РЕДАКЦИОННЫЕ СТАТЬИ

Shevchenko Yu.L., Ionova T.I., Melnichenko V.Ya., Nikitina T.P.
QUALITY OF LIFE AND MENTAL HEALTH IN RUSSIAN GENERAL POPULATION
AND BURNOUT AMONG PHYSICIANS DURING COVID-19 PANDEMIC

РЕДАКЦИОННЫЕ СТАТЬИ • ORIGINAL ARTICLES

QUALITY OF LIFE AND MENTAL HEALTH IN RUSSIAN GENERAL POPULATION AND BURNOUT AMONG PHYSICIANS DURING COVID-19 PANDEMIC

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Abstract. COVID-19 pandemic can lead to serious impairments of quality of life (QoL) and mental health in the population as a whole and in different vulnerable groups, such as physicians who providing routine medical care during pandemic. Comprehensive evaluation of QoL and exploring the factors contributing to detriment of QoL and mental health in general population during the pandemic along with investigation of burnout syndrome in physicians is worthwhile. We aimed to study QoL and psychological problems in Russian general population and to evaluate QoL and professional burnout in physicians involved in medical care of patients with chronic diseases during COVID-19 outbreak. A cross-sectional survey was conducted in February 2021 in the middle and late stages of the COVID-19 outbreak. In total 695 citizens from 22 cities, 171 physicians from 26 cities of Russia were enrolled in the on-line survey. In summary, we found that deterioration in QoL and prevalence of mental disorders during the COVID-19 pandemic in Russia among general population was quite high. The present study identified that nearly half of physicians providing routine medical care during pandemic experienced burnout. The results indicated factors which could contribute to increasing anxiety and depression among general public and to burnout among physicians – they can be used to screen for the individuals who need intervention for psychological health problems during pandemics. Further research is needed in the post-pandemic period to examine pandemic-related stressors, secondary damages, psychosocial consequences, and indicators of vulnerability in order to provide reference for developing strategies to deal with future pandemics.

Keywords: pandemic COVID-19, population, physicians, quality of life, anxiety, depression, burnout.

КАЧЕСТВО ЖИЗНИ И ПСИХИЧЕСКОЕ ЗДОРОВЬЕ НАСЕЛЕНИЯ РОССИЙСКОЙ ФЕДЕРАЦИИ И ПРОФЕССИОНАЛЬНОЕ ВЫГОРАНИЕ СРЕДИ ВРАЧЕЙ НА ФОНЕ ПАНДЕМИИ COVID-19

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Резюме. Пандемия COVID-19 может привести к серьезным нарушениям качества жизни и психического здоровья как среди населения в целом, так и в уязвимых группах, к которым относятся медицинские работники, оказывающие плановую медицинскую помощь во время пандемии. Задачи нашего исследования включали оценку качества жизни и изучение факторов, способствующих ухудшению качества жизни и психического здоровья населения во время пандемии, а также исследование синдрома профессионального выгорания у врачей во время пандемии COVID-19. В рамках исследования был выполнен онлайн-опрос населения РФ и врачей в феврале 2021 года в период второй волны COVID-19. В опросе участвовали 695 граждан из 22 городов России, 171 врач из 26 городов России. Результаты исследования позволили продемонстрировать довольно высокие показатели встречаемости тревоги и депрессии, а также существенные нарушения качества жизни среди населения России во время пандемии COVID-19. Нами установлено, что почти половина врачей, оказывающих плановую медицинскую помощь во время пандемии, испытывают профессиональное выгорание. Описаны факторы, которые могут способствовать увеличению тревоги и депрессии среди населения, а также усилению профессионального выгорания среди врачей — данная информация может быть использована для скрининга населения и выявления лиц, которые нуждаются в поддержке и проведении мер для решения проблем психологического здоровья во время пандемии. После завершения пандемии необходимо проведение дальнейших исследований для изучения связанных с пандемией стрессовых факторов, вторичных нарушений и неблагоприятных последствий в психосоциальной сфере для разработки тактики их предупреждения в условиях возникновения пандемии в будущем.

Ключевые слова: пандемия COVID-19, население, врачи, качество жизни, тревога, депрессия, выгорание.

Introduction

The changes in the modern world caused by the COVID-19 pandemic are global in nature — they have affected every aspect of the functioning of every state, social institution, and individual. While the WHO and worldwide health authorities have been actively working on containing the outbreak, such a period of health crisis has significant repercussions on human health and welling, accompanied by psychological distress and related symptoms such as stress, panic and anxiety in the general population [1]. Recent studies suggest a significant adverse impact of the pandemic on the mental health of populations [2–4]. The main psychological consequences of the pandemic are manifested in increased anxiety, fear and worry, emotional instability, and depression, all of which may result in distress [5–7]. As a consequence of distress, a person may suffer impairment of physical functioning as well as exacerbation of existing chronic diseases.

