



Frequency and Causes of Complaints against Orthopedics, Emergency Medicine Specialists, and Neurosurgeons in Guilan Province: A Cross-Sectional Study

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Abstract

Background: To enhance healthcare delivery in sensitive medical fields, it was aimed to investigate common medical errors in orthopedics, neurosurgery, and emergency medicine. By analyzing the frequency and diversity of registered complaints and expert requests from the legal medicine organization, some strategies were proposed to reduce complaints against the mentioned specialists.

Methods: This descriptive cross-sectional study was conducted to examine the complaints lodged against orthopedic surgeons, emergency medicine physicians, and neurosurgeons practicing in Guilan Province. Variables included complainant gender, age, education, occupation, complainant relationship to the patient, specialist gender/specialty, negligence cause/percentage, verdict, medical error location, complaint reason, injury severity, fatal injury, and healthcare errors. All the statistical analyses were carried out by using SPSS (version 22.0). A two-tailed $p < 0.05$ was considered to be of statistical significance.

Results: In this study, 190 complaint files were reviewed against medical specialists in orthopedics (62.1%), neurosurgery (21.6%), and emergency medicine (16.3%). The complainants were predominantly male (70.5%), with an average age of 42.01 years. Court verdicts resulted in acquittal in 62.6% of the cases and negligence in 37.4%, with carelessness and wrong treatment major causes. The court verdicts did not differ significantly based on the specialist's gender, medical specialty and fatal injuries ($p > 0.05$). However, a statistically significant association was observed between negligence rulings and healthcare errors ($p = 0.019$).

Conclusion: The findings underscore the need for enhanced clinical oversight, healthcare quality improvement, continuous physician training, and streamlined complaint processes to reduce grievances and improve patient satisfaction.

Keywords: Complaints, Emergency medicine, Forensic medicine, Medical errors, Neurosurgery, Orthopedics

Introduction

Complaints in surgical and acute care specialties, such as orthopedics, emergency medicine, and neurosurgery, represent a significant challenge in healthcare systems due to their high frequency and potential for serious consequences (1). National health organizations strive to ensure equitable healthcare access and promote public well-being, often relying on patient complaints as valuable feedback to improve service quality (2). In these high-risk fields, patient complaints commonly arise from dissatisfaction with medical services, which may result from errors in professional practice, failures within the healthcare environment, or a combination of both (3). Malpractice-related issues, which lead to complaints and financial repercussions, are highly correlated with adverse patient outcomes. Such issues may also encourage unnecessary testing and erode doctor-patient trust (4). International studies have shown that up to 90% of physicians engage in defensive medicine, especially in high-risk specialties such as surgery and emergency care (5). While data specific to Iran are limited, anecdotal evidence and indirect indicators suggest a similar trend may exist due to increasing medico-legal pressures.

Despite the importance of understanding complaints in orthopedics, emergency medicine, and neurosurgery, there is a lack of comprehensive research specifically focused on these specialties. Patient complaints in these fields often involve issues such as access and availability, interpersonal concerns, communication problems, insufficient care, and delays in treatment (6-10). The high cost and responsibility associated with these specialties, particularly neurosurgery, have even led some surgeons to avoid high-risk procedures (11). Addressing the causes and frequency of complaints in these disciplines is essential for improving medical practice, enhancing patient outcomes, and reducing the incidence of malpractice (12).

To the authors' knowledge, studies on medical errors and malpractice focus on different fields, such as dentistry and anesthesiology (12,13). However, there is a lack of comprehensive research in specific areas, such as orthopedics, neurosurgery, and emergency medicine. Therefore, this study aims to investigate the frequency and causes of complaints filed against orthopedists, emergency medicine specialists, and neurosurgeons, as well as the associated factors,

in northern Iran. Tracking and analyzing patient complaints can provide valuable insights for resolving current issues and preventing similar problems in the future (14,15). These complaints may also stem from misunderstandings between patients and healthcare providers, or from mismatched expectations regarding the healthcare experience (16). By clarifying the underlying factors contributing to complaints in these high-risk specialties, this research seeks to inform strategies for reducing medical errors and improving the quality of care.

