Given the single-site and descriptive design of this study, the results should be interpreted with caution. Nevertheless, they underscore the importance of reviewing current educational strategies and highlight the need to systematically evaluate and enhance undergraduate medical curricula in health law, particularly to improve medico-legal preparedness among medical trainees.

Keywords: *Emergency service, Law enforcement, Medical education, Medical ethics, Medical students*

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INTRODUCTION

Medical law is a major pillar of healthcare practice, guiding healthcare providers through ethical and legal dilemmas, particularly in high-pressure environments such as emergency departments (1). Medical interns, who are transitioning from learners to independent practitioners, frequently encounter legally sensitive situations that require a solid understanding of medical law (2,3). Given the acute nature of emergency departments, professionals are regularly exposed to a wide array of medico-legal challenges, including informed consent, medical negligence, patient autonomy, and advance directives (3).

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Inadequate legal training in these areas not only compromises patient safety but also increases the likelihood of malpractice cases, professional liability, and defensive medical practices (1,4). However, many medical students and early-career practitioners feel unprepared to manage legal issues, primarily because of limited exposure to medical law during undergraduate training (4,5). Recent studies have highlighted this gap, noting that despite increasing legal demands on physicians, medical curricula often fail to provide systematic, practical legal training.

Despite the legal complexities associated with emergency medicine, formal education in medical law remains notably absent from many medical curricula (5,6). This educational gap leaves medical interns largely reliant on experiential learning, which may not be sufficient for developing competent legal decision-making skills. Consequently, physicians may experience increased stress, resort to defensive medicine, and be at greater risk of legal errors (2,7). Specific research has highlighted that a lack of legal competency may directly correlate with increased rates of litigation and ethical breaches in clinical practice (7). Integrating structured medical law training into undergraduate programmes could substantially enhance future physicians' confidence and competence when faced with medico-legal dilemmas.

The lack of structured training is particularly alarming, as failing to obtain informed consent or practising negligent practice can result in severe legal repercussions, including litigation, professional sanctions, and damage to reputation (7,8). Proficiency in treatment malpractice concepts, patient rights, physician responsibilities, and emergency care regulations is essential to mitigate these risks (9). However, existing studies so far have either failed to examine specific deficiencies in students' legal knowledge or yielded conflicting findings on the effectiveness of current teaching approaches (10). There remains a need for more institution-based empirical data that clarifies whether medical students are prepared and identifies specific areas of weakness in legal knowledge related to emergency department practice.

This study aims to assess sixth-year medical students' knowledge of medical law and their attitudes towards emergency department practices and to explore how these outcomes vary by demographic characteristics and career intentions. This analysis is intended to provide a descriptive snapshot of interns' medico-legal awareness at a single academic institution. By identifying patterns in specific subgroups, the findings may inform targeted educational interventions and improvements.

MATERIALS AND METHODS

Study Design and Participants

This cross-sectional, descriptive study was conducted at Ankara Yıldırım Beyazıt University Faculty of Medicine. The study population consisted of sixth-year medical students enrolled in the 2024–2025 academic year. A total of 282 eligible students participated in the study. No power analysis was performed since the aim was to include the full cohort of eligible students. Students were excluded if they had previously completed formal education in health law or had limitations preventing participation during data collection. Although the study approached the entire cohort of final-year students, it did not constitute a full census because these exclusion criteria were applied. All eligible students were invited to participate, and no probability-based sampling method was used (11). The collected

demographic data included age, gender, prior health law training status, and intended speciality. Although participation was voluntary and no financial or academic incentives were offered, steps were taken to minimise any perception of coercion. The researchers were not directly involved in the academic evaluation of the participants at the time of the study. Participation was requested via neutral digital platforms and in-class announcements delivered by administrative staff. Students were clearly informed that their decision to participate or decline participation would not affect their academic standing.

All procedures involving human participants in the study were conducted in accordance with the ethical standards of the institutional and national research committees and the Declaration of Helsinki. Written informed consent was obtained from all participants. Confidentiality, rather than full anonymity, was maintained throughout data collection. In online surveys, participants submitted responses using individualised institutional codes that were used solely to prevent duplicate entries. In paper-based surveys, completed forms were returned in sealed envelopes. Access to identifiers was restricted to the primary data analyst and removed immediately after verification. No identifying information was used in data analysis.

