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# Subjective mental deterioration of healthcare workers during the first wave of the COVID-19 pandemic in Poland

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**Summary**

**Aim.** The presented study is aimed at determining the subjective psychological reaction to the outbreak of pandemic in healthcare workers and is part of a wider research project covering successive waves of increasing number of SARS-CoV-2 infections during the COVID-19 pandemic in Poland.

**Method.** 664 respondents completed the anonymous online questionnaire in the period from March 12, 2020 to May 3, 2020. This is the period of the first lockdown in Poland. Data were collected using the snowball method (employees passed the questionnaire over the Internet to subsequent groups of employees in subsequent healthcare units).

**Results.** The outbreak of pandemic had varying impact on the well-being of 96.7% of respondents. Subjectively perceived stress of varying intensity was reported by 97.3% of them, low mood was reported in 19.0%, and anxiety in 14.1% of the respondents. These results and other features of the psychological reaction (including sleep problems) to overload in healthcare workers may indicate mental deterioration in the first weeks of pandemic.

**Conclusions.** The results obtained in the study group may encourage further analyzes of healthcare workers' mental state and contribute to discussion on the COVID-19 pandemic.

**Key words**: COVID-19 pandemic, healthcare workers, mental health

## Introduction

The first official cases of infection with the new SARS-CoV-2 coronavirus were confirmed in December 2019 in Wuhan, China [1]. On February 11, 2020, new coronavirus disease was identified as COVID-19. A month later, on March 11, 2020, when infections were already present in around 114 countries, WHO announced a pandemic [2]. On the same day, the Prime Minister of the Polish government announced that most areas of economy were going to be locked. Sectors strategic for the country's security

were to continue to operate. However, it was decided to close kindergartens, primary and secondary schools and universities. Serious restrictions on movement within and outside the country were introduced. The most radical nationwide collective quarantine covered the period from March 12 to May 3, 2020. After this date, radical restrictions were loosened in Poland, although many restrictions remained. At the start of the pandemic, the sudden changes in the form of collective quarantine were extreme. The ways of life as we know it have been suspended indefinitely. Simple life got complicated.

Social isolation during compulsory quarantine is an unknown and unpleasant experience that involves the separation of an individual from other people [3, 4]. It is an extremely difficult situation for one rather non-obvious reason – the natural social process is seeking support from other people in difficult situation and thus reducing the individual feeling of threat [5–8]. Unfortunately, the COVID-19 pandemic has deprived people of direct, based on personal contacts, support. Nowadays, until such restrictions have not been used in most societies so far, they can sometimes be felt as a form of punishment and condemnation. In addition, there was recommendation to separate from extended family, friends and other important social networks, and even to abandon previous involvement in social activities, except for those related to the fight against COVID-19 [9, 10]. Professionals of strategic importance for society, ensuring the maintenance or recovery of health, food, energy, and public safety (including shop workers, public transport drivers, government officials preventing the spread of the epidemic, and the police) were excluded from collective quarantine.

However, it is group of healthcare workers: nurses, doctors, pharmacists, physiotherapists, laboratory diagnosticians, auxiliary staff, and others (usually helping patients through personal contact), due to specificity of their work, had to fulfill their professional duties consisting in more numerous and obligatory social interactions. During the first months of the COVID-19 pandemic, healthcare systems in most countries of the world experienced extreme overload. The sudden and unexpected epidemic situation resulted in shortage of disinfectants, personal protective equipment against SARS-CoV-2 infection (masks, gloves, overalls, goggles) as well as equipment and medicines necessary to treat patients with COVID-19 and other diseases (paralysis of global transport, broken supply chains). Hospitals for COVID-19 patients requiring oxygen therapy and ventilators were lacking in many countries. Increased need for medical assistance has led to staff shortages. It has been shown that healthcare workers are statistically more likely than the general population to become infected with the coronavirus, posing threat to their families and other people who are in close contact with them [4, 11, 12]. Therefore, their work took place in particularly difficult psychological circumstances. A special group among medical professions were people working with patients suffering from COVID-19 [4, 12]. In hospitals treating COVID-19, doctors, nurses and other staff were statistically most likely to be exposed to SARS-CoV-2 infection. Employees from the frontline wards to combat pandemic, as well as other groups that treated patients with other diseases at that time, were under the influence of unprecedented stress, which did not affect individual employees,

