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Factors Affecting Physician Fear of Malpractice and Defensive Medicine Practices: A Cross-sectional Study

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ABSTRACT

Objective: The aim of this study was to determine the attitudes of a group of physicians toward defensive medicine, their fears of malpractice and the affecting factors.

Methods: Data was collected between April and July 2022 in this cross-sectional study. The sample size was 248 physicians. Data was collected using the Defensive Medicine Attitude Scale and Malpractice Fear Scale. Data was analyzed using frequency tables, descriptive statistics, Mann-Whitney U test (Z-table value) and the Kruskal-Wallis H test (χ^2-table value).

Results: Most participants 99.2% (n=246) thought that a doctor's professional liability insurance should be taken out and 72.6% (n=180) avoided giving treatment to difficult patient groups. In our study, the mean score on the Defensive Medicine Attitude Scale was moderate (32.12±6.12), and the mean score on the Malpractice Fear Scale was high (24.31±2.86). A weak positive correlation was found between the Malpractice Fear Scale score and the scores for positive defensive medicine, negative defensive medicine, avoidance, and the Defensive Medicine Attitude Scale total score ($p<0.05$).

Conclusion: Our study determined that the fear of malpractice increased the tendency toward defensive medicine practice. Most physicians adopted the defensive behavior in medicine and were afraid of facing malpractice lawsuits in near future.

Keywords: Malpractice, defensive medicine, attitude

INTRODUCTION

Defensive medicine practice is becoming more common. The emergence of patient rights, health policies, and the increase in expectations from health professionals in health institutions negatively affect the physician-patient relationship, causing physicians to experience fear of malpractice. Physicians more frequently prefer defensive medicine practices to avoid legal problems. Thus, physicians prioritize their professional knowledge and values less in the diagnosis, treatment, and care and adopt an attitude of self-protection.

Malpractice is defined as "harm" caused by the doctor's failure to perform standard practice during treatment, lack of skill, or not giving treatment to the patient in the World Medical Association's Medical Malpractice Announcement (1). Malpractice includes the damage caused by lack of care, education, experience, good interpretation or competence, and inadequate patient care (2). Diagnostic errors, application of incorrect and/or invalid tests and techniques, or incorrect application or interpretation of appropriate tests, incomplete or delayed diagnosis, medication dose errors, inappropriate treatment technique, inadequate follow-up, incorrect and/or inadequate follow-up of treatment and disease, delayed or incomplete prophylaxis, and equipment-related or system-related errors are considered within the scope of medical malpractice (3). Fear of malpractice can be defined as fear arising from the possibility of a medical malpractice lawsuit being filed against physicians while performing their profession. Increased malpractice cases in recent years have significantly affected both the medical profession and society, causing physicians to turn into safe practices (4).

Catino (5) (2011) defined defensive medicine as hospital personnel, particularly physicians, requesting unnecessary examinations and procedures or avoiding high-risk treatment methods and patients. Defensive medicine is a method for physicians to

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J Acad Res Med 2024;14(2):77-83

protect themselves from possible negative outcomes that may arise from interventions and practices. Çalıkoğlu and Aras (6) (2020) defined defensive medicine as the behavior of health professionals that aims to protect themselves from administrative, criminal, legal, and ethical sanctions. Defensive medicine practices can take two forms: positive and negative. Positive defensive medicine includes performing unnecessary medical procedures for diagnosis, treatment, or follow-up of the disease, to protect oneself from legal liability, and to create the impression that everything necessary is done with great care. Negative defensive medicine refers to the behavior of physicians to avoid high-risk patients and treatments to eliminate claims of medical malpractice (7,8). Concerns and perceptions of medical responsibility drive practitioners to practice defensive medicine (4,9). By using their autonomy in line with the information they have acquired, patients can exhibit attitudes that may harm the patient-physician relationship. This causes physicians to turn into defensive medicine and carry diagnostic treatment to protect themselves (8-11). At the same time, health policies, the complex structures of the developed reference protocols that do not clearly state the roles and responsibilities of physicians, and the constant concern of being sued by patients lead physicians to defensive medicine (11,12). Defensive medicine practices come to forefront in the context of patient-physician relationship and appear to be a problem of both professionalism and medical ethics (8).

