ISSN 2304-3415, Russian Open Medical Journal
2023. Volume 12. Issue 1 (March). Article CID e0103
DOI: 10.15275/rusomj.2023.0103

Original article

Healthy and unhealthy lifestyles as factors of occupational burnout in obstetrics and gynecology physicians

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Received 10 March 2022, Revised 15 November 2022, Accepted 23 January 2023

Abstract: This article investigates healthy and unhealthy lifestyles and its components (physical activity, drinking alcohol, consumption of caffeinated products, tobacco use) as factors of occupational burnout in obstetrics and gynecology physicians.
Material and Methods. A total of 132 physicians and nurses from the different clinics of Irkutsk were surveyed. We used Maslach Burnout Inventory (MBI), SF-12, and Godin Leisure-Time Exercise Questionnaire.
Results: Differences in healthy and unhealthy lifestyles between physicians and nurses employed in obstetrics and gynecology, with or without a high burnout, were revealed. According to the obtained results, the frequency of alcohol consumption was directly related to burnout. In study subjects engaged in low and moderate physical activity, burnout occurred briefly or rarely. The differences became more pronounced when we excluded physicians and nurses with poor physical health from consideration, because they did not exercise much. According to the results of logistic regression, the probability of burnout and reduced level of quality of life among physicians and nurses increased with a bigger family size, lower work experience, and less time spent on moderate physical activity.
Conclusion: Healthy and unhealthy lifestyles can cause healthcare employee burnout. Physicians and nurses with a high burnout consumed stronger alcohol and spent less time in moderate physical activity.

Keywords: burnout, stress, obstetrics and gynecology, healthy lifestyle.

Cite as Kuzmin MYu, Tyumentseva DP, Marianian AYu. Healthy and unhealthy lifestyles as factors of occupational burnout in obstetrics and gynecology physicians. *Russian Open Medical Journal* 2023; 12: e0103.

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Introduction

Burnout is a cognitive, and behavioral state of emotional exhaustion, depersonalization and lack of personal achievement [1]. This problem is relevant for representatives of various professions, including medical workers. Estimates of the prevalence of emotional burnout in obstetrics and gynecology vary greatly, but remain high, ranging from 39% [2] to 75% [3].

According to the Brand and Holsboer-Trachsler model [4], burnout is the result of a combination of personality traits (such as perfectionism, overidentification with job, high sense of duty combined with low social integration and peer adjustment) and workplace-related conditions (high demand and low control, poor support from colleagues and managers). At the same time, other models consider other personality traits as burnout factors – e.g., self-efficacy [5], extraversion, conscientiousness, openness [6], coping strategies, mindfulness [7], and conditions associated with the workplace (the average number of hours of sleep per night and number of working hours per week [8]). There is a consensus that burnout may also be based on various stress-related neuroendocrine mechanisms [9, 10].

One approach to preventing burnout involves a healthy lifestyle. A healthy lifestyle is a complex phenomenon that includes sleep, exercise, nutrition [11], health care, mental health, and social factors [12].

It was shown that factors associated with a healthy lifestyle prevent the development of emotional burnout [4, 8, 13-15]. On the contrary, factors associated with an unhealthy lifestyle (alcohol and coffee consumption, insomnia, lack of vacation) cause burnout [16-18].

However, studies on the impact of healthy and unhealthy lifestyles on burnout in obstetrics and gynecology have not been conducted. The available studies did not report physical activity as a positive factor, and increased alcohol and coffee consumption, along with the number of working hours, as negative factors. Hu et al. [19] reported only the frequency of exercise, not the nature of exercise. Marek et al. [20] studied activity using a fitness tracker, taking into account the *fat burning*, *cardio* and *peak* heart rate zones, along with daily step counting. They found no significant association between objectively measured activity and burnout.

In our opinion, some inconsistencies in the relationship of a healthy lifestyle with emotional burnout can be explained by physical characteristics of the individual. E.g., abstaining from physical activity, as well as quitting alcohol consumption and smoking, may be due to physical wellbeing issues rather than adherence to a healthy or unhealthy lifestyle.