Guilan Province, located in northern Iran, is home to a population exceeding 2.5 million, with a diverse demographic including urban and rural communities. Its healthcare system includes both governmental and private facilities, with a limited number of specialists serving large catchment areas. This creates a high workload for practitioners, particularly in emergency medicine, orthopedics, and neurosurgery, making the province an important setting for analyzing patient complaints in these high-risk specialties. Despite the importance of understanding the complaints in orthopedics, emergency medicine, and neurosurgery, there is a notable lack of comprehensive research specifically focused on these specialties, particularly within the context of northern Iran. To date, most existing studies have been conducted in other regions or focus on different medical fields such as dentistry or anesthesiology.

This regional research gap limits the applicability of prior findings to local healthcare systems and practices. Therefore, this study aims to investigate frequency and causes of complaints against orthopedics, emergency medicine specialists, and neurosurgeons in Guilan Province.

Materials and Methods

Study design

This descriptive cross-sectional study was conducted to examine the complaints lodged against orthopedic surgeons, emergency medicine physicians, and neurosurgeons practicing in Guilan Province. The cross-sectional approach was selected to capture a snapshot of the frequency and underlying causes of complaints within a specific timeframe, allowing for the analysis of relationships between various factors at a single point in time.

Participants

The study was conducted using data from the forensic medicine commissions of Guilan Province, northern Iran, covering the years 2011 to 2020. Cases were included if they involved complaints against orthopedics, emergency medicine specialists, or neurosurgeons and had a final verdict issued by the forensic commission. Files with incomplete information or missing key variables-such as verdict outcome, injury severity, or defendant specialty-were excluded from the analysis.

Data collection

Data were extracted retrospectively from the archives of the Guilan forensic medicine commissions. Using a structured checklist, the researchers collected detailed information from each complaint file, including: patient demographics (age, sex, education, occupation), Relationship of complainant to patient, forensic evaluation results, specialist's gender and specialty, cause and percentage of negligence, court verdicts, severity and fatality of injury, type and location of healthcare errors. Injury severity in this study refers to non-fatal harm levels (mild, moderate, severe), while fatal injury was treated as a separate binary variable due to its distinct medico-legal implications and its potential to independently influence judicial outcomes.

Ethical considerations

The study protocol was approved by the Ethics Committee of Guilan University of Medical Sciences on August 9, 2023 (IR.GUMS.REC.1402.292). The researchers maintained strict confidentiality of all the patient and physician information, and the data were anonymized to protect the privacy.

Statistical analysis

Data were entered and analyzed using IBM SPSS Statistics version 22.0. Before performing the statistical tests, the dataset was cleaned and checked for completeness. Cases with missing key variables (*e.g.*, verdict outcome, specialty, or injury data) were excluded from the final analysis. Categorical variables such as gender, medical specialty, verdict outcome, and healthcare error presence were summarized using frequencies and percentages.

The Kolmogorov–Smirnov test was used to assess the normality of continuous variables like age. Since most categorical variables were analyzed, Chi-square tests were used to examine the associations between the outcome (negligence *vs.* acquittal) and independent variables (*e.g.*, gender, specialty, location, healthcare error). A two-tailed p -value < 0.05 was considered statistically significant. Where appropriate, Fisher's exact test was used instead of Chi-square for variables with low expected frequencies.

Table 1. Characteristics of the evaluated complaint files

Complainant information		Frequency(%)
Gender	Female	56(29.5)
	Male	134(70.5)
Age (years)	Mean±Standard deviation	42.01±15.51
The complainant's relationship with the patient	The patients themselves	123(64.7)
	Father	26(13.7)
	Son	17(8.9)
	Spouse	21(11.1)
	Daughter	3(1.6)
Location of medical errors	Governmental hospital	125(65.8)
	Non-Governmental hospital	55(28.9)
	Private clinic	1(0.5)
	Private office	9(4.7)