but entire professional group. In the spring of 2020, the global health crisis suddenly required these workers to change their daily work practices. While it is normal for healthcare professionals to experience stressor trauma while providing patient care, the SARS-CoV-2 virus has caused previously unknown experiences. Experiences for which it was impossible to prepare. The infection and COVID-19 disease caused absenteeism (more work and fewer people to work). The described occupational overloads had to be reconciled with personal life, family (caring for children or old parents) or contact with friends (the need to limit these contacts – to avoid potential SARS-CoV-2 transmission). In addition to initial, very clear support from public, already in the early stages of the pandemic, there were also cases of moving away, avoiding or stigmatizing people working in the field of medical care. In combination with the risk of death after infection in workplace, all of above-mentioned risks could have an increased impact on mental deterioration of this group [13–15].

Due to all phenomena described above, reports at the beginning of the COVID-19 pandemic clearly indicated the need to protect mental health of healthcare workers [16]. The World Health Organization has called for action to prevent the serious effects of overloads of the pandemic on their physical and mental health [17]. Most of recommendations took into account previous virus outbreaks. During those epidemics, there was an increased risk (compared to the general population) of adverse effects on physical and mental health, and negative effects in the form of mental disorders occurred even many years after the end of the epidemic (post-traumatic stress disorder, depression, anxiety disorders and occupational burnout) [18–21].

The presented study aims psychological reaction of group of healthcare professionals (medical professions from the list of the Ministry of Health in Poland, as well as professional staff from outside this group, dealing with treatment of patients, including psychologists, occupational therapists) in the first months of the COVID-19 pandemic in Poland (1st wave – spring 2020). It is the first part of larger project also covering 2nd wave (autumn 2020) and 3rd wave (spring 2021). Thanks to better understanding of experiences, emotional, behavioral and cognitive reactions among employees healthcare services, it will be possible to create and implement systemic mental disorders prevention programs during and after a pandemic.

## Material

664 healthcare workers from various professional groups in healthcare sector completed the survey during the entire period of the first lockdown in Poland from March 12, 2020 to May 3, 2020. The Bioethics Committee was informed about the study. An anonymous online questionnaire was placed on the website of the Polish Psychiatric Association, and additionally data were collected using the snowball method, the link was forwarded to subsequent employees via WhatsApp, Facebook, e-mails, text messages.

## Method

Demographic questions in the online survey included, among others: gender, age, place of residence and number of household members, type of occupation, and the presence of diseases predisposing to a more severe course of COVID-19. The questions assessing subjective mental state are based on standard psychiatric interview. The description of psychopathological symptoms related to reaction to stressful situations resulted from the theory (mainly first reports from China) and clinical practice. The questions concerned the subjective degree of change/deterioration in well-being compared to pre-pandemic period, current mood, energy levels, anxiety, anhedonia, problems with sleep, appetite, concentration and memory, dysphoria, pessimistic thoughts, and future expectations. To evaluate quantitative data, 5-point Likert scale was used (the intensity of phenomenon from no occurrence to the maximum level). The results are presented in descriptive form, giving size of a given subgroup and percentage of respondents in a given subgroup. Descriptive statistics were made using the Statistica 13.1 package

## Results

Table 1 presents summary of demographic characteristics of studied population. Women constituted the majority of respondents (69.7%), most people in the study group lived in cities with more than 300,000 inhabitants (50.5%), and the least in the countryside. More than half of respondents (57.2%) were people aged 30–49. The vast majority of respondents lived with their family (79.1%). 42.9% of respondents had been diagnosed with one or more diseases posing a potential risk of worse course of coronavirus infection.

