

SOCIO-HUMANITARIAN RESEARCH

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PSYCHO-EMOTIONAL STATE OF MEDICAL PERSONNEL IN THE VOLOGDA OBLAST DURING THE COVID-19 OUTBREAK: RESULTS OF A SOCIOLOGICAL SURVEY



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The purpose of the work is to assess the psychological consequences of the COVID-19 pandemic for medical staff working in the “red zone”. The authors used general scientific and empirical research methods. The information base is the data of a sociological survey conducted by the Vologda Research Center of the Russian Academy of Sciences in February 2021. The survey covered 67 medical workers of the Vologda Oblast mono-hospitals, and 1500 residents of the region. The scientific novelty of the work lies in assessing the prevalence of psychological problems and psychoemotional disorders among the medical staff, their strategies for coping with stress and the identification of high-risk groups. The research found that one third of the surveyed have symptoms of anxiety and/or depression, 18% feel stress, 6% have suicidal thoughts, 4,5% have suicide plans. At the same time, 18% of the medical staff felt that psychological support was unavailable, and 35% agreed that it was necessary to have a staff psychologist. Health workers experienced groundhog day syndrome, suffered from the negative attitude of others and had to face the problem of death of acquaintances, patients and colleagues much more often than the other population of the region. The medical staff of mono-hospitals demonstrated greater stress tolerance than the general population, but they more often chose destructive methods of coping with anxiety: drinking

alcohol, taking illegal drugs, and smoking. The most vulnerable were senior and mid-level medical staff; men; age categories over 50 or under 30. The risk of developing symptoms of depression is positively correlated with the respondent's age. Young employees are aware of the worsening psychological state, they want to seek help, but are deprived of this possibility, try to overcome the growing anxiety through alcohol and tobacco use. With age, the share of those who resort to these coping strategies decreases. However experienced medical workers (over 50) more often deny mental health problems and the need for specialized help, they are ashamed to ask for it due to stigmatization and fear of loss of authority, and try to cope on their own. Therefore, these categories of medical staff should become the main groups of impact of preventive measures to strengthen the psycho-emotional state, prevent burnout, preserve professional qualities during a period of increased pressure on the health care system.

COVID-19 pandemic, medical staff, mental health, psychological state, psychological problems, anxiety, depression, suicidal behavior, risk groups.

Introduction

The 2019 new coronavirus pandemic has caused a major crisis worldwide and has placed intense pressure on national health care systems (Frenkel et al., 2022). Many countries required urgent restructuring and reorganization of the health care system to support emergency services, intensive care units, and infectious disease units. Health care providers have mobilized all their resources to provide emergency care in the face of general uncertainty. There are now increasing concerns about their psychological adjustment and mental health status (El-Hage et al., 2020).

So-called "frontline" health care workers may be affected by fear of infection, lack of personal protective equipment, deaths of patients and colleagues, understaffing, lack of clear treatment protocols and medication shortages, having to make extremely difficult decisions, including ethical ones, separation from families, loneliness, and physical fatigue. They experience stigmatization, feelings of helplessness, guilt, loneliness, fear, anger; detachment, anxiety, irritability, insomnia; poor concentration and indecisiveness, decreased productivity, reluctance to work. They are more likely to engage in avoidance behaviours in the future (Bai et al., 2004; Brooks et al., 2020;). Additional risk factors for health care workers include lack of social support and communication, maladaptive coping strategies, and lack of professional training (Lai et al., 2019). In turn, negative emotions experienced by staff treating infected patients are assessed by them as triggering events that entail errors and delays

in patient care (Son et al., 2019), which also increases the burden of COVID-19.

Exploratory factor analyses conducted by German colleagues led by Frenkel showed that work stressors of medical staff during the COVID-19 pandemic can be grouped into four main latent factors: "fear of transmission", "interference of workload with private life" (according to the authors, this is a major predictor of psychological stress), "uncertainty/lack of knowledge", and "concerns about the team". In contrast, "team concern" increased stress tolerance (Frenkel et al., 2022).

There is a consensus in the scientific literature that health care workers are at increased risk for developing mental health problems. Numerous data suggest that coronavirus outbreaks have profound effects that are likely to persist for months and years. It is associated with distress, increased anxiety, fear, depression, insomnia, PTSD, alcohol dependence, burnout, self-harm thoughts, suicide attempts, and completed suicides both in the general population and among medical staff, especially red zone staff (Frenkel et al., 2022; Joseph, Bhandari, 2021; El-Hage et al., 2020; Gunnell et al., 2020; Kawohl, Nordt, 2020; Reger et al., 2020; Sher, 2020; Sherman, 2020; Thakur, Jain, 2020; Torales et al., 2020; Wu et al., 2008; Lau et al., 2005).

Research Methodology

In order to assess the psychoemotional state and suicidal behavior of medical workers in the "red zone" during the COVID-19 pandemic,

the Vologda Research Center of the Russian Academy of Sciences conducted a sociological survey of the personnel of two city and one district hospital.

