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Prevalence of professional burnout among practicing cardiologists in the constituent entities of the Russian Federation

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The burnout syndrome among healthcare professionals is a headline problem in the world, as it leads to poor health of medical workers, affects patient satisfaction with health care and the healthcare system as a whole. At the same time, existing preventive measures can improve the well-being of staff.

Aim. To study the prevalence of professional burnout syndrome among practicing cardiologists in the Russian Federation (RF).

Material and methods. This cross-sectional study was carried out using the method of online anonymous surveying. The inclusion criterion was the current practical activity in the RF. The study involved 452 cardiologists from 8 federal districts (women; n=377, 83,4%), 48,2% of which worked in a hospital. Occupational burnout was assessed using the Maslach Burnout Inventory (MBI) questionnaire in the Russian language adaptation for healthcare workers by N. E. Vodopyanova and E. S. Starchenkova. The score was calculated on three subscales (emotional exhaustion, depersonalization, personal accomplishment), the maximum score for the subscales was 54, 30 and 48, respectively. The personal accomplishment subscale is the opposite as follows: the higher the score, the less the symptom severity. Additionally, demographic parameters, working conditions, the desire to change job and field of activity were taken into account. Regression analysis was used to establish associations of burnout with factors.

Results. The median score of the emotional exhaustion subscale was 29,5 (23,0; 35,0) points, depersonalization — 12,0 (8,0; 16,0) and personal accomplishment — 32,0 (28,0; 37,0). Men had higher depersonalization score than women as follows: 15,0 (10,0; 18,0) vs 11,0 (8,0; 15,0), p=0,001. High degrees of emotional exhaustion and depersonalization (burnout) were found in 235 (52%) cardiologists, while all three symptoms simultaneously — in 132 (29,2%) doctors. There were no symptoms of burnout in 84 (18,6%) cardiologists. A high degree of burnout was associated with a desire to change job (p<0,001).

Conclusion. A high prevalence of professional burnout among practicing cardiologists in the RF was revealed, which, in turn, is associated with the desire to change job or occupation.

Keywords: professional burnout, cardiologists, emotional exhaustion, depersonalization.

Relationships and Activities: none.

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Key messages

- To determine the prevalence of professional burnout among practicing cardiologists in the Russian Federation, a cross-sectional study was conducted using online anonymous surveying with MBI questionnaire in Russian language adaptation.
- The questionnaire was completed by 452 cardiologists from institutions of different types of incorporation.
- We established that more than 50% of cardiologists have a high emotional exhaustion and depersonalization.
- Identification of severe burnout symptoms is associated with the desire to change job.

Workplace stress can affect the well-being of employees and their productivity. Compared with other fields of activity, the medical environment with its inherent busy working days, lack of time, emotional and mental stress can expose physicians to a greater risk of professional burnout [1]. Burnout has negative health consequences, is associated with depression, suicidal thoughts, and is often combined with smoking and alcohol abuse [2-4].

According to the three-component model by S. Maslach, burnout is a psychological syndrome, including emotional exhaustion, depersonalization, reduction of personal achievements, which develops in connection with prolonged work stress [5]. According to various data, the prevalence of burnout among doctors varies from 10 to 60% [1, 4, 6]. Among the reasons leading to burnout, they note the constantly growing amount of work and the responsibility for the life and health of patients, a large number of contacts with sick people and their relatives, changing working conditions, working with electronic medical documents, the need to spend a lot of time in a close team of specialists, increased requirements for professional competence and dedication, control by management, as well as personal characteristics of specialists [7-9].

Burnout among doctors affects not only their well-being, but also the treatment of patients, interaction with colleagues and the healthcare system as a whole [10]. Survey results show that patients are less satisfied with consultations with physicians experiencing burnout [11]. Some foreign studies have shown a connection between burnout and medical errors [3, 4, 12-14]. Health care systems in such cases suffer financial losses associated with increased staff turnover [15].

Cardiologists are among the professionals who can be particularly stressed due to the high prevalence of severe cardiovascular diseases, the need to make decisions quickly, the increased risk of adverse events and patient death, especially during the coronavirus disease (COVID-19) pandemic. In the US in 2022, 42% of cardiologists experienced burnout[1].

[1] https://www.medscape.com/slideshow/2022-lifestyle-burnout-6014664#2.

In the Russian Federation, there are few studies on the prevalence of burnout among physicians [16-19]. In the largest study among 1668 doctors of various specialties in the Tomsk region, using the Maslach Burnout Inventory (MBI) questionnaire, a high and extremely high professional burnout was detected in 63% of specialists [16]. The prevalence of burnout among Russian cardiologists has not been previously studied.