All of the above suggests that a pandemic can have serious negative impacts on all components of person's quality of life (QoL). QoL is complex and overall indicator of general well-being. QoL is not a simple and linear entity, it is a multidimensional construct that characterizes physical,

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РЕДАКЦИОННЫЕ СТАТЬИ

Shevchenko Yu.L., Ionova T.I., Melnichenko V.Ya., Nikitina T.P.
QUALITY OF LIFE AND MENTAL HEALTH IN RUSSIAN GENERAL POPULATION
AND BURNOUT AMONG PHYSICIANS DURING COVID-19 PANDEMIC

psychological, emotional and social functioning of a person based on his/her subjective perception [8]. The assessment of QoL is increasingly often considered as an integral part of any intervention that aims to promote health and wellness.

Serious impairments of QoL during the COVID-19 pandemic can affect both the population as a whole and certain groups. Among the most vulnerable population groups, medical personnel should be singled out.

Importantly, the attention on the consequences of COVID-19 over mental health has been increasing [9–11]. However, to our knowledge, the studies that provide a comprehensive studies on QoL and mental health in general population during the pandemic along with people's attitudes to the prevailing conditions are lacking.

Additionally, it is worth mentioning that the current pandemic has added to the already high levels of stress that medical professionals face globally. A number of studies focused on the burnout of medical personnel in the conditions of the pandemic, namely in specialists working on the front-line [12; 13]. The concept of burnout, which has been defined as a «psychological syndrome characterised by emotional exhaustion, depersonalisation and a sense of reduced accomplishment in day to day work» [14]. Numerous previous studies have reported the huge prevalence of burnout seen amongst physicians [15]. By now there have been very few papers that have explored the impact of COVID-19 on physician burnout. The results of these research highlighted high rates of burnout syndrome in health care workers working on the front-line [12; 16]. To our knowledge, studies on the mental health and burn-out levels in physicians treating patients during COVID-19 and not working on the front-line are lacking.

Since May 11, 2020, Russia is among the six countries with the highest number of confirmed COVID-19 cases [17]. However, the outbreak in Russia started later than in many neighboring European countries, possibly in part due to early implementation of non-pharmaceutical interventions (NPIs) limiting virus import [18]. Since early March, Russian regional authorities had been implementing their own NPIs. In May 2020 during the peak of outbreak there were about 11 000 average daily cases [19]. During the second outbreak in winter 2020-2021 there have been registered till 30 000 new cases of COVID-19 per day [19]. However, tight restrictions or a lockdown were not imposed as compared with April-May 2020 outbreak. At the same time the second outbreak was long-lasting and burdensome for general population; it also appeared to be very tense and challenging for health care workers, bot working front-line and those providing care of patients with chronic disorders on regular basis.

We aimed to examine QoL and mental health in Russian general population during COVID-19 outbreak, to explore their attitudes to COVID-19 emergency, and to identify factors contributing to QoL detriment. Furthermore, QoL and professional burnout in physicians providing routine medical care during COVID-19 pandemic were investigated. Particular reference was given to anxiety and depression prevalence and factors associated with elevated levels of anxiety and depression during pandemic.

Methods
Study Settings, Participants, and Procedure

A cross-sectional survey was conducted in different regions of Russian Federation in February 2021 in the middle and late stages of the COVID-19 outbreak. The target groups for this study were 1) the general Russian population; 2) physicians from different medical institutions of Russia.

The inclusion criteria for general population and physicians were (1) being male or female, (2) being 18 years of age and above, and (3) being able to self-report by completing an anonymous online survey questionnaire. The additional criteria for physicians was being actively involved in treatment of patients during the pandemic.

The online survey was the most feasible way to access the target populations in light of the social-distance protocols implemented during the COVID-19 pandemic. The sample was recruited via a snowball sampling strategy. To recruit the participants, we circulated the online survey link through a professional and social network of research team members (focal persons) in different regions.

The study followed the ethical principles for research involving human subjects outlined in the Declaration of Helsinki. Approval from the Clinical Research Ethics committee of National Medical and Surgical Center named after N.I. Pirogov (Moscow) was received before the initiation of this study (ethical approval code N1 dated 29/01/2021). Participation was voluntary and free of charge. To guarantee anonymity, no personal data, which could allow the identification of participants, were collected. Before completing the survey questionnaire they were provided with the consent document, assuring maximum confidentiality in the handling and analysis of the responses. The procedures were clearly explained, and participants could interrupt or quit the survey at any point without explaining their reasons for doing so.