Hence, the purpose of this case-control study was to examine the features of a healthy lifestyle and aspects of quality of life that prevent burnout in obstetrics and gynecology. We aimed to reveal

the features of healthy and unhealthy lifestyles that prevent or contribute to the development of emotional burnout, and to establish whether they are related to physical wellbeing. With this goal in mind, a regression analysis was conducted identifying such features.

Material and Methods

Study participants

We included 181 subjects in our study. Eighty-five volunteers were excluded because they did not meet the inclusion criteria (n=1) or refused to participate (n=48). A total of 132 doctors and nurses from various polyclinics were interviewed. They worked in the field of obstetrics and gynecology (Irkutsk City Perinatal Center, Scientific Center for Family Health and Human Reproductive Problems), or in another specialty (Irkutsk City Clinical Hospital No. 8): 92.4% were female, 85.6% were Caucasian, 52.3% were married, and 66.7% were religious. Their mean age was 41.86 years (SD=11.37), age range was 22-69 years, and clinical work experience was 17.4 years (SD=11.2); 29.5% (n=39) of doctors and nurses worked the night shift. They were selected by the researcher personally and sequentially after meeting with professionals working at the facilities.

Table 1. Sociodemographic characteristics

Variable		*Entire sample (n=132)*	*High burnout (n=50)*			*Low burnout (n=82)*		
			Total	PCS>50% (n=40)	PCS<50% (n=10)	Total	PCS>50% (n=74)	PCS<50% (n=8)
Age, years (mean ± SD)		41.86 (11.37)	39.09 (10.42)	39.08 (9.805)	39.2 (15.84)	42.86 (11.21)	42.28 (11.09)	50.67 (10.69)
Sex; n (%)	Male	10 (7.6%)	5 (10%)	5 (10%)	0 (0%)	5 (6.1%)	5 (6.1%)	0(0%)
	Female	122 (92.4%)	45 (90%)	35 (70%)	10 (20%)	77 (93.9%)	69 (84.15%)	8 (9.75%)
Ethnic group; n (%)	Caucasian	113 (85.6%)	43 (86%)	33 (66%)	10 (20%)	70 (85.36%)	64 (78.05%	6 (7.32%)
	Asian	19 (14.4%)	7 (14%)	7 (14%)	0 (0%)	12 (14.64%)	10 (12.2%)	2 (2.44%)
	Mixed	0 (0.00%)	0 (0.00%)	0 (0%)	0 (0%)	0 (0.00%)	0 (0%)	0 (0%)
Professional affiliation; n (%)	Physician	83 (62.87%)	35 (70%)	28 (56%)	7 (14%)	48 (58.53%)	42 (51.22%)	6 (7.32%)
	Nurse	49 (37.13%)	15 (30%)	12 (24%)	3 (6%)	34 (41.46%)	32 (39.02%)	2 (2.44%)
Work experience; n (%)	Under 1 year	0 (0.00%)	0 (0.00%)	0 (0%)	0 (0%)	0 (0.00%)	0 (0%)	0 (0%)
	1-5 years	26 (19.7%)	12 (24%)	10 (20%)	2 (4%)	14 (17.07%)	14 (17.07%)	0 (0%)
	6-10 years	21 (15.9%)	11 (22%)	9 (18%)	2 (4%)	10 (12.19%)	10 (12.2%)	0 (0%)
	11-20 years	33 (25.0%)	11 (22%)	10 (20%)	1 (2%)	22 (26.82%)	19 (23.17%)	3 (3.66%)
	21-30 years	36 (27.3%)	12 (24%)	10 (20%)	2 (4%)	24 (29.26%)	24 (29.27%)	0 (0%)
	31-40 years	11(8.3%)	3 (6%)	1 (2%)	2 (4%)	8 (9.75%)	6 (7.32%)	2 (2.44%)