The study aim was to determine the prevalence of professional burnout syndrome among practicing cardiologists in the Russian Federation.

Material and methods

Study design. Specialists of the Almazov National Medical Research Center planned and conducted a cross-sectional study in the period from November 2021 to March 2022. The main method was an anonymous online survey of doctors, and therefore informed consent was not required. The inclusion criteria were practical activities as a cardiologist in the Russian Federation, in a medical organization of any form of ownership, both at the main place of work and part-time. The questionnaire was published on the websites of the Almazov National Medical Research Center and the Russian Society of Cardiology (RSC). In addition, the questionnaire was additionally sent by e-mail to RSC members.

Sample bias associated with the study design and different responses of physicians in the federal districts is one of the study limitations.

The basis of the developed questionnaire was the MBI questionnaire in Russian-language adaptation by N. E. Vodopyanova and E. S. Starchenkova for medical workers [20]. The questionnaire contains 22 statements about feelings and experiences associated with professional duties. Symptoms of professional burnout were divided into three following subscales: emotional exhaustion (9 statements), depersonalization (5 statements), personal accomplishment reduction (8 statements). Each statement was rated from 0 to 6 points ("never" — 0 points, "very rarely" — 1 point, "rarely" — 2 points, "sometimes" — 3 points, "often" — 4 points, "very often" — 5 points, "always" — 6 points).

Table 1

Assessment of burnout levels

	Burnout degree (number of points)		
Subscale	Low	Moderate	High
Emotional exhaustion	0-15	16-24	⩾25
Depersonalization	0-5	6-10	⩾11
Personal accomplishment reduction	⩾37	31-36	⩽30

Table 2

Characteristics of cardiologists who took part in the study

Parameter	Total, n=452, N (%)	Women, n=377, N (%)	Men, n=75, N (%)	P
Age, years (Me (Q1; Q3))	38 (32; 46)	38 (32; 46)	37 (29; 46)	0,452
Marital status				
Married	295 (65,3)	244 (64,7)	51 (68)	0,586
Single	157 (34,7)	133 (35,3)	24 (32)	
Children				
Yes	307 (67,9)	261 (69,2)	46 (61,3)	0,181
No	145 (32,1)	116 (30,8)	29 (38,7)	
Experience, years (Me, (Q1; Q3)	13 (6; 21)	13 (7; 21)	13 (5; 22)	0,466
Region				
Urban	429 (94,9)	357 (94,7)	72 (96)	0,639
Rural	23 (5,1)	20 (5,3)	3 (4)	
Federal District				
FEFD	4 (0,9)	3 (0,8)	1 (1,3)	0,770
VFD	148 (32,7)	126 (33,4)	22 (29,3)	
NWFD	81 (17,9)	70 (18,6)	11 (14,7)	
NCFD	20 (4,4)	17 (4,5)	3 (4)	
SFD	25 (5,5)	20 (5,3)	5 (6,7)	
UFO	29 (6,4)	26 (6,9)	3 (4)	
CFD	58 (12,8)	45 (11,9)	13 (17,3)	
SFD	87 (19,2)	70 (18,6)	17 (22,7)	
Type of employment				
Full-time	284 (62,8)	234 (62,1)	50 (66,7)	0,628
Full- and part-time	97 (21,5)	84 (22,3)	13 (17,3)	
Only part-time	71 (15,7)	59 (15,6)	12 (16)	
Work status				
Daytime only	270 (59,7)	240 (63,7)	30 (40)	0,001
Daytime and 24-hour	163 (36,1)	122 (32,4)	41 (54,7)	
Only 24-hour	19 (4,2)	15 (4)	4 (5,3)	
Place of work*				
Outpatient clinic	65 (14,4)	59 (15,6)	6 (8)	0,426
Krai/republican/regional/district hospital	99 (21,9)	79 (21)	20 (26,7)	
NMRC	43 (9,5)	38 (10,1)	5 (6,7)	
City hospital	91 (20,1)	72 (19,1)	19 (25,3)	
Private medical organization	29 (6,4)	22 (5,8)	7 (9,3)	
Cardiology dispensary	44 (9,7)	37 (9,8)	7 (9,3)	
Research center	30 (6,6)	27 (7,2)	3 (4)	
University clinic	11 (2,4)	10 (2,7)	1 (1,3)	
Central Regional Hospital	40 (8,8)	33 (8,8)	7 (9,3)	

Table 2. Continuation

Parameter	Total, n=452, N (%)	Women, n=377, N (%)	Men, n=75, N (%)	P
Conditions of care				
Outpatient	218 (48,2)	192 (50,9)	26 (34,7)	0,010
Inpatient	234 (51,8)	185 (49,1)	49 (65,3)	
Want to change jobs	212 (46,9)	173 (45,9)	39 (52)	0,333
Want to change profession	112 (24,8)	90 (23,9)	22 (29,3)	0,317

Note: data are presented as n (%). * — the full-time work where the doctor works in the "cardiology" specialty or, in the absence of such, a part-time job was taken into account.