Respondents completed an ad hoc questionnaire, the Global QOL LASA Scale, and the Hospital Anxiety and Depression Scale (HADS); physicians in addition, completed the Maslach Burnout Inventor (MBI). An ad hoc questionnaire was created to collect sociodemographic data and COVID-related information. Pandemic-related information contained the following — 1) attitude to COVID-19 pandemic; 2) fear of COVID-19; 3) difficulties related to pandemic restrictions 4) impact of pandemic on physical, psychological, social and family well-being as well as overall QoL. In physician's questionnaire pandemic-related information was focused on the attitude to COVID-19 pandemic and its impact on physical, psychological, social and family well-being as well as overall QoL.

A single item global QoL LASA Scale was used for QoL assessment. The LASA was rated 0 (as bad as it can be) to 10 (as good as it can be). LASA items have been validated as general measures of global QOL dimensional constructs in numerous

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5

РЕДАКЦИОННЫЕ СТАТЬИ

Shevchenko Yu.L., Ionova T.I., Melnichenko V.Ya., Nikitina T.P.
QUALITY OF LIFE AND MENTAL HEALTH IN RUSSIAN GENERAL POPULATION
AND BURNOUT AMONG PHYSICIANS DURING COVID-19 PANDEMIC

settings [20]. A score of 5 or below on the 0–10 scale indicates a clinically significant deficit in QoL. Depending on the score of LASA participants were categorized as having poor (0–5) or good (6–10) QoL.

HADS was used to assess anxiety and depression in the study populations. The HADS is a 14 item questionnaire originally developed to measure anxiety and depression in general medical practice settings [21]. The instrument offers two subscales, HADS-A and HADS-D, each consisting of seven items and measuring anxiety and depression symptoms, respectively. Each item is scored on a scale of 0–3 with each subscale score ranging from 0 to 21. Eight items are reverse scored with higher scores indicating a better response. These are reversed when summing the two subscales. The recommended cut-off values are 8–10 for possible presence of a mood disorder (mild disorder) and ≥11 for probable presence of a mood disorder (moderate/severe disorder). Values of subscale scores for both HADS-A and HADS-D ≥8 were considered as elevated levels of anxiety and depression, correspondingly.

The MBI was used to assess burnout among physicians [22]. It is the most widely used measure to assess physician burnout defined by three subscales: emotional exhaustion (EE), depersonalization (DP), and professional accomplishment (PA), each with 7-point Likert-type, frequency response scale (0 = never, 1 = a few times a year or less, 2 = once a month or less, 3 = a few times a month, 4 = once a week, 5 = a few times a week, 6 = every day). A total of 22 items from the MBI scale were used: the EE score included nine items with a score range of 0–54 (a score of < 19 was considered as low level, 19–26 — moderate level, and > 26 — high level); DP — five items with a score range of 0–30 points (< 6 reflected low level, 6–9 — moderate level, and > 9 — high level); PA — eight items with a score range of 0–48 points (> 39 — low level, 34–39 — moderate level, and < 34 — high level).

Data analysis

We used standard approaches to calculate the minimum target sample size for general population to estimate the prevalence of anxiety during COVID-19 pandemic [23]. Assuming that the proportion of anxiety was 47.7% [24] with a 95% confidence interval (CI) and 0.04 precision, as calculated by $Z^2*P*(1–P)/d^2$, the minimum target sample size was 598.

A descriptive analysis was performed expressing the categorical variables in number, percentage and 95% confidential intervals (95%CI), and the quantitative variables in mean and standard deviation. The association between categorical variables was analyzed with a χ2 test or Fisher's exact test. The association between quantitative variables was analyzed by Spearman rank correlation coefficient.

To assess factors associated with QoL detriment in general population, we used stepwise univariable and multivariable logistic regression models to estimate odds ratios (ORs) and 95% CIs. To test for multicollinearity, the correlations between independent variables were calculated using the pairwise Spearman correlation coefficient. All the variables that had a univariate value of p<0.05 and those with the established

impact on QoL were submitted to multivariate regression analysis by stepwise backward Wald selection; a significance level of 0.05 was required for a variable to be retained in the final model. The results were expressed as ORs with 95%CI and Nagelkerke's R^2 coefficient for the final model.

Differences were considered statistically significant at the p<0.05 level. Statistical analysis was performed using SPSS 23.0 software.

Results

Overall, 695 residents from general population from 22 cities, and 171 physicians from 26 cities in different regions of Russia were surveyed between February 1 and February 20, 2021. The sociodemographic characteristics of the samples are presented in table 1.

