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PSYCHOEMOTIONAL STATE OF MEDICAL WORKERS DURING THE COVID-19 PANDEMIC

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Abstract

Introduction. Medical workers need to cope with a number of serious problems, ranging from an increased risk of death in medical institutions and at home, an increase in working hours and physical and psychological stress at work, as well as solving difficult situations arising from contact with members of the public and social isolation from colleagues and loved ones. The physical and psychological impact of working during the COVID-19 pandemic was significant: thousands of medical workers worldwide died from SARSCoV-2 infection, and some even committed suicide. It is important to note that healthcare professionals are crucial to any healthcare system. In addition, the negative impact of COVID-19 on global mental health is obviously increasing. From a social perspective, the emerging mental health burden on health care workers and other workers raises serious concerns about the sustainability of health services.

Aim: To analyze the literature data on the psycho-emotional state of medical workers during the COVID-19 pandemic.

Search strategy: The search for sources was carried out in the following bases: Scopus, Web of Science Core Collection, MedLine, PubMed, Cochrane Library, Google Scholar in the electronic scientific library e-Library.ru, CyberLeninka. *Inclusion criteria:* the depth of the literature search was 3 years (2019-2021), original articles, literature reviews, meta-analyses, regulatory documents in English and Russian. *Exclusion criteria:* publications of low methodological quality, which did not reflect the main importance, with unclear and ambiguous conclusions, repeated publications, conference proceedings and clinical cases. As a result of the search, we identified only 215 foreign and domestic publications, of which 74 publications were included in this review.

Results and conclusions: According to the results of our study, numerous publications show that during the COVID-19 pandemic, at least one symptom of emotional burnout and distress was detected in medical workers.

Key words: health care workers, coronavirus, COVID-19, SARS-CoV-2.

Резюме

ПСИХОЭМОЦИОНАЛЬНОЕ СОСТОЯНИЕ МЕДИЦИНСКИХ РАБОТНИКОВ ВО ВРЕМЯ ПАНДЕМИИ COVID-19

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Актуальность. Медицинским работникам необходимо справляться с целым рядом серьезных проблем, начиная от повышенного риска смерти в медицинских учреждениях и в домашних условиях, увеличением продолжительности рабочего времени и физического и психологического напряжения на работе, а также решением сложных ситуаций, возникающих в результате контакта с представителями общественности и социальной изоляции от коллег и близких. Физическое и психологическое воздействие трудовой деятельности во время пандемии COVID-19 было значительным: во всем мире тысячи медицинских работников погибли от заражения SARSCoV-2, а некоторые даже покончили жизнь самоубийством. Важно отметить, что медицинские работники имеют решающее значение для любой системы здравоохранения. Кроме того, негативное влияние COVID-19 на глобальное психическое здоровье очевидно усиливается. С социальной точки зрения возникающее бремя психического здоровья у медицинских работников и других работников вызывает серьезную озабоченность в отношении устойчивости медицинских услуг.

Цель. Провести анализ данных литературы по вопросам психоэмоционального состояния медицинских работников во время пандемии COVID-19.

Стратегия поиска. Проведен поиск научных работ в поисковых системах Scopus, Web of Science Core Collection, MedLine, PubMed, Cochrane Library, Google Scholar в электронной научной библиотеке e-Library.ru, CyberLeninka. *Критерии включения:* глубина поиска литературы составила 3 года (2019-2021 гг.), оригинальные статьи, обзоры

литературы, мета-анализы, нормативно-правовые документы на английском и русском языках. *Критерии исключения*: публикации низкого методологического качества, которые не отражали основной значимости, с неясными и неоднозначными выводами, повторно встречающиеся публикации, материалы конференций и клинические случаи. В результате поиска нами было идентифицировано всего 215 зарубежных и отечественных публикаций, из них в данный обзор вошли 74 публикации.

Результаты и выводы. По результатам нашего исследования многочисленные публикации показывают, что во время пандемии COVID-19 у медицинских работников был выявлен хотя бы один симптом эмоционального выгорания и дистресса.

Ключевые слова: медицинские работники, коронавирус, COVID-19, SARS-CoV-2.