Abbreviations: FEFD — Far Eastern Federal District, NMRC — National Medical Research Center, VFD — Volga Federal District, NWFD — Northwestern Federal District, NCFD — North Caucasian Federal District, SFD — Siberian Federal District, UFD — Urals Federal District, CFD — Central Federal District, SFD — Southern Federal District.

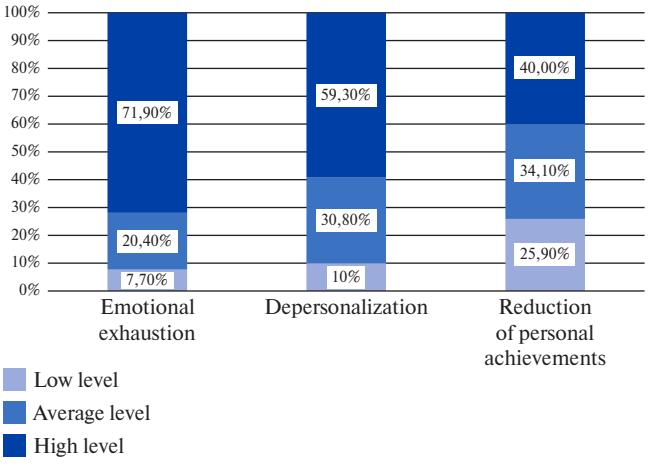

Figure 1. Distribution of burnout signs among cardiologists.

The subscale "personal accomplishment reduction" is reversed, the statement "never" corresponds to 6 points, the statement "always" — 0 points. The scores were summarized for each of the subscales. The maximum score for the subscale "emotional exhaustion" was 54, "depersonalization" — 30, "personal accomplishment reduction" — 48. The level of each burnout symptom was assessed separately and their combinations. The higher the score of the emotional exhaustion and depersonalization subscales and the lower the personal accomplishment reduction scale, the higher the level of burnout. We distinguished low, medium, and high burnout levels for each of the subscales (Table 1) [21].

Burnout syndrome was considered the identification of high rates on emotional exhaustion and depersonalization subscales. The extreme burnout

Table 3

Factors associated with burnout in cardiologists

Parameter	N	Emotional exhaustion	Depersonalization	Personal accomplishment reduction
		Me (Q1; Q3)	Me (Q1; Q3)	Me (Q1; Q3)
Age, years				
23-30	97	29,0 (24,5; 36,0)	13,0 (9,0; 17,0)	32,0 (28,0; 37,0)
31-40	164	29,5 (23,0; 35,0)	12,0 (8,0; 17,0)	33,0 (28,25; 37,0)
41-50	118	31,0 (23,0; 36,25)	12,0 (8,0; 16,0)	31,0 (28,0; 35,0)
>51	73	29,0 (22,0; 34,5)	11,0 (7,0; 15,0)	32,0 (28,5; 36,5)
P		0,309	0,257	0,498
Sex				
Female	377	30,0 (24,0; 35,0)	11,0 (8,0; 15,0)	32,0 (29,0; 37,0)
Male	755	29,0 (22,0; 36,0)	15,0 (10,0; 18,0)	31,0 (26,0; 36,0)
P		0,765	0,001	0,091
Marital status				
Married	295	30,0 (24,0; 35,0)	12,0 (8,0; 16,0)	32,0 (29,0; 37,0)
Single	157	29,0 (22,0; 36,0)	12,0 (8,5; 16,0)	32,0 (27,5; 36,5)
P		0,636	0,759	0,634

