

Forms and Frequency of Sanctions against General Practitioners and Family Medicine Specialists in Macedonia

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Abstract

Objective. The goal of this study is to evaluate the reasons for sanctioning and the types of sanctions used on general medicine primary healthcare practitioners (GM-PHPs) in the Republic of Macedonia. **Materials and Method.** This is a cross-sectional study for which we used an anonymous survey. This survey was distributed in a printed and electronic form to GM-PHPs in different parts of Macedonia and 438 of them responded. We used the SPSS statistical program to process the quantitative data. **Results.** The GM-PHPs' sex was not associated with the sanctioning in the univariable analysis, but it was in the multivariable. GM-PHPs with ≥ 30 years of experience have 8.7 times higher odds to be sanctioned than those with ≤ 5 years of experience. GM-PHPs that worked in the hospital or ≤ 19 km from the nearest hospital were significantly more frequently sanctioned. The most common three reasons for sanctioning were: "Financial consumption of prescriptions and referrals above the agreed amount", "Higher rate of sick leaves and/or unjustified sick leaves" and "Unrealized preventative goals or education". "Financial sanction by scale" was the most common type of sanction - 49.8% of participants. GM-PHPs who followed the guidelines, but were exposed to violence by patients or their family/companion were sanctioned significantly more frequently. **Conclusions.** In our sample, we can observe that in the univariable analysis age, years of experience, family medicine speciality, the distance of the workplace from the nearest hospital and violence are associated with sanctioning. In the multivariable analysis: sex, years of experience, the distance of the workplace from the nearest hospital and violence are associated with sanctioning. The majority of sanctions were financial sanctions (84.5%).

Key Words: Sanctions ■ Primary Healthcare ■ Family Medicine ■ Financial Control ■ General Practitioners.

Introduction

The Republic of Macedonia, after becoming independent in 1991, underwent thorough reforms in the healthcare system. Previously, in the Socialist Federal Republic of Yugoslavia (SFRY), the healthcare system was state-owned. What made the Yugoslavian healthcare system unique in Eastern Europe was the implementation of Andrija Štampar's ideas in the 1920s. According to Štampar's model, the healthcare system had community-oriented primary health care and was funded from compulsory social insurance contributions (1–3). This model became a national policy after World

War II, however, the organizational and financing models at the primary level have changed in the independent countries after the breakup of Yugoslavia (1, 3). After Macedonia became independent, in the period from 1991 to 2005, there was an intensive transformation of primary health care from public to private. In this process, the Ministry of Health (MoH) and the Health Insurance Fund (HIF) of the Republic of Macedonia were involved, and through them the users of the health services as well as the public health institutions from the primary health care. Primary healthcare practitioners (PHPs) working in public health care were required to open private practices and enter

into a contract with the HIF on a capital model. Privatization was completed in 2007 (4–8). Despite the fact that we have gone through these changes, what has remained the same, and at the same time a problem for other countries that were previously part of the SFRY, is the system of regulation which is through sanctions.

To clarify the description of the organisation of primary health care, we constructed a diagram showing the interconnections between the bodies involved in that system (Figure 1). MoH assesses the organizational set-up of the institutions in the system and the need for restructuring processes and/or the establishment of new institutions and activities and monitors the efficiency of the HIF. Primary health care consists of five separate activities: general medicine, occupational medicine, child/pediatric health care (0-6 years), school medicine (pupils and young people aged 7 to 19) and women's health care (obstetrics and gynaecology) (5, 9). General medicine primary healthcare practitioners (GM-PHPs) in Macedonia consist of general practitioners (GPs) and family medicine

specialists (FMSs). GPs are physicians that finished 6 years of integrated studies in general medicine. The family medicine speciality is relatively new, being introduced and implemented in the programs for specialization and additional education on the Medical faculty of the University Ss. Cyril and Methodius in Skopje in 2009. The studies last 3 years and are self-funded (9, 10).