Table 2. Court verdicts by specialist characteristics

Specialist information		Court verdict		p-value
		Innocent number(%)	Negligence number(%)	
Gender	Male	114(63.7)	65(36.3)	0.335
	Female	5(45.5)	6(54.5)	
Specialty	Orthopedics	73 (61.9)	45(38.1)	0.167
	Neurosurgery	30(73.2)	11(26.8)	
	Emergency medicine	16(51.6)	15(48.4)	
Location of medical error	Governmental hospital	73(58.4)	52(41.6)	0.345
	Non-governmental hospital	39(70.9)	16(29.1)	
	Private clinic	1(100)	0(0.0)	
	Private office	6(66.7)	3(33.3)	
Severity of injury	Fatal injury	27(62.8)	16(37.2)	0.980
	Non-fatal	92(62.6)	55(37.4)	
Healthcare error	Yes	58(55.2)	47(44.8)	0.019
	No	61(71.8)	24(28.2)	

Results

A total of 190 complaint files were reviewed. The specialties of the defendants were orthopedics in 118 cases (62.1%), neurosurgery in 41 cases (21.6%), and emergency medicine in 31 cases (16.3%). Among the complainants, 56 (29.5%) were female and 134 (70.5%) were male. The average age of complainants was 42.01 ± 15.51 years, ranging from 12 to 83 years. Table 1 summarizes the demographic characteristics of the complainants and the location of the medical errors.

Regarding the court verdicts, 119 cases (62.6%) resulted in acquittal (no negligence), while 71 cases (37.4%) were found negligent. The types of negligence identified included carelessness (28 cases, 14.7%), wrong treatment (14 cases, 7.4%), lack of caution (11 cases, 5.8%), inadequate follow-up (7 cases, 3.7%), failure to diagnose (6 cases, 3.2%), delay in timely treatment (3 cases, 1.6%), and combined lack of caution and carelessness (2 cases, 1.1%). Chart 1 illustrates the frequency distribution of negligence types and court verdicts.

Table 2 presents the distribution of court verdicts

according to the specialists' personal information. There were no statistically significant differences in verdict outcomes based on the specialist's gender ($p=0.335$), medical specialty ($p=0.167$), or Severity of injury ($p=0.980$). However, a significant association was found between negligence rulings and the occurrence of healthcare errors ($p=0.019$), indicating that negligence was more common in cases involving documented healthcare errors.

Discussion

This study reviewed 190 complaint cases against orthopedic, neurosurgery, and emergency medicine specialists in Guilan Province. The majority of complaints (62.6%) resulted in acquittal, while 37.4% involved confirmed negligence. Among the negligent cases, carelessness and wrong treatment were the most common causes. Notably, healthcare errors were significantly associated with negligence rulings, while variables such as the physician's gender or specialty demonstrated no significant correlation with court verdicts. These findings are

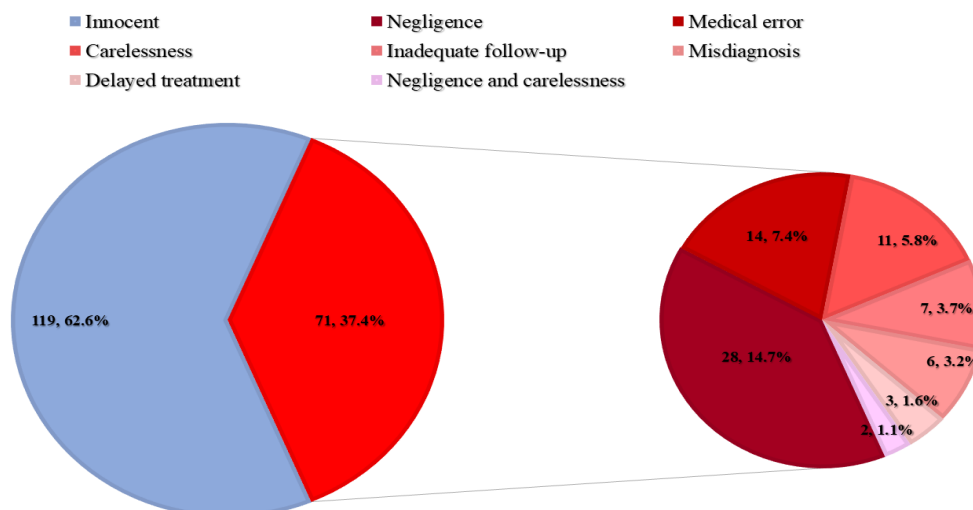


Chart 1. Frequency of negligence type and court verdict in the study.