Table 3. Continuation

Parameter	N	Emotional exhaustion	Depersonalization	Personal accomplishment reduction
		Me (Q1; Q3)	Me (Q1; Q3)	Me (Q1; Q3)
Children				
Yes	307	30,0 (23,0; 35,0)	12,0 (8,0; 16,0)	32,0 (29,0; 37,0)
No	145	29,0 (24,0; 36,0)	12,0 (9,0; 18,0)	32,0 (28,0; 37,0)
p		0,861	0,093	0,706
Experience, years				
1-15	269	29,0 (24,0; 35,0)	12,0 (8,5; 17,0)	32,0 (28,0; 37,0)
16-30	143	31,0 (23,0; 36,0)	12,0 (8,0; 15,0)	31,0 (29,0; 35,0)
>31	40	27,5 (22,0; 31,75)	11,0 (7,0; 14,0)	32,0 (28,25; 39,0)
p		0,071	0,078	0,390
Region				
Urban	429	30,0 (24,0; 35,0)	12,0 (8,0; 16,0)	32,0 (28,5; 37,0)
Rural	23	27,0 (17,0; 35,0)	12,0 (7,0; 15,0)	30,0 (27,0; 35,0)
p		0,204	0,298	0,467
Federal District				
FEFD	4	23,0 (18,8; 28,0)	14,0 (11,0; 14,75)	32,5 (30,0; 39,5)
VFD	148	29,0 (23,0; 34,0)	12,0 (8,0; 16,0)	32,0 (29,0; 36,8)
NWFD	81	28,0 (21,5; 35,0)	11,0 (7,0; 15,5)	32,0 (28,0; 37,5)
NCFD	20	34,0 (26,5; 42,8)	13,5 (9,25; 17,8)	33,0 (28,5; 36,8)
SFD	25	33,0 (27,0; 39,0)	11,0 (8,5; 18,0)	30,0 (26,0; 33,0)
UFO	29	32,0 (27,5; 38,0)	12,0 (10,0; 16,5)	31,0 (28,5; 35,5)
CFD	58	28,0 (21,8; 32,3)	12,0 (8,8; 15,0)	32,0 (29,8; 37,3)
SFD	87	30,0 (25,0; 37,0)	13,0 (9,0; 18,0)	32,0 (27,0; 38,0)
p		0,044	0,296	0,833
Type of employment				
Full-time	284	29,5 (24,0; 35,75)	12,0 (8,0; 16,0)	31,0 (28,0; 36,0)
Full- and part-time	97	29,0 (22,0; 36,0)	12,0 (8,0; 16,0)	34,0 (30,0; 39,0)
Only part-time	71	30,0 (25,0; 34,0)	12,0 (8,0; 16,0)	32,0 (28,0; 39,0)
p		0,943	0,711	0,011
Work status				
Daytime only	270	30,0 (23,0; 35,0)	11,0 (8,0; 15,0)	32,0 (28,75; 37,0)
Daytime and 24-hour	163	30,0 (23,0; 38,0)	13,0 (9,0; 17,0)	33,0 (28,0; 37,0)
Only 24-hour	19	29,0 (26,0; 35,0)	12,0 (11,0; 17,0)	31,0 (27,0; 33,0)
p		0,451	0,011	0,388
Place of work				
Level 3 hospital	112	30,0 (25,0; 36,4)	14,0 (10,0; 18,0)	32,0 (27,0; 37,0)
First contact health organizations	94	30,0 (24,8; 34,3)	12,0 (8,0; 16,0)	32,0 (28,0; 37,0)
CH, CRH	129	29,0 (22,5; 35,0)	12,0 (8,0; 16,0)	32,0 (28,5; 36,5)
Specialized Center	117	29,0 (22,5; 35,0)	10,0 (7,0; 15,0)	33,0 (29,5; 38,0)
P		0,147	0,002	0,644
Conditions of care				
Outpatient	218	29,0 (22,0; 35,0)	11,5 (8,0; 16,0)	32,0 (29,0; 37,0)
Inpatient	234	30,0 (24,0; 37,0)	12,0 (9,0; 16,0)	32,0 (28,0; 36,0)
p		0,169	0,087	0,263
Work load				
Up to 1 rate	234	29,0 (22,0; 35,0)	12,0 (8,0; 16,0)	32,0 (28,0; 35,0)

Table 3. Continuation

Parameter	N	Emotional exhaustion	Depersonalization	Personal accomplishment reduction
		Me (Q1; Q3)	Me (Q1; Q3)	Me (Q1; Q3)
1,25-1,5 rates	163	30,0 (25,0; 36,0)	12,0 (9,0; 15,0)	32,0 (29,0; 37,0)
>1,5 rates	55	30,0 (24,0; 38,0)	12,0 (8,0; 17,0)	34,0 (29,0; 39,0)
p		0,211	0,958	0,050
Want to change jobs				
Yes	212	34,0 (28,0; 39,0)	14,0 (10,0; 18,0)	30,0 (27,0; 35,0)
No	240	27,0 (21,0; 32,0)	10,0 (7,0; 14,0)	33,0 (30,0; 38,0)
p		<0,001	<0,001	<0,001
Want to change profession				
Yes	112	35,00 (30,00; 41,75)	16,0 (11,0; 19,0)	30,0 (26,0; 35,0)
No	340	28,0 (22,0; 34,0)	11,0 (8,0; 15,0)	32,0 (29,0; 37,0)
p		<0,001	<0,001	<0,001