The female to male ratio in general population sample was almost 2.5:1, with 71.2% females. In terms of age, respondents between 26–45 years old were the largest group in the sample (44.4%), followed by those >55 years old (21.6%) (mean age — 41.9). The majority of participants were married (59.9%), had a higher education (78.4%), worked full-time (71.4%). Almost half (47.8%) reported no chronic diseases; the rest indicated various health problems: 20% — cardiovascular diseases, 10% — respiratory diseases, 8% — metabolic disorders, 6% — cancer, 3% — immunodeficiency conditions.
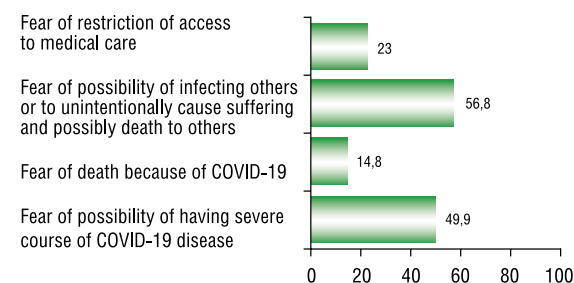
When asked about their attitudes towards COVID-19 pandemic, 89% of respondents indicated that they considered

Table 1. Sociodemographic characteristics of the samples

Characteristics	General population (n = 695)	Physicians (n = 171)
Age, y.o. Mean (±SD), range	41.9 (±14.8), 18-83	42.9 (±10.9), 26–71
Age 18–25, n (%)	125 (17.9)	–
Age 26–35, n (%)	156 (22.5)	51 (29.8)
Age 36–45, n (%)	152 (21.9)	49 (28.7)
Age 46–55, n (%)	112 (16.1)	45 (26.3)
>55, n (%)	150 (21.6)	26 (15.2)
Gender, n (%)		
Female	495 (71.2)	110 (65.5)
Male	200 (28.8)	61 (34.5)
Marital status, n (%)		
Married	416 (59.9)	108 (63.7)
Single	187 (26.9)	35 (20.8)
Widows	39 (5.6)	4 (2.4)
Divorced	53 (7.6)	24 (13.1)
Education, n (%)		
Higher	545 (78.4)	171 (100)
Secondary specialized	94 (13.5)	–
Secondary	56 (8.1)	–
Employment status, n (%)		
Work full-time	496 (71.4)	171 (100)
Part-time work	31 (4.5)	–
Unemployed	35 (5.0)	–
Student	89 (12.8)	–
Retired	35 (5.0)	–
Other	9 (1.3)	–

РЕДАКЦИОННЫЕ СТАТЬИ

Shevchenko Yu.L., Ionova T.I., Melnichenko V.Ya., Nikitina T.P.
QUALITY OF LIFE AND MENTAL HEALTH IN RUSSIAN GENERAL POPULATION
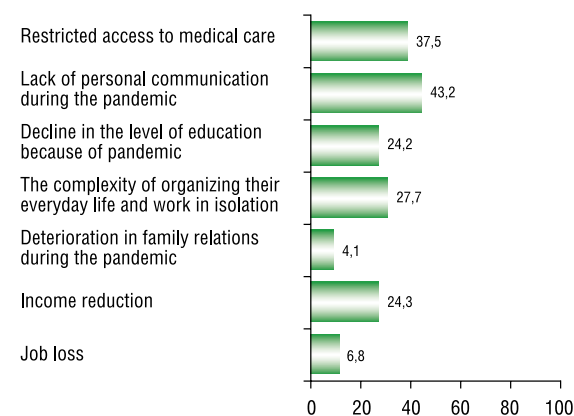AND BURNOUT AMONG PHYSICIANS DURING COVID-19 PANDEMIC

COVID-19 to be a dangerous infection. Of all respondents surveyed 83.6% reported that they experienced fear of COVID-19. The most frequent reason for fear of COVID-19 was possibility of infecting others or to unintentionally cause suffering and possibly death to others — it was reported by 56.8% respondents out of all survey participants (figure 1, a). Significant proportion of participants (49.9%) mentioned that they were feared by having severe course of COVID-19 disease. The majority of participants (81.2%) reported having difficulties related to pandemic restrictions (figure 1, b). The most frequent difficulties were lack of personal communication during the pandemic (43.2%), restricted access to medical care; (37.5%) and the complexity of organizing their everyday life and work in isolation (27.7%).

When asked about the impact of COVID-19 on their well-being significant proportion of study participants from general population reported deterioration in physical, emotional, social, and family-related well-being as well as overall QoL (Figure 2, a). Deterioration in emotional well-being due to pandemic was noted by 61.3% of respondents (41.8% exhibited mild and 19.5% — marked decline). Deterioration in physical well-being was reported by 50.3% of respondents (38.4% — mild decline and 11.9% — marked decline).

Significantly less participants mentioned negative changes in social and family-related well-being (13.6% and 10.1%, correspondingly). In general, deterioration in their overall QoL during the pandemic was reported by 73.8% of respondents. In terms of present global QoL, the mean QoL score by LASA was 6.9 (SD = 1.9). Among the participants 22% exhibited a poor QoL, and the rest ones — good QoL.