	Over 40 years	5 (3.8%)	1 (2.2%)	0 (0%)	1 (2%)	4 (4.87%)	1 (1.22%)	3 (3.66%)
	Not specified	0 (0.00%)	0 (0.00%)	0 (0%)	0 (0%)	0 (0.00%)	0 (0%)	0 (0%)
Working hours per week (Median, Q1, Q3)		40 (39; 45)	40 (39; 60)	40 (37; 47)	40 (41; 60)	40 (39; .40)	40 (33; 40)	40 (35; 42)
Number of night shifts per month (Median, Q1, Q3)		0 (0; 0)	0 (0; 0)	0 (0; 0)	0 (0; 0)	0 (0; 3)	0 (0; 3)	0 (0; 0)
Marital status; n (%)	Single	18 (13.6%)	7 (14%)	6 (12%)	1 (2%)	11 (13.41%)	10 (12.2%)	1 (1.22%)
	Common-law marriage	17 (12.9%)	6 (12%)	5 (10%)	1(2%)	10 (12.19%)	9 (10.98%)	1 (1.22%)
	Separate living with a partner	1 (0.8%)	1 (2%)	1 (2%)	0 (0%)	0 (0.00%)	0 (0%)	0 (0%)
	Married	69 (52.3%)	27 (54%)	21 (42%)	6 (12%)	44 (53.65%)	42 (51.22%)	2 (2.44%)
	Divorced	27 (20.5%)	9 (18%)	7 (14%)	2 (4%)	17 (20.73%)	13 (15.85%)	4 (4.88%)
	Not specified	0 (0.00%)	0 (0.00%)	0 (0%)	0 (0%)	0 (0.00%)	0 (0%)	0 (0%)
Religiosity; n (%)	Hidden attitude to religion	19 (14.4%)	7 (14%)	7 (14%)	1 (2%)	11 (13.41%)	10 (12.22%)	1 (1.22%)
	Atheist	25 (19.0%)	10 (20%)	9 (18%)	2 (4%)	14 (17.07%)	13 (15.85%)	1 (1.22%)
	Religious	88 (66.7%)	33 (60%)	24 (48%)	7 (14%)	57 (69.52%)	51 (62.2%)	6 (7.32%)
	Not specified	0 (0.00%)	0 (0.00%)	0 (0%)	0 (0%)	0 (0.00%)	0 (0%)	0 (0%)
Family income, rubles; n (%)	5,000 and less	1 (0.8%)	1 (2%)	1 (2%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
	5,001–10,000	2 (1.5%)	1 (2%)	1 (2%)	0 (0%)	1 (1.22%)	1 (1.22%)	0 (0%)
	10,001–15,000	3 (2.3%)	0 (0%)	0 (0%)	0 (0%)	3 (3.66%)	2 (2.44%)	1 (1.22%)
	15,001–25,000	5 (3.8%)	2 (4%)	2 (4%)	0 (0%)	3 (3.66%)	3 (3.66%)	0 (0%
	25,001–50,000	52 (39.4%)	21 (42%)	14 (28%)	7(14%)	31 (37.80%)	28 (34.15%)	3 (3.66%)
	50,001-100,000	52 (39.4%)	18 (26%)	15 (30%)	3 (6%)	34 (41.47%)	32 (39.02%)	2 (2.44%)
	Over 100,000	14 (10.6%)	6 (12%)	6 (12%)	0 (0%)	8 (9.76%)	8 (9.76%)	0 (0%)
	No data	3 (2.3%)	1 (2%)	1 (2%)	0 (0%)	2 (2.43%)	0 (0%)	2 (2.44%)
Number of children in a family; n (%)	0	60 (45.5%)	27 (54%)	21 (42%)	6 (12%)	33 (40.24%)	29 (35.37%)	4 (4.88%)
	1	47 (35.6%)	16 (32%)	12 (24%)	4 (8%)	31 (37.80%)	28 (34.15%)	3 (3.66%)
	2	20 (15.2%)	5 (10%)	5 (10%)	0 (0%)	15 (18.29%)	14 (17.07%)	1 (1.22%)
	3	1 (0.8%)	1 (2%)	1 (2%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
	No data	4 (3%)	1 (2%)	1 (2%)	0 (0%)	3 (3.65%)	3 (3.66%)	0 (0%)
Family size; n (%)	1	20 (15.2%)	6 (12%)	6 (12%)	0 (0%)	14 (17.07%)	13 (15.85%)	1 (1.22%)
	2	36 (27.3%)	12 (24%)	9 (18%)	3 (6%)	24 (29.26%)	20 (24.39%)	4 (4.88%)
	3	38 (28.8%)	10 (20.0%)	8 (16%)	2 (4%)	28 (34.14%)	26 (31.71%)	2 (2.44%)
	4	25 (18.9%)	12 (24%)	11 (22%)	1 (2%)	13 (15.85%)	12 (14.63%)	1 (1.22%)
	5	11 (8.3%)	8 (16%)	6 (12%)	2 (4%)	3 (3.65%)	3 (3.66%)	0 (0%)
	6	1 (0.8%)	1 (2%)	0 (0%)	1 (2%)	0 (0%)	0 (0%)	0 (0%)
	No data	1 (0.8%)	1 (2%)	0 (0%)	1 (2%)	0 (0%)	0 (0%)	0 (0%)