The GM-PHPs are paid by the HIF for their services: 70% of the monthly fee is the basic capitation that depends on the number and age of the insured and 30% of the monthly fee is meeting the goals depending on the amount of achievement. According to the law, GM-PHPs provide general medical services, prescription of drugs, issuance of referrals for specialist outpatient services, issuance of referrals for hospital treatment, issuance of sick leaves lasting up to 7 days or up to 15 days only after a recommendation from a specialist doctor (11–13). The MoH controls and regulates the work of health workers in primary health care through the State Health and Sanitary Inspectorate and the HIF. The control performed by the HIF in the

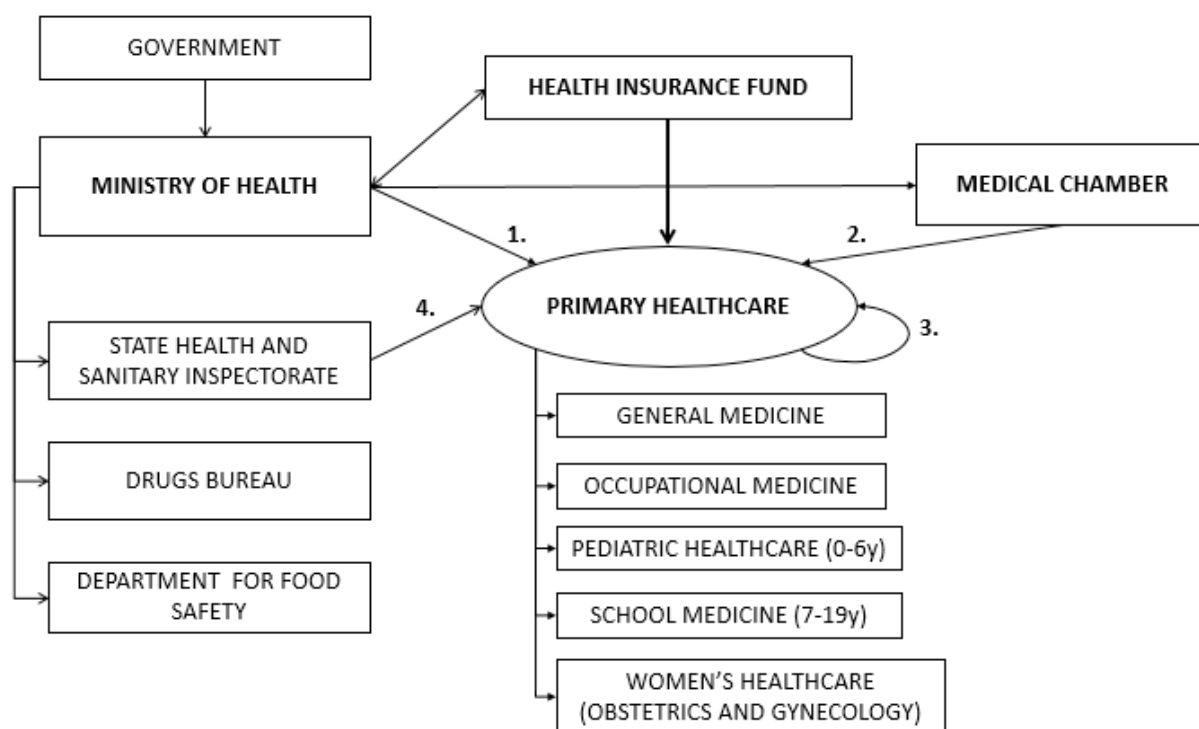


Figure 1. Regulatory Bodies responsible for controlling the work of primary healthcare practitioners.

health institution at the primary level is regulated through Article 31 of the contract that the primary healthcare institutions conclude with the HIF. The health institution is obliged at any time to provide the authorized persons for control of the Fund with insight and control in their entire operation (11, 12). The HIF controls the GM-PHPs on the following: prescription of medication and orthopaedic aids, casts and supports according to the HIF guidelines, achieving preventative goals, attending specific medical education, issuing referrals and sick leaves according to the HIF guidelines, delivering computer and paper documentation as well as other administrative work. They also review purchase reports for the medication and their expiration dates as well as the availability of mandatory ampule medication. The HIF obliges GM-PHPs to send monthly and yearly financial reports. Based on the capitation points they determine a certain financial amount the GM-PHPs can spend for certain medications in one health institution (11, 12).

There are four types of supervision over the work of PHPs in general (Figure 1) (13, 14):

1. Supervision over the legality of the work – performed by the MoH, as regular supervision in

accordance with the annual program and as needed or at the proposal of the HIF, the relevant chamber, state body, association and citizen.