The objectives of the research are:

1) to characterize psychological problems faced by the staff of COVID-19 medical organizations in the Vologda Oblast;

2) to assess the level of prevalence of symptoms of stress, anxiety, depression and suicidal behavior among them;

3) to analyze coping behaviors of medical personnel in the period of increased stress levels, anxiety and depression against the background of the pandemic;

4) to identify the groups at increased risk of developing adverse psychological outcomes among respondents.

The object of the study is the medical staff of the Vologda Oblast dealing with COVID-19, the subject is the psycho-emotional state of medical personnel during the pandemic.

Research method is the sociological survey conducted in February 2021.

The information base is the data from two sociological surveys conducted in February 2021: (1) directly among medical staff and (2) among the general population of the region¹.

The survey of medical staff was conducted in two city hospitals in Vologda and the central district hospital in Veliky Ustyug, which were converted to mono-hospitals for the treatment of coronavirus patients in 2020. The sample consisted of 67 respondents, including 37% physicians, 45% nurses, and 18% junior medical staff. We should note that our survey of medical staff of mono-hospitals was part of a study conducted by the Moscow Research Institute of

Psychiatry (a branch of the V.P. Serbsky NICPN of the Ministry of Health, Moscow) (Lubov et al., 2021). However, the latter² was conducted primarily at the peak of the second wave of the pandemic in December 2020 without including the Vologda Oblast.

Thus, peculiarities of the research in our region consist, firstly, in the sample, which consisted exclusively of the red zone employees, secondly, in a slightly later period of conducting – at the recession of the second pandemic wave, which affected the obtained results. The list of questions for the questionnaire was significantly expanded, which allowed to make a comparison with the psychological state of the population of the Vologda Oblast, and not only medical employees in other subjects of the Russian Federation. Thus, in addition to the PSM-25 psychological stress scale, we included the Hospital Anxiety and Depression Scale (Zigmond, Snaith, 1983), originally developed for pre-hospital diagnosis and later for epidemiological surveys of mass character. It has been repeatedly used when studying patients in the general medical network and the general population, including by the VolRC RAS since 2002. It helps to calculate a certain predisposition of a respondent to some forms of mental pathology and to reveal subjective self-assessment of his or her mental state. These methods allow to increase reliability of sociological researches essentially.

General scientific methods of research (literature analysis; study and generalization of information; comparison; synthesis; induction; deduction; classification) and empirical methods (measurements; questioning; observation; comparison) were used in the work.

¹ As part of the VolRC RAS monitoring of the socio-economic situation and social well-being of the population of the Vologda Oblast, which has been carried out since 1996 once every two months. 1500 respondents over 18 years old are polled in the cities of Vologda and Cherepovets, in Babaevsky, Velikoustyugsky, Vozhegodsky, Gryazovetsky, Kirillovsky, Nikolsky, Tarnogsky, Sheksninsky districts. The representativeness of the sample is ensured by the observance of the following conditions: the proportions between the urban and rural population; proportions between residents of settlements of various types (rural settlements, small and medium-sized cities); age and sex structure of the adult population of the region. The survey method is a survey at the place of residence of the respondents. The sampling error does not exceed 3%. In February 2021, a set of questions about the impact of the new coronavirus infection pandemic, including psychological problems and coping strategies, was included in the standard questionnaire.

² Anonymously, not selectively according to the original semi-structured questionnaire with the inclusion of the adapted PSM-25 psychological stress scale (Lemyr-Tessier-Fillion). 550 employees of multidisciplinary hospitals in 18 regions of four federal districts were interviewed: North-Western (Arkhangelsk, Kaliningrad, Vologda), Central (Moscow, Moscow Oblast, Ryazan, Tambov), Volga (Nizhny Novgorod, Ulyanovsk, Penza region, Ulyanovsk region, Tchaikovsky Perm Krai Cheboksary and Novocheboksarsk of the Chuvash Republic), Uralsky (Tyumen, Yalutorovsk).

The scientific novelty of the presented work consists in a comprehensive study of the features of the psychoemotional status of medical staff of Vologda mono-hospitals, which includes the analysis of psychological problems experienced by physicians, the diagnosis of symptoms of stress, anxiety and depressive disorders, as well as the used ways to overcome increased anxiety in conditions of pandemic and health crisis, identifying high-risk groups.

Practical significance of the conducted research will allow to determine the groups, the i.e. targets of therapeutic and preventive measures among medical staff when planning future strategies concerning the prevention of mental health disorders of medical staff working on the front line, preservation of their professional qualities in crisis working conditions.

Literature sources review demonstrates the broad spectrum and range of prevalence of mental health consequences of the new coronavirus infection pandemic among medical staff. Overall, various data indicate that between 9% and 51% of healthcare workers experienced symptoms of depression during the new coronavirus pandemic, 15–45% experienced anxiety, 8–36% experienced sleep disturbances, 7–72% experienced excessive stress exposure, and 8–50% experienced symptoms of posttraumatic stress disorder (PTSD)⁵. The authors applied methodologies that varied in sample size and representativeness, country and conditions of residence and work, etc.