Data Collection and Instruments

Data were collected over six weeks using a combination of online and paper surveys to maximise accessibility and participation rates (12). The data collection period was carefully chosen to avoid major academic stressors such as midterms, final exams, official holidays, or internship rotations, which could have influenced response patterns or participation rates. This timing minimises the potential impact of seasonal and academic workload-related biases. Online links were distributed through institutional mailing lists, while printed surveys were distributed in classrooms. Duplicate participation was prevented by monitoring institutional codes.

The survey was a structured questionnaire developed from previous medical law research, with five sections: sociodemographic characteristics, health law education, patient rights awareness, physician rights, and medical malpractice knowledge. The main outcome variable was overall legal knowledge, with secondary outcomes including awareness of rights and their attitudes towards malpractice. Reliability, as measured by Cronbach's Alpha, was 0.952, indicating excellent internal consistency. Content validity was reviewed by three independent experts in medical law and ethics.

STATISTICAL ANALYSIS

The statistical analysis of the study was performed using Statistical Package for the Social Sciences (SPSS) version 22.0. Descriptive statistics for categorical variables were presented as frequencies and percentages. Knowledge and attitude scores, derived from Likert-type scales, were analysed using nonparametric methods due to nonnormal distributions, confirmed by the Shapiro–Wilk test ($p < 0.05$). Median and interquartile range (IQR) were reported to better represent the central tendency and spread. The Mann–Whitney U test was used to compare two independent groups, while the Kruskal–Wallis H test was used to compare more than two groups. These subgroup comparisons (e.g., by gender or speciality intention) were performed to explore potential associations between participant characteristics and legal knowledge or attitudes, in line with the study's extended objective. A significance level of $p < 0.05$ was adopted for all analyses.

Although the dataset did not include the necessary test statistics (e.g., Z values) to calculate post hoc effect sizes, it is acknowledged that appropriate nonparametric effect size measures (e.g., r for the Mann–Whitney test, eta-squared for the Kruskal–Wallis test) were available and could have been employed. Future studies should incorporate these metrics to better evaluate the magnitude and relevance of observed differences beyond *p*-values.

RESULTS

A total of 282 intern doctors were included in the study, with 53.2% (n = 150) male and 46.8% (n = 132) female. The demographic characteristics of the participants are presented in Table 1. The mean age of the participants was 24.07 ± 0.32 years. Regarding postgraduate education plans, 2.5% (n = 7) of the participants intended to specialise in basic medical sciences, 53.9% (n = 152) in internal medical sciences, and 43.6% (n = 123) in surgical medical sciences. None of the participants had taken a health law course during their education. It was determined that 21.3% (n = 60) of the participants planned to work in the emergency department during their compulsory service after graduation. Only 1.4% (n = 4) of the participants reported feeling very competent regarding health law.

Table 1: Demographic and educational characteristics of the participants (n = 282)

Characteristics	%	n
Gender		
Male	53.2	150
Female	46.8	132
Age		
Mean ± SD	24.07 ± 0.32	
Post-graduate education plan		
Basic medical sciences	2.5	7
Internal medical sciences	53.9	152
Surgical medical sciences	43.6	123
Pre-graduation health law course		
Yes/No	0/100	0/282
Working plan in the emergency department post-graduation		
Yes/No	21.3/78.7	60/222
Adequacy of knowledge and skills in health law		
Strongly inadequate	8.5	24
Inadequate	33.7	95
Neutral	44.0	124
Adequate	12.4	35
Strongly adequate	1.4	4

The correct response rates for knowledge questions on medical law and emergency department regulations are presented in Table 2. When participants' responses to the knowledge scale were evaluated, the highest correct response rate was observed for the question "What is malpractice and in which situations does it occur?", while the lowest correct response rate was found for the question "Which regulation is the main source for the organisation and execution of in-hospital emergency services?" These findings highlight specific strengths and weaknesses in participants' legal knowledge relevant to emergency medicine.