2. Supervision over the professional work - performed by the Medical, Dental and Pharmaceutical Chamber in accordance with the annual plan.
3. Internal supervision over the professional work - performed by the director of the institution.
4. Inspection supervision - performed by the State Sanitary and Health Inspectorate.

According to Article 182 of the Law on Health Care of the Republic of Macedonia, the healthcare professional can be sanctioned with a public admonition, financial sanction and termination of employment depending on the severity of the violation – disciplinary misconduct (minor violation) and disciplinary offence (major violation) (13, 14). If the GM-PHP violates some of the provisions of the contract he has concluded with the HIF, according to Article 35 he pays a contractual penalty or receives an admonition. Depending on the type of violation, there are different sanctions: admonition before a contractual penalty, a contractual

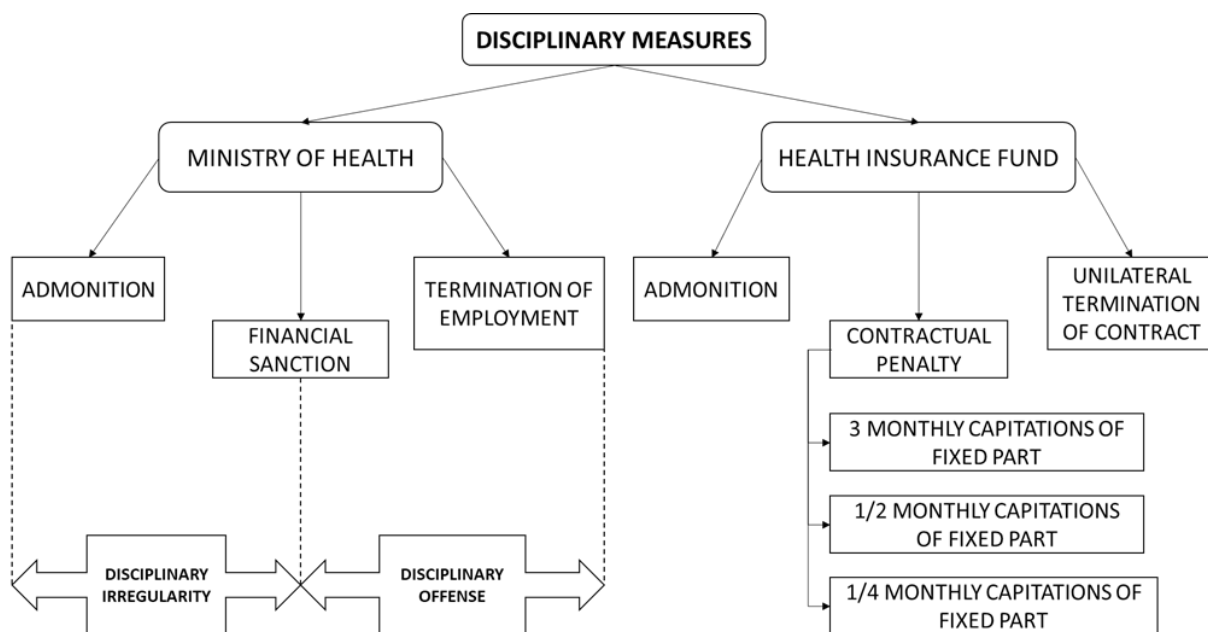


Figure 2. Disciplinary measures taken by the Ministry of Health and the Health Insurance Fund.

penalty in the amount of 3 monthly capitations of fixed part, a contractual penalty in the amount of ½ monthly capitations of fixed part and contractual penalty in the amount of ¼ monthly capitations of fixed part. There is also a possibility of unilateral termination of the contract (Figure 2) (11–13).

Currently, in Macedonia, there are no financial incentives for the good performance of GM-PHPs. The only undertaken stimulating measure is a special financing scale for GM-PHPs that work in rural areas and have less than 1800 capitation points. This tool was used to stimulate physicians to work in less populated areas (11). The different types of sanctions are the only form of regulation.

The aim of this study is to describe the types of sanctions, the reasons for sanctioning as well as the relationship between sanctioning and various demographic factors among GM-PHPs which include general practitioners (GPs) and family medicine specialists (FMSs). Additionally, we also want to see whether GM-PHPs experienced violence by patients or their relatives if they followed the HIF guidelines, and if there is a relationship between sanctions and violence by the patient and/or their family/companion when the GM-PHPs followed the HIF guidelines.