As for the levels of anxiety and depression the mean HADS-A score was 5.3 (SD = 4.1) and HADS-D score — 4.3 (SD = 3.4). The levels of anxiety and depression were significantly and inversely correlated with global QoL (Spearman's ρ = -0.347 and -0.376, correspondingly; p<0.001), which means that the respondents with higher levels of anxiety and depression tend to report lower global QoL and vice-versa. An elevated level of anxiety and depression was found in 26.6% and 18.1% of respondents in general population, correspondingly (Figure 3, a). It is worth mentioning that moderate/severe anxiety and depression was observed in 10.1% and 5.8% of individuals. It was also shown that mean HADS-A score and HADS-D score were significantly higher in females than in males (6.3 vs 4.2, p<0.001; 5.1 vs 3.8, p = 0.002). The number of females with elevated anxiety was greater than of males — 30.1% vs 17.7% (p = 0.001), at the same time the
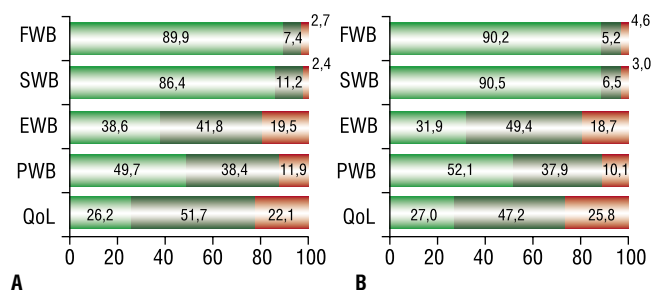

The reasons for being feared of COVID-19

A

Difficulties related to COVID-19 pandemic restrictions among study participants

B

Figure 1. The reasons for being feared of COVID-19 (A) and difficulties related to COVID-19 pandemic restrictions among study participants (B) from general population.

A   B

Figure 2. Distribution of participants according to the level of deterioration in different aspects of well-being and global QoL due to COVID-19 pandemic. A — General population, B — Physicians; FWB — Family-related well-being decline during COVID-19 pandemic; SWB — Social well-being decline during COVID-19 pandemic; EWB — Emotional well-being decline during COVID-19 pandemic; PWB — Physical well-being decline during COVID-19 pandemic; QoL — Overall QoL decline during COVID-19 pandemic.
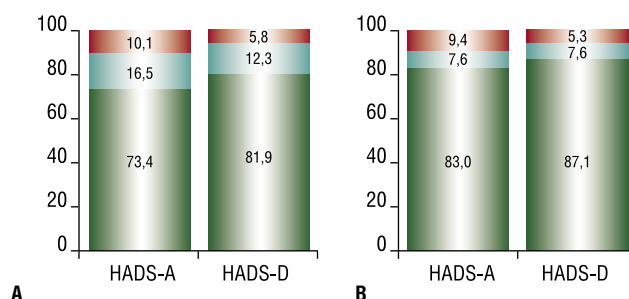
A   B

Figure 3. Distribution of study participants according to the level of anxiety (HADS-A subscale) and depression (HADS-D subscale) by HADS questionnaire. A — General population, B — Physicians; HADS-A, anxiety subscale by HADS questionnaire; HADS-D, depression subscale by HADS questionnaire.

Вестник Национального медико-хирургического Центра им. Н.И. Пирогова **2021, т. 16, № 3**

7

РЕДАКЦИОННЫЕ СТАТЬИ

Shevchenko Yu.L., Ionova T.I., Melnichenko V.Ya., Nikitina T.P.
QUALITY OF LIFE AND MENTAL HEALTH IN RUSSIAN GENERAL POPULATION
AND BURNOUT AMONG PHYSICIANS DURING COVID-19 PANDEMIC

number of females and males with elevated depression was similar — 18.8% vs 16.2% (p>0.05).

To explore if anxiety and depression may lead to decreased QoL during pandemic, a regression model was estimated. Gender, age, presence of chronic diseases, marital status, employment status, difficulties related to pandemic restrictions, level of anxiety and depression, and fear of COVID-19 were included as factors. In the final multivariate model (Nagelkerke's R^2 = 0.148), the significant factors associated with poor QoL were presence of chronic diseases (p<0.05), elevated level of anxiety (p = 0.001) and elevated level of depression (p<0.001) (Table 2).

Furthermore, a frequency analysis in the groups with different levels of anxiety and depression was carried out. Significant association between elevated anxiety levels with female gender (p<0.001), younger age (p<0.001), fear of COVID-19 (p<0.001), loss of relatives because of COVID-19 (p<0.05) and presence of difficulties related to pandemic restrictions (p<0.001) was found out (Table 3). Also there was observed significant association between elevated depression levels with younger age (p<0.001) and presence of difficulties related to pandemic restrictions (p<0.01) (Table 3).