The aim of this study was to determine the defensive medicine attitudes of a group of physicians, their fear of malpractice and the factors affecting them.

METHODS

This research is a cross-sectional descriptive study. The study population consisted of 260 physicians. Physicians working in the public sector and in local centers in the Central Anatolia region of Türkiye were part of the study population. All physicians who agreed to participate after being informed and who completed the data collection form were included in the study. Data were collected from 248 participants in the study. Data were collected between April and July 2022.

Data Collection Form

The questions were prepared by the researchers after scanning the relevant literature (6,13,14).

Defensive Medicine Attitude Scale (DMAS): This scale was developed by Kolcu and Özceylan (15) (2021). In confirmatory factor analysis, a model was created with 3 sub-dimensions. These factors are divided into three groups: cost-increasing behavior, defensive behavior involving negative defensive medicine, and avoidance behavior. Total scores were grouped as low (11-23), medium (24-41), and high (44-55). The Cronbach-α coefficient for internal consistency was 0.84 (15). In our study Cronbach-α coefficient was 0.82.

Malpractice Fear Scale: A validity and reliability study of the scale developed by Katz et al. (16) (2005) to measure the malpractice fear levels of physicians was conducted by Uğrak and Işık (14) (2020). Total score below 15 is considered low, approximately 15-20 medium, and above 20, high-level fear of malpractice. The Cronbach-α coefficient was 0.86 (14). In our study Cronbach-α coefficient was 0.874.

Statistical Analysis

Statistical analysis was performed using SPSS (IBM SPSS Statistics 24). To identify the methods employed in the analyses, the normality distribution of each parameter was evaluated on an individual basis. In accordance with the number of samples, either the "Kolmogorov-Smirnov" or the "Shapiro-Wilk" tests were utilized (17).

Frequency tables and descriptive statistics were used to interpret the findings. Non-parametric methods were used for the values that did not conform to normal distribution. Spearman's correlation coefficient was used to analyze the relationships between two quantitative variables that did not have a normal distribution. "Spearman" correlation coefficient was used to examine the relationship between two quantitative variables that did not have a normal distribution.

Ethical Aspects of Research

Approval was obtained from the Ethics Committee of the Karamanoğlu Mehmetbey University Faculty of Medicine where the research was conducted (decision no: 21, date: 08.03.2022). Institutional approval was obtained from the chief physician of the university hospital where the research was conducted. Before data collection, written informed consent was obtained from the participants after the purpose of the research was explained in accordance with the Helsinki Declaration.

RESULTS

The average age of the participants was 37.08±7.80 (years), the average time worked as a physician was 11.06±7.29 years, the average time worked as a specialist was 4.97±6.27 years, the average hours worked weekly was 49.90±11.52 hours, the number of patients cared per day was 66.70±29.88 people, and the mean number of night/weekend shifts worked in a month was 2.70±3.01. 55.6% (n=138) were male and 74.6% (n=185) were working in internal medicine units. Almost all of the participants, 99.2% (n=246) thought that the physician should have professional liability insurance, 92.3% (n=299) needed someone from the same gender as the patient during the examination, and 72.6% (n=180) avoided treating difficult patient groups. 63.3% (n=157) of the participants avoided treating patients with impaired psychological state, tendencies to attack, act, and blame, 13.7% (n=34) avoided patients who were generally dissatisfied with the service and complained, 39.9% (n=99) avoided treating patients who refused treatment, 10.5% (n=26) avoided patients who refused to communicate with healthcare professionals, 52.4% (n=130) avoided patients that engaged in sexual behavior in the dimension of harassment, 2.8% (n=7) avoided patients whose expectations and hopes were at the point of exhaustion and who

J Acad Res Med 2024;14(2):77-83

had a sense of helplessness, and 64.5% (n=160) avoided following addicted patients who used substances or drugs.

A weak positive correlation was found between the Malpractice Fear Scale score and the positive defensive medicine, negative defensive medicine, avoidance, and DMAS total scores (p<0.05) (Table 1).