For example, two Chinese 2020 studies based on a survey of 1,563 (Liu et al., 2020) and 1,257 (Lai et al., 2020) respondents found similar results: 51% of medical staff had symptoms of depression, 45% had symptoms of anxiety, and 34–36% had symptoms of sleep disorders. In the latter survey, more than 70% were additionally found to have symptoms of distress.

A study by Kang and colleagues (994 respondents) found that 34% of health care workers had mild mental health problems, 22%

had moderate and 6% had severe mental health problems (Kang et al., 2020).

According to Italian researchers, half of the 1,379 health professionals surveyed had symptoms of PTSD, one in four had severe depression, one in five had anxiety and high stress levels, and 8% had sleep disorders (Rossi et al., 2020).

In a survey of 470 health care workers conducted by Benjamin and colleagues during the first wave of the new coronavirus pandemic (spring 2020), 15% had high levels of anxiety, 9% had depressive symptoms, 7% had elevated levels of stress, and 8% had clinical signs of PTSD. Notably, the prevalence of anxiety was higher among non-medical employees than among physicians and nurses (21% vs. 11) (Benjamin et al., 2020).

An Italian 2020 study (627 surveyed) showed that professionals working directly with COVID-19 patients had significantly higher levels of stress, burnout, secondary trauma, anxiety, and depression. They were also twice as likely to want to seek psychological support (Trumello et al., 2020).

The first Russian study aimed at evaluation of psychological state of medical workers from different regions of the country during the first wave of the pandemic coronavirus infection was conducted by the scientists from the Moscow State University of Psychology and Education together with the staff of N.V. Sklifosovsky Research Institute of Emergency Medicine. The majority of the examined specialists had high indices of professional burnout: 61% of the examinees had high indices of emotional exhaustion, and 92% had high indices of depersonalization (which reflected the degree of formalization of contacts with patients and colleagues). However, a positive point was also revealed: 61% of specialists showed low burnout rates on the scale of professional success, which indirectly indicates a high level of health workers' mobilization and their understanding of their role in overcoming the pandemic. Medical workers from the regions

⁵ Recommendations for health care workers under increased psychoemotional stress during the COVID-19 pandemic (2020). M. Available at: https://edu.rosminzdrav.ru/fileadmin/user_upload/specialists/COVID-19/dop-materials/13-5-20/Rekomendacii_dlja_medrabotnikov.pdf (accessed May 26, 2022).

were more psychologically disadvantaged: they differed from their colleagues from Moscow by higher indices of depression and anxiety, and also more often complained about the lack of protection means.

The Union for Mental Health and the Research and Educational Center of Modern Medical Technologies conducted a nationwide survey (more than 500 people) of doctors, nurses, employees of specialized universities and junior medical staff from 66 regions of Russia in 2020. According to its results, it was found that 88% needed psychological support; 36% were afraid of contracting the coronavirus, infecting other people and unintentionally causing death; 20% were afraid of the serious course of the disease in themselves; 28% noted a high level of anxiety; 18% noted sleep disturbances; and 21% indicated a strong feeling of depression⁴.

The team of the popular medical service, “Spravochnik vracha” (Doctor’s Handbook) application (uniting more than 915,000 users) polled 2,822 users about their psychological state during the pandemic. The results were as follows: 58% “go to work with interest but generally tired”, 29% “go to work without interest”; 37% have health problems amid emotional exhaustion; 28% of doctors and 32% of nurses in red zones often think about quitting because of fatigue and overwork or are close to it; 42% do not feel supported by their superiors, and 68% have received an offer to quit if they do not like something. Unfortunately, more than 90% admitted that their fatigue would affect or had already affected their patients.

Another online national survey of 812 health care workers found that the prevalence of respondents’ pandemic anxiety symptoms was 49%, depression was 58%, and subjectively poor sleep quality was 37%. Higher levels of anxiety and depression were characteristic of younger people aged 20–39 (Bachilo et al., 2021).

Thus, we can conclude that medical staff, especially frontline workers, experience a strong psychological impact of the COVID-19 pandemic. This inevitably affects their

professional qualities and has negative consequences for their patients’ health.

Results and discussion

According to our survey, medical staff in the red zones of the Vologda Oblast believe that they and their colleagues survived the COVID-19 pandemic fairly easily (2.2 and 2.3 points respectively on a 5-point scale, where 1 is very easy, unnoticeable, and 5 is extremely difficult). In their opinion, the situation was most difficult for elderly relatives (3.0 points).

According to the surveys, every third (32%) resident of the Vologda Oblast and every second (49%) employee of a mono-hospital reported that they had not experienced any new psychological problems related to the COVID-19 pandemic. Almost as many (31% of the population and 51% of the medical staff) felt no increase in fear and anxiety about the coronavirus.

