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Research Article

Evaluation of family physicians' attitudes to defensive medicine practices and its effect on providing driving licence reports

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ABSTRACT

Objective: To examine the attitude of family physicians practicing at primary care units in İstanbul regarding defensive medicine practices and their effect on providing driving license health report provisions and the frequency of dispatches.

Methods: 396 family physicians practicing in primary care units in Istanbul were included in this observational and descriptive study between March and April 2023. Volunteering physicians were invited to participate in an online questionnaire including sociodemographic characteristics, knowledge and experience questions about defensive medical practice (DMP), the number of examinations and driving license provisions they have issued in the last year, and the rate of referrals to secondary or tertiary health centers. Defensive Medicine Practices Attitude Scale (DMPAS) was also performed online through which negative and positive DMP attitudes were assessed. Participants were classified as having very high (55-44 points), high (43-33 points), moderate (32-22 points), and mild (21-11 points) defensive attitude. Participants' attitudes towards providing driving license health reports were scored with a 5-point Likert-type scale. DMPAS scores were compared in terms of all data.

Results: Among 396 participants, more than half were female (54.3%; n=215). Mean age was 39.3±8.9 years [Min 24,0-Max 60.0]. According to DMPAS, 94.5% of the participants exhibited a moderate or higher defensive attitude. Participants who were male ($p < 0.05$), married ($p < 0.05$), and specialist physicians ($p < 0.05$) scored significantly higher in DMPAS compared to their counterparts. As the physicians' age, years of experience, and the number of registered patients increased, DMPAS decreased ($r = -0.668$, $p < 0.001$; $r = -0.638$, $p < 0.00$; $r = -0.154$, $p = 0.002$, respectively).

The study shows that physicians who frequently refer patients to secondary or tertiary hospitals for driving reports and who have a high demand for driving reports among those aged 17 and over in their care population exhibited significantly higher defensiveness scores ($p < 0.05$). In other words, physicians who had more defensive attitudes preferred to consult the provision to the secondary or tertiary hospitals rather than approving the application.

Conclusion: Defensive medicine practices in family physicians are relatively high, increasing the dispatch rate in driving license reports. The increasing rate of referrals from primary care units due to defensive medicine practice results in a patient burden on secondary or tertiary healthcare institutions.

Keywords: defensive medicine, attitude, defensive practice, driving license health report, primary care, family medicine

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Introduction

Medical error is defined as inappropriate conduct that causes harm to the patient, including negligence and recklessness.[1] Medical errors, whether personal or system-related, lead to defensive medical practices (DMP). DMP can be defined as healthcare providers straying from sound medical practices to reduce their risk of malpractice liability or other self-protective reasons.[2]

According to Turkish Family Medicine Law, a family physician is defined as a full-time physician obliged to provide preventive and rehabilitative health services, primary diagnosis, and treatment to everyone comprehensively and continuously in a particular place, regardless of the patient's age, gender, and disease, who provides mobile health services to the extent necessary.[3]

Studies have shown that the cost of health services is higher in countries that fail to fulfill the family medicine obligations in primary health care services.[4] Yet, health practice of family physicians should be cost-effective as they provide appropriate, personal, and patient oriented care services to their patients. These expectations are often unmet as physicians' workload and fear of being sued give rise to DMP, which is defined as ordering unnecessary tests and procedures and avoiding treatments for high-risk patients or referrals.[5,6]

Defensive Medicine Practices

Defensive medicine practices manifest themselves in two dimensions, namely positive and negative responses. It is important to recognize that DMP, whether positive (when extra procedures are performed without proven necessity) or negative (when high-risk patients and methods are avoided), is not just a medicolegal concept but also carries a moral dimension.[1,7,8]