Table 2. Differences between subjects with a high burnout (PCS>50%, PCS<50%) and a low burnout (PCS>50%, PCS<50%)

Indicators of healthy and unhealthy lifestyles	*All*	*High Burnout*	*Low Burnout*	*p-value*	*PCS>50%* High Burnout (n=40)	*PCS>50%* Low Burnout (n=74)	*p-value*	*PCS<50%* High Burnout (n=10)	*PCS<50%* Low Burnout (n=8)	*p-value*
Smoking, n (%)	17 (12.88%)	5 (10%)	12 (14.63%)	0.441	5 (12.5%)	10 (13.51%)	0.279	0 (0%)	2 (25%)	0.094
Min number cigarettes, n (Median, Q1, Q3)	1 (1; 5)	1 (1; 5.5)	1 (1; 5)	0.572	1 (1; 5.5)	1 (0.75; 5)	0.481	1 (0.75; 5)	5 (2; 8)	1
Max number cigarettes, n (Median, Q1, Q3)	5 (2; 10)	5 (2.20)	5 (2.5; 10)	0.585	5 (2.20)	5 (2; 10)	0.460	5 (2; 10)	8 (5; 11)	0.345
Passive smoking, n (%)	62 (46.97%)	26 (52%)	36 (43.9%)	0.366	24 (60%)	33 (44.59%)	0.117	2 (20%)	3 (37.5%)	0.411
Alcohol use, n (%)	109 (82.57%)	46 (92%)	63 (76.82%)	0.047	38 (95%)	58 (78.37%)	0.041	8 (80%)	5 (62.5%)	0.769
Frequency of drinking alcohol** (Median, Q1, Q3)	4 (3; 4)	4 (3; 4)	3 (2; 4)	0.0001	4 (3; 4)	3 (2; 4)	0.002	4 (4; 4)	4 (3; 4)	0.077
Drinking beer (in standard doses*), n (Median, Q1, Q3)	1 (1; 2)	2 (1; 3)	1 (1; 2)	0.540	2 (1; 3)	1 (1; 2)	0.688	0 (0; 0)	2 (1; 3)	-
Drinking wine (in standard doses*), n (Median, Q1, Q3)	2 (1; 2)	2 (1; 2)	1 (1; 2)	0.530	2 (1; 2)	1 (1; 2)	0.392	1.5 (1; 2)	2 (1; 2)	0.317
Num strong alcohol (In standard dose*), n (Median, Q1, Q3)	2 (1; 5)	2.5 (1; 5)	2 (1; 5.25)	0.595	3.5 (1; 5)	2 (1; 5.25)	0.366	2 (2; 2)	3.5 (1; 5)	0.157
Drinking coffee, n (%)	104 (78.79%)	32 (64%)	72 (87.8%)	0.003	27 (67.5%)	68 (91.89%)	0.003	5 (50%)	4 (50%)	1
Frequency of drinking coffee (Median, Q1, Q3) 5 – every day, 6 – at least once a week (not every day), 7 – less than once a week, 8 – less than once a month, 9 – other	5 (5; 6)	5 (5; 6)	5 (5; 6)	0.278	5 (5; 6)	5 (5; 6)	0.138	5 (5; 6)	6 (5.25; 6)	0.273
Energy drinks, n (%)	9 (6.82%)	5 (10%)	4 (4.88%)	0.438	4 (10%)	4 (5.41%)	0.360	1 (10%)	0 (0%)	0.909
Frequency of drinking energy drinks** (Median, Q1, Q3)	4 (3; 4)	4 (2.5; 4)	4 (3.25; 4)	0.558	4 (2.5; 4)	4 (3.25; 4)	0.404	4 (3.25; 4)	0 (0; 0)	-