consistent with global trends in medical malpractice, where negligence is often linked to lapses in clinical judgment or procedural errors (17,18). The high acquittal rate suggests that many complaints may stem from misunderstandings or unmet expectations rather than actual malpractice.

These findings are consistent with earlier Iranian studies. For example, Sadr *et al* (19) reported a 61% acquittal rate for orthopedic specialists, and Alimohammadi *et al* (7) found a 70% rate for emergency physicians. Globally, high acquittal rates are also reported, highlighting that many complaints may stem from miscommunication or unmet expectations rather than malpractice. However, the types of medical errors differ by country. Hwang *et al*'s study in Taiwan (20), for instance, identified infectious diseases and malignancies as top causes of complaints-contrasting with the current study's finding that carelessness and improper treatment were most common. These differences may reflect varying cultural attitudes, healthcare systems, or specialty-specific risks.

The results emphasize the need to enhance clinical oversight, improve physician training, and elevate healthcare quality, offering practical recommendations to reduce patient complaints and boost satisfaction. The study examines a wide range of variables, including complainant demographics, medical specialties, causes of negligence, and court verdicts. This comprehensive analysis provides a detailed understanding of the factors contributing to complaints in orthopedics,

neurosurgery, and emergency medicine. By focusing on these high-risk specialties, the study addresses critical areas in healthcare where patient safety and satisfaction are frequently compromised. Additionally, understanding the complainant's relationship to the patient provides insight into the motivations and emotional drivers behind complaint filing. Spouses, parents, or children of injured or deceased patients may interpret events differently and have a stronger desire for accountability, particularly in severe or fatal cases. This variable may thus influence the frequency and nature of the complaints.

Strengths and limitations

A strength of this study lies in its comprehensive review of complaints over a 10-year span and inclusion of multiple high-risk specialties. But this study has limitations. First of all, the study is limited to Guilan province, which restricts the generalizability of its findings to other regions or healthcare systems with different practices or cultural contexts. The second limitation, as a retrospective cross-sectional study, relies on existing records, which may lack details about the context or contributing factors behind complaints and errors. The third limitation, the study spans nearly a decade (2011–2020) but does not analyze trends over time. Identifying changes in complaint frequency or causes could offer valuable insights into evolving challenges in these specialties. Future research should explore temporal trends and include other provinces to assess the generalizability of these findings.

Conclusion

The findings underscore the need for enhanced clinical oversight, healthcare quality improvement, continuous physician training, and streamlined complaint processes to reduce grievances and improve patient satisfaction. Also, the results emphasize the need to enhance clinical oversight, improve physician training, and elevate healthcare quality, offering practical recommendations to reduce patient complaints and boost satisfaction. For instance, increased clinical oversight through peer reviews and performance audits could help identify recurrent negligence patterns, especially in high-risk fields like emergency medicine and orthopedics. Continuous professional development programs focusing on medical ethics, patient communication, and updated clinical guidelines may reduce carelessness and diagnostic errors. Furthermore, improving healthcare quality through the implementation of evidence-based protocols and checklists can minimize

variability in care and promote patient safety. Finally, establishing efficient and transparent complaint-handling processes cannot only resolve issues more amicably but also serve as an early warning system for identifying systemic problems. Taken together, these strategies respond directly to the trends observed in the data and offer a framework for preventing future complaints and enhancing trust in the healthcare system.

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Conflict of Interest

There was no conflict of interest in this manuscript.

