

The Impact of the COVID-19 Pandemic on the Mental Health of Population: Scoping Review

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ABSTRACT

Background. The COVID-19 pandemic has fundamentally changed existing realities. These changes are directly related to the danger of this disease and the mode of infection. Since SARS-CoV-2 is transmitted from person to person by airborne droplets, it was necessary to introduce restrictive measures aimed at distancing people from each other such as the mandatory wearing of medical masks, the observance of social distance.

Purpose. The presented study was aimed at reviewing the current literature on the impact the introduction of restrictive measures to combat the spread of coronavirus infection on the psychology of workers as well as to identify the types of emerging psychological disorders.

Materials and Methods. The search of the papers published from 2020 to 2021 and indicated in Scopus database was conducted. A total of 1516 papers were identified, 32 articles were selected based on the predetermined eligibility criteria and included in this review.

Results. The review found that the greatest impact on mental health was experienced by healthcare workers. The most common symptoms are anxiety, stress and depression. In addition, we managed to find out that most of the articles relevant to the topic of this review were written in China and Italy. According to the results, both during past pandemics and during the COVID-19 coronavirus pandemic, doctors were at increased risk for the psychological impact exerted during the pandemic.

Implications. It would be desirable that further studies in the field cover a wider range of human activities as well as more countries. This would help for a more extensive analysis of the impact of the COVID-19 pandemic on human mental health.

KEYWORDS

pandemic, mental health, scoping review, workers

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Влияние пандемии COVID-19 на психическое здоровье людей различных профессий: Обзор предметного поля

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АННОТАЦИЯ

Введение. Пандемия COVID-19 коренным образом изменила существующие реалии. Эти изменения напрямую связаны с опасностью заболевания и путями его распространения. Поскольку SARS-CoV-2 передается от человека к человеку воздушно-капельным путем, необходимо было ввести ограничительные меры, направленные на дистанцирование людей друг от друга, такие как обязательное ношение медицинских масок, соблюдение социальной дистанции.

Цель. Данный обзор предметного поля нацелен на анализ современной литературы о влиянии введения ограничительных мер по борьбе с распространением коронавирусной инфекции на психологию работающих, а также на выявление видов возникающих психологических расстройств.

Материалы и методы. Проведен поиск статей, опубликованных с 2020 по 2021 год и проиндексированных в базе данных Scopus. Всего было выявлено 1516 статей, 32 статьи были отобраны на основе заранее определенных критериев приемлемости и включены в обзор.

Результаты. Обзор показал, что наибольшее влияние на психическое здоровье испытывали медицинские работники. Наиболее распространенными симптомами являются тревога, стресс и депрессия. Большинство статей, относящихся к теме данного обзора, были написаны в Китае и Италии. Согласно результатам, как во время прошлых пандемий, так и во время пандемии коронавируса COVID-19 врачи подвергались повышенному риску психологического воздействия, оказываемого во время пандемии.

Выводы: Дальнейшие исследования в этой области должны охватывать более широкий спектр профессий, а также отследить исследуемую проблему на примере большего количества стран. Это помогло бы провести более обширный анализ воздействия пандемии COVID-19 на психическое здоровье работающего населения.

КЛЮЧЕВЫЕ СЛОВА

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INTRODUCTION

The COVID-19 pandemic has fundamentally changed existing realities. These changes are directly related to the danger of this disease and the mode of infection (Georgieva et al., 2021). Inasmuch as SARS-CoV-2 is transmitted from person to person by airborne droplets, it was necessary to introduce the mandatory wearing

of medical masks and the observance of social distance. In addition, many companies were forced to transfer some of their employees to remote work, and educational institutions had to carry out educational programs remotely. The coronavirus infection has affected all spheres of life, including its economic (El Keshky et al., 2021) and political (Greer et al., 2020; Liu et al., 2020) components.