The fear of infection, the imposition of stringent measures to contain the virus, and the feeling of “groundhog day” were the most significant for the remaining 2/3 of the general population and half of the medical staff (*Table 1*). In turn, doctors and nurses were less likely than the general population to be afraid of being infected (by one-third), to suffer from loneliness (by 1.5 times), to be bored (by 2.3 times), and to deny the danger of the virus (by 2.5 times). But they faced stigmatization, death of acquaintances (mostly patients and colleagues) from coronavirus infection, monotony and inability to get new impressions much more often due to their professional activity. About 18% of mono-hospital employees experienced inaccessibility of psychological help, which is twice as high as among the residents of the region.

A U.S. study found that medical staff stress disorder during the pandemic was largely due to either (1) work–family conflicts or (2) physical symptoms, malaise (the most frequent symptoms were fatigue (28%), muscle pain (14%), and back pain (12%)) (Keller et al., 2022).

⁴ Recommendations for health care workers under increased psychoemotional stress during the COVID-19 pandemic (2020). M. Available at: https://edu.rosminzdrav.ru/fileadmin/user_upload/specialists/COVID-19/dop-materials/13-5-20/Rekomendacii_dlja_medrabotnikov.pdf (accessed May 26, 2022).

Table 1. Significant psychological problems that respondents experienced during the new coronavirus outbreak, quarantine, and self-isolation, % of those who faced problems

The problem	Population of the region	Medical staff
I'm very afraid of becoming infected and/or that my family and friends would get sick	66.0	44.1
Restrictions on my freedom and the imposition of strict control measures (including fines) over compliance with the self-isolation regime	44.9	41.2
Monotony, the feeling of "groundhog day" and inability to receive new impressions	29.1	41.2
Loneliness and inability to have personal contact with close people and/ or break up of relationships	27.1	17.5
Lack of faith in the virus danger; the feeling that we are being lied to	22.7	8.9
Nothing to do, boredom	20.3	8.8
Negative attitude of people around because of the high risk for me (my family members) of getting COVID-19	18.0	29.4
Coronavirus-related death of a loved one and/or patient and/or colleague	12.3	23.5
Domestic psychological and/or even physical violence	6.3	0.0
Inaccessibility of professional psychological help	9.1	17.6
Calculated from: data of the survey of the Vologda Oblast population and medical staff of Vologda Oblast mono-hospitals in February 2021.		

Table 2. Negative experience and feelings of medical workers in Russia and the Vologda Oblast during the COVID-19 outbreak, %

Agree with the following statements	RF	VO
I am overloaded with work, not enough time at all	34.0	28.4
I overthink my thoughts over and over again; change my plans	24.3	22.4
I am stressed, anxious, and nervous	20.9	13.4
I feel fatigued all the time (rest does not bring relief)	20.4	20.9
I suffer physically: my head hurts, my neck muscles are tense	20.1	15
I need more than half an hour to fall asleep / I get up early without rest	19.7	23.9
I look tired; I have bags or circles under my eyes	19.3	23.3
I swallow food or even forget to eat	17.2	10.5
I am absorbed by thoughts, exhausted or worried	16.1	10.5
I feel heavy in my shoulders	15	13.4
I feel low spirits / pessimistic / despair most of the day	11.9	14.9
Life is joyless / valueless, I live on autopilot	7.7	19.4
I think about quitting increasingly	12.5	23.9
Calculated from: data from a survey of medical staff of Vologda Oblast mono-hospitals in February 2021 and a survey of medical staff of multidisciplinary hospitals in other regions conducted under the supervision of E.B. Lyubov in December 2020.		

Let us consider the first, family-related factor. More than 40% of the interviewed employees of the Vologda Oblast covid hospitals admitted that they started to see their family members less oftendue to hard work; more than half of them were not able to spend vacations together. Almost every second feels guilty about their children. Every seventh reported family's worsening financial situation

during the pandemic, every eighth reported a difficult experience with quarantine and self-isolation, and every tenth reported an increase in quarrels. As a result, 8% of doctors and nurses believe that their family relationships deteriorated in 2020.

As for the deterioration of the medical workers' physical condition, every third respondent in different regions of the Russian Federation

feels overworked (Table 2); every fifth feels tense, agitated, and experiences constant fatigue and various body pains. These indicators are somewhat lower among respondents from the Volgograd Oblast, because the survey was conducted during the decline of the second wave, when the flow of hospitalized patients was decreasing. Also every fifth experienced difficulties with falling asleep, and sleep did not bring rest and did not help to recover, as a result the staff noticed that they looked tired, with “bags under the eyes” (medical workers in the Vologda Oblast admitted this more often – every fourth interviewed). Every fourth medical employee of the Vologda mono-hospitals thought about quitting (twice as often as in other RF regions), because the regional sample consisted only of “frontline” employees of red zones, who were subjected to the main blow of the pandemic and the greatest physical and psycho-emotional strain.

