



## Medical malpractice in Iran: A systematic review

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### Abstract

**Background:** Medical malpractice represents a serious problem in the health system and is one of the risk factors for patient safety which damages the patient and increases costs for the patient and the health care provider. The importance of these complaints against physicians is that litigation may continue for a long time and become problematic for patients and physicians. The objective of this study was to investigate the complaints of medical malpractices which were referred to Iran Medical Council to provide solutions to reduce the complaints and improve service delivery.

**Methods:** Embase, PubMed/MEDLINE, ISI/Web of Science (WOS), Scopus, and Iranian databases, such as MagIran, SID, and Irandoc, were searched from 01/01/1990 to 07/01/2018. Also, the grey literature (via Google Scholar) was searched. Studies written in English or in Persian were searched, and keywords used included malpractice, negligence, medical malpractice, physician impairment, Iran, and professional impairment.

**Results:** Nearly 1455 complaints (36%) of the total number of 3977 complaints were proved to be medical malpractice, and physicians were acquitted in 2542 (64%) cases. Most complaints were from gynaecologists, accounting for 43% of all complaints, followed by orthopaedic specialists who ranked second with 21.4% of the total complaints. The most type of failure was due to lack of skill (30.4%), followed by negligence (29.2%). Imprudence or indiscretion (26.3%) and noncompliance with governmental requirements (14.1%) were also in the next ranks, respectively.

**Conclusion:** Improving patient and physician relationships, observing medical ethics, increasing the scientific and technical skills of the medical staff, and following the guidelines and medical protocols will prevent medical malpractice. Therefore, health policymakers can reduce errors and failures by adopting continuing education on medical, ethical, and legal issues.

**Keywords:** Medical malpractice, Iran, Health system

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### Introduction

Health system is one of the most important sectors of each country's socioeconomic activities, which spends a large amount of resources on meeting the health care needs annually (1). The main concern of policymakers in the health system is spending a substantial amount of money on health care, and thus they pay attention to the waste of

resources in the health system. A part of this waste of resources is due to infringements, errors, and failures related to the provision of health services, which in general are called medical malpractice (2-4). Medical malpractice occurs when a patient comes to a physician and he/she takes the responsibility of the care and treatment, but the physi-

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#### ↑What is "already known" in this topic:

Medical malpractice occurs when a hospital, doctor, or other health care professionals, through a negligent act or omission, cause an injury to a patient. Previous studies have shown the rate of medical malpractice in various medical specialties separately.

#### →What this article adds:

Here, the rate of medical malpractice was systematically reviewed in various specialties. Also, the reasons for this failure were investigated.

cian performs or acts contrary to acceptable medical standards and imposes psychological, physical, and financial burden on the patient (5).

Patient care is considered an essential component of health care services and a wide range of medical and paramedical staff are involved in this field (6). Physicians have always been recognized as the first provider of care to the patient. One of the most important occupational tensions that any physician can face in his/her profession is the patients' complaint. This causes anxiety, tension, depression, isolation, and even illness in the physicians (7). Medical malpractice represents a serious problem in the health system and is one of the risk factors for patient safety (8), which damages the patient and increases costs for the patient and the health care provider (9).

On the other hand, studies have shown that increasing the number of complaints in some medical specialties reduces the willingness of candidates to enter these disciplines (10). Due to the complexity of the health system and the fact that there is no system without any fault, the incidence of medical error is inevitable in all countries (11). According to various studies, the rate of patient complaints in the world has increased in recent years (12-14). A study in 2000 showed that medical failure occurs in 5% to 18% of all hospital admissions and accounts for 98 000 deaths annually (15). Another study in 2013 found that medical errors are the third most common cause of death (440 000 deaths a year) in the United States (16).

Iran is no exception in this regard and complaints from physicians are rising in the country (13). The number of complaints of medical malpractice to the medical council of Tehran province increased from 134 in 1995 to 1270 in 2005 (17). People's awareness of their individual rights (18), the increase in the complexity of the medical technology, the remarkable increase in the number of population (19), the collaboration of various groups of treatment in providing service to patients, the fatigue caused by daily workload, and the need to have a great deal of information about health systems are among the factors that increase complaints (20-22). The occurrence of medical errors and subsequent complaints and seeking compensation by patients confront the community, physicians, and the medical community with a growing crisis, and thus the destructive effects of this process are seen in the services provided by this expert group. These litigations are important to the physicians, as they can continue for a long time and cause serious problems, preventing the physicians to attend to their professional and personal life for weeks. Moreover, these processes cause financial loss, anxiety, psychological pressure, and damage the reputation of physicians, and harm the patients' trust in physicians (23).