Abbreviations: CH — city hospital, FEFD — Far Eastern Federal District, NMRC — National Medical Research Center, VFD — Volga Federal District, NWFD — Northwestern Federal District, NCFD — North Caucasian Federal District, SFD — Siberian Federal District, UFD — Urals Federal District, CFD — Central Federal District, SFD — Southern Federal District.

Table 4

Detection rate of symptoms of high burnout among cardiologists depending on a mind to change jobs or profession

High rate	Want to change jobs		Want to change profession	
	Yes, N (%)	No, N (%)	Yes, N (%)	No, N (%)
None of the subscales	18 (8,5)	66 (27,5)	5 (4,5)	79 (23,2)
According to 1 subscale	35 (16,5)	59 (24,6)	14 (12,5)	80 (23,5)
According to 2 subscales	71 (33,5)	71 (29,6)	40 (35,7)	102 (30)
According to 3 subscales	88 (41,5)	44 (18,3)	53 (47,30)	79 (23,2)

Table 5

Univariate regression analysis of the association of a mind to change jobs with burnout symptoms

Predictor	OR	95% CI (OR)	p
Emotional exhaustion score	1,08	1,05-1,11	<0,0001
Depersonalization score	1,08	1,03-1,13	0,0013
Personal accomplishment reduction score	0,97	0,96-1,00	0,026

Abbreviations: CI — confidence interval, OR — odds ratio.

was considered high values for all three subscales.

To study the factors associated with burnout, the questionnaire additionally included data on age, sex, marital status, place and nature of work, length of service, desire to change jobs or profession. Respondents were also asked to rank, from higher to lower significance, the factors affecting job satisfaction (salary, professional support of the team, the level of equipment and the availability of examinations for patients, the management loyalty, the cohort of patients, the prospect of career and professional growth, the degree of daily workload).

Statistical analysis. SPSS 25.0 software was used for statistical processing. Qualitative data are presented as absolute and relative frequencies, while quantitative data are presented as median, first and third quartiles (Me (Q1; Q3)). To compare the frequencies of qualitative features, Pearson's χ^2 test was used. To assess the difference in two or more independent samples, the nonparametric Mann-Whitney and Kruskal-Wallis U tests are used. The null hypothesis of no difference in values between