Table 1. **Demographic data**

| | | |
|---|---|---|
| **Sex** | | |
| female | 463 | (69.7%) |
| male | 201 | (30.3%) |
| **Place of residence** | | |
| city >300,000 | 335 | (50.5%) |
| 100,000–300,000 | 100 | (15.1%) |
| 20,000–100,000 | 127 | (19.1%) |
| 5,000–20,000 | 55 | (8.2%) |
| village | 47 | (7.1%) |
| **Age** | | |
| 18–29 | 160 | (24.1%) |
| 30–39 | 210 | (31.6%) |

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| | | |
|---|---|---|
| 40–49 | 170 | (25.6%) |
| 50–59 | 81 | (12.2%) |
| 60–69 | 36 | (5.4%) |
| >70 | 7 | (1.1%) |
| **Household members** | | |
| family | 525 | (79.1%) |
| People outside the family | 50 | (7.5%) |
| no | 89 | (13.4%) |
| **Somatic diseases** | | |
| 0 | 386 | (58.1%) |
| 1 | 217 | (32.7%) |
| >1 | 61 | (9.2%) |

Respondents who took part in the study represented various medical professions. The largest group among those precisely identified in the survey were psychologists and psychotherapists (28.1%), followed by doctors with a non-surgical specialization other than psychiatry (9.2%) and psychiatrists (7.2%). The smallest group were employees most involved in the transport of COVID-19 patients, i.e., paramedics (2.1%), laboratory diagnostics (diagnostic staff – 1.9%) and imaging diagnostics (X-ray technicians – 1.7%). On the other hand, 29.7% of the respondents are employees from outside the list, whose daily work requires direct contact with patients and helping them.

Table 2. **Distribution of medical professions in studied population**

| | | |
|---|---|---|
| Psychologist/psychotherapist | 186 | (28.1%) |
| Physician, non-surgical specialization (non-psychiatrist) | 61 | (9.2%) |
| Psychiatrist | 48 | (7.2%) |
| Nurse | 42 | (6.3%) |
| Pharmacist | 34 | (5.1%) |
| Physiotherapist | 21 | (3.2%) |
| Physician, surgical specialization | 19 | (2.9%) |
| Dentist | 17 | (2.6%) |
| Medical emergency workers | 14 | (2.1%) |
| Lab diagnostician | 13 | (1.9%) |
| X-ray technician | 12 | (1.7%) |
| Other, with direct contact/assistance to patients (including an assistant to a disabled person, an elderly person, an occupational therapist) | 197 | (29.7%) |

The subjective mental state did not change after the outbreak of the COVID-19 pandemic in only 3.3% of respondents. If there was a change, it was of different intensity. Most often (45.6%), the change in well-being was of average intensity compared to the period before the pandemic. A similar result was obtained in the area of subjective stress level after the outbreak of the pandemic. About 2.7% of respondents did not experience stress. Most of respondents (53.6%) felt stress of moderate intensity. 7.8% of surveyed employees chose term "the greatest stress in my life". Pessimistic thoughts did not occur in 13.1% of respondents in the first weeks of the pandemic, and the largest part of the study participants (47.9%) described their average intensity. The described results are presented in Table 3.

Table 3. **Subjective change in general well-being, level of perceived stress and pessimistic thoughts of respondents during the first wave of the COVID-19 pandemic**

| | 0 | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|
| Change in well-being | 22 (3.3%) | 52 (7.8 %) | 303 (45.6%) | 205 (30.9%) | 82 (12.4%) |
| Subjective stress level | 18 (2.7%) | 71 (10.7%) | 356 (53.6%) | 16 (25.2%) | 52 (7.8%) |
| Pessimistic thoughts | 87 (13.1%) | 129 (19.4%) | 318 (47.9%) | 105 (15.8) | 25 (3.8%) |

0 – no; 1 – minimum intensity; 2 – medium intensity; 3 – strong intensity; 4 – the greatest intensity in my life so far

20.5% of online respondents during the first wave of the pandemic showed subjective problems with falling asleep, and 28.0% – waking up at night. Pandemic nightmares were reported by 16.3% of respondents, while waking up in the morning with no possibility of falling asleep was reported by 32.3% of them. The results obtained thanks to the questionnaire of the subjective mental state showed that 14.1% experienced anxiety attacks one or more times a day. 36% of respondents developed anhedonia, described as loss of ability to enjoy things they enjoyed before the pandemic. Dysphoria was present in 38.0% of the respondents. 64.9% of healthcare workers in the study feared that their professional and/or material situation would worsen due to the pandemic, and 39.5% allowed their value system to change due to the COVID-19 pandemic. The results are presented in Table 4.