Almost every tenth employee who worked in the Vologda Oblast covid hospitals was disturbed by disquieting memories, feelings and images related to the pandemic (9%), vivid disturbing dreams about their work (10.4%). About 15% felt lowered spirits, pessimism, despair for most of the day; every fifth thought their life was joyless and on auto-pilot at the time of the survey, another 8% experienced

emotional indifference. All of this could be a symptom of anxiety and depressive disorders.

According to the results of sociological surveys, in February 2021 we recorded the highest prevalence of depressive disorder symptoms (38%; Fig.) during the 20 years of monitoring conducted by VoIRC RAS. The level of anxiety increased by a third compared to the pre-pandemic year of 2019. Thus, almost every second resident of the Vologda Oblast experienced some kind of problem with psychological well-being.

The data of the survey of mono-hospitals medical staff indicate that the prevalence of the corresponding disorders among the representatives of these categories is lower than in the region as a whole (Table 3). This may indicate greater stress resistance, in spite of the increased work regime and emotional burnout. Nevertheless, every fifth doctor at the moment of the survey had symptoms of anxiety disorder, and every fourth had symptoms of depressive disorder. Thus, every third employee has a subclinical or clinically expressed level of anxiety and/or depression, which means that he/she needs qualified help of a mental health specialist and treatment.

The highest rates of anxiety symptoms were found among nurses (27%), workers aged over 50 (25% and 31%), or under 30 (22%).

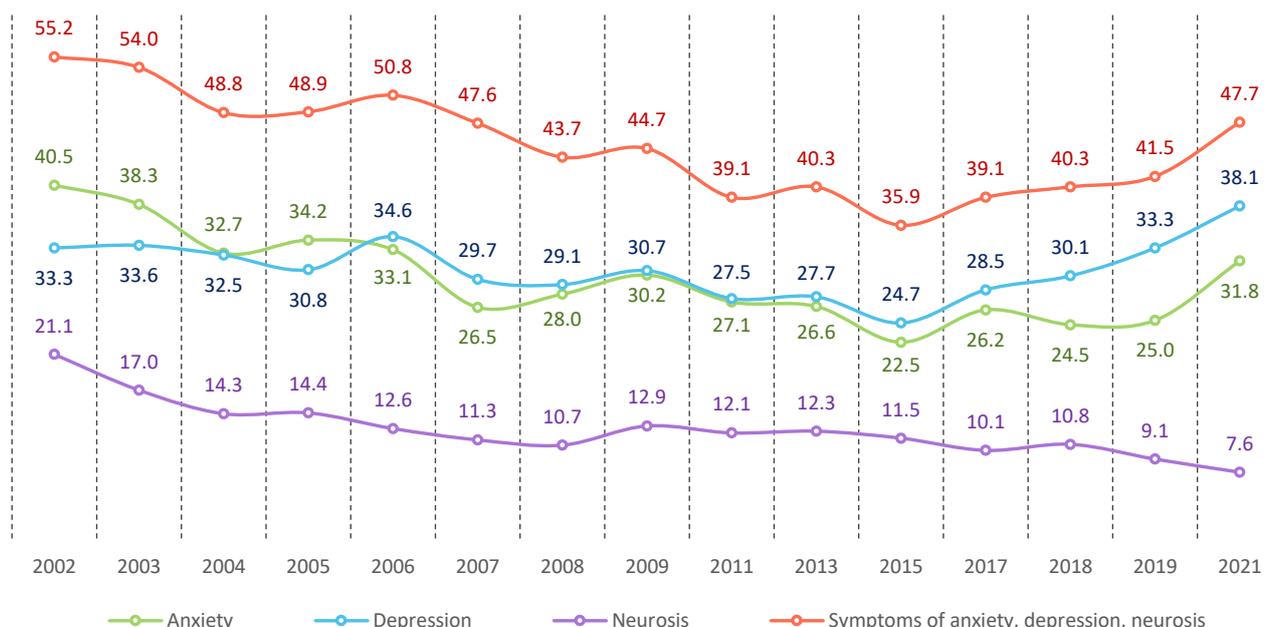


Fig. The dynamics of the prevalence of symptoms of neurotic, anxiety or depressive disorders among the population of the Vologda Oblast in 2002-2021, %

Source: data of the monitoring of public mental health of the Vologda Oblast population, conducted by VoIRC RAS.

Table 3: Prevalence of anxiety and depression disorder symptoms in the general population and medical staff, %

Symptoms	Population of the region	Medical staff		
		overall	men	women
Subclinically and/or clinically expressed symptoms of anxiety and/or depression	47.7	34.3	43.8	31.4
Symptoms of anxiety disorder, including:	31.8	19.4	25.0	17.7
- subclinically expressed anxiety	29.9	17.9	25.0	15.7
- clinically expressed anxiety	1.9	1.5	0.0	2.0
Symptoms of a depressive disorder, including::	38.1	25.4	37.5	21.5
- subclinically expressed depression	34.4	22.4	37.5	17.6
- clinically expressed depression	3.7	3.0	0.0	3.9

Calculated from: data from a survey of mono-hospitals medical staff and the population of the Vologda Oblast conducted by VolIRC RAS in February 2021.