This study was conducted to investigate the complaints against medical malpractice cases referred to Iran Medical Council in various medical fields to provide solutions to reduce the complaints and improve service delivery.

## Methods

This review was performed according to the "Preferred Reporting Items for Systematic Reviews and Meta-Analyses" (PRISMA) guidelines (24).

Two authors independently searched Embase, PubMed/MEDLINE, ISI/Web of Science (WOS), Scopus, and Iranian databases, such as MagIran, SID, and Irandoc, from 01/01/1990 up to 07/01/2018. Also, the grey literature (via Google Scholar) was searched. Studies written in English or in Persian were searched. The search strategy was as follows: (Malpractice\* OR Negligence\* OR medical malpractice OR physician impairment OR professional impairment) AND (Physician\*OR doctor OR medical doctor OR medical practitioner OR physician associate OR physicians OR practitioner OR private physician) AND (Iran\*). Medical subject headings (Mesh) and wild-card options were used where appropriate. This search strategy was planned by the help of an information specialist. In addition, reference lists of each identified study were investigated for potentially eligible studies.

## Study selection and data extraction

Studies were included if they met the following criteria:

1. Study type: Studies presenting original data on malpractice claims.
2. Study setting: All of the early studies that reported the rate of medical malpractice in various medical specialties were included in the study. Studies in other medical fields, such as dentistry, nursing, and midwifery, were excluded.
3. Outcome: Claim against medical malpractice, defined as a written demand for compensation because of medical injury.
4. Published in English or Persian language.

## Data extraction

Two authors independently extracted the following information from selected studies: (1) prevalence of claim against medical malpractice; (2) type of physician's specialty; (3) year of study; (4) location of the study; (4) prevalence of proven malpractice; (5) type of malpractice; and (6) study setting. Any disagreement in this regard was resolved through consensus, if not however, the corresponding author was consulted. Information was entered into the forms which had been designed for this purpose.

## Data synthesis

A narrative synthesis of the included studies was planned. A narrative review is discursive in nature and seeks to summarize the current state of knowledge in relation to a particular domain by considering a wide variety of sources and reaching conclusions through reasoning or argument.

## Results

Flowchart of screened, excluded, and included studies are presented in Figure 1. In this study, 28 studies on complaints against medical malpractice that were referred to the Legal Medicine Organization and Medical Council from 1990 to 2018 were considered (12, 14, 18, 25- 44). A total of 3997 cases were investigated, of which 71.4% were about specialists' medical malpractice in Iran after 2009 (Fig. 2).

Most studies about medical malpractice were conducted

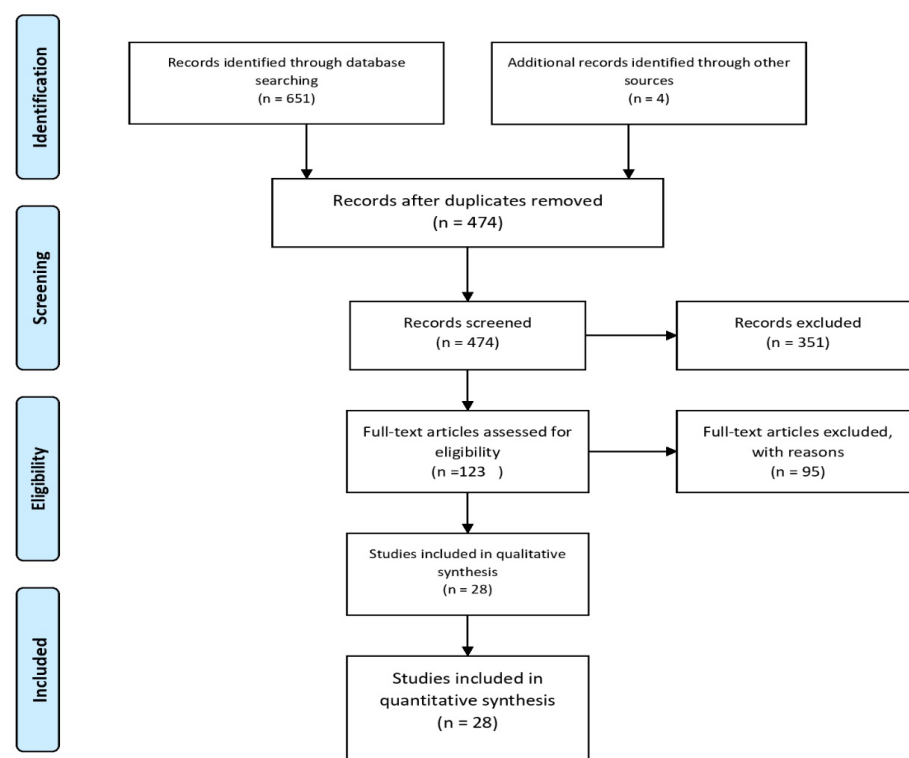


Fig. 1. Flowchart of screened, excluded, and included studies

in the provinces of Tehran, Kermanshah, and Khuzestan (Fig. 3).