Table 4. **Responses assessing the subjective well-being and beliefs of respondents in the first period of the pandemic in Poland**

| | | | |
|---|---|---|---|
| Easy falling asleep at night | yes | 528 | (79.5%) |
| | no | 136 | (20.5%) |
| Waking up at night | no | 478 | (72.0%) |
| | yes | 186 | (28.0) |

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| | | | |
|---|---|---|---|
| Pandemic nightmares | no | 556 | (83.7%) |
| | yes | 108 | (16.3%) |
| Waking up before the alarm clock (no possibility of falling asleep) | no | 450 | (67.7%) |
| | yes | 214 | (32.3%) |
| One or more anxiety attacks/day | no | 570 | (85.9%) |
| | yes | 94 | (14.1%) |
| Things enjoyed before the pandemic still enjoy (no anhedonia) | yes | 425 | (64.0%) |
| | no | 239 | (36.0%) |
| Irrational outbursts of anger in banal/everyday situations (dysphoria) | no | 412 | (62.0%) |
| | yes | 252 | (38.0%) |
| Pandemic-related concerns about work/material situation | no | 233 | (35.1%) |
| | yes | 431 | (64.9%) |
| The individual's system of values may change under the influence of a pandemic | no | 402 | (60.5%) |
| | yes | 262 | (39.5%) |

In the first period of the pandemic and lockdown 19.0% of the surveyed employees described their mood as low, and more than half of them experienced changing moods (51.4%). In their subjective opinion, good and stable mood was found in 29.4% of them. Almost 1/3 of people in the study group reported reduced drive, in the largest group (36.6%) it was variable. Appetite did not change during the pandemic in most of respondents (53.5%), and the phenomenon of "psychogenic overeating" occurred in 15.4% of respondents. 31.8% of respondents had subjective feeling of attention and memory deterioration in everyday life. The results are shown in Table 5.

Table 5. **Subjective assessment of mood, drive, appetite, and cognitive functions**

| | | |
|---|---|---|
| **Mood** | | |
| good and stable | 199 | (29.4%) |
| changeable | 339 | (51.4%) |
| depressed | 125 | (19.0%) |
| elevated | 1 | (0.2%) |
| **Drive** | | |
| good and stable | 243 | (36.6%) |
| changeable | 228 | (34.3%) |
| depressed | 181 | (27.3%) |
| elevated | 12 | (1.8%) |
| **Appetite** | | |
| has not changed | 355 | (53.5%) |

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| | | |
|---|---|---|
| decreased | 88 | (13.2%) |
| increased, but I don't eat in stress | 119 | (17.9%) |
| increased, I eat a lot in stress | 102 | (15.4%) |
| **Concentration and memory** | | |
| have not changed | 436 | (65.6%) |
| deteriorated | 211 | (31.8%) |
| improved | 17 | (2.6%) |

## Discussion

In the first months of the COVID-19 pandemic, online surveys of healthcare professionals were conducted in various regions of the world (most of them in China, where the pandemic started). Data were collected over many weeks or over much shorter periods (several days). Online questionnaires were completed by small or large groups of respondents. Most of them did not compare mental health of medical workers to pre-pandemic period or the general population at that time (as highlighted in research limitations). Some of them used standard questions from psychiatric examination, and most of them used standardized auxiliary scales determining the level of stress, anxiety or depression in subjective assessment of respondents, which did not include, e.g., sleep disorders [22].

Slightly different difficulties occur while analyzing available studies from Poland published before the COVID-19 pandemic. Studied groups of healthcare workers are far from homogeneous (dominance of women, numerous groups of various professions put together in analyzes, or narrow, not very numerous specialties) and methodology used in studies is difficult to compare. For these reasons, results of research on stressors that have the greatest impact on mental condition of healthcare workers in Poland should be treated with caution. The chronic psychosocial factors were as follows: extreme and unpredictable human reactions, emotional burden, the need to react quickly, experience various forms of mobbing, taking responsibility for one's own action, daily contact with the disease, the requirement of constant vigilance, the need to contact both patient and his family (even remotely), awareness of the lack of influence on fate of patients in palliative care departments, patient's demand and dissatisfaction, shift work, night work, lack of conditions for treatment (e.g., poor housing conditions, lack of appropriate equipment), inconveniences related to relations with hospital staff. On the other hand, occupational burnout (state of physical, mental and emotional exhaustion, which manifests itself in the form of chronic fatigue with negative attitude towards work, people and life, sense of helplessness and hopelessness) is statistically more common in healthcare workers who set themselves high goals, are ambitious, they do their job well, and also work long and under time pressure. It has even been proven in small population of physicians that chronic occupational

stress can clearly translate into shorter life years compared to the general population (it concerns women, except for female dentists) [23–26].