A scoping review investigating the influencing factors of defensive decision-making in primary care reported four main categories. These are (social) media pressure, patients' acting like a consumer and expecting a particular service from the physician as their healthcare provider, thirdly healthcare system-based working conditions that exert pressure on physicians by requiring compliance with external regulations and provisions, and lastly physicians' feelings, experiences and expectations shaping their tolerance for the uncertainty that foster their tendency for defensive medical thinking and practice.[9] Besides these, a lack of clear knowledge of the concepts underlying the word negligence and the legal penalties that will arise in response to these may also lead to defensive medical practices.[1,2]

Although defensive medicine practices are debated in all countries, studies conducted among physicians have shown that they are applied at high rates. Some studies notably conclude that defensive medicine is practiced at a rate of 98% in Japan, between 79-93% in the USA, 80% in Italy, 60% in Israel, and at a rate of 78% in Turkey.[10,11]

One of the obstacles to cost-effectiveness is defensive medicine practices. Physicians and other healthcare professionals use defensive medicine practices to protect themselves from malpractice lawsuits, rather than focusing on ensuring the recovery and wellbeing of their patients.

Defensive Medicine Practices on Preparing Health Reports

Family physicians are charged with the task of preparing most of the reports. This duty is stated in the family medicine law as follows: "Any kind of report, referral document, prescription, and other documents required to be prepared by primary healthcare institutions and government physicians are prepared by family physicians in

places where family medicine practice has been implemented."[3]

Health report preparation is a challenging expert task that requires a detailed examination and investigation in the field where the report is requested without deviating from the framework of rules and laws. Institutions request these reports to use them as evidence on a specific issue when necessary, to be kept for years. Therefore, it should not be erroneously assumed that the report preparation process is a simple document preparation. The legal aspect of health reports, including driver and driver candidate health reports, overlaps with defensive medical practices developed to avoid the possibility of litigation.

The present study has several aims: To assess the prevalence of defensive medicine attitudes among family physicians and how varying levels of these attitudes affect the number of driver health reports they prepare and refer, and to determine whether these attitudes contribute to a shift in patient load toward secondary and higher-level health services. Additionally, we aim to identify the diversity in family physicians' driver report preparation behaviors and the frequency of problems they may encounter during this process.

Materials And Methods

This observational, descriptive, analytical study was conducted among family physicians working in family medicine units affiliated with the Istanbul Provincial Health Directorate between March 6 and April 6, 2023. It was approved by the Clinical Research Ethics Committee of the University of Health Sciences, Istanbul Training and Research Hospital, Turkey (date: 14.10.2022, number: 307). The work was started following the principles of the Declaration of Helsinki. The study targeted family physicians who had been employed in the same unit for over a year and was administered online. The study aimed to recruit at least 384 participants, based on an effect size of 0.5, with 80% power and a 5% margin of error, from a population of 4,981 active family medicine units. Ultimately, 396 family physicians who met the inclusion criteria participated in the study and were asked to complete the survey with their informed consent.

The survey consisted of a 41-item online questionnaire including questions about participants' sociodemographic characteristics, knowledge and experiences related to defensive medicine, the number of examinations and driver reports they prepared in the past year, and their attitudes towards defensive medicine as measured by the Defensive Medicine Practices Attitudes Scale (DMPAS).

DMPAS was validated into Turkish by Başer et al. in 2014[12] and began to be widely used in studies due to its high internal consistency. The 15-item scale consists of 3 subscales: six questions measuring attitudes toward positive defensive medicine practices, five questions measuring attitudes toward negative defensive medicine practices, and four questions assessing physicians' knowledge and experiences related to defensive medicine.[12] While the first two sections are administered on a 5-point Likert scale, the third section uses a "Yes/No" option, with questions divided evenly between the two choices.[12] The total scores ranging from 11 to 55 are classified into very high (55-44 points), high (43-33 points), moderate (32-22 points), and low (21-11 points) defensive attitudes. Participants' attitudes toward driver health reports were assessed using a 5-point Likert scale (ranging from 1= never, 2= rarely, 3= sometimes, 4= often, and 5 = always), and DMPAS scores were compared across all the data.