Another focus group was physicians working non-frontline but providing care of patients with chronic disorders on regular basis during pandemic. Among the physicians 65.5% were females; the largest group in the sample (58.5%) was between 26–45 years old (Table 1). Mean professional experience of surveyed physicians — 17.7±10.8 years (range, 1.5–47.0).

When asked about their attitudes toward pandemic, 89% of physicians indicated that COVID-19 is a dangerous infection. Most physicians (69%) reported that COVID-19 was frequently identified among patients or medical staff at their department. Deterioration in emotional well-being was reported by 68.1% of physicians; deterioration in physical well-being — by 48% (Figure 2, b). Significantly less physicians mentioned negative changes in social and family-related well-being (9.5% and 9.8%, correspondingly). 73% of physicians reported deterioration in their overall QoL during the pandemic — it was mild in 47.2% and marked in 25.8%. The current level of QoL assessed by LASA was quite good — mean QoL score was 7.5 (SD = 1.6). Nineteen (11.6%) physicians exhibited a poor QoL. As for the levels of anxiety and depression the mean HADS-A score was 4.3 (SD = 3.9) and HADS-D score — 3.6 (SD = 3.5). Elevated levels of anxiety and depression were found in 17% and 12.9% of physicians, correspondingly (Figure 3, b).

The burnout was analysed using the MBI. Eighty physicians (46.8%) had burnout. The mean scores of each MBI subscale for all physicians showed moderate levels of EE (mean scores 21.8±9.8), DP (mean scores 8.4±5.7), and PA (mean scores 34.9±6.8). Figure 4 illustrates that 52 (30.4%) physicians showed a high score for the EE subscale; 63 (36.8%) — high score for the DP subscale; the higher scores the higher level of emotional exhaustion and depersonalization. Also, 67 (39.2%) participants showed low score for the PA subscale; the lower score the higher level of personal accomplishment.

Table 2. Univariate and multivariate logistic regression analysis for predictors of QoL deterioration

Variable	Univariate analysis		Multivariate analysis	
	OR (95% CI)	p	OR (95% CI)	p
Age[0]	0.994 (0.982;1.006)	0.332	–	–
Gender Male Female[1]	0.985 (0.66;1.47)	0.940	–	–
Employment status Employed Not employed[1]	0.735 (0.29;1.81)	0.504	–	–
Marital status Unmarried Married[1]	0.927 (0.64;1.34)	0.685	–	–
Fear of COVID-19 No Yes[1]	1,115 (0,678;1,833)	0,668	–	–
Difficulties related to COVID-19 pandemic restrictions No Yes[1]	1,632 (0,96;2,78)	0.072	–	–
Presence of chronic diseases Yes No[1]	**0.572 (0.391;0.836)**	**0.004**	**0.638 (0.427;0.954)**	**0.028**
Anxiety by HADS Elevated level Normal[1]	**0.277 (0.189;0.405)**	**<0.001**	**0.462 (0.300;0.712)**	**<0.001**
Depression by HADS Elevated level Normal[1]	**0.193(0.127;0.293)**	**<0.001**	**0.294(0.184;0.470)**	**<0.001**

[1] — Reference category; [0] — age was considered as quantitative independent variable; bolt type for OR where statistical significance was found.

Chi-square analysis revealed significant association between presence of burnout with unmarried status (p<0.001), less years of practice (p = 0.005), elevated level of anxiety or/ and depression (p<0.05) and poor QoL (p = 0.03) (Table 4).

Discussion

In this study, we demonstrate the impact of COVID-19 pandemic on QoL and mental health in Russian general population as well as in physicians providing routine medical care during pandemic. The study was conducted in different regions of Russia in February 2021 in the middle and late stages of the second COVID-19 outbreak. The second outbreak was more pronounced than the first one — during the peak there were registered from 26 000 to 30 000 new cases of COVID-19 per day. At the time of the study the average daily cases was around 15 000. This outbreak also lasted much longer than the first one in April-May 2020. Although there was no lockdown at the second outbreak, there were long lasting and burdensome restrictions for the population implemented by the authorities.

РЕДАКЦИОННЫЕ СТАТЬИ

Shevchenko Yu.L., Ionova T.I., Melnichenko V.Ya., Nikitina T.P.
QUALITY OF LIFE AND MENTAL HEALTH IN RUSSIAN GENERAL POPULATION
AND BURNOUT AMONG PHYSICIANS DURING COVID-19 PANDEMIC

Table 3. Association of anxiety and depression with sociodemographic and other factors in general population