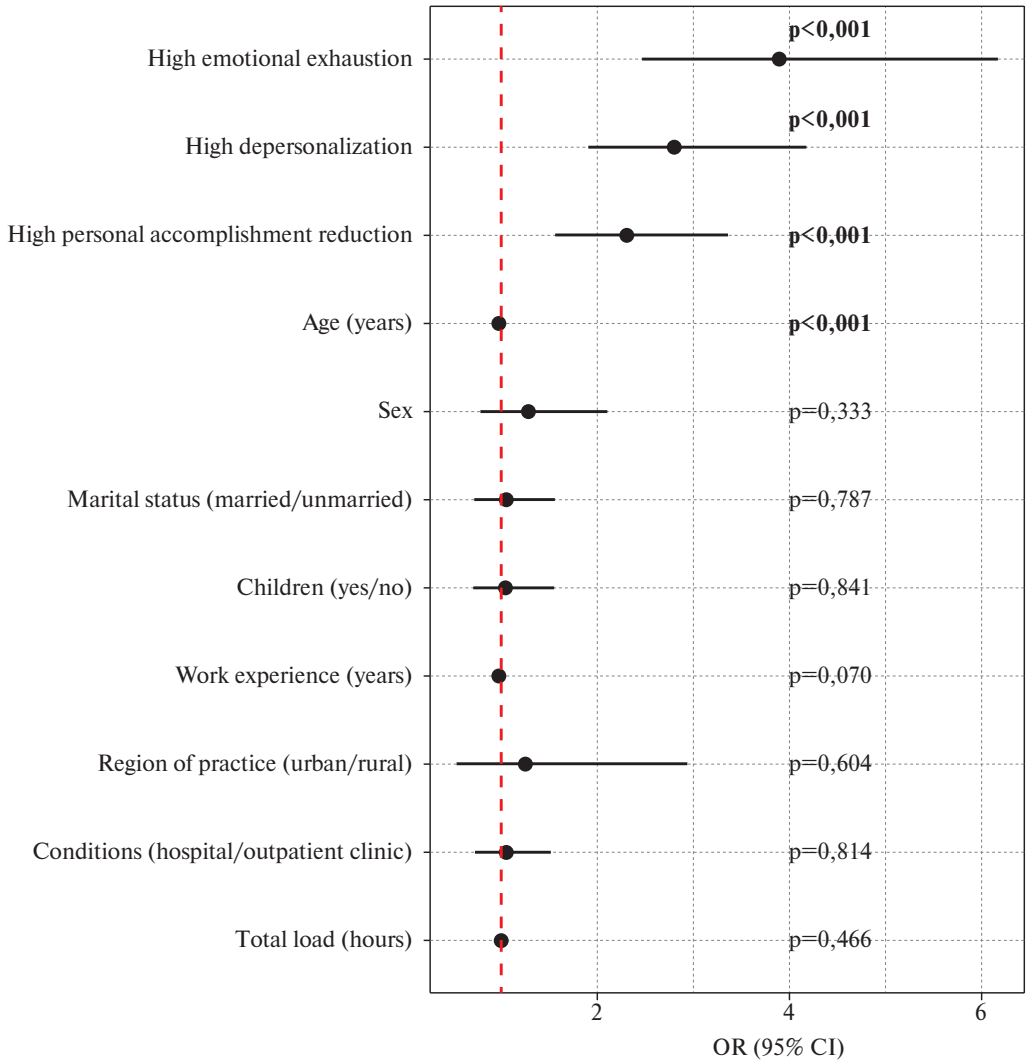

Figure 2. Univariate logistic regression analysis of the association of burnout symptoms and age with a mind to change jobs.
Note: ORs are presented for high burnout symptoms compared to low and moderate, combined in one control group.
Abbreviations: CI — confidence interval, OR — odds ratio.

groups was rejected at p<0,05. Regression analysis was used to identify associations between burnout symptoms and the desire to change jobs or professions. To calculate the odds ratio to change jobs depending on burnout degree, grades 1 and 2 were combined into one group "without burnout", while grade 3 was the burnout factor.

Results

Characteristics of cardiologists participating in the study

The study involved 452 cardiologists from 8 federal districts. The most represented federal district was Privolzhsky. Female cardiologists represented the majority of this sample. The median age of the respondents was 38 years. Most of the respondents were married and had children. The average work experience for all doctors was 14,8 years. Almost all specialists worked in cities. Men more often combined day-time and 24-hour work and worked in a hospital (Table 2).

Prevalence of burnout

When assessing burnout in the entire sample, the average emotional exhaustion score was 29,5 (23,0; 35,0), depersonalization — 12,0 (8,0; 16,0), personal accomplishment reduction — 32,0 (28,0; 37,0). High values on emotional exhaustion subscale were found in 71,9% (n=325) of cardiologists, depersonalization — in 59,3% (n=268), personal accomplishment reduction — in 40% (n=180) respondents (Figure 1). In 81,4% (n=368) cardiologists, from 1 to 3 symptoms of high burnout were detected. Among them, a combination of a high emotional exhaustion and depersonalization (burnout) was revealed