SPSS 28.0 software was used for the statistical evaluation of the data. Descriptive statistics included mean, standard deviation, median, minimum, maximum, frequency, and ratio values. The distribution of variables was assessed using

the Kolmogorov-Smirnov Test. Kruskal-Wallis and Mann-Whitney U Test were employed to analyze quantitative independent data. The relation between continuous variables was evaluated using Spearman's Correlation Analysis.

This research was conducted in accordance with the principles of good clinical practice based on the current guidelines of the Helsinki Declaration, relevant regulations, and ethical principles.

Results

A total of 396 participants were included in the study. Their sociodemographic characteristics and relevant numerical data related to family medicine units are presented in Table 1. The total number of registered patients in the family medicine units ranged from a maximum of 4085 to a minimum of 328, with units having less than three thousand patients making up 17% of the participants (n=68). The mean number of patients examined by participants was 9672 in the past year, and the mean number of individuals issued driver health reports by participants in the past year was 182. It was observed that 45% of these reports were issued on referral.

Most participants (71.7%, n=284) stated that they had previously heard of the concept of defensive medicine. Yet, a majority of those who had heard about it mentioned that they did not have sufficient knowledge (68.2%, n=270). Approximately one-fourth of participants (24.5%, n=97) reported receiving a punitive warning that could potentially reflect negatively on their salary during their contract period. Nearly all participants (96.7%, n=383) believed a medical malpractice case would impact their medical performance, and only 4.8% (n=19) had been sued for alleged malpractice. Participants' DMPAS scores had a mean of 36.8 ± 8.0, with 19.4% (n=77) indicating a very high, 49.5% (n=196) indicating a high, 25.5% (n=101) indicating a moderate, and 5.6% (n=22) indicating a mildly defensive attitude (Table 2).

Within Positive DMP, participants most frequently relied on maintaining more detailed records to safeguard themselves from legal issues (M = 3.7±1). On the other hand, refusal to request unnecessary tests for protection against legal issues was the least employed practice (M = 3.2±1.2). Within Negative DMP, feelings of unease, driven by the widespread media attention on medical malpractice issues was rated the highest by participants (M = 4.3±0.8). On the other hand, the practice participants least resorted to was avoiding patients with complex medical problems to protect themselves from legal risks (M = 2.5±1.4) (Table 3).

Regarding participants' driver health reports, it was revealed that the question regarding careful examination of patients' data from e-Nabız, which is an application developed for citizens and health professionals, to enable them to access to health data collected from health institutions in Turkey, received the highest score (M = 4.63±0.8), while the question inquiring participants' experience with physical violence from referred patients received the lowest score (M = 1.22±0.6) (Table 4).

When preparing driver and driver candidate health reports, participants most frequently preferred medical school education (75.8%) and experiences gained from colleagues (59.3%) as sources of information. In contrast, the least preferred sources were the Ministry of Health in-service training (12.1%) and national and international guidelines (8.1%). Comparative analyses revealed that DMPAS scores were significantly higher among males than females, married individuals compared to singles, and resident physicians enrolled in Family Physician and Contracted Family Physician Specialist (CFPS) assistant training compared to general practitioners ($p<0.05$) (Table 5).

Table 1. Sociodemographic characteristics of participants and numerical data related to family medicine unit