Table 2: Participants' responses to the knowledge scale (n = 282)

Knowledge scale questions	Incorrect n (%)	Correct n (%)
Why is informed consent important and necessary?	50 (17.7)	232 (82.3)
Which of the physician's legal obligations is incorrect?	65 (23.0)	217 (77.0)
What is malpractice and in which situations does it occur?	16 (5.7)	266 (94.3)
Which regulation is the main source for the organisation and execution of in-hospital emergency services?	219 (77.7)	63 (22.3)
What should be the maximum length of stay for patients in the emergency department, and what steps should be taken if this period is exceeded?	137 (48.6)	145 (51.4)
How should overcrowding and patient load be managed in the emergency department?	36 (12.8)	246 (87.2)

Table 3 presents participants' attitudes towards medical malpractice, patient safety, and physician rights, which are shown in Table 3. Evaluation of participants' responses to attitude questions revealed that the statement "Patient safety and confidentiality in the emergency department, along with providing information, increase the quality of healthcare services" received the highest level of strong agreement. Conversely, the statement "Knowing the difference between malpractice and complications prevents legal problems in medical practices" had the lowest level of strong agreement. This indicates varied levels of awareness and different attitudes regarding medico-legal issues among interns.

Table 3: Participants' responses to the attitude statements

Attitude statements	n (%)				
	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Knowing the difference between malpractice and complications prevents legal problems in medical practices.	4 (1.4)	5 (1.8)	18 (6.4)	116 (41.1)	139 (49.3)
Physicians working in emergency departments should regularly receive health law education.	2 (0.7)	3 (1.1)	14 (5.0)	108 (38.3)	155 (55.0)
Patient safety, confidentiality, and information provision improve the quality of services in emergency departments.	1 (0.4)	3 (1.1)	10 (3.5)	97 (34.4)	171 (60.6)

Comparison of knowledge and attitude scores based on gender, postgraduate career plans, and intention to work in the emergency department is detailed in Table 4. When participants' knowledge levels and attitudes were compared by gender and career planning, no statistically significant differences were found between gender and knowledge or attitude scores, nor between postgraduate career plans and knowledge or attitude scores. However, knowledge and attitude scores were significantly higher among those who planned to work in emergency departments ($p < 0.001$ and $p = 0.035$, respectively). This suggests that career goals might influence medico-legal awareness; however, unmeasured variables such as prior exposure to emergency medicine exposure, work experience, or personal interest could confound these findings. These potential confounders should be considered

when interpreting the results. Moreover, since only *p*-values are reported, the practical significance of these differences remains unclear. Future research should incorporate effect size metrics to better contextualise the magnitude of observed differences.

Table 4: Knowledge and attitude scores by gender, education and working plans

Characteristics	Knowledge score	Attitude score
Gender		
Male	4 (3–5)	14 (12–15)
Female	4 (3–5)	14 (12–15)
*p**	0.725	0.781
Post-graduate education plan		
Basic medical sciences	4 (4–5)	13 (12–14)
Internal medical sciences	4 (3.5–5)	14 (12–15)
Surgical medical sciences	4 (3–5)	13 (12–15)
*p***	0.772	0.719
Working plan in the emergency department post-graduation		
No	4 (3–5)	14 (12–15)
Yes	5 (5–6)	14 (13–15)
*p**	< 0.001	0.035

Notes: *Mann-Whitney U test, **Kruskal-Wallis H test

DISCUSSION

This study revealed significant deficiencies in medical interns' knowledge of medical law and their preparedness for emergency department practices. Despite demonstrating a high level of understanding of malpractice and informed consent, participants showed significant gaps in their knowledge of the regulatory framework governing emergency services. These findings are consistent with previous studies indicating that undergraduate medical education often neglects legal training (13).

The complete absence of formal health law education among participants underscores a systemic gap in medical curricula. Consistent with findings by Pelaccia et al. and Padmakumar et al. (14,15), the lack of structured legal education compromises interns' ability to navigate ethical dilemmas, advocate for patient rights, and maintain proper documentation. These deficits potentially increase physicians' vulnerability to malpractice claims and diminish patient trust.

One of the most striking findings was that none of the participants had received formal health law education during their medical training. Only a minority (1.4%) of interns felt highly competent in health law, underscoring the urgent need for comprehensive medical law education during medical training. Structured legal education initiatives, including interdisciplinary teaching and simulation-based approaches, have been shown to enhance clinical decision-making and reduce legal risks (16,17).