The three expressions with the highest mean in the DMAS were "I explain medical practice to my patients in more detail in order to avoid legal problems." (4.52±0.87), "I keep more detailed records in order to avoid legal problems." (4.50±0.88), and "I seek more consultation in order to avoid legal problems." (3.36±0.69) (Table 2).

The three items with the highest mean in the Malpractice Fear Scale were "I am worried that I will be involved in a malpractice lawsuit in the next 10 years." (4.35±0.67), "I sometimes ask for expert opinion to reduce the risk of being sued." (4.04±0.56), and "I had to make significant changes to my professional practice due to legal developments regarding provision of health services." (4.02±0.58) (Table 2).

Significant differences were detected between the positive defensive medicine score (p=0.012), negative defensive medicine score (p=0.006), avoidance score (p<0.001) and DMAS total score (p<0.001) and Malpractice Fear Scale score (p=0.002) according to age group. As a result of pairwise comparisons with Bonferroni correction, there was a significant difference between those <30 years and those between 30 and 39 and ≥40 years. A significant difference was found in the positive defensive medicine score (p=0.038), avoidance score (p=0.033), and DMAS total score (p=0.035) according to gender. A significant difference was found in the positive defensive medicine score (p<0.001), negative defensive medicine score (p=0.000), avoidance score (p<0.001), DMAS total score (p<0.001) and Malpractice Fear Scale score (p<0.001) according to the title of the participants. A significant difference was found between the defensive medicine score (p=0.041) and avoidance score (p=0.004) according to the patient's need to have someone from the same sex with them during the examination. A significant difference was found between positive defensive medicine score (p<0.001), negative defensive medicine score (p<0.001), avoidance score (p=0.002), DMAS total score (p<0.001) and Malpractice Fear Scale score (p<0.001) according to avoidance of difficult patients (Table 3).

A very weak negative significant relationship was found between the duration of practice (years) and positive defensive medicine, negative defensive medicine, avoidance, DMAS total score and Malpractice Fear Scale score (p<0.05). There was a weak negative significant relationship between the duration of residency (years) and positive defensive medicine, negative defensive medicine, avoidance, DMAS total score and Malpractice Fear Scale score (p<0.05). There was a weak negative significant relationship between working hours weekly and positive defensive medicine,

Table 1. Examining the relationship between scales

Correlation* (n=248)			Malpractise Fear Scale
Defensive Medicine Attitude Scale	Positive defensive medicine	r p	0.422 <0.001
	Negative defensive medicine	r p	0.454 <0.001
	Avoidance	r p	0.296 <0.001
	Total-DMAS	r p	**0.474** <0.001

Linear relationship intensity: r<0.2 very weak, 0.2-0.4 weak, 0.4-0.6 moderate, 0.6-0.8 high, and 0.8> very high. *The Spearman correlation coefficient was used to analyze the relationships between two quantitative variables that did not have a normal distribution. DMAS: Defensive Medicine Attitude Scale

Table 2. Distribution of lowest and highest-rated items

Defensive Medicine Attitude Scale-3: Highest and lowest rated items	M	SD	Min	Max
1. I explain medical practices to my patients in more detail to avoid legal problems.	4.52	0.87	1.0	5.0
2. I will keep more detailed records to avoid legal problems.	4.50	0.88	1.0	5.0
3. I seek more consultations to avoid legal problems.	3.36	0.69	1.0	5.0
1. I avoid patients with complex medical problems to avoid legal problems.	2.08	0.95	1.0	5.0
2. I avoid treatment protocols with high complication rates to avoid legal problems.	2.06	0.97	1.0	5.0
3. I prefer noninterventional treatments to interventional treatments to avoid legal problems.	2.01	0.98	1.0	5.0
Malpractise Fear Scale-3: Highest and lowest rated items	**M**	**SD**	**Min**	**Max**
1. I am worried that I will be involved in a malpractise lawsuit in the next 10 years.	4.35	0.67	1.0	5.0
2. Sometimes, I ask for expert opinion to reduce the risk of being sued.	4.04	0.56	1.0	5.0
3. I had to make significant changes to my professional practices due to legal developments related to the provision of health services.	4.02	0.58	1.0	5.0
1. In some instances, I request tests and consultation to avoid malpractise.	4.02	0.49	1.0	5.0
2. Relying on clinical judgment rather than technology when making a diagnosis has become increasingly risky in terms of medical practice.	3.94	0.64	1.0	5.0
3. I feel pressure in my daily medical practice because of the threat of malpractise lawsuit.	3.93	0.68	1.0	5.0