Nearly 1455 cases (36%) were proved to be medical malpractice, and physicians were acquitted in 2542 (64%) cases. Most complaints were from gynaecologists, accounting for 43% of all complaints, followed by orthopaedic specialists who ranked second, with 21.4% of the total complaints. General surgeons and ophthalmologists were also subject to the highest number of complaints in the next ranks. The lowest number of complaints belonged to psy-

chiatrists and paediatricians, with 0.6% and 0.9%, respectively (Table 1).

The most type of failure was due to lack of skill (30.4%), followed by negligence (29.2%). Imprudence (26.3%) and noncompliance with governmental requirements (14.1%) were also in the next ranks, respectively (Table 2). The highest number of failures occurred in private hospitals, accounting for 34.2% of the total proved failures. Subsequently, 22.4% of failures occurred in nonteaching public hospitals, and 21.5% of the total proved failures were in governmental teaching hospitals. Also, 12.9% of failures

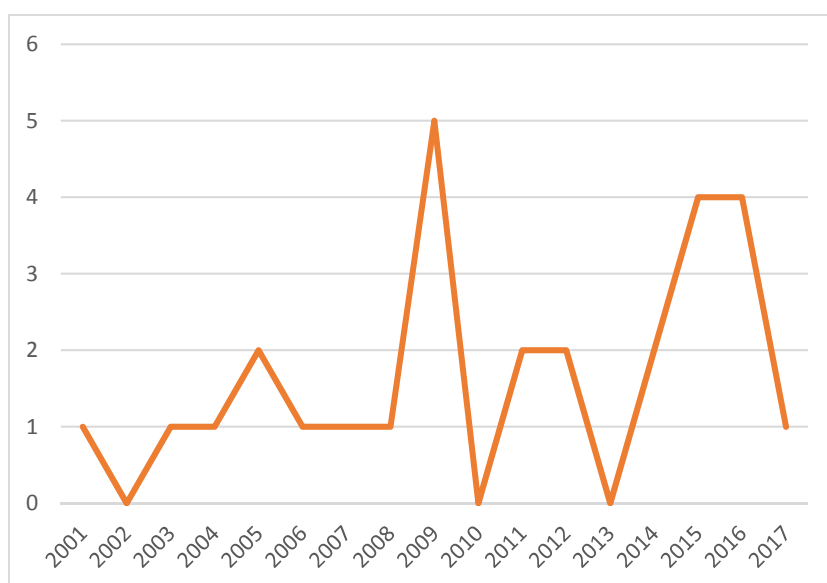


Fig. 2. Frequency distribution of medical malpractice studies in Iran by year of publication