Table 4. Symptoms of anxiety and depression among medical workers according to gender and presence of children under 16, %

Symptoms	Average value	No children	Having children		
			Average value	women	men
Anxiety disorders, including:	19.4	14.3	23.5	17.3	36.4
- subclinically expressed	17.9	14.3	20.6	13.0	36.4
- clinically expressed	1.5	0.0	2.6	4.3	0.0
Depressive disorder, including::	25.4	21.5	32.3	30.4	36.7
- subclinically expressed	22.4	17.9	29.4	26.1	36.7
- clinically expressed	3.0	3.6	2.9	4.3	0.0
Anxiety and/or depression	34.3	32.1	38.2	34.8	45.5

Calculated from: data from a survey of medical staff of Vologda Oblast mono-hospitals in February 2021.

One in three older employees with more than 30 years of work experience were found to be susceptible to depression.

According to the survey, male doctors appeared to be more at risk for adverse psychological outcomes during the pandemic than their female colleagues (see Table 3). About 44% of them had symptoms of anxiety and/or depressive disorder at the time of the survey, compared with 31% of women.

Having children also positively correlated with the disorders development. Thus, the prevalence of anxiety and depression symptoms among medical workers having children was 50-60% higher (Table 4). Fathers were more psychologically vulnerable among the medical staff.

According to the results of the stress scale used in the survey, 18% of health workers experi-

ence stress. On average in the Russian Federation, the indicator is much higher at the peak of the second wave, it makes up 42% (Lyubov et al., 2021). We should note that the greater the total stress index we measured, the greater the vulnerability to work stress, predisposition to experiencing distress and various stress syndromes (mental and professional burnout, chronic fatigue) and coronary diseases. Stress symptoms also positively correlate with anxiety indices.

A high level of stress was detected among medical workers over 50 years old (31%) or among those with less than 5 years of experience (23%), nurses and doctors. The lowest level was found among nursing staff, apparently due to their lesser responsibility for the patients' lives.

On the one hand, according to our data, the level of stress practically does not depend on

gender (increased among 16% of women and 13% of men). However, it is indicative that the highest level of stress, as well as of anxious-depressive symptoms, is noted in the group of men with children, and the lowest one is among men who do not live together with a child. One of the reasons could be the fact that the presence of a child deprives them of an opportunity to rest fully after work.

Despite the lower level of stress in the region, the suicidal activity of medical workers in the Vologda Oblast is higher than in other subjects of Russia. About 6% of them (and 4.5% in the Russian Federation) have suicidal thoughts. Fortunately, according to estimates of the Center for Disease Control and Prevention (CDC), the majority of persons harboring suicidal ideas, thoughts (ideators) around the world will never attempt suicide, only a small number of them will use means of suicide, unequivocally resulting in death. For example, only 14 percent of the 10 million of Americans with suicidal thoughts attempted suicide in 2017. And two-thirds of them did not even need medical help after a parasuicide (Harmer et al., 2022). According to a survey conducted by the Research Institute of Psychiatry (Lyubov et al., 2021), on average only one in five medical workers who harbored suicidal ideas admitted that they planned to leave their lives at the peak of the second wave of the new coronavirus infection in December 2020 in Russia. In the Vologda region, the proportion is much higher (three quarters).

We also found that parenthood is a factor in deterring suicidal behavior (Shmatova, Razvarina, 2021). The latter was observed ex-

clusively in the group of mono-hospitals' medical employees who did not live together with underage children.

Despite the professional affiliation of the respondents from the Vologda Oblast, only one in three of them (even fewer in Russia – 28%; *Table 5*) knew where they could go in a crisis. It is sad that two thirds of the Vologda medical workers (every fourth in Russia) are convinced that their condition does not require the help of a specialist, and every tenth is ashamed to call the helpline or suicidology services. Experienced medics are especially ashamed of this (one in three among those with more than 30 years of experience). And none of them is afraid that contacting psychological assistance services can harm their career.

It is noteworthy that those with suicidal thoughts and plans are more likely than others to be aware of contacts with special help services (they may have contacted them previously). None of them considers it shameful to contact them again, but they are convinced that their condition does not require it or that they can cope on their own. However, 29% believe that applying to such organizations will negatively affect their career (overall, only 8% of physicians feel this way).

Thus, despite the fact that, medical staff assess their psychological condition rather satisfactorily when answering direct questions, the data of stress, anxiety and depression scales demonstrate a high level of prevalence of symptoms of the respective disorders.