M: mean, SD: standard deviation, min: minimum, max: maximum

J Acad Res Med 2024;14(2):77-83

negative defensive medicine, avoidance, DMAS total score and Malpractice Fear Scale score (p<0.05). There was a weak negative significant relationship between the number of patients who cared for daily and positive defensive medicine, negative defensive medicine, avoidance, DMAS total score and Malpractice Fear Scale score (p<0.05). A weak negative significant relationship was found between the number of night/weekend shifts worked a month and positive defensive medicine, negative defensive medicine, avoidance, DMAS total score and Malpractice Fear Scale score (p<0.05) (Table 4).

Table 3. Comparison of participants' demographic characteristics and scale scores

Variable (n=248)	n	Positive defensive medicine [median (IQR)]	Negative defensive medicine [median (IQR)]	Avoidance [median (IQR)]	Total DMAS [median (IQR)]	Malpractise Fear Scale [median (IQR)]
Age						
<30 (1)	55	10.0 (1.0)	13.0 (1.0)	12.0 (4.0)	34.0 (5.0)	25.0 (1.0)
30-39 (2)	100	9.0 (1.0)	12.0 (1.0)	9.0 (5.0)	29.0 (5.8)	24.0 (1.0)
≥40 (3)	93	9.0 (1.0)	12.0 (1.0)	9.0 (7.0)	30.0 (6.0)	24.0 (1.0)
Probability difference		**p=0.012** (1-23)	**p=0.006** (1-23)	p<0.001 (1-23)	p<0.001 (1-23)	**p=0.002** (1-23)
Gender						
Female	110	10.0 (1.0)	12.0 (1.0)	11.0 (7.0)	32.5 (8.0)	24.0 (1.0)
Male	138	9.0 (1.0)	12.0 (1.3)	10.0 (7.0)	31.0 (6.0)	24.0 (1.0)
Probability		**p=0.038**	p=0.436	**p=0.033**	**p=0.035**	p=0.163
Title						
Practitioner (1)	122	10.0 (1.0)	13.0 (1.0)	11.0 (5.0)	34.0 (7.0)	25.0 (1.0)
Specialist (2)	93	9.0 (0.0)	12.0 (2.0)	8.0 (4.5)	29.0 (5.0)	24.0 (0.0)
Professor (3)	33	9.0 (0.0)	12.0 (1.0)	8.0 (2.0)	29.0 (1.5)	24.0 (0.0)
Probability difference		p<0.001 (1-23)	p<0.001 (1-23)	p<0.001 (1-23)	p<0.001 (1-23)	p<0.001 (1-23)
Need for the same-sex companion						
Yes	229	9.0 (1.0)	12.0 (1.0)	10.0 (7.0)	31.0 (6.5)	24.0 (1.0)
No	19	8.0 (5.0)	11.0 (4.0)	13.0 (6.0)	33.0 (15.0)	24.0 (5.0)
Probability		p=0.041	p=0.194	**p=0.004**	p=0.670	p=0.234
Avoiding difficult patients						
Yes	180	9.0 (1.0)	12.0 (1.0)	10.5 (7.0)	33.0 (8.0)	24.0 (1.0)
No	68	8.0 (2.8)	11.5 (4.0)	9.0 (6.0)	28.0 (8.0)	23.0 (2.0)
Probability		p<0.001	p<0.001	**p=0.002**	p<0.001	p<0.001