Түйіндеме

COVID-19 ПАНДЕМИЯСЫ КЕЗІНДЕГІ МЕДИЦИНА ҚЫЗМЕТКЕРЛЕРІНІҢ ПСИХОЭМОЦИОНАЛДЫ ЖАҒДАЙЫ

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Кіріспе. Медицина қызметкерлері медициналық мекемелерде және үйде өлім қаупінің жоғарылауынан, жұмыс уақытының ұзақтығын және жұмыстағы физикалық және психологиялық стрессті арттырудан, сондай-ақ қоғам өкілдерімен байланыс және әріптестер мен жақындардан әлеуметтік оқшаулану нәтижесінде туындайтын күрделі жағдайларды шешуден бастап бірқатар күрделі мәселелерді шешуі керек. COVID-19 пандемиясының физикалық және психологиялық әсері айтарлықтай болды: бүкіл әлемде мыңдаған медицина қызметкерлері SARSCoV-2 инфекциясынан қайтыс болды, ал кейбіреулері тіпті өз-өзіне қол жұмсады. Медициналық мамандар кез-келген денсаулық сақтау жүйесі үшін өте маңызды екенін атап өткен жөн. Сонымен қатар, covid-19-ның жаһандық психикалық денсаулығына теріс әсері айқын күшейе түсуде. Әлеуметтік тұрғыдан алғанда, медицина қызметкерлері мен басқа жұмысшылардың психикалық денсаулығының ауыртпалығы медициналық қызметтердің тұрақтылығына үлкен алаңдаушылық тудырады.

Мақсаты: COVID-19 пандемиясы кезінде медицина қызметкерлерінің психоэмоционалдық жай-күйі мәселелері бойынша әдебиет деректеріне талдау жүргізу.

Іздеу стратегиясы: e-Library.ru, CyberLeninka электрондық ғылыми кітапханада Scopus, Web of Science Core Collection, MedLine, PubMed, Cochrane Library, Google Scholar іздеу жүйелеріндегі ғылыми жұмыстарға іздеу жүргізілді. *Іздеу критерийлері* әдебиетті іздеу тереңдігі 3 жылды (2019-2021 жж.) қамтыды, әдебиетті шолу, метаталдаулар, ағылшын және орыс тілдеріндегі нормативтік-құқықтық құжаттар. *Іздеуде мына критерийлер* алып тасталды: анық емес және бір мәнді емес тұжырымдары бар, негізгі маңыздылық көрініс таппаған төмен методологиялық сападағы жарияланымдар, қайталама кездесетін жарияланымдар, конференция материалдары және клиникалық жағдайлар. Іздеу нәтижесінде барлығы 215 шетелдік және отандық жарияланымдарды біріздендірдік, оларың ішінде 74 жарияланым аталған шолуға енді.

Нәтижелер және қорытындылар: Біздің зерттеуіміздің нәтижелері бойынша көптеген жарияланымдар COVID-19 пандемиясы кезінде медицина қызметкерлері эмоционалды күйзеліс пен күйзелістің кем дегенде бір симптомын анықтады.

Негізгі сөздер: медицина қызметкерлері, коронавирус, COVID-19, SARS-CoV-2.

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Introduction.