In the first weeks of the pandemic in Wroclaw, Poland, an online survey of 2,039 healthcare employees (divided into medical and non-medical groups) was carried out. The study was dedicated to, among others, psychological reaction to new circumstances caused by increasing scale of risk of SARS-CoV-2 infection. It showed that medical healthcare workers more often presented significant psychopathological symptoms such as anxiety, insomnia and somatic symptoms than non-medical group (60.8% vs. 48.0%). This disproportion was influenced by cumulative overloads from the first weeks of the pandemic. The survey was conducted online in a group of different employees: doctors (47.3%), nurses (16.5%), pharmacists (7.3%), laboratory diagnosticians (5.9%), dentists (5.3%), pramedics (4.9%), clinical psychologists or psychotherapists (3.5%), physiotherapists (3.3%), midwives (2%), medical secretaries or registrars (1.4%), occupational medicine technicians (1.4%), dental assistants (0.7%), carers (0.4%), medical interns (0.1%), and occupational therapists (0.1%) [23]. Researchers at the Faculty of Psychology of the University of Warsaw examined representative sample of Poland in successive waves of the pandemic. The study shows that the first wave of the COVID-19 pandemic was the most difficult for the general population, as respondents reported the highest rates of anxiety and depressive symptoms [27].

In the first period of lockdown in Poland, the duties of this working group had to take place in unusual, difficult or extremely difficult circumstances, which could result in lack of physical and mental strength. These factors, combined with the lack of free time after work, made it difficult to complete the survey, even online. The confirmation of this thesis in the presented study is the lowest percentage of responses given by paramedics, laboratory diagnosticians, X-ray technicians, i.e., employees most likely to be involved in transport and diagnostics of people infected with SARS-CoV-2.

Below, the well-being of surveyed healthcare workers is discussed, taking into account individual areas of their mental state in the first period of the pandemic and lockdown in Poland.

Subjective change in well-being and level of stress in studied population

Only 3.3% of respondents did not notice change in their well-being. The most numerous group experienced of medium (45.6%) or strong (30.9%) change. The level of stress experienced in the first period of the pandemic in more than half of respondents (53.6%) was also described as medium, and in more than 1/4 of them as strong. “The strongest stress in life” was reported by as many as 7.8% of respondents.

The obtained results may indicate that the outbreak of the pandemic was a difficult life event, and for some people it exceeded the limits of their previous life experience. There are no studies in literature that define the baseline (before the pandemic). The change in life that was the outbreak of the COVID-19 pandemic has increased levels of subjective stress, and in online surveys they vary widely. They are described by following percentages (in ascending order): 31.6% [23], 32.9% [24], 71.5% [25], 73.4% [26] of surveyed healthcare workers from various levels of contact with patients

potentially infected with SARS-CoV-2, because respondents include nurses, primary care physicians, doctors of various specialties working in hospitals and outpatient clinics, and various other groups of employees helping the patients.

## Symptoms that may be depression

It should be emphasized that results of most studies from the early period of the pandemic using questionnaires generally determined magnitude of occurrence or absence of depression in subjects. The range of obtained percentage results is even wider than in the case of stress assessment, and only some of them indicate probable severity of an episode (based on an online survey, without clinical examination). However, in the first peak of the COVID-19 pandemic, high rates of depression in healthcare workers were shown, and it was as follows (ascending order): 14.2% [23], 20.1% [27], 22.8% [28], 34.9% [24], 50.4% [25], 57% [26]. Two studies provided more detailed data and determined the severity of depressive episode. In the first one, it occurred in 29.6% of respondents (mild episode in 21.0%, moderate episode in 4.8%, severe episode in 3.8%) [29]. Another study showed that 48.5% of respondents experienced depressive episode (mild – 34%, moderate – 14.5% [31].