Materials and Methods

Study Design, Study Population, Timeframe and Data Collection

This study is cross-sectional and it was conducted in the form of a survey. The survey was compiled by the Association of General Practitioners and Physicians of Family Medicine of Southeast Europe (AGP/FM SEE) and additionally adapted for Macedonia.

Our target population was GM-PHPs – specifically GPs and FMSs. The survey was anonymous, randomly distributed in printed and electronic form in the period between November 2017 and March 2018. The survey was distributed with the help of the Center of Family Medicine and the Association of Residents and Young Physicians of Macedonia. We distributed 202 surveys in printed

form to GM-PHPs through the Center of Family Medicine, of which 197 were answered. The electronic survey was shared on an online platform of the Association of Residents and Young Physicians of Macedonia that is used by GM-PHPs. The electronic survey was filled by 241 GM-PHPs. In total, we received 438 filled surveys.

Survey

The survey contained 6 multiple-choice, 5 dichotomous and 1 mixed question. The data collected for descriptive statistics included: sex, age, family medicine speciality, years of experience working in primary health care, population count in the area of the workplace and its distance from the nearest hospital. Questions about sanctioning included: whether they have ever been sanctioned, the type of sanction and whether their salary has been reduced due to the sanction. There were also questions about whether physicians that followed the HIF guidelines, experienced pressure or violence by their patients or the patients' family/companions, and if so, what type of violence it was (verbal, physical or both). The mixed question was about the reason for sanctioning, where participants could choose one or more from the listed reasons or add their own option if it wasn't available.

Statistical Analysis

We used the SPSS statistical program to process the data. Categorical variables were represented by distribution frequencies. In order to test the differences between the compared variables, we used non-parametric tests (Chi-Square Test) and binary logistic regression. We considered the $P < 0.05$ values to be statistically significant.

Results

Descriptive Statistics

A total of 438 GM-PHPs from the Republic of Macedonia participated in our research. According to sex structure, 76.7% (336) were women and

Table 1. Sociodemographic Variables

Variable	N (%)
Gender	
Female	336 (76.7)
Male	102 (23.3)
Type of practitioner	
General practitioner	292 (66.7)
Family medicine specialist	146 (33.3)
Age	
25 – 29	63 (14.4)
30 – 39	139 (31.7)
40 – 49	113 (25.8)
50 – 59	92 (21.0)
≥ 60	31 (7.1)
Years of experience	
≤ 5	86 (19.6)
6 – 9	77 (17.6)
10 – 19	152 (34.7)
20 – 29	81 (18.5)
≥ 30	42 (9.6)
Population count in the area of workplace	
≤ 19,999	110 (25.1)
20,000 – 49,999	102 (23.3)
50,000 – 99,999	106 (24.2)
100,000 – 499,999	56 (12.8)
≥500,000	64 (14.6)
Distance of the workplace from the nearest hospital	
The workplace is part of the hospital	131 (29.9)
≤19 km	244 (55.7)
20 – 49 km	54 (12.3)
≥50 km	9 (2.1)

Sanctions, Violence and Reasons for Sanctioning

23.3% (102) were men. Out of the 438 participants, only 33.3% (146) were specialists in family medicine. In terms of age, the age group from 30 to 39 years dominates - 31.7% (139). Subsequently, according to the years of experience, the majority have 10-19 years of experience - 34.7% (152). Most of the doctors who participated in the study work in less populated areas - 25.1% (110) work in places with a population of less than 20,000, and 24.2% (106) participants in places with a population of 50,000 to 100,000. The workplace for most

Table 2. Sanctions and Violence

Variable	N (%)
Sanctioned	
Yes	302 (68.9)
No	136 (31.1)
Type of sanction	
Admonition	40 (13.2)
Admonition before termination	3 (1.0)
Financial sanction by scale	218 (72.2)
Financial sanction by damage	37 (12.3)
Unanswered	4 (1.3)
Reduction of salary because of sanction	
Yes	35 (11.6)
No	262 (86.7)
Unanswered	5 (1.7)
Violence by the patient and/or their family/companion	
Yes	321 (73.3)
No	110 (25.1)
Unanswered	7 (1.6)
Type of violence	
Verbal	305 (95.0)
Verbal and physical	16 (5.0)

participants is ≤19 km from the nearest hospital - 55.7% (244) (Table 1).