IQR: interquartile range, DMAS: Defensive Medicine Attitude Scale

Table 4. Examining the relationships between some parameters and scales

Correlation* (n=248)			Duration in the profession (years)	Duration of working as a specialist (years)	Weekly work hours	Patients seen daily	Night/weekend shifts worked
Defensive Medicine Attitude Scale	**Positive defensive medicine**	r p	-0.133 **0.036**	-0.302 **0.000**	-0.259 **0.000**	0.253 **0.000**	-0.251 **0.000**
	Negative defensive medicine	r p	-0.154 **0.015**	-0.357 **0.000**	-0.294 **0.000**	0.283 **0.000**	-0.300 **0.000**
	Avoidance	r p	-0.203 **0.001**	-0.258 **0.000**	-0.299 **0.000**	0.251 **0.000**	-0.279 **0.000**
	Total-DMAS	r p	-0.204 **0.001**	-0.344 **0.000**	-0.327 **0.000**	0.295 **0.000**	-0.297 **0.000**
Malpractise Fear Scale		r p	-0.137 **0.031**	-0.373 **0.000**	-0.289 **0.000**	0.310 **0.000**	-0.342 **0.000**

*Linear relationship intensity: r<0.2 very weak, 0.2-0.4 weak, 0.4-0.6 moderate, 0.6-0.8 high, and 0.8> very high. DMAS: Defensive Medicine Attitude Scale

J Acad Res Med 2024;14(2):77-83

DISCUSSION

Due to the fear of malpractice, physicians tend to recommend defensive medicine practices instead of practices that benefit the patient within the framework of their professional values. In our study, physicians' fear of malpractice was high, and their defensive medicine attitudes were moderate. In the context of defensive medicine attitudes, the most common practices of physicians in our study to protect themselves were within the scope of negative defensive medicine practices; providing detailed information to the patient, detailed record keeping, and cost-increasing positive defensive medicine application of seeking consultation to avoid legal problems. In addition, participants were the most worried about being involved in a malpractice lawsuit in the next 10 years, and they stated that asking for advanced expert opinion is sometimes necessary to reduce the risk of lawsuits and that changes in health policies cause changes in their professional practice. In a similar study, anesthesiologists attached more importance to informed consent forms to protect themselves legally (12).

In recent years, with an emphasis on patient autonomy, obtaining consent has become extremely important. Informing patients is one of the basic principles of medical ethics and the professional responsibility of physicians. However, this practice is also viewed as a defensive medicine practice, which is a controversial issue. Patient autonomy is damaged by defensive medicine practices because it is not possible to fully explain the diagnosis and treatment methods of defensive practice (8). In a study, the most frequently used defensive medicine practices by physicians working in surgical fields were asking for more tests and using non-invasive protocols to protect themselves (6). In a study conducted with psychiatrists, although not necessarily, the participants adopted hospitalization and frequent follow-up in the context of defensive medicine (18). Studies emphasize that defensive medicine is against medical ethics, professionalism (8,19), the principle of not harming the patient (8), and medical law. Defensive medicine is viewed as benefiting physicians by avoiding medical responsibility (19) rather than for the benefit of the patient.

In our study, the positive defensive medicine approaches and malpractice fears of physicians under the age of 30 were significantly higher than those among other age groups. Studies have found that individuals between 31 and 40 (13) and those over 30 years old (4) have higher mean scores for medical error attitude. In one study, physicians over the age of 60 preferred defensive medicine practices (20), whereas in other studies (12,18), young physicians from different specialties were more likely to engage in defensive medicine practices. Vento et al. (21) (2018) stated that young clinicians should avoid providing services only by considering legal regulations and that standard evidence-based practices based on protocols and guidelines are not holistic patient care. Studies have found that age is not an effective feature of defensive medicine attitudes (6,9,22).

In our study, although there was no significant difference between the malpractice fear scores of different genders, the malpractice fear and defensive medicine attitude of females were significantly higher. Similar results were found in the literature (6,9,23). Studies have found that males have significantly higher perceptions of medical errors (13) and defensive medicine attitude scores are higher (22).

In our study, general practitioners had higher fears of malpractice and adopt defensive medicine practices. Contrary to our study, no significant difference was found between physicians and residents regarding defensive medicine practice attitudes in one study. The reason for this is that physician candidates are taught to take responsibility for the decisions they make during medical education (20). In one study, the defensive medicine attitude scores of associate professors were found to be high (6). We can say that this difference is due to differences in the education and practice experiences during medical education at universities and practices aimed at developing responsibility-taking skills.