Another critical observation was that a considerable proportion of respondents were unwilling to pursue a career in emergency medicine after graduation. This finding corroborates previous studies showing that emergency medicine is often perceived as highly stressful and legally challenging, thereby reducing medical graduates' interest in entering the speciality (18). Importantly, the interns' reluctance may be interpreted as a modest yet

telling reflection of the cumulative burdens encountered in the emergency department environment, including persistent overcrowding, heightened risk of professional burnout, and increased exposure to medico-legal challenges. Collectively, these stressors may deter newly qualified physicians from committing to emergency medicine, thereby exacerbating workforce shortages in a speciality already under significant systemic pressure. Notably, the higher knowledge scores observed among interns planning emergency department careers may be influenced by confounding factors such as prior exposure to emergency medicine or personal interest, which were not specifically controlled for in this study. These limitations should be considered when interpreting the association between career intentions and legal knowledge. Future research should address these variables to clarify their impact.

The overall findings of this study have revealed an urgent concern regarding the lack of adequate structured legal education for medical interns. Medical law is a field that must be taught in basic and higher medical education because future doctors must be well educated to handle basic medico-legal problems. In the current education system, there is considerable support for interprofessional education, in which legal experts teach medicine and medical teachers provide practical training in consent, malpractice, and patient advocacy (16). Additionally, it has been found that teaching the legal aspects of medicine through simulations is successful. Strevens et al. (17) contend that trainees learn to cope with the legal aspects of medicine more effectively through medical simulations than through lectures. The incorporation of those methodologies into medical training could certainly reduce the knowledge gap mentioned in this study.

Knowledge of informed consent and malpractice emerged as significant predictors, consistent with prior findings emphasising the pivotal role of malpractice education in fostering legal competency (19,20).

While this study highlights the need for structured legal education, it did not evaluate specific curricular interventions. Therefore, the results do not support prescriptive recommendations but rather point to a need for future research exploring the efficacy of various pedagogical strategies—such as mandatory coursework or simulation modules—for improving legal preparedness.

Overall, these findings underscore the importance of integrating structured medical law education into undergraduate medical curricula. Strengthening legal literacy during medical school may better prepare future physicians to navigate medico-legal challenges and protect both patient rights and physician accountability within increasingly complex healthcare environments.

Limitation

While this study provides valuable insights into medical interns' awareness of medical law and emergency department preparedness, certain limitations should be considered. Reliance on self-reported data could introduce biases inherent to survey-based research. Using institutional identifiers to prevent duplicate participation limited complete anonymity, so confidentiality rather than anonymity was ensured. This methodological choice may have influenced participants' willingness to respond candidly. Although the internal consistency was moderate, the findings effectively highlight key areas of deficiency in medical law knowledge. The single-institution sample may limit the generalisability of the results. Additionally, though the regression model explained only a small proportion of the variance in legal awareness, it identified significant predictors warranting further study.

The absence of long-term follow-up indicates a need for future longitudinal research to assess the durability of medical law competencies among intern doctors.

Furthermore, while the high Cronbach's alpha value (0.952) supports internal consistency, it may also reflect item redundancy within the instrument, which should be refined in future studies. Content validity was reviewed by only three experts, which represents a methodological constraint and should be taken into account when interpreting the results. Moreover, excluding students with prior health law education may have introduced selection bias, potentially limiting the heterogeneity of legal knowledge levels within the sample.

CONCLUSION

This study identified specific strengths and weaknesses in medical interns' legal knowledge. While participants demonstrated a relatively strong understanding of malpractice and informed consent, they showed significant gaps in their knowledge of regulations governing emergency department practices. Furthermore, overall self-perceived competence in health law was notably low. These findings suggest that current undergraduate medical curricula may not sufficiently prepare students for the medico-legal challenges encountered in clinical settings.

Given these observed gaps, incorporating structured legal education—particularly on topics relevant to emergency care—may help address deficiencies in preparedness. Approaches such as interdisciplinary instruction and simulation-based learning can be cautiously recommended as potentially effective strategies, pending further empirical evaluation. Future studies should explore and assess the effectiveness of targeted medical law training modules in improving practical legal competence among medical trainees.

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ETHICAL APPROVAL

This study was approved by the Health Sciences Ethics Committee of Ankara Yıldırım Beyazıt University with approval ID 09/993, dated 21 December 2024. Additionally, all procedures performed were in accordance with the ethical standards of the institutional and national research committees and with the 1964 Helsinki Declaration and its later amendments. Written informed consent was obtained from all participants.

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