		Min - Max	Median	Mean±SD	n (%)
Age		24.0 - 60.0	37.0	39.3±8.9	
Gender	Male				181 (%45.7)
	Female				215 (%54.3)
Marital Status	Single				115 (%29.0)
	Married				269 (%67.9)
	Divorced				12 (%3.0)
Family Medicine Status	General Practitioner Family Physician				239 (%60.4)
	Family Medicine Specialist				58 (%14.6)
	Contracted Family Physician Specialist (CFPS) assistant				99 (%25)
Professional Experience (Years)		1.0 – 34.0	11.0	12.9 ± 8.3	
Family Medicine Experience (Years)		1.0 – 17.0	7.0	7.7 ± 4.4	
Total Number of Patients Registered in the Family Medicine Unit		328 – 4085	3716	3475 ± 633	
Total Number of Patients ≥17 Years Old Registered in the Family Medicine Unit		210 – 3562	2465	2357 ± 546.5	
Total Number of Patients Applying for Examination*		186 - 24000	9869	9672 ± 3032	
Total Number of Drivers and Driver Candidates Not Referred for Driver Health Report*		0.0 – 318	84.5	102.7 ± 73.3	
Total Number of Drivers and Driver Candidates Referred for Driver Health Report*		0.0 – 480	69	79.1 ± 66.7	
Number of Examinations per Fully Registered Patient*		0.57 – 6.67	2.75	2.78 ± 0.72	
Number of Driver Reports per Registered Population ≥17 Years Old*		0.00 – 0.28	0,07	0.08 ± 0.04	
Referral Rate in Total Driver Reports Issued*		0.00 – 1.00	0.50	0.45 ± 0.27	

* Within the Last Year

Participants' familiarity with and knowledge about defensive medicine, experience with receiving punitive warnings or malpractice lawsuits, or their belief that malpractice cases impact medical performance, did not significantly affect their DMPAS score ($p>0.05$). There was a significant negative correlation ($p<0.05$) between participants' age, years of professional and family medicine experience, their total registered patients and number of patients aged over 17 in the family medicine unit, and their DMPAS scores.

Participants' DMPAS scores were negatively correlated ($p<0.05$) with their age, years of professional and family medicine experience, their total registered patients, and the number

Table 2. The defensive medicine practices attitude scale (DMPAS) data

	Min - Max	Median	Mean.±SD
DMPAS Score	12.0 -55.0	38.0	36.8±8.0
Negative DMPAS Score	5.0 – 25.0	16.0	16.1±4.1
Positive DMPAS Score	7.0 – 30.0	22.0	20.8±4.5
DMPAS Score Distribution	**n**		**Percentage**
Very high (44-55)	77		19.4%
High (33-43)	196		49.5%
Moderate (22-32)	101		25.5%
Mildly (11-21)	22		5.6%

Table 3. Distribution of DMPAS responses

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean ± SD
	n(%)	n(%)	n(%)	n(%)	n(%)	
Positive DMPAS Responses						
1- I request additional tests from my patients beyond what I think is necessary to protect myself from legal issues.	38 (9.6%)	66 (16.7%)	135 (34.1%)	90 (22.7%)	67 (16.9%)	3.2±1.2
2- I prescribe most medications within my indications for my patients to protect myself from legal issues.	18 (4.5%)	64 (16.2%)	111 (28.0%)	139 (35.1%)	64 (16.2%)	3.4±1.1
3- I request more consultations related to potential complications in my patients to protect myself from legal issues.	13 (3.3%)	58 (14.6%)	134 (33.8%)	114 (28.8%)	77 (19.4%)	3.5±1.1
4- I explain medical procedures in more detail to my patients to protect myself from legal issues.	15 (3.8%)	48 (12.1%)	131 (33.1%)	119 (30.1%)	83 (21.0%)	3.5±1.1
5- I allocate more time to my patients to protect myself from legal issues.	15 (3.8%)	56 (14.1%)	137 (34.6%)	114 (28.8%)	74 (18.7%)	3.4±1.1
6- I keep more detailed records to protect myself from legal issues.	9 (2.3%)	40 (10.1%)	104 (26.3%)	154 (38.9%)	89 (22.5%)	3.7±1
Negative DMPAS Responses						
7- I avoid patients with a high likelihood of legal action to protect myself from legal issues.	93 (23.5%)	96 (24.2%)	89 (22.5%)	664 (16.7%)	52 (13.1%)	2.7±1.3
8- I avoid patients with complex medical problems to protect myself from legal issues.	135 (34.1%)	98 (24.7%)	56 (14.1%)	59 (14.9%)	48 (12.1%)	2.5±1.4
9- I avoid treatment protocols with high complication rates to protect myself from legal issues.	20 (5.1%)	71 (17.9%)	148 (37.4%)	108 (27.3%)	49 (12.4%)	3.2±1
10- I prefer non-invasive treatment protocols over invasive ones to protect myself from legal issues.	18 (4.5%)	60 (15.2%)	133 (33.6%)	124 (31.3%)	61 (15.4%)	3.4±1.1
11- As medical malpractice issues receive more attention in the media, I feel uneasy in my medical practice.	4 (1.0%)	11 (2.8%)	45 (11.4%)	143 (36.1%)	193 (48.7%)	4,.3±0.8