According to the World Health Organization, the ongoing outbreak of coronavirus disease 2019 (COVID-19) has been classified as a threat of international concern and a public health emergency as it has so far affected nearly 30 million people and killed more than 900,000 people worldwide [57]. During the ongoing Covid-19 health pandemic, the term frontline workers (or frontline heroes) is being applied to workers who provide essential services during pandemic and lockdown times around the world. [41]. Frontline workers, in particular medical workers, are likened in the media to combat veterans, minimizing their own suffering to care for others and hailed as heroes. Frontline workers in this global pandemic, predominantly in medical and healthcare facilities, emergency services, have faced an increased risk of contracting the virus and spreading it [30]. Healthcare workers need to cope with a range of challenges, ranging from increased risk of death in health care facilities and at home, to increased working hours and physical and psychological stress at work, as well as dealing with difficult situations arising from contact with members of the public and social isolation from colleagues and loved ones [27] [30] [44]. The physical and psychological impact of work during the COVID-19 pandemic has been significant, with thousands of healthcare workers worldwide dying from SARS-CoV-2 infection and some even committing suicide [47] [53]. It is important to note that healthcare professionals are critical to any healthcare system. During the ongoing COVID-19 pandemic, healthcare workers are at significantly increased risk of contracting severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and may experience significant harm as a result. Depending on the stage of the pandemic, COVID-19 patients may not be the main source of SARS-CoV-2 infection, and healthcare workers may come into contact with atypical patients, infected family members and colleagues[6]. In addition, the negative impact of COVID-19 on global mental health is clearly increasing [4] [10] [51]. From a social perspective, the emerging mental health burden on healthcare workers[5] [10] [22] [27] [52] [55] and other workers raises serious concerns about the sustainability of health care services. While meeting the needs of healthcare workers during the COVID-19 pandemic is a high priority in every country, research on this issue remains inconsistent. Thus, this research topic is relevant.

Aim. Conduct an analysis of literature data on the psycho-emotional state of medical workers during the COVID-19 pandemic

Search strategy.

A search for scientific papers was carried out in the search engines Scopus, Web of Science Core Collection, MedLine, PubMed, Cochrane Library, Google Scholar in the electronic scientific library e-Library.ru, CyberLeninka. Inclusion criteria: literature search depth was 3 years (2019-2021), original articles, literature reviews, meta-analyses, legal documents in English and Russian. Exclusion criteria: publications of low methodological quality that did not reflect the main significance, with unclear and ambiguous conclusions, repetitive publications, conference proceedings and clinical cases. As a result of the search, we identified a total of 215 foreign and domestic

publications, of which 74 publications were included in this review.

Results and discussion.

One of the biggest risks to the health care system is the high rate of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection among healthcare workers and the resulting lack of qualified personnel to provide an effective local or regional response to the pandemic. [32]. This risk has been exacerbated by the need to rapidly expand the capacity of intensive care units (ICUs) in affected areas, redeploy clinical staff to front-line positions (such as ICUs or COVID-19 wards), and recruit less experienced staff. (e.g. senior students or medical staff moving from their specialty) to the front lines in response to the pandemic [42]. In addition, in several countries, the prevalence of COVID-19 among health workers was higher than in the general population. [20]. As shown in some studies, for example in the United States, healthcare professionals accounted for 19% of cases reporting their status to the CDC (Center for Disease Control and Prevention)[eight], and in China, where healthcare workers accounted for 29% of all cases [48]. Because asymptomatic and moderately symptomatic health workers may have been underreported, the prevalence is likely to be even higher due to repeated contact with infected people. Health care workers also often interact with vulnerable risk groups and may unknowingly transmit disease.

Multiple studies of community mental health symptoms during the current COVID-19 pandemic and previous disease outbreaks show scientific evidence for depression [7, 13, 27, 31, 46, 52, 53, 57], anxiety [11] [58] [33] [48] [54], stress, and other mental health conditions[33] [34] [47] including post-traumatic stress disorder [11] [14] [58] [16], distress [14] [28] [52], fear [11] [16] [28], guilt, anger and collateral trauma [29], conditions that can aggravate panic. or hysterical reactions [24]. Unfortunately, during pandemics and other crises, there is almost always a lack of adequate resources to minimize negative psychological effects.[15] [28] [39] [40] [46].

During the COVID-19 pandemic in the United States, 54.4% of healthcare workers experienced at least one symptom of burnout and distress, according to research. [41]. In China, 23.6% of medical workers surveyed were diagnosed with sleep disorders[eighteen], in a review of British researchers, sleep disorders were found in 38.9% of healthcare workers [35] in a study conducted in Russia - in 37.4% of medical workers who worked with patients with a new coronavirus infection [59]. In the Republic of Kazakhstan, a research team from Nazarbayev University is just planning to conduct a study that aims to establish the prevalence of anxiety, depression and insomnia among healthcare workers in Nur-Sultan, Almaty and Karaganda who are directly involved in the treatment of patients with coronavirus disease. [38]. The results of another study showed that a large proportion of manifestations of a high (57.80%) and extremely high (20.50%) degree of professional burnout syndrome is observed among medical staff of the City Polyclinic No. 20 in Almaty [56].