The defensive medicine attitudes of the physicians who did not want to treat difficult patients were moderate, and their fear of malpractice was high. In this study, defensive medicine attitudes of physicians who needed someone of the same gender during examinations were lower, but their fear of malpractice was higher. In this study, it was found that physicians who perceive patient pressure excessively apply defensive medicine practices more and prefer to avoid conflict with the patient, even if it is contrary to their professional values (20). In a study conducted with general practitioners, physicians stated that the pressure of patients for referral was effective in their defensive attitudes and negatively affected the trust between the physician and patient (24). Defensive medicine practices due to the physician's fear of medical responsibility or aggressive behavior of the patient's relatives prevent maintaining the patient-physician relationship (25).

In our study, as the duration of work and expertise as a physician increased, attitudes toward defensive medicine and fear of malpractice decreased. Similar results were found in the studies (13,22). Contrary to these studies, years working in the profession was not an effective feature of defensive medicine attitude (6,26). This difference between the studies suggests that this is due to the personalities of physicians.

In our study, as the number of hours worked weekly, the number of patients cared for daily, and the number of monthly night/weekend shifts decreased, the defensive medicine attitude and fear of malpractice increased. Similarly, in the study conducted with physicians and nurses, there was no significant difference between work hours and medical error attitude scores, and those with fewer hours worked had a higher awareness of medical errors (13). In another study, the defensive medicine attitude scores of those with fewer night/weekends shifts were found to be lower (22). In previous studies, defensive medicine practices were found to increase with the fatigue of physicians (12) and the number of patients cared for in a limited time, increased (27). This difference

J Acad Res Med 2024;14(2):77-83

between studies can be explained by the fact that with the increase in the experience of physicians in our country, the fear of malpractice and their defensive attitudes decrease.

In our study, as physicians' fear of malpractice increased, the defensive medicine attitude score also increased. In the literature, physicians tend to avoid high-risk patients and avoid diagnosis and treatment by asking for additional examinations and allocating more time to the patient (7,28), and they resort to defensive medicine to share the burden of responsibility with others (11). Defensive medicine attitudes negatively affect the autonomy of physicians and undermine the trust between physicians and patients (21). In a study, 89% of physicians sometimes practice positive defensive medicine, whereas 42% practice negative defensive medicine behavior, and these practices are used to apply the standardized care imposed by the system (20). Concerns and perceptions about medical responsibility lead physicians to adopt defensive medicine practices that increase health care costs by requesting more frequent diagnostic tests, consultations, and radiological examinations (9,10). Treatment and good care based on professionalism and professional values are extremely important in medicine, and it is important to prevent excessive costs arising from defensive medicine practices and provide fair service. Medical procedures take place in doctor-patient relationship, and the relationship continues when both parties fulfill their rights and responsibilities (4,27,29). Defensive medicine behaviors damage the patient-physician relationship and undermine patients' confidence in the medicine. Fear of malpractice plays an important role in defensive medicine practices (4,27), on the other hand, it is extremely important for physicians to adopt good medical practices and decide for the benefit of the patient (8,27,30).

Study Limitations

This study was conducted with a group of physicians working in the center of a province; therefore, it cannot be generalized to all physicians.

CONCLUSION

The increased fear of malpractice increases the tendency of physicians to unnecessarily use technological medical tools. Physicians who try not to harm patients can still waste time by asking patients for costly tests and treatments. The negative reflection of this on the physician-patient relationship may lead to the deterioration of secure communication. While physicians care about the principle of avoiding harm to the patient, they may unknowingly cause harm. The fear of malpractice increases the tendency toward defensive medicine attitudes. Physicians mostly adopt the defensive behavior of negative medicine and are afraid of facing malpractice lawsuits in the near future. It is extremely important for physicians to continue their profession by adhering to their professional and ethical values without having malpractice fears and having to worry about protecting themselves while maintaining the doctor-patient relationship in a safe manner.

Ethics Committee Approval: Approval was obtained from the Ethics Committee of the Karamanoğlu Mehmetbey University Faculty of Medicine where the research was conducted (decision no: 21, date: 08.03.2022).

Informed Consent: Before data collection, written informed consent was obtained from the participants after the purpose of the research was explained in accordance with the Helsinki Declaration.

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J Acad Res Med 2024;14(2):77-83

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