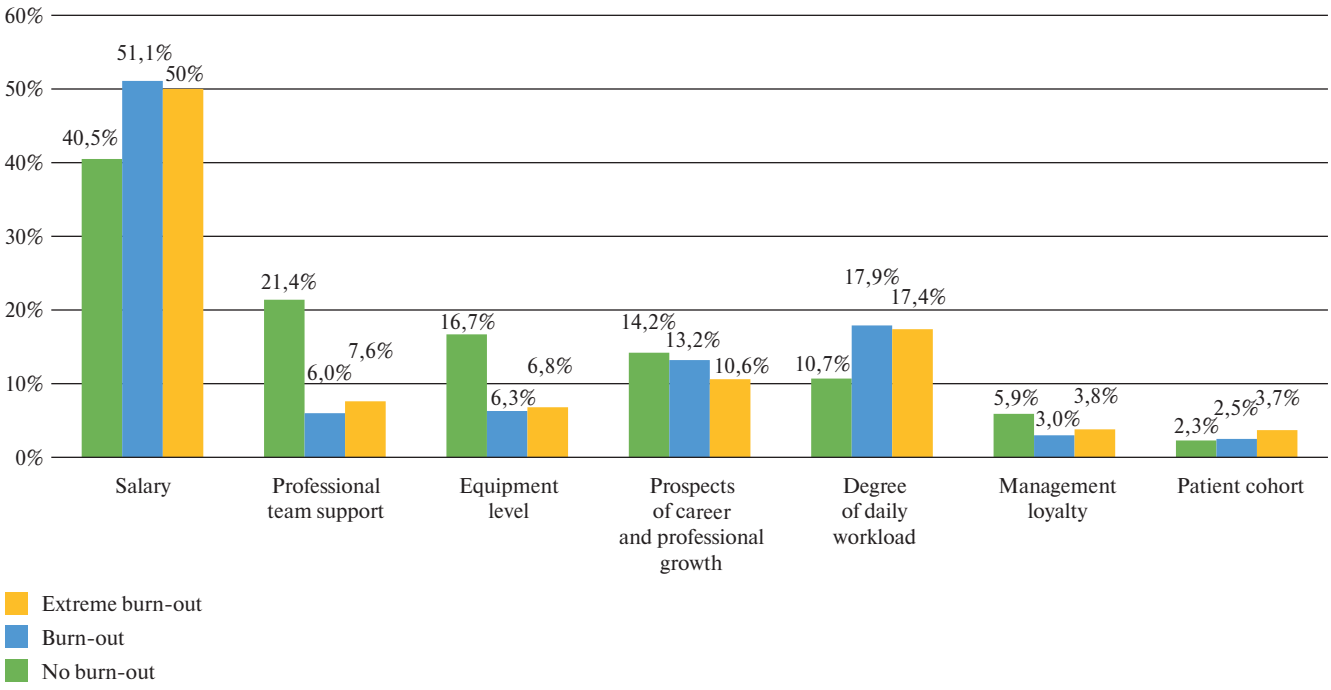

Figure 3. Distribution by significance of factors influencing job satisfaction from the point of view of cardiologists (no burnout — no high values were found on any of the subscales, burnout — a combination of a high emotional exhaustion and depersonalization, extreme burnout — high values on all three subscales).

in 52% (n=235), while all 3 symptoms simultaneously (extreme burnout) — in 29,2% (n=132). No symptoms of burnout were noted in 18,6% (n=84) of physicians.

Analysis of burnout-associated factors

Burnout-associated factors in cardiologists are presented in Table 3. The median depersonalization score is higher for men (p=0,001), as well as for specialists working in level 3 hospitals (p=0,002), combining day-time and 24-hour work (p=0,011).

The study did not reveal significant differences in the prevalence of burnout symptoms depending on marital status, the presence of children, place of residence, location, and conditions for providing care.

Association of burnout with a mind to change jobs or profession

To the question "Do you want to change jobs?" 46,9% of cardiologists answered positively, and to the question "Do you want to change your profession?" — 24,8% of specialists (Table 2).

Groups depending on the mind of doctors to change jobs or professions differed only in the degree of burnout for each of subscales (p<0,001) (Table 3). Among physicians wishing to change jobs or professions, ⩾2 burnout symptoms were more common (Table 4).

Univariate logistic regression analysis revealed a significant relationship between the desire to change jobs, burnout symptoms and age. The likelihood of wanting to change jobs increased with increasing scores on the emotional exhaustion and depersonalization subscales and decreased with increasing scores on personal accomplishment reduction subscale (Table 5).

Higher probability of a mind to change jobs has been established in people with a high emotional exhaustion compared to doctors with a low and moderate score. Similar relationships were observed in the case of a high depersonalization and low personal accomplishment reduction scores in relation to low and moderate degree of these symptoms (Figure 2).

For the desire to change profession, significant associations with burnout symptoms were also found, but the relationship was weak.

Assessment of factors affecting job satisfaction

Factors affecting job satisfaction were also analyzed. For the majority of respondents, the most significant factor was the salary level; for physicians experiencing burnout, to a greater extent. For all doctors, the management loyalty and the cohort of patients were of the least importance. It draws attention to the fact that for cardiologists with burnout symptoms, the next most important factors are the prospect of career growth and workload level, while for cardiologists without burnout it is the professional support of the team and the level of equipment (Figure 3). This may indicate differences in attitudes towards work among doctors with and

without burnout symptoms, associated with their personal characteristics and determining the susceptibility to burnout.

Discussion

This study, with a focus on cardiologists, was conducted in the Russian Federation for the first time, and the data obtained are important for further work in this area. The study revealed a high prevalence of burnout among practicing cardiologists in the Russian Federation (52%).