Drinking tea, n (%)	124 (93.94%)	42 (84%)	82 (100%)	0.001	36 (90%)	74 (100%)	0.026	6 (60%)	8 (100%)	0.145
Frequency of drinking tea** (Median, Q1, Q3)	1 (1; 1)	1 (1; 1)	1 (1; 1)	0.379	1 (1; 1)	1 (1; 1)	0.227	1 (1; 1)	1 (1; 1)	0.317
Outdoor walking, n (%)	130 (98.48%)	48 (96%)	82 (100%)	0.286	38 (95%)	74 (100%)	0.233	10 (100%)	8 (100%)	1
Frequency of outdoor walking (Median, Q1, Q3) 1 – 1-3 times a month, 2 – once a week, 3 – 2-3 times a week, 4 – 4-6 times a week, 5 – ≥7 times a week	5 (4; 5)	5 (4; 5)	5 (4; 5)	0.265	5 (4; 5)	5 (4; 5)	0.510	5 (4; 5)	5 (3.75; 5)	0.175
Outdoor walking time (Median, Q1, Q3) 1 – 10-19 minutes, 2 – 20-39 minutes, 3 – 40-59 minutes, 4 -≥1 hour	2 (2; 3.25)	2 (2; 4)	2 (1; 3)	0.184	2 (2; 4)	2 (1; 3)	0.179	2 (1; 3)	3.5 (2.75; 4)	0.557
Vigorous exercising*** (Median, Q1, Q3)	1 (1; 2)	1 (1; 3)	1 (1; 2)	0.325	1 (1; 3)	1 (1; 2)	0.480	1 (1; 4)	1 (1; 1)	0.326
Vigorous exercising time**** (Median, Q1, Q3)	2 (2; 3)	2 (1; 3)	2 (2; 3)	0.776	2 (1; 3)	2 (2; 3)	0.908	2 (2; 3)	2 (1; 3)	1
Moderate exercising*** (Median, Q1, Q3)	2 (1; 3)	2 (1; 3)	2 (1; 3)	0.050	2 (1; 3)	2 (1; 3)	0.091	1 (1; 1)	1 (1; 1)	0.326
Moderate exercising time**** (Median, Q1, Q3)	2 (1; 3)	2 (1; 2)	2 (2; 3)	0.024	2 (1; 2)	2 (2; 3)	0.026	1.5 (1; 4.25)	3 (1; 4)	0.711
Light exercising*** (Median, Q1, Q3)	2 (1; 4)	2 (2; 5)	1 (0; 1)	0.003	2 (1; 5)	2 (1; 3)	0.008	2.5 (1; 4.75)	2 (1; 2)	0.140
Light exercising time**** (Median, Q1, Q3)	2 (1; 2)	1.5 (1; 2)	2 (1; 2.5)	0.295	1.5 (1; 2)	2 (1; 2)	0.270	2 (1; 2)	2 (1; 3)	1
Godin Leisure-Time Exercise Questionnaire, score (Median, Q1, Q3)	9.5 (0; 25)	10 (0; 25)	12 (0; 27)	0.148	9 (0; 25.5)	12 (0; 27)	0.001	9 (0; 25.5)	0 (0; 25.5)	0.338

*Standard dose (SD) ~ 350 mL of beer (5 degrees), 250 mL of strong beer (7 degrees), 150 mL of dry wine (12 degrees), 100 mL of fortified wine (18 degrees), 45 mL of vodka (40 degrees); ** 1 – every day, 2 – at least once a week (not every day), 3 – less than once a week, 4 – less than once a month, 5 – other;*** 1 – 1 day a week, 2 – 2 days a week, 3 – 3 days a week, 4 – 4 days a week, 5 – ≥5 days a week;**** 1 – less than 20 minutes, 2 – 20-39 minutes, 3 – 40-59 minutes, 4 – ≥1 hour.