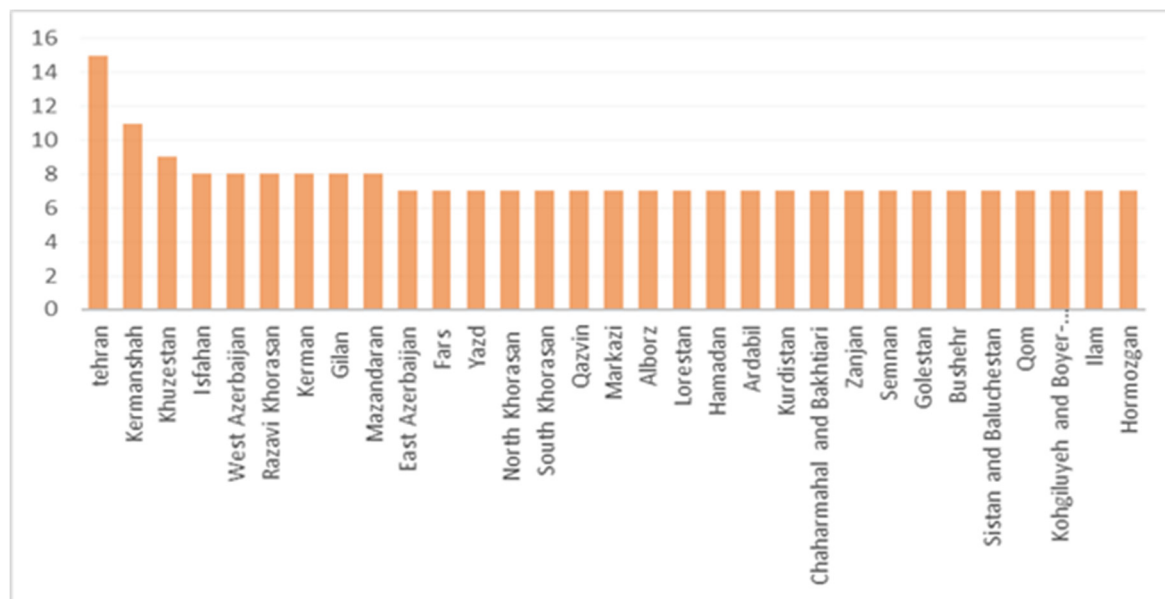


Fig. 3. Frequency of medical malpractice publications based on the provinces of the country

Table 1. Distribution of medical malpractice cases by specialty in Iran (n=3997)

Area of specialty	Liable		Not liable		Total	
	N	% of total specialty	N	% of total specialty	N	% of total cases
Orthopaedics	334	39	518	61	852	21.4
Skin and cosmetics	73	55	60	45	133	3.4
Emergency Medicine Specialists	53	65	29	35	82	2
Anaesthesiology	140	60	92	40	232	5.9
General surgeons	157	44	196	56	353	8.8
Ophthalmologists	73	21	274	79	347	8.6
General physicians	60	55	50	45	110	2.7
Gynaecologists	497	29	1221	71	1718	43
Psychiatrics	17	71	7	29	24	0/6
Paediatrics	8	22	29	78	37	0/9
Cardiovascular surgery	27	48	29	52	56	1.4
Neonatology	16	30	37	70	53	1.3
Total	1455	36	2542	64	3997	100

Table 2. Distribution of type of proven medical malpractice

Type of malpractice	% of total malpractice
Negligence	29.2
Lack of skills	30.4
Lack of obedience to governmental regulations	14.1
Imprudence	26.3
Total	100

Table 3. Distribution of proven medical malpractice by setting

Setting	% of total malpractice
Private clinic	12.9
Government hospital	22.4
Private hospital	34.2
Government clinic	2.2
University hospital	21.5
Charity	2.1
Other	4.7
Total	100

occurred in private clinics, 2.1% in charity centers, and 4.7% in other health centers (Table 3).

### Discussion

The Medical Council in Iran is responsible for investigating the professional misconduct of physicians and other relevant professions. Medical council examines the profes-

sional misconduct of physicians through a regulation entitled "disciplinary regulation for investigating the guild and professional misconduct of medical and associate professions". This regulation is the most significant legal document available on examples of medical misconduct in the country. The aim of this study was to investigate the failure of medical specialists in Iran over the past 3 decades. A total of 28 studies have investigated the failures of medical

specialists in Iran during this period, and 3997 complaint cases of medical malpractice have been referred to the Legal Medical Organization and Medical Council in these studies.

The findings of this study showed that 36% of complaints of medical malpractice were confirmed by the Medical Council. In a study conducted at a paediatric health research center in the United States during 1985 and 2005, it was found that 25% of complaints from urologists were medical malpractice (45). In European countries, 1 in every 6 physicians is prosecuted for medical misconduct. This rate is constantly increasing in Europe, and thus defensive medicine is becoming a global phenomenon in Europe (46). Complaints from the physicians have psychological consequences, such as stress and anxiety (47), occupational consequences, such as resort to the jurisdictions and absenteeism (48, 49), and social consequences, such as the impact on the reputation (50) of the physicians. The change in the practice of medicine toward defensive medicine (51), conservatism, and doctors' fear of lawsuits, which may negatively affect the medical care, are other consequences. Defensive medicine also causes induced demand and imposes additional costs on patients (52, 53). Therefore, it is advisable to investigate complaints in preliminary commissions before referring to jurisdictions, and if necessary, summon the physician (54).