The average emotional exhaustion scores in our sample were higher than in other studies using the MBI questionnaire: (emotional exhaustion — 29,5 points in this study versus 19 in Kazakhstan and 21,3 in Germany), while the average personal accomplishment reduction score is lower in our sample (32,0 vs 41 and 36,3, respectively) [22, 23]. The results could be influenced by the characteristics of doctors, the increased workload on cardiologists due to the COVID-19 pandemic [24]. According to some reports, the prevalence of burnout among professionals working with COVID-19 patients increased from 20 to 40% at the peak of the pandemic[2,3]. In addition, the recent increase in the prevalence of cardiovascular diseases, demographic shifts towards a population aging are associated with an increased workload on the cardiology service and cardiologists, which can also increase the risk of burnout. The possibility of timely intervention and elimination of this syndrome, improving the health of doctors in order to increase the efficiency of their work and the healthcare system, make any research in this area relevant.

The most common symptom of burnout was emotional exhaustion (72%). Significant differences were found for depersonalization subscale. Higher levels of depersonalization have been found among cardiologists working in level 3 hospitals that combine day-time and 24-hour work. In addition to the hours spent at work, this can be explained by a more severe patient profile, their number, as well as other factors related to the profession. Men's cardiologists had a higher depersonalization score. Similar differences in depersonalization were found among doctors of other specialties [9, 25]. Perhaps this is due to the fact that women are more capable of empathy than men. Not only among doctors, but also in other professions, men are characterized by a high depersonalization and a high assessment of their professional success, while women are more prone to emotional exhaustion [21]. At the same time, a Polish study demonstrated that a high depersonalization is an independent predictor of medical errors [4].

Just like in the study in Germany, we did not find any association between burnout and the presence of a family, place of residence and area of practice, and conditions of care, which is probably due to the sample homogeneity.

This study revealed a relationship between the desire of doctors to change jobs and a high degree of burnout for each of the subscales. These associations have also been demonstrated in studies in Germany and the USA [22, 25]. It is possible that burnout syndrome has been an underestimated factor in employee turnover in the Russian Federation so far, but it can potentially affect the availability of healthcare. Among cardiologists, salary levels were found to be the most important factor in job satisfaction. However, monetary compensation is not a decisive condition in making a decision. This is proved by the identified links between the desire to change jobs and the burnout degree. In another study in the United States, physicians with burnout wanted to change jobs either with a 20% pay increase or a 20% pay cut [25]. Thus, a satisfactory level of wages, together with methods for preventing burnout, can be effective in preventing the outflow of personnel.

Practical application of study results

It is necessary to take into account the revealed relationship between a high degree of burnout and a mind to change jobs, because this may contribute to reduced access to health care. These results are comparable with foreign studies and are important for improving personnel policy. However, larger studies are required, including at the national level, to better assess the prevalence of burnout among cardiologists and develop strategies to combat this problem. One way to prevent high employee turnover could be to include employee burnout surveys during the annual medical check-up, followed by measures to reduce work-related stress levels.

Study limitations. The Russian-language version of the MBI questionnaire and subscale values standardized for the Russian sample were used to identify symptoms of burnout. This technique does not imply a generalized assessment of burnout degree, but only its components and their combinations.

The study limitations are related to the lack of accounting and analysis of the personal characteristics of doctors that affect stress resistance and the development of certain psychological symptoms. The homogeneity and small sample size may have contributed to statistical insignificance for within-

[2] https://www.dicardiology.com/content/burnout-rate-doubles-cardiology-clinicians-amid-covid-19-pandemic.

[3] https://www.healio.com/news/cardiology/20210709/more-than-1-in-3-cardiology-professionals-reported-burnout-during-covid19-pandemic.

sample differences in many dimensions. The number of cardiologists participating in the survey is 3,5% of the total number of specialists in the state healthcare system of the Russian Federation, which limits us in generalizations and requires additional research in this area.

Conclusion

More than half of cardiologists (52%) practicing in the Russian Federation have a high emotional exhaustion and depersonalization, 26% of specialists are characterized by a high degree of all three burnout symptoms (extreme burnout). Higher degrees of depersonalization were associated with male sex, level 3 hospital work, and workload. It has been established that symptoms of high burnout degree are factors that increase the likelihood of a mind to change jobs, which emphasizes the importance of developing measures aimed at reducing the stress associated with professional activities in order to prevent the personnel outflow.

Relationships and Activities: none.

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