Table 4. Response distributions of questions related to driver health reports

	Never	Rarely	Sometimes	Often	Always	Mean ± SD
	n(%)	n(%)	n(%)	n(%)	n(%)	
1- Do you carefully review the "Personal Health Information Form" of the patients who apply for a DHR request?	7 (1.8%)	16 (4.0%)	21 (5.3%)	95 (24.0%)	257 (64.9%)	4.46±0.90
2- Do you carefully review your patient's e-nabız data when preparing a DHR?	1 (0.3%)	20 (5.1%)	21 (5.3%)	39 (9.8%)	315 (79.5%)	4,63±0.80
3- Do you detail your physical examination when preparing a DHR for your patients?	1 (0.3%)	28 (7.1%)	93 (23.5%)	114 (28.8%)	160 (40.4%)	4.02±1.0
4- Do you sometimes have patients who request a report without undergoing a physical examination when they come with a DHR request?	26 (6.6%)	96 (24.2%)	144 (36.4%)	115 (29.0%)	15 (3.8%)	2.99±10
5- Do you request tests from your patients when preparing a DHR?	21 (5.3%)	111 (28.0%)	169 (42.7%)	47 (11.9%)	48 (12.1%)	2.97±10
6- Do you sometimes have patients who request a report without undergoing tests when they come with a DHR request?	29 (7.3%)	87 (22.0%)	153 (38.6%)	102 (25.8%)	25 (6.3%)	3.02±1
7- Do any of your patients who request a DHR express that their requests are for a simple documentation process?	1 (0.3%)	21 (5.3%)	81 (20.5%)	210 (53.0%)	83 (21.0%)	3.89±0.8
8- Does the possibility of a legal process being initiated against you due to the driver health report you issued concern you?	16 (4.0%)	29 (7.3%)	82 (20.7%)	137 (34.6%)	132 (33.3%)	3.86±1.1
9- Do you have difficulty explaining the reason for referral to patients you refer when issuing DHR?	28 (7.1%)	52 (13.1%)	95 (24.0%)	175 (44.2%)	46 (11.6%)	3.4±1.1
10- Have you ever experienced verbal abuse when referring patients you have issued DHR for?	47 (11.9)	141 (35.6)	126 (31.8)	76 (19.2)	6 (1.5)	2,63±1
11- Have you ever experienced physical violence when referring patients you have issued DHR for?	332 (83.8%)	44 (11.1%)	15 (3.8%)	5 (1.3%)	0 (0%)	1.22±0.6
12- When you prepare a referral report, is your reason for referral ever questioned by a doctor?	112 (28.3%)	131 (33.1%)	108 (27.3%)	35 (8.8%)	10 (2.5%)	2.24±1

DHR: Driver Health Report

of patients aged over 17 in the family medicine unit. This suggests that as physicians age, gain more experience, and register more patients, their defensive attitudes tend to decrease (Table 6).