Table 3. Multiple logistic regression model

Factors	*B*	*SE*	*Wald*	*df*	*P*	*OR*	*95% CI* Lower	*95% CI* Upper
Moderate exercising time	-1.320	.416	10.055	1	0.002**	0.267	0.118	0.604
Family size	0.560	0.270	4.312	1	0.038*	1.750	1.032	2.968
Work experience	-0.654	0.233	7.870	1	0.005**	0.520	0.329	0.821

* significance level (p=0.05); ** significance level (p=0.01).

The inclusion criteria were as follows: fully completed questionnaires and age over 18 years. All participants were given a summary of the objectives and procedures of the study. They gave written informed consent prior to their participation in the study.

Research tools

Sociodemographic characteristics, hours of work, number of night shifts, smoking; alcohol, coffee and energy drink consumption were assessed via a questionnaire. Information on physical activity and its characteristics was collected through a questionnaire and via the first part of the Godin Leisure-Time Exercise Questionnaire (GLTEQ) [21, 22]. The first part contained three items and prompted study participants to recall the number of times of vigorous, moderate or light physical exercising per week in excess of 15 minutes. The questionnaire described vigorous physical activity as 'rapid heart rate' and included examples, such as running or energetic swimming. Moderate physical activity was defined as 'not exhausting' and included examples, such as brisk walking, light cycling, and folk dancing. Light physical activity was described as 'requiring minimal effort' and included examples, such as yoga and easy walking. The total GLTEQ score (i.e., the total leisure activity score) is calculated by multiplying the number of 15-minute instances of vigorous, moderate, or light physical activity by weights of 9, 5, and 3, respectively, and summing these values into a total score ranging from 0 to 119 in conventional units; higher scores reflected greater involvement in physical activity.

Burnout symptoms were measured using the Russian version of the Maslach Burnout Inventory (MBI) questionnaire [1]. This tool is currently most commonly used to assess occupational burnout in healthcare professionals. MBI consists of 22 elements. Three MBI subscales were analyzed separately: emotional exhaustion (EE), depersonalization (DP), and personal accomplishment (PA). Mean scores were calculated, and subscales were categorized into low, moderate, and high degrees of burnout.

There are different criteria for diagnosing emotional burnout [23-25]. We used the criteria from [23], an amendment to the Russian version of MBI. Burnout was diagnosed (yes/no) if respondents demonstrated high levels on at least two subscales (EE and/or DP, associated or not with a low PA), or on three subscales based on the following scores: EE>24, DP>10, PA<30. Accordingly, we reported higher burnout in 37.87% of physicians and nurses (n=50) and lower burnout in 62.13% od study participants (n=82).

To identify study subjects with low physical activity, we used a 12-item Short-Form (SF-12) Health Survey *sensu* J. Ware adapted for Russia. The SF-12 survey measures of health status using Physical Composite Scale (PCS) and Mental Health Composite Scale (MCS) [26]. We divided medical workers according to the level of PCS as follows: 30.3% of doctors and nurses (n=40) with a high burnout and PCS>50%; 7.57% of participants (n=10) with high burnout and PCS<50%; 56.06% of study subjects (n=74) with low burnout and PCS>50%; and 6.06% of dosctors and nurses (n=74) with low burnout and PCS < 50%. The distribution of physicians and nurses according to the level of their emotional burnout is presented in *Table* 1.

Procedures

All participants were invited to the study voluntarily. The study goal was explained to the volunteers before the survey. Participants were asked to complete questionnaires. They were informed that filling the questionnaire would not have any impact on their work or personal life. Sociodemographic information was obtained by the researcher to determine whether prospective participants met the inclusion criteria. All study participants signed a written informed consent form and completed the self-administered evaluation and all of the above questionnaires.