In addition, the COVID-19 pandemic has had a devastating impact on the psychological health of all population groups, including groups formed by occupational characteristics. Röhr et al. (2020) conducted studies on the impact of the introduction of restrictive measures during other difficult epidemiological situations, such as outbreaks of SARS-CoV and MERS-CoV. Having analyzed sources from the MEDLINE database, the researchers found that the effects of self-isolation provoked depression, anxiety, anger, stress, sleep disturbances, and anxiety. The increased psychological stress occurred during quarantine measures, but even for 4 — 7 months after quarantine measures the level of stress stay the same. In particular, the symptoms of depressive and post-traumatic stress were revealed. In addition, the authors found that the group most affected by the psychological impact of the pandemic are doctors. The impact of the COVID-19 pandemic on the psychological state of doctors (Karakose & Malkocl, 2021; Kunz et al., 2021; De Sio et al., 2020) also caused the high level of stress. Being the category of people, whose professional activities are directly related to diseases, they were forced to face the terrible consequences of the disease.

The researchers were also particularly interested in the groups of the population whose professional activities were closely connected with special places or equipment, for example, athletes (Di Cagno et al., 2020; Jurecka et al., 2021). And there are also many studies on the psychological state of students during the coronavirus pandemic, due to emergency remote learning (Commodari et al., 2021; Almomani et al., 2021; Alomyan, 2021). In addition, there are some papers devoted to the respondents of different age categories (Patel & Clark-Grinsberg, 2020; Cielo et al., 2021; Jones et al., 2021; Meherali et al., 2021; Nearchou et al., 2021; Pieh et al., 2020; Sun et al., 2020). All of these categories, to a greater or lesser extent, demonstrated psychological problems.

The reviews created between 2019 and 2021 only touch upon the negative factors of the impact of the coronavirus pandemic to any one specific segment of the population, selected either by the age category of the group of people under consideration, or by their occupation. So Uphoff et al. (2021) in their review considered papers related to the most vulnerable groups of the population: doctors and children. It was noted that doctors were experiencing a great psychological burden. The following symptoms were common to all groups under consideration: depression, anxiety, post-traumatic stress disorder, distress, sleep problems, and burnout. However, there is no review that looks at the impacts of the COVID-19 pandemic on the general population, including several groups formed by occupational characteristics, with the classification of types of psychological disorders.

The presented study was aimed at reviewing the current literature on the impact of COVID-19 to study the aspects of the effect of the SARS-CoV-2 outbreak, the introduction of

restrictive measures to combat the spread of coronavirus infection on the psychology of representatives of different population groups formed by occupational characteristics as well as to identify the types of emerging psychological disorders.

MATERIALS AND METHODS

Data Sources

The articles on the topic under consideration were surfed via Scopus database. Only original studies published from 2020 to 2021 were selected.

Study Selection and Eligibility Criteria

The author searched for articles that contain answers to the question: What is the psychological impact of the COVID-19 pandemic on each occupational group? The combinations of keywords to search for articles in Scopus were used: "COVID-19 pandemic + psychology + impact", "coronavirus + psychology + impact", "COVID-19 pandemic + mental health + impact", "coronavirus + mental health + impact". The inclusion and exclusion criteria for the papers to be analysed were the following.

Inclusion criteria:

- (1) The article is written in the period from 2020 to 2021;
- (2) The article investigated the psychological impact of the coronavirus pandemic on any population group;
- (3) The article investigated the types of psychological influence;
- (4) The article type is the original article.

Exclusion criteria:

- (1) The article does not correspond to the topic of this review.
- (2) The article is written not in English.
- (3) The genre of the article is a review or comment.
- (4) The content of the article is duplicated.