Moreover, DMPAS scores were negatively correlated ($p<0.05$) with the total number of patients examined and the number of driver health reports issued without referral by participating physicians in the last year. Furthermore, DMPAS scores were positively correlated ($p<0.05$) with the number of referral driver health reports issued and the referral rate in drive reports. In other words, as physicians' defensive attitudes decreased, they conducted more examinations and issued more driver health reports without referrals. Conversely, when their defensive attitudes increased, these numbers declined, whereas the number of referral driver health reports increased. In short, it has been observed

Table 5. Relation between sociodemographic characteristics and DMPAS score

		DMPAS Score			P*
		Min-Max	Median	Mean.±SD	
Gender	Woman	12 – 51	36	34.5 ± 8.0	<**0.001**[m]
	Man	20 – 55	40	39.6 ± 6.9	
Marital Status	Married	22 - 50	41	40.6 ± 6.5	
	Single	12 - 55	37	35.1 ± 8.0	<**0.001**[K]
	Divorced	31 - 51	39	39,.7 ± 5.9	
Family Medicine Status	General Practitioner	17 - 50	36	34.9 ± 8.1	
	Specialist	12 - 55	40	38.7 ± 8.5	<**0.001**[K]
	CFPS assistant	23 - 51	41	40.4 ± 5.5	

* The statistically significant difference was defined as p < 0.05
[m] Mann-Whitney u test test / K Kruskal-Wallistest
CFPS Contracted Family Physician Specialist

Table 6. Relation of data with DMPAS scores

	DMPAS Score		Negative DMPAS Score		Positive DMPAS Score	
	r	P*	r	P*	r	P*
Age	-0.668	<**0.001**	-0.649	<**0.001**	-0.163	<**0.001**
Years of Professional Experience	-0.638	<**0.001**	-0.609	<**0.001**	-0.599	<**0.001**
Years of Family Medicine Experience	-0.572	<**0.001**	-0.552	<**0.001**	-0.525	<**0.001**
Number of Patients Registered in the Family Medicine Unit						
Total Number of Patients	-0,154	**0,002**	-0.163	**0.001**	-0.115	**0.022**
Number of Patients Aged 17 and Over	-0.320	<**0.001**	-0.310	<**0.001**	-0.278	<**0.001**
Numerical Data for the Family Medicine Unit in the Last 1 Year						
Total Number of Patients Applying for Examination	-0.253	<**0.001**	-0.287	<**0.001**	-0.195	<**.001**
Total Number of Driver Health Reports Issued Without Referral	-0.475	<**0.001**	-0.440	<**0.001**	-0.479	<**0.001**
Total Number of Driver Health Reports Issued for Referred Drivers	0.477	<**0.001**	0.377	<**0.001**	0.533	<**0.001**
Number of Examinations for Registered Patients	-0.235	<**0.001**	-0.255	<**0.001**	-0.199	<**0.001**
Number of Driver Reports Issued per Population Aged 17 and Over	0.007	0.887	-0.002	0.968	-0.009	0.864
Number of Driver Reports Issued Without Referral per Population Aged 17 and Over	-0.418	<**0.001**	-0.374	<**0.001**	-0.448	<**0.001**
Number of Driver Reports Issued for Referred Drivers per Population Aged 17 and Over	0.551	<**0.001**	0.457	<**0.001**	0.589	<**0.001**
Total Referral Rate in the Issued Driver Reports	0.572	<**0.001**	0.477	<**0.001**	0.629	<**0.001**

* The statistically significant difference was defined as p < 0.05
r Spearman correlation test

that defensive physicians refer their patients more frequently when issuing driver reports. No significant correlation was found between DMPAS scores and the total number of driver reports per population aged 17 and over (p>0.05).

Discussion

Our study's DMPAS scores indicated that 94.5 % of participants exhibited a moderate or higher defensive attitude. This aligns with findings from a study in Japan where 98% of gastroenterologists practiced defensive medicine, and a study in Pennsylvania, USA, where 93% of participants did the same.[13,14] Similarly, a study conducted in the Karşıyaka district of İzmir, Turkey, among family physicians determined that 93.8% exhibited moderate or higher defensive medicine practices.[15]

In Turkey, the percentage of physicians who had never heard of DMPs was 59.1% and 61%, according to studies by Başer et al. in 2014 and Özata et al. in 2019, respectively.[15,16] This figure decreased to 45% in Karasu's 2024 survey.[17] In our research, we found that this rate had fallen further to 22.3%. Over the years, awareness of the DMP issue has probably increased because physicians have faced more frequent medicolegal penalties.