References

1. Tibble HM, Broughton NS, Studdert DM, Spittal MJ, Hill N, Morris JM, et al. Why do surgeons receive more complaints than their physician peers? *ANZ J Surg* 2018;88(4):269-73.
2. Flott K, Darzi A, Mayer E. Care pathway and organisational features driving patient experience: statistical analysis of large NHS datasets. *BMJ Open* 2018;8(7):e020411.
3. McCreaddie M, Benwell B, Gritti A. Traumatic journeys; understanding the rhetoric of patients' complaints. *BMC Health Serv Res* 2018;18(1):551.
4. Gabe J, Monaghan LF. Key concepts in medical sociology. 3rd ed. SAGE Publications Ltd; 2022. 428 p.
5. Ries NM, Jansen J. Physicians' views and experiences of defensive medicine: an international review of empirical research. *Health Policy* 2021;125(5):634-42.
6. Piper JP, Rocha DFB, Hayes DS, Grandizio LC. Formal patient complaints and malpractice events against pediatric orthopaedic surgeons. *J Pediatr Orthop* 2021;41(7):e585-e9.
7. Alimohammadi H, Hatamabadi H, Khodayari A, Azimi MDZ. Frequency and causes of complaints against emergency medicine specialists in forensic medicine files; a cross-sectional study. *Arch Acad Emerg Med* 2019;7(1):e11.
8. Dambrino RJ, Zuckerman SL, Guidry BS, Domenico HJ, Thompson RC, Galloway MB, et al. Do neurosurgeons receive more patient complaints than other physicians? Describing who is most at risk and how we can improve. *J Neurosurg* 2020;134(6):1990-7.
9. King JD, van Dijk PAD, Overbeek CL, Hageman M, Ring D. Patient complaints emphasize non-technical aspects of care at a tertiary referral hospital. *Arch Bone Jt Surg* 2017;5(2):74-81.
10. Xiong NX, Zhou YX. Letter to the editor. Patient complaints. *Journal of Neurosurg* 2022;136(4):1211-2.
11. Nahed BV, Babu MA, Smith TR, Heary RF. Malpractice liability and defensive medicine: a national survey of

neurosurgeons. *PloS One* 2012;7(6):e39237.

12. Doshmangir L, Ravaghi H, Akbari Sari A, Mostafavi H. [Challenges and solutions facing medical errors and adverse events in Iran: a qualitative study.] *J Hosp* 2016;15(1):31-40.

13. Rahbar Taromsari M, Jafar Kazemi K, Fallah Karkan M, Abbasi K, Badsar A. Investigation of causes and effects of malpractice claims against dentists judged in Rasht medical council, 2006–2011. *J Dentomaxill* 2013;2(2):18-22.

14. Bouwman R, Bomhoff M, Robben P, Friele R. Patients' perspectives on the role of their complaints in the regulatory process. *Health Expect* 2016;19(2):483-96.

15. Griffiths A, Leaver MP. Wisdom of patients: predicting the quality of care using aggregated patient feedback. *BMJ Qual Saf* 2018;27(2):110-8.

16. Van Mook WN, Gorter SL, Kieboom W, Castermans MG, de Feijter J, de Grave WS, et al. Poor professionalism identified through investigation of unsolicited healthcare complaints. *Postgrad Med J* 2012;88(1042):443-50.

17. Dronkers WJ, Buis DR, Amelink Q, Bouma GJ, Peul WC, Vandertop WP, et al. Medical malpractice in neurosurgery: an analysis of claims in the Netherlands. *Neurosurgery* 2025;96(3):673-80.

18. Hanganu B, Iorga M, Muraru ID, Ioan BG. Reasons for and facilitating factors of medical malpractice complaints. What can be done to prevent them? *Medicina (Kaunas)* 2020;56(6).

19. Sadr SS, Ghadyani MH, Bagher Zadeh AA. [Assessment of records of complaints from medical malpractice in the field of orthopedic, in the coroner's Office of Forensic Medicine, province of Tehran, during 1988 to 2003.] *Iran J Forens Med* 2007;13(2):78-86. Persian.

20. Hwang CY, Wu CH, Cheng FC, Yen YL, Wu KH. A 12-year analysis of closed medical malpractice claims of the Taiwan civil court: a retrospective study. *Medicine* 2018;97(13):e0237.