Anxiety disorders among medical workers, according to various researchers, range from 23.2% to 48.77%, from 22.8% to 57.63% of doctors and medical personnel who worked with patients with COVID-19 suffer from depression

of varying severity [19] [35] [59]. The researchers note that anxiety, depression, and sleep disorders are more common in women than in men, and in younger people.[40] [41] [59] and for nurses, which can probably be explained by the fact that nurses spend more time with seriously ill patients than doctors. According to a number of researchers, during the pandemic, medical workers most often complained of moral exhaustion, detachment from others, anxiety when working with patients, insomnia, irritability, impaired concentration, difficulty in making decisions, in some cases, disgust for their work and strong desire to quit [19] [35] [36] [40] [41] [59]. In some publications, special attention is paid to the problem of the development of post-traumatic stress disorder in healthcare workers working in the context of the COVID-19 pandemic.[nineteen], an increase in alcohol and drug abuse among hospital staff, suicides among healthcare workers, and unexpected layoffs of clinic staff [35] [40] [41], the problem of providing poor-quality medical care to patients. On the contrary, some studies have noted some protective factors. For example, higher levels of social support have been associated with greater resilience and positive mental health of healthcare workers. [26]. Other authors have noted that trusting relationships with patients reduce the risk of burnout. [43].

A study was conducted in China to understand changes in psychological factors and sleep status [3] medical staff working on the front lines in the fight against COVID-19. A survey was conducted on 120 COVID-19 frontline health workers, of which 60 health workers worked in a hospital (experimental group) and 60 health workers worked in an unspecified hospital (control group). Symptom Checklist 90 (SCL-90) was used to assess mental status [60], Anxiety Self-Assessment Scale (SAS)[32], Depression Self-Report Scale (SDS) [38] and PTSD Checklist - Civilian Version (PCL-C) [12, 13, 23]. Sleep status was assessed using the Pittsburgh Sleep Quality Index (PSQI) [61]. The results of the study showed that the indicators of somatization, depression, anxiety and horror on the SCL-90 scale were higher than usual in the ordinary medical staff of the specified hospital. The SAS (45.89 ± 1.117), SDS (50.13 ± 1.813), and PCL-C (50.13 ± 1.813) scores in the experimental group were higher than those in the normal control group and significantly differed from those in the control group in terms of SDS and PCL-C ($P < 0.05$). The overall mean PSQI of the experimental group was 16.07 ± 3.761 , indicating poor sleep quality. Among them, participants with moderate insomnia reached 61.67% and participants with severe insomnia reached 26.67%.[50].

Another study assessed the degree of psychological status and associated risk factors among nurses at the center of the pandemic in Wuhan, China. This study involved nurses from the Renmin Hospital of Wuhan University. A questionnaire was designed to obtain basic information about the participants, which included four scales of psychological assessment. The survey was conducted in 2 stages. The first survey is from January 29 to February 2 (outbreak period) with 709 respondents, and the second survey is from February 26 to 28 (stable period) with 621 respondents. Nurses from Wuhan Fangkang Orphanage Hospital were also included in the second survey. The results showed that more than one-third of nurses suffered from depression, anxiety and insomnia

during the pandemic. During the outbreak, nurses had significantly higher risks of depression, anxiety and symptoms of post-traumatic stress disorder (PTSD) than during the stable period ($P < 0.01$). Notably, nurses from Fangkang Shelter Hospitals experienced more psychological problems than nurses from other front or outside (all $P < 0.001$) units, especially with insomnia (38.3% for severe insomnia). Frontline nurses with worse physical condition and vague fears about this pandemic compared to others were more likely to experience psychological problems. Thus, nurses from Fangkang Shelter Hospitals were at significantly higher risk of psychological problems than nurses from other departments. that nurses from Fangkang Shelter Hospitals experienced more psychological problems than nurses from other front or outside (all $P < 0.001$) units, especially with insomnia (38.3% for severe insomnia). Frontline nurses with worse physical condition and vague fears about this pandemic compared to others were more likely to experience psychological problems. Thus, nurses from Fangkang Shelter Hospitals were at significantly higher risk of psychological problems than nurses from other departments. those with worse physical condition and vague fears about this pandemic compared to others were more likely to experience psychological problems. Thus, nurses from Fangkang Shelter Hospitals were at significantly higher risk of psychological problems than nurses from other departments. [9].