Variable	Elevated anxiety level, n (%; 95% CI)	Normal anxiety level, n (%; 95% CI)	Elevated depression level, n (%; 95% CI)	Normal depression level, n (%; 95% CI)
Age, y.o.				
18–25	**51 (40.8;32.2–49.4)[1]**	74 (59.2;50.6–67.8)	**39 (31.2; 23.1–39.3)[1]**	86 (68.8; 60.7–76.9)
26–59	114 (24.4;20.5–28.3)	354 (75.6;71.7–79.5)	68 (14.5;11.3–17.7)	400 (85.5;82.3–88.7)
≥60	19 (19.0;11.3–26.7)	81 (81.0;73.3–88.7)	18 (18.2; 10.6–25.8)	81 (81.8; 74.2–89.4)
Gender				
Male	35 (17.7; 12.4–23.0)	163 (82.3; 77.0–87.6)	32 (16.2; 11.1–21.3)	165 (83.8; 78.7–88.9)
Female	**149 (30.1; 26.1–34.1)[1]**	346 (69.9; 65.9–73.9)	93 (18.8; 15.4–22.2)	402 (81.2; 77.8–84.6)
Presence of chronic diseases				
No	76 (23.4;18.8–28.0)	249 (76.6;72.0–81.2)	52 (16.0;12.0–20.0)	272 (84.0;80.0–88.0)
Yes	96 (32.3;27.0–37.6)	201 (67.7;62.4–73.0)	63 (21.2;16.6–25.8)	234 (78.8;74.2–83.4)
Fear of COVID-19**				
No	14 (13.9; 7.2–20.6)	87 (86.1; 79.4–92.8)	13 (12.9; 6.4–19.4)	88 (87.1; 80.6–93.6)
Yes	**161 (30.7; 26.8–34.6)[1]**	363 (69.3; 65.4–73.2)	104 (19.9; 16.5–23.3)	419 (80.1; 76.7–83.5)
Loss of relatives because of COVID-19**				
No	146 (25.1; 21.6–28.6)	436 (74.9; 71.4–78.4)	103 (17.7; 14.6–20.8)	478 (82.3; 79.2–85.4)
Yes	**37 (36.6; 27.2–46.0)[3]**	64 (63.4; 54.0–72.8)	22 (21.8; 13.7–29.9)	79 (78.2; 70.1–86.3)
Difficulties related to COVID-19 pandemic restrictions**				
No	11 (9.3; 4.1–14.5)	107 (90.7; 85.5–95.9)	10 (8.5; 3.4–13.6)	107 (91.5; 86.4–96.6)
Yes	**164 (32.2; 28.1–36.3)[1]**	345 (67.8; 63.7–71.9)	**106 (20.8; 17.3–24.3)[2]**	403 (79.2; 75.7–82.7)

* — Differences revealed by χ2 test/ Fisher's exact test; percent by bolt type for groups with elevated level of anxiety or depression where statistically significant differences between groups were found: [1]p<0.001; [2]p<0.01; [3]p<0.05; ** — The number of patients being considering is out of those patients for whom this data are available.

Table 4. Association of burnout among physicians with sociodemographic factors, global QoL, anxiety and depression levels

Variable	Presence of burnout, n (%; 95% CI)	No burnout, n (%; 95% CI)	P*
Age, y.o.			
26–59	75 (47.2; 39.4–55)	84 (52.8; 45–60.6)	0.713
≥60	5 (41.7; 13.8–69.6)	7 (58.3; 30.4–86.2)	
Gender			
Male	27 (44.3; 31.8–56.8)	34 (55.7; 43.2–68.2)	0.623
Female	53 (48.2; 38.9–57.5)	57 (51.8; 42.5–61.1)	
Marital status			
Married	13 (17.1; 8.6–25.6)	63 (82.9; 74.4–91.4)	**<0.001**
Unmarried	**67 (70.5; 61.3–79.7)**	28 (29.5; 20.3–38.7)	
Years of practice			
<5	**16 (76.2; 58–94.4)**	5 (23.8; 5.6–42)	**p = 0.005**
5–10	19 (59.4; 42.4–76.4)	13 (40.6; 23.6–57.6)	
11–20	21 (38.9; 25.9–51.9)	33 (61.1; 48.1–74.1)	
>20	24 (37.5; 25.6–49.4)	40 (62.5; 50.6–74.4)	
Level of anxiety			**p<0.05**
Normal	55 (38.7; 30.7–46.7)	87 (61.3; 53.3–69.3)	
Elevated	**25 (86.2; 73.6–98.8)**	4 (13.8; 1.2–26.4)	
Level of depression			**p<0.05**
Normal	60 (40.3; 32.4–48.2)	89 (59.7; 51.8–67.6)	
Elevated	**20 (90.9; 78.9–100)**	2 (9.1; 0–21.1)	
Global QoL by LASA			**0.03**
Poor	**15 (71.4; 52.1–90.7)**	6 (28.6; 9.3–47.9)	
Good	65 (43.3; 35.4–51.2)	85 (56.7; 48.8–64.6)	

* — Differences revealed by χ2 test/ Fisher's exact test; bolt type for groups with burnout where statistically significant differences between groups were found (p<0.05).