Statistical data processing

All data were entered into the REDCap system [27]. Statistical calculations were performed using IBM SPSS Statistics (v.23.0), and significance was set at $p < 0.05$. Quantitative variables were presented as mean and standard deviation (SD); for non-parametric data, we used median, Q1, and Q3. Qualitative variables were presented as occurrence (n) and percentage (%). Mean values were compared using a two-tailed t-test; for nonparametric data, we used Mann-Whitney U test. A multiple logistic regression model was developed to identify predictors (independent variables) of burnout (dependent variable). A $p<0.05$ for the Wald test was assumed to denote regression coefficients significantly different from zero. Results were presented as odds ratio (Exp.) with 95% confidence intervals (95% CI) for EXP (B). The model fit was assessed by the likelihood-ratio test statistic.

Results

At the first stage of our study, the severity of the components of a healthy and unhealthy lifestyle was examined in doctors and nurses with and without a high degree of emotional burnout.

First, we established that the sample had a mean emotional exhaustion scale score of 25.16 with a standard deviation of 10.58, which was high for this scale. The mean value of the depersonalization subscale was 10.45 with a standard deviation of 7.51, which implied a high level of expression. The mean of the personal accomplishment subscale was 34.15 with a standard deviation of 6.38, which was indicative of a high level as well. Thus, the subjects primarily exhibited a high level of emotional exhaustion and depersonalization, rather than professional reduction.

Further, we found no significant differences in sociodemographic characteristics between physicians and nurses with and without high burnout. There were no significant differences between doctors and nurses working or not working the night shift among participants with different marital status and work experience, although these parameters were considered factors in emotional burnout [28].

We discovered that there were few differences in alcohol, coffee, and tea consumption between physicians and nurses with and without high burnout. Individuals with high burnout levels were more likely to abuse alcohol. Conversely, people with low burnout were more likely to drink coffee and tea (*Table 2*).

Finally, we found some differences in physical activity among physicians and nurses with different levels of burnout. Volunteers who engaged in light physical activity once or twice a week were more likely to experience burnout. Besides, a person engaged in moderate physical activity, but for a short time (less than 20 minutes), also exhibited a high level of burnout. Therefore, in order to reduce burnout, both level of physical activity and its duration are important. At the same time, we did not find differences in GLTEQ scores between doctors and nurses with and without a high burnout.

Thus, our results at the first stage implied that aspects of both healthy and unhealthy lifestyles were associated with burnout, but not always directly. Only the frequency of alcohol drinking was directly related to burnout.

At the same time, people without emotional burnout drank coffee and tea more often. We found no association between smoking and burnout. Emotional burnout was also observed in individuals engaged in light and moderate physical activity for a short time or rarely. We did not find an association between sociodemographic factors and different levels of burnout, albeit they were demonstrated in other studies [29].

At the second stage of our study, we investigated the severity of the components of a healthy and unhealthy lifestyle among doctors and nurses, not only with a high emotional burnout or without it, but also among those volunteers who had different levels of physical wellbeing.

We established that 74 subjects had high (more than 50%) PCS and low burnout, while 40 subjects had high PCS and high emotional burnout.

There were no significant differences in sociodemographic characteristics between doctors and nurses with different levels of quality of life. However, we found differences in sociodemographic characteristics among specialists with different levels of quality of life and burnout. Subjects with burnout and high level of PCS had less work experience – both overall (U=1,213, p=0.006) and in their current position (U=1,336, p=0.033), and they had more family members (U=1,341, p=0.033). We assumed that this was due to the predominance of younger subjects in the sample.

We also revealed that those with burnout and high PCS were more likely to drink alcohol, while those without burnout and high PCS were more likely to drink tea and coffee (*Table 2*).

Finally, we found significant differences in GLTEQ scores between physicians and nurses with different levels of physical

wellbeing and burnout. Persons with a high level of emotional burnout and PCS had a high score on the Godin Leisure-Time Exercise Questionnaire. However, this level was reached at the expense of more frequent light physical activity over a short period of time. On the contrary, individuals without emotional burnout and a high level of PCS devoted more time to moderate physical activity (*Table* 2).

We also analyzed the results of study subjects who had either a high level of burnout with a low level of PCS, or a reduced level of PCS in the absence of burnout.

People with high burnout and low PCS (n=10) were women (χ^2=5.95, p=0.015) with several hours of work (U=84, p=0.03).

Study participants with a reduced level of PCS and no burnout (n=8) were older (U=92, p=0.03). They rarely drank alcohol and performed vigorous exercising.