The quantitative cross-sectional study, which included a survey among resident physicians working in the western region of Saudi Arabia, included questions about demographics and factors influencing academic preparation, attitudes, and daily habits of residents during the pandemic. Psychological impact was assessed using the Kessler Psychological Stress Scale. 121 residents took part in the survey. Of all respondents, 71.1% were junior residents, 66.9% had medical specialties; and 33% were family medicine physicians, followed by 17% general surgery specialists. In terms of working during the pandemic, 36.1% had contact with confirmed COVID 19 patients and 35.5% had to work overtime during the pandemic. No significant differences were found between residents in terms of factors negatively affecting their psychological well-being. Residents who worked during the pandemic in western Saudi Arabia have been severely affected by the pandemic, both professionally and psychologically [2].

A descriptive cross-sectional study conducted from April 17 to May 17, 2020 in a specialized hospital in Turkey included 1,729 healthcare professionals. The Pittsburgh Sleep Quality Index (PSQI) and the Hospital Anxiety Depression Scale (HADS) were used to collect study data. Respondents provided their responses for all data collection instruments at the same time. It took about 15 minutes to process the data collection forms. The mean scores of respondents on the HADS-anxiety (HADS-A) and HADS-depression (HADS-D) scales were 7.89 ± 4.60 and 7.22 ± 4.13 , respectively. Their depression levels were found to be at risk, but their anxiety levels were not. The mean PSQI score was 8.42 ± 2.30 for participants most of whom (92.9%) experienced poor sleep quality. The respondents' overall sleep quality showed a moderate positive correlation with HADS-A scores and a weak positive correlation with HADS-D scores ($p < 0.05$). The main takeaway from the collected data is that medical staff suffer from poor sleep quality and that their levels of depression, but not their levels of anxiety, are at risk. [45].

COVID-19 quickly spread around the world, leading to a serious global health problem [25]. The disease is a unique problem leading to an exacerbation of mental health problems among healthcare workers [25]. In particular, nurses are at greater risk because they are directly involved in the treatment and care of patients and are thus directly exposed to the threat of COVID-19 infections. [1]. Statistics show that as of October 28, 2020, 1,500 nurses have died from COVID-19 in 44 countries [62].

Nurse burnout is a serious health issue with serious adverse consequences not only for nurses, but also for patients and healthcare facilities. [21].

Recent studies, especially in high-income countries, show that nurses experienced moderate to high rates of burnout during COVID-19 [37, 49]. A systematic review and meta-analysis of 16 studies involving 18,935 nurses found that the overall prevalence of emotional exhaustion, depersonalization, and personal achievement were 34.1%, 12.6%, and 15.2%, respectively. [37]. Another meta-analysis involving 49 countries found that the overall prevalence of burnout was low. 11.23% [49]. In a US study, 49% of 20,947 respondents reported burnout [37]. In China, studies have produced conflicting results, some of which show a high prevalence of burnout. [17] and others, indicating a low level of emotional burnout among nurses [17].

Conclusion.

Health care workers should be monitored regularly to determine their levels of anxiety and depression, as well as sleep disturbances. In addition, it is very important to establish multidisciplinary mental health teams (psychiatrists, psychiatric nurses, clinical psychologists) in hospitals to assist these staff. Finally, providing the necessary information about the health care of patients diagnosed with Covid-19, allocating sufficient staff, ensuring basic needs (food and fluid intake), providing adequate personal protective equipment, and creating rest areas can reduce the exposure of first-line medical staff to anxiety and depression and improve their overall sleep quality.

Authors' contribution:

Kussainova D.K. – data set, descriptive part, formal analysis.

Khismetova Z.A. – scientific guidance, conception and conceptualization.

Asanova Sh.B. – data collection and research resource management.

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