These limitations in every-day life, social relations, professional activities, could contribute to the increased tense among population and result in negative changes in different areas of well-being of individuals.
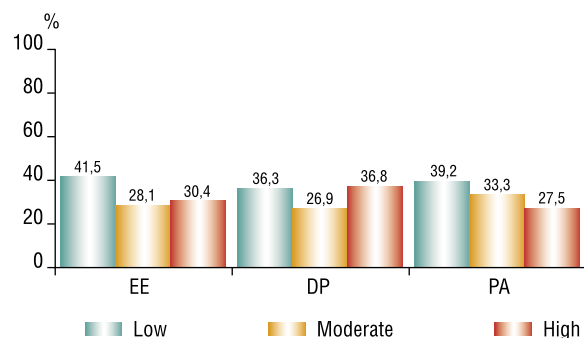

Figure 4. Distribution of physicians according to MBI subscales scores. The higher score by EE and DP the higher level of emotional exhaustion and depersonalization, the lower score by PA the higher level of personal accomplishment.

To our knowledge, this is the first study on the impact of COVID-19 pandemic on QoL and mental health among Russian general population. Our findings reveal that significant proportion of general population of Russian population experienced deterioration in emotional and physical well-being as well as overall QoL due to the COVID-19 pandemic. It is worth mentioning that 22% participants exhibited poor QoL.

Furthermore, we identified the prevalence of anxiety and depression in general population during pandemic. An elevated level of anxiety and depression was found in 26.6% and 18.1% of respondents, correspondingly. To note, moderate/severe anxiety and depression was observed in 10.1% and 5.8% of individuals during pandemic. Obviously, these individuals may have reduced adaptive capacity and stress tolerance. In the future, they may have serious problems

Вестник Национального медико-хирургического Центра им. Н.И. Пирогова **2021, т. 16, № 3**

9

РЕДАКЦИОННЫЕ СТАТЬИ

in mental health, and develop mental illness. It was also shown that the levels of anxiety and depression were significantly higher in females than in males. These results are similar to those of Wang et al. [25], who conducted an investigation in China at the COVID-19 pandemic's beginning.

The objectives of the study also included identifying factors that can influence QoL. We found that the odds of decremented QoL was higher in participants with chronic disorders, elevated levels of anxiety and depression. We have also identified factors associated with elevated anxiety and depression among general population during COVID-19 outbreak. The individuals with elevated level of anxiety were found more likely to have female gender, younger age, fear of COVID-19, to have lost relatives because of COVID-19, and had difficulties related to pandemic restrictions. Respondents with elevated level of depression were more likely to be younger and having difficulties related to pandemic restrictions.

Among the results obtained in the group of physicians, we highlight the following. When analyzing the level of anxiety and depression among physicians providing planned medical care during the pandemic, elevated level of anxiety was found in 17% of specialists, elevated depression — in 13%, which is less than in the general population. The data obtained indicates a sufficient level of stress tolerance among physicians. Another important result is that among the surveyed physicians, 46.8% had burnout syndrome. Also we demonstrated association between presence of burnout with unmarried status, less years of practice, elevated levels of anxiety or/and depression, as well as impaired QoL. In general, the results obtained are in line with the published data on the impact of pandemic on QoL and well-being in population [26–29] and burnout among physicians [30].

Given the importance of the results obtained, we should note the limitations of the study too. The data collection was based on an electronic survey, which assumes the participation of the most socially active and responsible citizens. The results obtained in our study regarding the prevalence of elevated levels of anxiety and depression may be underestimated, as people with distress are likely to avoid to participate in online surveys. Also among the limitations of this study is its cross-sectional nature. Further monitoring of QoL and mental health among population as well as burnout among health care workers during the pandemic and post-pandemic period sounds worthwhile.

Conclusion

In summary, we found that deterioration in QoL and prevalence of mental disorders during the COVID-19 pandemic in Russia among general population was quite high. The present study identified that nearly half of physicians providing routine medical care during pandemic experienced burnout. The results indicated factors which could contribute to increasing anxiety and depression among general public and to burnout among physicians — they can be used to screen for the individuals who need intervention for psychological health problems during pandemics. Further

research is needed in the post-pandemic period to examine pandemic-related stressors, secondary damages, psychosocial consequences, and indicators of vulnerability in order to provide reference for developing strategies to deal with future pandemics.

The authors declare no conflict of interest (Авторы заявляют об отсутствии конфликта интересов).

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Р Е Д А К Ц И О Н Н Ы Е   С Т А Т Ь И

Shevchenko Yu.L., Ionova T.I., Melnichenko V.Ya., Nikitina T.P.
QUALITY OF LIFE AND MENTAL HEALTH IN RUSSIAN GENERAL POPULATION
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11