Based on participants' responses to the DMPAS, the most common defensive medical practice that participants engaged in moderately or more frequently was the influence of the media (96.2%). This was followed by recommendations for detailed record keeping (87.7%), and providing detailed explanations (84.2%). Similarly, a study conducted in the UK among family physicians revealed that 90.3% spent more time on paperwork and 86.6% provided more information about treatment plans to patients.[8] In another study with family physicians in Italy, 82.8% reported adding unnecessary notes to patient records as a defensive measure, while 43.5% expressed concern over the media's accusatory attitude.[18]

In line with previous studies, men were found to be more defensive than women, and married individuals were more defensive compared to singles.[10,19,20] Additionally, consistent with the literature, it was observed that as participants' age, professional experience, and duration of work as a family physician increased, their DMPAS scores significantly decreased.[10,14,21,22] This suggests that as physicians accumulate experience, their improved adherence to medical standards and communication skills help them adopt fewer defensive attitudes.

We conclude that specialist physicians and CFMS assistants resort to defensive medical practices significantly more than general practitioners. This may be attributed to the fact that specialist physicians are, on average, 3.6 years younger than general practitioners. We also suspect that negative legal experiences encountered during their specialization training might have contributed to this tendency.

We found that as the number of registered patients and examinations increased among the participating physicians, their defensive attitudes decreased. This could imply that defensive physicians opt for units with smaller populations to reduce legal risks, and that patients may prefer physicians who demonstrate less defensiveness.

As DMPAS scores increase, the referral rate for driver health reports and the number of referred reports increase, while the number of without-referral driver health reports issued decreases. Although many studies have shown that DMP's raise healthcare costs, our study did not explore this issue.[23-25] It is clear that more referrals to higher-level healthcare institutions for driver's licenses will lead to higher healthcare costs. As of now, there is no other study that combines driver reports and defensive medicine practices to our

knowledge. Assessing the applicants' suitability for driving is a challenging task that requires medical knowledge, professional experience, and a comprehensive understanding of regulations. The tendency to protect oneself from legal complications aligns with the cautious approach present in issuing driver health reports. Our study quantitatively demonstrates the link between defensive medical practices and driver health report practices. Additionally, 96% of participants expressed varying levels of concern about legal risks when preparing driver health reports, further confirming this connection.

Limitations

As our study was conducted among family physicians working in primary healthcare centers in Istanbul, the findings may not be generalizable to the entire country, different medical specialties, or various positions within medicine, including general practitioners, research assistants, specialists, subspecialists, and academic in public and private hospitals. A limitation of this study is that the physicians involved confirmed the accuracy of their annual examination and report counts, as they provided their own statements.

Conclusion

The current study reveals that attitudes toward defensive medicine are widespread among primary care doctors. This tendency results in more referrals instead of preparing health reports. Although many physicians have heard of defensive medicine as a concept, they often lack a deeper understanding regarding what it entails. Defensive physicians tend to refer more patients when issuing driver health reports. Additionally, applicants often lack sufficient knowledge about the process of obtaining these reports, and physicians frequently face verbal abuse when issuing driver health reports.

The increase in referral driver reports due to defensive medicine practices leads to transferring the patient load to higher-level healthcare institutions. Reducing these practices that adversely affect the healthcare system and patients calls for providing legal protection for physicians and developing policies that offer state support, which will allow physicians to feel more secure in their practices.

Ethical approval

This study has been approved by the Clinical Research Ethics Committee of the University of Health Sciences Turkey, Istanbul Training and Research Hospital (approval date 14.10.2022, number 307). Written informed consent was obtained from the participants.

Author contribution

The authors declare contribution to the paper as follows: Study conception and design: SK, ZAS; data collection: SK; analysis and interpretation of results: SK, İGK., ZAS; draft manuscript preparation: SK, İGK, ZAS. All authors reviewed the results and approved the final version of the article.

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Conflict of interest

The authors declare that there is no conflict of interest.

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