Respondents in our study described their subjective feelings in response to standard questions from interview assessing their mental state. These included mood, energy levels, appetite, concentration and memory, anhedonia and pessimistic thoughts related to pandemic (other areas are described separately, e.g., sleep problems,). Low mood was reported by 19.0% of surveyed medical workers in the first period of the COVID-19 pandemic in Poland. Compared to results of other cited studies, this is rather low percentage, but still very worrying given burdens and systematic demands faced by workers in the next many months of the pandemic. This concern also applies to most of other areas of depression described below with help of psychopathological symptoms. Heavy workload in medical professions affects feeling of increasing fatigue and the level of life energy. In the studied population, 27.3% of people at the beginning of the pandemic described their drive as reduced, and in 34.3% it was variable. At the same time, only slightly more than 1/3 of respondents (36.6%) had subjective feeling that their drive was good and stable.

The outbreak of the pandemic changed appetite of some of the respondents. Appetite increased in 17.9% of respondents (and it was not “stress binge eating”), but eating due to emotional tension was declared by 15.4% of respondents. This condition can contribute to negative metabolic effects. At the same time appetite decreased in 13.2% of respondents, which may have resulted from inability to eat in situations of high emotional tension.

Dysphoria often accompanies states of frustration, and along with sadness, it can also be symptom of depression. In the first stage of the pandemic, employees in healthcare sector often reported dysphoria (38.0%), which may translate into interpersonal difficulties in their professional and personal lives. In 65.6% of respondents, in their

subjective perception, concentration of attention and memory did not change after the outbreak of the pandemic, while their deterioration was reported by 31.8%. 36.0% of respondents admitted that previous pleasant things ceased to enjoy them during the pandemic (anhedonia), and occurrence of moderate pessimistic thoughts was reported by 47.9% of respondents (strong – 15.8%). The greatest intensity of pessimistic thoughts in their life so far was reported by 3.8% of respondents. Only 13.1% of respondents did not have pessimistic thoughts during the first wave of the pandemic and social restrictions in Poland.

Subjectively all phenomena described above may, depending on their severity, disrupt daily functioning of healthcare workers. Such prolonged and aggravating condition of an individual may require specialist diagnosis and therapeutic intervention. Leaving healthcare system employees with severe symptoms that may be indicative of depression (which, as shown in an overview study from the early period of the COVID-19 pandemic, is quite likely due to reluctance of medical professionals to be treated in healthcare institutions) is prognostically dangerous [22]. Acute mental disorders caused by external circumstances, which remain untreated or treated too late, are likely to turn into more difficult and complex chronic form, requiring more complex treatment.

## Anxiety symptoms

Unfortunately, principle described above, confirmed in clinical practice and with research results, applies to another of the studied areas, i.e., symptoms of anxiety. Data from publications on response of medical personnel to the outbreak of the pandemic and changes in living and working conditions indicate an increase in the level of psychophysical tension with pronounced symptoms of anxiety (sometimes with somatization). In individual studies, subjectively assessed anxiety was present in 13.0% of the respondents [29], 18.1% (mild – 10.5%, moderate – 5.7% and severe – 1.9%) [30], 25.2% [23], 44.6% [25], and in 44.7% [26] of respondents in the group of healthcare workers. In our study, 14.1% of respondents answered positively to a question about the occurrence of one or more anxiety attacks during a day, i.e., this percentage was similar to the lower rates in comparative studies cited above. In the first weeks of the COVID-19 pandemic, medical workers found themselves in a very anxious situation. It resulted from the most real threats to their health or even life. Examples include contact with COVID-19 patients at work, procedures to prevent infection, even hindering physiological activities for many hours (in covid wards), living with relatives who were also in difficult life situation. At this point, it is worth emphasizing that also somatic diseases that occur in medical workers (especially from older age groups) can significantly affect appearance of anxiety symptoms.