Out of the 438 participants, 68.9% (302) were sanctioned. According to the type of sanction, 84.5% were financial sanctions, with the dominion of financial sanction by scale (72.2%). Only 13.2% got admonition and 1% got admonition before termination. Most of the participants didn't have their salary reduced by the director of the primary healthcare institution due to the sanction by the HIF. If participants followed the HIF's guidelines, they were a lot more likely to experience pressure or violence by their patients or their family/companions. The type of violence in most cases was verbal (95%), and rarely both verbal and physical (5%) (Table 2).

There were 414 selected and/or added responses from the survey about the reasons for sanctioning. They were categorized in the groups shown in Table 3. The most common reason selected was "Financial consumption of prescriptions/referrals

Table 3. Frequency Table for Variable: Reasons for Sanctioning

Reasons for sanctioning	N (%)
Financial consumption of prescriptions/referrals above the agreed amount	119 (28.7)
Higher rate of sick leaves and/or unjustified sick leaves	91 (22.0)
Unrealized preventative goals or education	86 (20.8)
Prescribing medication outside of the HIF guidelines	48 (11.6)
Incomplete or not timely updated documentation	28 (6.8)
Lack of ampule medication or expired medication	10 (2.4)
Prescribing orthopaedic aids, casts and supports outside of the HIF guidelines	7 (1.7)
Giving referrals outside of the HIF guidelines for diagnosis	5 (1.2)
Secondary or tertiary healthcare practitioners' error	5 (1.2)
Others	15 (3.6)
Total	414 (100)

above the agreed amount”, followed by “Higher rate of sick leaves and/or unjustified sick leaves” and “Unrealized preventative goals or education”. Out of the 28 in the category “Incomplete or not timely updated documentation”, 18 were due to mistakes or omissions in paper documentation and 5 were about omissions in the electronic health record. In the category “Lack of ampule medication or expired medication”, 8 were for the lack of the ampule medication (medication in liquid form) which is mandatory according to HIF and 2 were for expired glucose solutions. The category “Secondary or tertiary healthcare practitioners' error” consists of doctors who wrote that they were sanctioned because the specialists' report contained the wrong diagnosis or a medication that couldn't be prescribed by the GP or FMS for a certain diagnosis. The category “Others” contains reasons that weren't specified or that couldn't be grouped (singular different violations).

Relationship of Different Variables with Sanctions

For the univariable analysis, a chi-square test was done to examine the relationship between sanctioning and various variables. The sex of GM-PHPs was not associated with the sanctioning by the HIF ($P=0.2$), although men were sanctioned by 6.8%

more. Physicians' age had a significant association with HIF's sanctioning ($P<0.001$). Sanctioning of the GM-PHPs by HIF was associated significantly with their working experience ($P<0.001$). GM-PHPs having the least experience, i.e. having the length of the service years of 5 years and shorter, were sanctioned more rarely than the doctors with longer working experience - 38.4% (33/86). The variable type of practitioner had a statistically significant association with sanctioning. FMSs were sanctioned by the HIF more frequently than the GPs - 76% (111/146) vs 59.9% (175/292), $P=0.001$ (Table 4). In this study, it was not proved that the sanction of the GM-PHPs by HIF depended significantly on the population count in the area of the workplace ($P=0.231$). The distance to the workplace from the nearest hospital had a significant association with the sanctions of GM-PHPs ($P=0.005$) (Table 4). Violence from the patient and/or their family/companion had a statistically significant association with sanctioning ($P<0.001$). GM-PHPs who have followed the HIF guidelines and have been subjected to violence by the patient and/or their family were more often sanctioned than physicians who have not experienced it. (Table 4).

After the univariable analysis, a binary logistic regression was performed to ascertain the effects of sex, type of practitioner, years of experience, the distance of workplace from the nearest hospital and violence by the patient and/or their fam-

Table 4. Overview: Differences in Sanctioning Against Physicians by Sociodemographic Variables