Gynaecologists were the most specialists subject to complaints (43%), followed by orthopaedic specialists (21.4%). The results of this study are consistent with the findings of studies conducted in Turkey (54), Taiwan (55), Germany (56), United Kingdom (57), USA (58), and Saudi Arabia (59), in which gynaecologists had the highest number of complaints. The surgical team is always the main target of medical complaints due to the invasive nature of their medical practices (60). In a study in Spain, most complaints have been reported against gynaecologists, orthopaedist, neurosurgeons, ophthalmologists, and anaesthesiologists (61). Kane in a study conducted in 2011, reported that 42% of American physicians during their work period, and 90% of surgeons 55 years and older were sued due to medical malpractice. However, the general surgeons and gynaecologists experienced twice the mentioned amount (62). The findings were also consistent with research findings in the United States (58), suggesting that the lowest number of specialists being sued are paediatricians. Medical malpractice in the field of gynaecology will lead to many problems in the future which needs to be addressed. The availability of an efficient, up to date, and moralistic system for investigating professional infringement in the provision of reproductive health services that includes a wide range of clients is a key guide to identify the violation, make a fair decision, and respect the rights of the recipient and the provider of services (63). Continuous education and training of perinatal nurses, identifying high-risk patients and their precise nursing care, improving the quality and standard of delivery through holding complaints assessment committees and precise RCAs of these types of complaints, providing health education to pregnant women, and precise completion of clinical records are among other methods of reduc-

ing medical defects in the fields of gynaecology and obstetrics (14, 64, 65).

Findings of this study showed that lack of skill (30.4%) and negligence (29.2%) were responsible for more than half of medical malpractices. These findings are consistent with the results of the Gundogmus (54) study, which showed that diagnostic and therapeutic errors were the most prominent factors of proved failures in Turkey. Since the lack of skill and negligence are the main causes of many medical errors, it seems that conducting retraining courses and collaborating more with scientific-research associations can somewhat reduce these errors. The lack of awareness of the medical practitioners about the legal issues and regulations governing medical practice and the responsibility of doctors towards patients is one of the main reasons for increasing the number of complaints (66). In this regard, holding workshops to teach the appropriate methods of physicians' communication with the patients and relatives, increasing the medical staff's information on the legal issues of the treatment, and emphasizing on informing the patients and their relatives about the possible and even unpredictable complications of diagnosis and treatment processes can help reduce medical complaints (67).

Negligence and lack of obedience of governmental regulations were the other reasons for the medical defects identified in this study. Providing such measures as better organization and supervision of treatment, the intensification of penalties, and more respect for medical ethics can be effective in this regard. In the study of Asad et al, the most common causes of complaint of medical malpractice by patients were delay in the diagnosis and lack of follow-up and postoperative management (68). Nicole et al, in their study, showed that 88% of the errors in orthopaedic surgeries were due to procedural errors and negligence (69). Acting based on medical guidelines and protocols, holding a counselling session to answer the questions of patients before the surgery, eliminating the financial relationship between the physician and patient completely are measures that can help prevent patient complaints and medical malpractice (70-72).

The findings of this study showed that 43.9% of proved failures occurred in the public sector, including university and nonuniversity hospitals, and 37.1% of proved failures have occurred in the private sector. Referring a large percentage of people to the public sector, older diagnostic-therapeutic equipment in public centers, the use of medical students at these centers, and being university public sectors that increase the likelihood of error, and giving more importance to the quality of treatment in the private sector were among the reasons for this finding.

Thus, it is essential to establish a central monitoring system that links the 3 legal medicine organizations, the medical council, and the hospital to prevent any medical error. Moreover, providing necessary training to familiarize the physicians with rules and medical errors should be provided continuously in-hospital training and retraining programs (73). The establishment of a reporting system by physicians and the central system to control medical errors will be effective in reducing medical misconduct. Moreo-

ver, disclosure of errors is one of the most important strategies to prevent medical errors (74).

The presentation of a complaint does not always have a negative effect, as it can be used as a way to improve work processes and a solution to increase patient safety through improving the accuracy of the treatment team and increasing clinical skills (67). As long as the root causes of the error are not identified and resolved, the error will be repeated by a particular person or any other person who replaces him. Developing a systemic attitude to errors, creating the culture of organizing, and active participation of staff in meetings that examine medical errors, creating a team for this purpose, and identifying all the causes that lead to medical errors have a significant impact on the prevention of these errors.

### Conclusion

The findings of this study on medical malpractice, specialists at risk, various locations of malpractice occurrence, and the types of medical malpractice can be used as a basis for redesigning new approaches to medicine and encouraging appropriate retraining programs. Improving patient and physician relationships, observing medical ethics, increasing the scientific and technical skills of the medical staff, and following the medical guidelines and protocols will prevent medical malpractice. Therefore, health policymakers can reduce errors and defects by adopting the approach of continuous education on medical, ethical, and legal issues.

### Ethical considerations

Ethical issues (including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, and redundancy) were thoroughly observed by the authors.

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### Conflict of Interests

The authors declare that they have no competing interests.

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