During the difficult pandemic periods, medical personnel get significant psychological support from their family (80%), colleagues

Table 5. Awareness and attitudes toward suicide services among medical staff during the pandemic, %

Statement	RF	VO
I know where to go in case of a crisis (helplines, suicidology services)	27.7	32.8
... but my condition does not require it	26.9	62.7
... if something happens, I will manage it myself	45.1	62.7
I am ashamed to ask for professional help	4.6	10.4
... would harm my career/work - I do not believe in anonymous treatment	8.1	7.5
Over the past month, I know at least one colleague with a successful appeal for anti-crisis assistance	3.3	3.0

Calculated from: data from a survey of the Vologda Oblast mono-hospitals' medical staff in February 2021 and a survey of medical staff of multidisciplinary hospitals in other regions conducted under the supervision of E.B. Lyubov in December 2020.

(63%), due to natural optimism and resilience (54%), in sports (39%), art (28%), and religion (15%). Unfortunately, every sixth is convinced that alcohol and smoking help them (every fourth in the group with children under 16). Note that as their age increases, their share drops by half: from 22% in the group under 30 to 12% in the group over 50, as well as the share of smokers (from 33% to 25%) and those who drink during the coronavirus pandemic to cope with growing anxiety (from 11% to 0).

Both health workers and the population attempted to overcome the increased fear and anxiety, which emerged in the background of the pandemic, mainly through constructive coping behaviors: “protective” behavior, household chores, creativity, sports, reading, auto-training, etc. (Table 6).

However, almost every third medical staff member chose destructive ways: “I didn’t do anything” (21.2%); alcohol and illegal drugs (9%). At the same time, every fourth resident of the region resorted to such methods (19 and 4%, respectively; see Table 6).

In the last week preceding the survey, every third physician in the Vologda Oblast smoked and/or consumed alcoholic beverages every day (Table 7), which is by an order more frequent than in other Russian regions. At the same time, half as many respondents (only 16%) think this measure of coping with stress is effective.

A 2020 study by Tran and colleagues unexpectedly found that smoking and alcohol also helped health care workers cope with increased stress during a pandemic (Tran et al., 2020). “Frontline” workers who increased their consumption of cigarettes and alcohol had a lower probability of developing symptoms of anxiety and depression, even compared to health workers not involved in the “red zone” who reduced the volume of alcohol and tobacco consumed.

Unfortunately, one in seven health worker with children chose destructive coping behaviors (alcohol, illegal drugs, and inactivity) twice as often as the non-parent group (Shmatova, Razvarina, 2021). Perhaps this was due to the fact that colleagues without children could afford sports, yoga; creativity, reading literature, and watching movies more often.

Speaking of the groups at higher risk of developing adverse psychological outcomes during the COVID-19 pandemic, we can draw the following conclusions:

- nurses and doctors (as compared to junior medical staff) are the most vulnerable due to their greater responsibility for their patients’ lives and health;
- male medical personnel are more at risk of developing anxiety and depressive symptoms, especially those who have minor children in their families. However, medical men’s

Table 6: Ways to cope with increased fear and/or anxiety caused by coronavirus, % of those who experienced it

Ways, coping actions	Population of the region	Medical personnel
I tried to stay indoors, avoided crowded places, washed my hands thoroughly, disinfected items, wore a mask	68.1	39.4
I tried to keep busy (work, household chores, hobbies, children)	47.9	57.6
I tried to watch and listen to news about the coronavirus less often	23.0	27.3
I didn’t do anything	19.1	21.2
I engaged in creative work and/or read fiction, watched movies	18.1	30.3
I calmed myself down, self-training	17.9	9.1
Exercised in my free time: practiced sports, yoga, breathing exercises	15.2	18.2
Prayed more	16.0	3.0
Read the news and researched information about the coronavirus more often	12.5	18.3
I consumed alcohol and/or illegal drugs to relax and distract myself	4.4	9.2
Calculated from: data from a February 2021 survey of mono-hospitals’ medical staff and the population of the Vologda Oblast.		

Table 7. Consumption of cigarettes and alcoholic beverages by medical staff, %

Statement	RF	VO
Daily during the last week:		
smoked	13.2	29.9
consumed alcohol	10.2	37.3
Percentage of respondents who agree with the statement "Alcohol/smoking helps me"	13.4	16.4
Calculated from: data from a February 2021 survey of medical staff at Vologda Oblast mono-hospitals and a December 2020 survey of medical staff at multidisciplinary hospitals in other regions, led by E.B. Lyubov.		

parenthood is a protective factor in suicidal behavior;

- depression is positively correlated with respondent age;

- elevated levels of stress and anxiety were more often found either among the respondents over 50, or among younger employees with little work experience;

- at the same time, young people are more often aware of the emergence of new psychological problems and deterioration of their psycho-emotional state against the background of the pandemic, they recognize the need for qualified help and support and are ready to ask for it, but are deprived of this opportunity. In this connection, they try to overcome their growing anxiety with destructive methods (drinking and smoking) and are convinced that this helps them. Given that this age group remains the second highest risk for developing anxiety and stress symptoms, they are mistaken.