Variable	Value	Sanctioned		UA*	MA†	OR (95% CI)
		Yes N (%)	No N (%)	P	P	
Gender	Female	214 (63.7)	122 (36.3)	0.200	0.03	0.541 (0.311-0.941)
	Male	72 (70.6)	30 (29.4)			
Type of practitioner	FMS‡	111 (76.0)	35 (24.0)	<0.001	0.121	1.494 (0.899-2.484)
	GP§	175 (59.9)	117 (40.1)			
Age	25-29	23 (36.5)	40 (63.5)	<0.001	-	-
	30-39	95 (68.3)	44 (31.7)			
	40-49	80 (70.8)	33 (29.2)			
	50-59	59 (64.1)	33 (35.9)			
	≥ 60	29 (93.5)	2 (6.5)			
Years of experience	≤ 5	33 (38.4)	53 (61.6)	<0.001	-	-
	6-9	50 (64.9)	27 (35.1)			
	10-19	113 (74.3)	39 (25.7)			
	20-29	56 (69.1)	25 (30.9)			
	≥ 30	34 (81.0)	8 (19.0)			
Population count in the area of workplace	≤19.999	72(65.5)	38(34.5)	0.231	-	-
	20.000 – 49.999	63(61.8)	39(38.2)			
	50.000 – 99.999	63(59.4)	43(40.6)			
	100.000 – 499.999	41(73.2)	15(26.8)			
	≥500.000	47(73.4)	17(26.6)			
Distance of the workplace from the nearest hospital	Workplace¶	89 (67.9)	42 (32.1)	0.005	-	-
	≤19 km	168 (68.9)	76 (31.1)			
	20 – 49 km	24 (44.4)	30 (55.6)			
	≥50 km	5 (55.6)	4 (44.4)			
Violence by the patient and/or their family/companion	Yes	232 (72.3)	89 (27.7)	<0.001	<0.001	2.710 (1.659-4.429)
	No	52 (47.3)	58 (52.7)			

*Univariable analysis (Chi-square test); †Multivariable analysis (Logistic regression); ‡Family medicine specialist; §General practitioner; ¶The workplace is part of the hospital.

ily/companion on the likelihood that participants are sanctioned. The logistic regression model was statistically significant, $\chi^2=80.614$, $P<0.001$. The model explained 23.6% (Nagelkerke R^2) of the variance in sanctioning and correctly classified 74.0% of cases. While in the univariable analysis sex was insignificant, in the multivariable analysis we observed that females were less likely to be sanctioned than males. When other variables were taken into account, the type of practitioner was not associated with sanctioning. Age was shown to be a confounding factor and thus it wasn't included in the multivariable analysis. Increasing years of experience was associated with an increased odds

ratio for sanctioning. GM-PHPs with 30 or more years of experience have 8.7 times higher odds to be sanctioned than those with 5 or fewer years of experience. Distance of the workplace from the nearest hospital and Violence by the patient and/or their family/companion remain significant both in the univariable and multivariable analysis. GM-PHPs that experienced violence by their patient and/or the patient's family/companion have 2.71 times higher odds to be sanctioned than those that didn't experience violence, when sex, type of practitioner, years of experience and distance of the workplace from the nearest hospital are taken into consideration.

Discussion

We wanted to investigate the problem from several angles, so we explored several factors. Firstly, the relationship between sanctions and the demographic factors: sex, age, type of practitioner, years of experience, population number in the workplace and the location of the workplace in relation to the nearest hospital. We considered that these factors may affect the penal policy by the inspection. Secondly, we wanted to see whether GM-PHPs that followed the HIF guidelines experienced violence by patients or their family/companion and if there is a relationship between sanctions and violence by the patient and/or their family/companion. Thirdly, and most importantly, we described the types of sanctions and the reasons for sanctioning.

In 2017 the total number of GM-PHPs (both GPs and FMSs) in Macedonia was 1577, which is 0.86 doctors per 1000 insured (15). Our research covered 438 GM-PHPs, which is 27.8% of the total number of registered GM-PHPs at that time. With a 95% confidence level, our sample is representative with a margin error of 3.98%. A cross-sectional study in the UK has shown that female GPs were the least likely to receive sanctions compared with their male colleagues (16). Since general medicine in Macedonia was predominated by women (17), we thought the same might occur, but even so, there wasn't any association between sex and sanctions in the univariable analysis. However, in the multivariable analysis, it was shown that female GM-PHPs were less likely to be sanctioned than their male colleagues. This means that sex is not significant by itself, however when we include the type of practitioner, years of experience, the distance of the workplace from the nearest hospital and violence by the patient and/or their family/companion it gains significance.