### Subjective sleep problems

In severe psychosocial stress, sleep disorders occur in mechanism of circadian rhythms dysregulation under influence of stress axis. In surveys involving healthcare workers in the first stage of the pandemic, disorders were found in 34.0% [25], 36.1% [26], 38.4% [29], and 64% (mild – 34.4%, moderate – 22.4%, severe – 6.2% [32]. In the studied population, problems with falling asleep were reported by 20.5%, sleep was fragmented in almost 28.0%, and 32.3% of respondents woke up prematurely (unable to fall asleep). The latter feature in clinical practice is often found in situations of psychosocial stress in people experiencing serious life difficulties.

Nightmares about the COVID-19 pandemic (one of symptoms in post-traumatic stress disorder) occurred in the first weeks of pandemic in as many as 16.3%. Sudden and short-term stress is not the only cause of sleep disorders, they can be symptoms of depressive disorders, and during the COVID-19 pandemic, most researchers emphasize strong correlation between the level of experienced stress, severity of depressive symptoms and sleep disorders, explaining these phenomena to their common pathways mechanism, over-stimulation of stress axis. After all, it is known that when it is stimulated for longtime with negative psychosocial stimuli (as in the COVID-19 pandemic) and in combination with physical overload, it is likely to be dysregulated with sometimes very serious consequences for mental and physical health [22].

### Change of value system, assessment of professional and material situation

When experiencing situations that threaten health, life or current freedom of choice (e.g., sudden information about threat of serious illness or serious illness of one's own or family member, participation in an accident, limitation of possibility of movement for various reasons), a person may and often change value system. Respondents were asked if the pandemic could change their value system? As many as 39.5% of them answered yes, which proves strength of collective psychosocial phenomenon that was the outbreak of the COVID-19 pandemic. 64.9% of surveyed employees expressed concerns about deterioration of professional and/or material situation in connection with the pandemic. No studies focused on above-described issues in a group of medical professions have been found in literature, although as far as latter is concerned, the first days of the risk of SARS-CoV-2 infection in Poland have shown how much changes in everyday work will be required in the coming time. For some people, this could lead to well-founded fears.

The results of research and expert assessment indicate that healthcare workers with high (even short-term) levels of stress, anxiety and depressive symptoms are exposed to long-term mental disorders and burnout. Potential and observed impact of the COVID-19 pandemic on mental health of healthcare workers (understood better thanks to research results) should mobilize for systematic education and information about possibilities of professional support. This approach results from the recommendations

of mental health specialists created at the beginning of SARS-CoV-2 infections spread in the world. In following months of the pandemic, this approach proves effective in supporting initiatives to support medical professions [25, 33–36].

## Conclusions

The presented results obtained using online survey method may indicate changes in well-being of surveyed population of healthcare workers during the first wave of the COVID-19 pandemic in Poland. Subjectively high levels of stress, low/fluctuating mood and drive were noted in the study group. Some of respondents reported problems related to various aspects of sleep and anxiety attacks. A large group of respondents feared for their future and believed that the COVID-19 pandemic could even change their current value system. Some subjects experienced subjective difficulties, even the most severe in their lives so far.

The obtained results may contribute to drawing even greater attention of health professionals and managers to problematic aspects of mental health of healthcare workers. Insight into emotional and cognitive response to the COVID-19 pandemic could provide an introduction to long-term research that could become basis for developing knowledge-based prophylactic or therapeutic interventions during and after the pandemic.

### Research limitations

This work has several limitations. The restrictive anonymous form of online data collection made it impossible to verify who actually completed the questionnaire (including no precise definition of workplace or professional experience). Standardized scales were not used. Other limitations of the work include distribution and heterogeneity of the study group (in terms of occupations, majority of women). The analysis is descriptive, and statistical analysis (percentages) does not allow for an in-depth assessment of relationships between raised phenomena.