With age, the use of such ineffective and dangerous strategies of coping with stress decreases progressively to almost zero.

"Frontline" workers over 50 have some preconceptions about seeking help from professionals, being afraid and ashamed to resort to it. Therefore, they mistakenly believe that they do not have psychological problems, or hope to solve them by their own efforts, avoiding publicity and stigmatization, and fearing a loss of credibility.

Regarding the future of health care after the pandemic, 39% of medical workers in the Vologda Oblast (against 20% on average in Russia) expect or already observe some positive changes, 37% (21% in Russia) expect to strengthen and increase the authority of the

medical profession as a whole. However, as we see, their share is small. In addition, 45% of the medical staff of mono-hospitals expect the situation in the healthcare system to deteriorate after the pandemic is over due to reduced funding, which is much higher than in other regions of the country (28% of respondents to the Russian medical survey).

The respondents themselves suggest the following as measures to prevent mental health disorders during the pandemic:

- 1) increase staffing, organize work more efficiently, and provide for an adequate workload of hospital specialists (85% of those responded to the open question);

- 2) organize proper rest, sports activities, vacations with health resort treatment (80%); scientific research confirmed that taking adequate breaks to eat and sleep affects mental well-being more than the number of hours worked (Firth-Cozens, 2020);

- 3) increase the prestige of the profession in society (44%);

- 4) increase wages and provide additional benefits, social security (43%);

- 5) introduce the position of a psychologist into the staff (35%);

- 6) organize peer team support and knowledge exchange in the workplace: training, consultations, online conferences on the problems of treating coronavirus patients (34%);

- 7) introduce censorship and moderation in social networks with negative content, insults and unwarranted attacks on doctors (28%).

Team selection, providing a calm environment in the workplace, life insurance, providing meals, having free time to communicate with family and social support outside of work are also relevant areas.

Alternative data sources, for example, those from other health crisis situations and general data on interventions supporting mental well-being, can be used to scientifically substantiate decision-making to strengthen the psycho-emotional state of medical staff during a pandemic (Pollock et al., 2020).

Thus, already in February 2020, the Chinese leadership on emergency psychological intervention during the COVID-19 outbreak, based on the experience of previous epidemics and health crises proposed the following proven effective measures: (1) mandatory psychological training of personnel before they take up positions in infectious diseases departments; (2) regular rotation of red zones personnel; (3) providing employees with housing for self-isolation; (4) providing a hotline for providing operational crisis assistance to medical personnel; (5) forming a team of specialists, consisting of psychiatrists, psychologists, and psychiatric nurses, in each unit to provide key personnel with psychological support and assistance⁵ (Chung, Yeung, 2020).

Conclusion

Thus, our COVID-19 survey of medical workers in the Vologda Oblast mono-hospitals allowed us to identify one in three employees with subclinical or clinically pronounced levels of anxiety and/or depression, 18% with elevated levels of stress, 6% with suicidal thoughts, and 4.5% with suicide plans. Consequently, they are in dire need of targeted not only preventive, but also curative care (18% of doctors felt its unavailability during the pandemic, and 35% expressed the need for a staff psychologist). Being actually unable to perform professional duties, they are forced to work and provide assistance to

patients. Despite the fact that the psycho-emotional state of medical staff is better than the general population, they are more likely to choose destructive methods of coping with stress such as alcohol consumption, illegal drugs, smoking than average residents of the region. Vologda medical workers of the “red zone” are more likely to experience anti-vital moods (every fifth) and want to quit (every fourth) than their colleagues in other regions. The results obtained confirm the need to organize a system of psychological (including suicidological) support for medical staff of monospitals during the pandemic, especially for risk groups (senior and middle medical staff, male, employees under 30 or over 50).

A number of researchers believe that the increase in distress among physicians in the midst of a pandemic is not pathological in nature and can be more normalized with the help of peer support, Schwartz rounds and active monitoring, rather than formal psychiatric interventions (Lamb et al., 2020).

Our study demonstrated the need for industry-specific crisis intervention to effectively address specific stressors at work for employees who interact directly with infected patients (sleep and rest patterns, inability to share experiences and training, lack of medications and equipment, negative attitudes of others, lack of a mental health professional to work with patients, their relatives, and nursing staff). Their implementation will prevent psycho-emotional problems among clinic staff, and thus help to strengthen their mental and physical health, preserve family relationships, promote attentive attitude toward patients, maintain and improve professional skills, and preserve human resources for the health care system in a difficult period.

⁵ National Health Commission of China. Principles for emergency psychological crisis intervention for the new coronavirus pneumonia [in Chinese]. Available at: <http://www.nhc.gov.cn/jkj/s3577/202001/6adc08b966594253b2b791be5c3b9467.shtml>

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