On the other hand, we concluded that there is an association between age and sanctions. Older GM-PHPs were sanctioned significantly more than younger GM-PHPs. We need to take into consideration the phrasing of the question in our survey "Have you ever been sanctioned by the HIF?" which automatically gives younger age

groups less chance for being sanctioned since they have worked for a shorter period of time and thus haven't been exposed to a lot of regulation and inspections during their work. With the multivariable analysis, we excluded age since it showed a correlation with years of experience and we only kept years of experience in the model. In both the univariable and multivariable analyses, doctors with the least experience were sanctioned significantly more rarely.

A paramount question that arose from the univariable analysis is: Why are FMSs sanctioned significantly more than GPs? We would assume that since they are specialists in this field that they had more training and education and subsequently would be less sanctioned. When we included other variables in the model we see that this effect was a result of an influence of another variable.

Whether the area of the workplace is urban or rural, it didn't associate with the sanctions. But interestingly enough, the location of the workplace in relation to the nearest hospital did. Doctors with workplaces in the hospital or ≤ 19 km from it were significantly more sanctioned. Are these doctors more prone to mistakes and why, or do the inspectors target these workplaces more often? Further research is needed to find an answer.

The frightening fact is that 73.3% of the GM-PHPs were exposed to violence by their patients if they followed the HIF guidelines and refused to step out of them. This implies that either our patient population isn't well informed and educated about the functioning of the primary healthcare system and their rights and obligations as a patient or the system isn't adequately organized to fulfil the needs of said patients. In the WHO Primary healthcare report about Macedonia, respondents reported patients' general distrust towards primary health care, with about 20–30% of patients requesting the PHP to hospitalize them. This also influenced referral rates (9). Our quantitative data shows that the GM-PHPs who experience more violence after following the guidelines are also significantly more sanctioned than those who don't. Additional research is needed to conclude whether sanctioning happens because doctors give in un-

der the pressure and violence by their patients and go against HIF guidelines, or the irregularities during their work for which they are sanctioned make their patients unsatisfied with the care and they resort to violence. In 2016, Healthgrouper researched 240 PHPs and determined that 75% of the participants have faced various forms of violence. The majority of doctors (60%) said that the reasons for the attacks were due to dissatisfaction with the health system as a whole. In terms of the type of violence, they determined that 90% were verbal, and only 10% physical violence. In terms of location, 73% happened in the workplace, and less than 2% outside of the workplace (18). We can observe that this is an ongoing problem from the past, with numbers being consistent, suggesting a need for new policies to be applied to assure the safety of the PHPs and the improvement of the quality and organization of primary health care and subsequently reducing both violence and sanctioning.

Concerning the type of sanctions, we can see that the financial sanctions predominate admonitions, with financial sanctions by scale with 72.2%. According to a study by Healthgrouper in 2012, 44% of the physicians who participated in the study confirmed that they were sanctioned by the HIF the previous year, and sanctions vary and range up to 25% of the total amount of capitation for more prescriptions, passive patients, and deletion of patients' information while transferring the insured patients from one workplace to another. Many doctors believed that their income has been unfairly reduced and that their capitation is often reduced (19). Comparing to this study we see a rise of 24.9% in sanctioning, and the most common reason for sanctioning remains the same - exceeding the permitted number of prescriptions/referrals. However, only 11.6% of the doctors had their salary additionally reduced by the director of the primary healthcare institution due to their sanction.

The most common reasons for sanctioning are closely connected to the change of the system with the privatization and introducing limitations to prescribing medicine, issuing referrals and sick

leaves and realizing the preventative goals and education. We need to determine what is the reason for exceeding these limitations and whether it is justifiable to increase the number of prescriptions and referrals one physician can give. Consumption of prescription drugs at the expense of the HIF in the period from 2008 to 2017 shows a continuous increase, with ATC C group drugs being the most consumed drugs. The top 5 prescribed drugs were: ACE inhibitors, anxiolytics, beta-blocking agents, blood glucose-lowering drugs and drugs for peptic ulcer and gastro-oesophageal reflux (20). The increasing trend of prescription drugs consumption continued in the period from 2017 to 2019, with ATC C group drugs still being the most consumed. On the other hand, there was a 1.4% decrease compared to 2018 in the prescribing of antibiotics (21). The fact that the highest prescription consumption is for drugs that are used for chronic diseases gives rise to the question about the structure of the patient population of GM-PHPs who got sanctioned for "Financial consumption of prescriptions/referrals above the agreed amount". Since different GM-PHPs can have various populations of patients, it is logical that a physician with a larger portion of chronic registered patients will spend more prescriptions and/or referrals per month, than a physician with a majority of healthy young registered patients. Further research needs to be done to determine whether GM-PHPs with a higher number of registered chronic patients are sanctioned more for exceeding the prescription limit.