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## ANONIMOWA ANKIETA SAMOPOCZUCIA W CZASIE PANDEMII DLA RÓŻNYCH GRUP ZAWODOWYCH Z OBSZARU OCHRONY ZDROWIA

(ANONYMOUS SURVEY OF WELL-BEING DURING A PANDEMIC FOR VARIOUS PROFESSIONAL GROUPS IN THE HEALTHCARE AREA)

1. **Płeć**
   - kobieta
   - mężczyzna
2. **Pani/Pana wiek:**
   - 18–29
   - 30–39
   - 40–49
   - 50–59
   - 60–69
   - powyżej 70
3. **Pani/Pana miejsce zamieszkania:**
   - miasto powyżej 300 tys.
   - miasto 100–300 tys.
   - miasto 20–100 tys.
   - miasto 5–20 tys.
   - wieś
4. **Czy w Pani/Pana gospodarstwie domowym są inne osoby?**
   - mieszkam z rodziną
   - mieszkam z osobami spoza rodziny
   - mieszkam samodzielnie
5. **Czy rozpoznano u Pani/Pana choroby przewlekłe (predysponujące do cięższego przebiegu COVID-19 w przypadku zakażenia SARS-CoV-2)?**
   - nie
   - tak, 1 chorobę
   - tak, więcej niż 1 chorobę
6. **Pani/Pana zawód wykonywany w obszarze opieki zdrowotnej to:**
   - lekarz psychiatra
   - pielęgniarka
   - lekarz, specjalizacja niezabiegowa inna niż psychiatria
   - farmaceuta
   - lekarz stomatolog
   - fizjoterapeuta
   - lekarz, specjalizacja zabiegowa
   - ratownik medyczny
   - diagnosta laboratoryjny
   - technik RTG

- psycholog/psychoterapeuta
- inny, z bezpośrednim kontaktem/pomocą pacjentom (m.in. asystent osoby niepełnosprawnej, starszej, terapeuta zajęciowy)

7. **Czy Pani/Pana ogólne samopoczucie zmieniło się w dniach kwarantanny? Jeśli tak, to w jakim stopniu?**
   - nie
   - tak, minimalnie
   - tak, średnio
   - tak, silnie
   - tak, najbardziej w dotychczasowym życiu
8. **Jak Pani/Pan ocenia poziom swojego stresu w dniach narodowej kwarantanny?**
   - nie stresuję się
   - minimalny
   - średni
   - silny
   - to największy stres w moim dotychczasowym życiu
9. **Jak Pani/Pan ocenia swój nastrój w czasie pandemii?**
   - dobry i stabilny
   - zmienny
   - obniżony
   - podwyższony
10. **Jak Pani/Pan ocenia swój poziom energii w czasie pandemii?**
    - dobry i stabilny
    - zmienny
    - obniżony
    - podwyższony
11. **W czasie pandemii Pani/Pana apetyt:**
    - zmienił się
    - zmniejszył się
    - zwiększył się, ale nie zajadam stresu
    - zwiększył się i zajadam stres
12. **W czasie pandemii Pani/Pana koncentracja uwagi i pamięć:**
    - nie zmieniły się
    - pogorszyły się
    - poprawiły się
13. **Czy Pani/Pan łatwo zasypia w czasie pandemii?**
    - tak
    - nie
14. **Czy Pani/Pan wybudza się w nocy w czasie pandemii?**
    - nie
    - tak

15. **Czy Pani/Pan miewa koszmary o epidemii koronawirusa?**
    - nie
    - tak
16. **Czy Pani/Pan wybudza się przed budzikiem i nie może potem zasnąć w czasie pandemii?**
    - nie
    - tak
17. **Czy w czasie pandemii Pani/Pan odczuwa codzienne napady/ataki lęku (jeden lub więcej)?**
    - nie
    - tak
18. **Rzeczy (indywidualne i subiektywne), które dotychczas sprawiały Pani/Panu radość, nadal cieszą w czasie pandemii?**
    - tak
    - nie
19. **Czy w czasie pandemii Pani/Pan „wybucha" niepotrzebnie w banalnych/codziennych sytuacjach?**
    - nie
    - tak
20. **Natężenie Pani/Pana myśli pesymistycznych/rezygnacyjnych jest:**
    - nie mam takich myśli
    - minimalne
    - średnie
    - silne
    - największe w moim dotychczasowym życiu
21. **Czy martwi Panią/Pana potencjalne pogorszenie sytuacji zawodowej i/lub finansowej w związku z trwającą pandemią?**
    - nie
    - tak
22. **Czy pod wpływem pandemii Pani/Pana system wartości może się zmienić?**
    - nie
    - tak