Summing up the results of the second stage, we should point out that we discovered that people with burnout and a high level of PCS had less work experience both in general and in their current position, and they had more family members. Also, they drank more strong alcohol, and spent less time on moderate physical activity and more time on light physical activity. The low level of burnout and adherence to a healthy lifestyle can be explained by their age.

At the third stage of our study, a multivariate logistic regression analysis was performed to identify predictive factors (independent variables) of emotional burnout and a high level of PCS (dependent variable) (*Table* 3). Demographic data (gender, age, religion, marital status, work experience, number of working hours and night shifts) and aspects of healthy lifestyle (tobacco use and amount, alcohol consumption and volume, nature and frequency of physical activity) were used. The logistic regression model was statistically significant (χ^2=11.77, p=0.001). The model explained 57% (Nagelkerke R^2) of the variance in exhaustion and correctly classified 71.4% of the cases. The likelihood of emotional burnout and a decrease in the quality of life increased with the family size, and with a reduction in work experience and time spent on moderate physical activity.

Discussion

The present study is a successor to the previous research on various aspects of burnout in medical workers employed in obstetrics and gynecology in the Siberian region [30]. Now, we conducted the first large-scale study in the Siberian region examining the features of a healthy lifestyle that prevent burnout in obstetrics and gynecology physicians and nurses. In the presented data, 37.87% of doctors and nurses had a high degree of burnout, which was comparable to that among doctors and nurses in other studies [2, 31, 32].

In this study, a high level of burnout was not associated with the place and the nature of work. However, in our previous research, we also found no dependence of burnout on these sociodemographic factors [30]. We attributed this finding to the effect of coping, which was not taken into account in other studies. Yet, physical exercise, along with alcohol, coffee and tea consumption, can also be seen as coping activities, some of which are productive and some are not [33, 32]. We assumed that these coping strategies may not be available to people with health issues. Therefore, we refined the criteria, assuming that in some cases, alcohol consumption, smoking, and abstaining from physical activity may be due to problems with physical wellbeing as a component of quality of life. Consequently, we analyzed both the level of burnout and the high level of the physical component of the quality of life (PCS), measured by the SF-12 scale.

We established that people with burnout and high PCS had less overall and current job experience and greater family size.

Besides, they drank more servings of strong alcohol, spent less time on moderate physical activity, and were more likely to engage in light physical activity.

According to the results of logistic regression, the likelihood of emotional burnout in doctors and nurses and a reduction in their quality of life increased with family size and a decrease in work experience and time spent on moderate physical activity.

Various studies describe factors, associated with a healthy lifestyle, that prevent burnout [8, 4, 13-15], In our study, we found that solely moderate physical exercising, rather than all physical activity, prevented burnout. It turned out that those who prefer light physical activity were more prone to burnout. In our opinion, a big family size and little work experience in the list of burnout factors means that young doctors and nurses with unsettled living conditions are more susceptible to emotional burnout. They probably do not have productive coping experiences; hence, they resort to unproductive ones (such as alcohol).

In this study, we did not specifically examine coping behavior as in our previous research. Therefore, we cannot conclude what other strategies characterize doctors and nurses with a high level of emotional burnout and low physical activity. Thus, we plan to investigate these issues in our future studies.

Conclusion

Our results demonstrated the differences between obstetrics and gynecology physicians and nurses with vs. without a high burnout in some aspects of a healthy lifestyle. According to the obtained results, the frequency of alcohol consumption was directly related to burnout. Study subjects engaged in light and possibly moderate physical activity for a short time or infrequently also experienced burnout.

The resulting differences were more pronounced if we excluded participants engaged in light exercising and using no tobacco or alcohol due to their poor physical health. Our findings confirmed that physicians and nurses with a high burnout drank stronger alcohol and devoted less time to moderate physical activity. These results allow considering various components of both healthy and unhealthy lifestyles as coping with burnout, albeit some of which are ineffective.

Conflict of interest

The authors declare that they have no competing interests.

Ethical approval

The study was conducted according to the principles of the Declaration of Helsinki (2013 revision) and was reviewed and approved by the institutional Ethics Committee.

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