PHPs who mostly work in solo practices (68%) have a relatively high number of registered patients, usually 2000-4000 per practice, although regional differences exist. In the WHO Primary healthcare report about Macedonia, respondents claimed that they cannot refuse to register a new patient in their practice and that employing a new PHP in the practice is too complicated. With so many patients and administration, they didn't have much time left to examine the patient who is then referred to a specialist. It was concluded that the considerable number of registered patients partly explained the high rate of referrals to secondary health care. Another reason is the inability of PHPs

to prescribe certain medicines without a report of a specialist's opinion, such as insulin, statins, levothyroxine, oral and nasal corticosteroids; or order specific diagnostic tests, such as endoscopies, MRI or CT scans (9). The high referral rate is a symptom of low responsiveness of primary health care, generating safety concerns and bottlenecks in secondary health care.

In the Republic of Macedonia, an Electronic Health Card is used since 2006 and an electronic health information system called "Moj Termin" (literally translated as My Appointment) is used since 2013 (5, 9). The Electronic Health Card contains the patient's personal data and provides access to the patient's health data that is stored in a centralized database (5). "Moj Termin" is used to create an electronic health record, introducing new work processes such as electronic referrals, prescriptions and examination appointments that ensure good communication between primary, secondary and tertiary health care. This system reduces administrative work and increases quality service (22). Even with the introduction of the electronic health system, GM-PHPs are still obligated to record data both in paper and electronic forms which doubles the time spent on administrative work and the chances of making mistakes. Although there were only 28 responses for "Incomplete or not timely updated documentation", it is of importance to note that the majority were due to omissions or mistakes in paper documentation. Studies showed that the use of electronic systems reduces medical errors compared with paper-based methods (23). Taking all of this into consideration, it is questionable why the HIF still obliges GM-PHPs to record paper documentation.

Understanding and evaluating the system of organization and regulation in primary healthcare of a low-income, post-socialist country such as Macedonia is beneficial especially to the countries that have mainly public primary healthcare and are planning to transition into a completely private primary healthcare or a private-public partnership. Studies comparing pre- and post-privatization outcomes tended to find worse health system performance associated with rapid and extensive

healthcare privatization initiatives (24). Our study sheds a bit of light on the healthcare regulatory system in Macedonia and the controls GM-PHPs face, but also raises a lot of questions that need to be answered in further research in order to constructively recommend improvements of said system.

Conclusion

With this study, we observed that in the univariable analysis age, years of experience, family medicine speciality, the distance of the workplace from the nearest hospital and violence are associated with sanctioning. In the multivariable analysis, we observed that: sex, years of experience, the distance of the workplace from the nearest hospital and violence are associated with sanctioning of the GM-PHPs in Macedonia. The most common reasons for sanctioning were the ones that were related to the change of the system with the privatization of primary healthcare. The types of sanctions were mostly financial and rarely admonitions. This study raised a lot of questions about the functionality of the regulatory systems in Macedonia, the effectiveness of the defined disciplinary measures and the quality of care GM-PHPs provide. Further research is needed to determine whether the dysfunctionality of the policies is due to disorganization of the regulatory bodies, lack of experience and education of the physicians or a mix of both.

What Is Already Known on This Topic:

In the Republic of Macedonia, the quality and effectiveness of the work of GM-PHPs are regulated by the Health Insurance Fund and the Ministry of Health through a system of sanctions. The sanctions used are admonition, financial sanction and termination of contract/employment. Previous studies on this topic about this country are scarce.

What This Study Adds:

In our sample of 438 GM-PHPs, with a multivariable analysis, we can observe that sex, years of experience, the distance of the workplace from the nearest hospital and violence are associated with sanctioning. The majority of sanctions were financial sanctions (84.5%). The most common reasons for sanctioning were: "Financial consumption of prescriptions/referrals above the agreed amount", followed by "Higher rate of sick leaves and/or unjustified sick leaves" and "Unrealized preventative goals or education".

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