Screening and Data Extraction

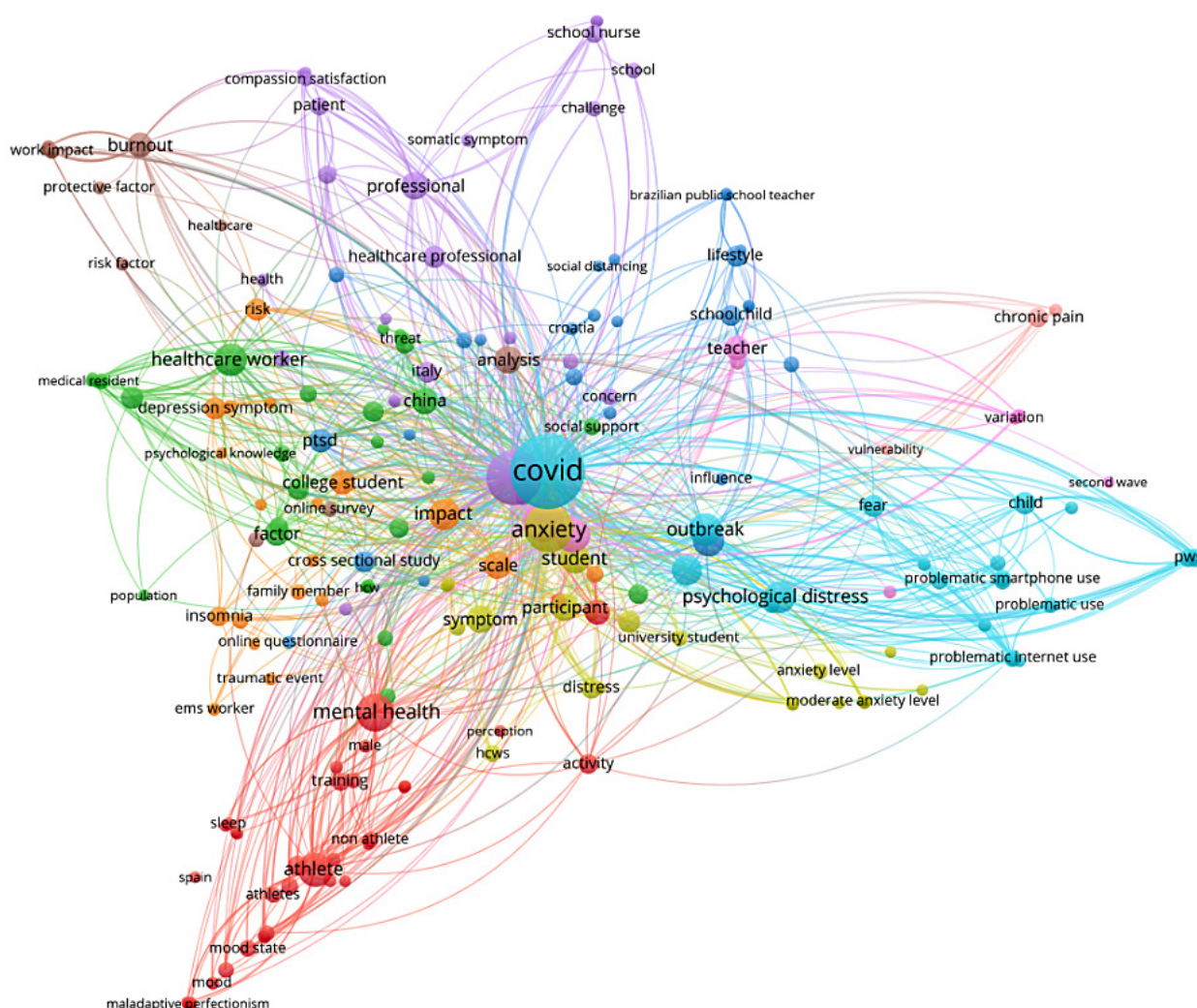
Firstly, the author analyzed the titles and abstracts of papers extracted from Scopus. Secondly, papers that did not correspond to the topic of this review were excluded. Thirdly, the remaining papers at this stage were checked against through the inclusion and exclusion criteria, and papers that duplicated each other's content were removed. At the last stage, all remaining articles were analysed. The data of the selected papers was exported from Scopus to be analysed and tabulated. The tabular data was sorted by au-

analysis of 192 articles was performed. After that, only 32 articles fully corresponding the topic of the current review left. The next stage related to tabulation of the information about these papers (see Table 1). The last stage was devoted to conceptualisation of the extracted from the papers information.

Visualisation of the Information

VOSviewer was used to display current trends in research area in the focus. Citation information, short description, bibliographic information and keywords were exported from Scopus via a RIS document. Based on this document, the program found 1136 keywords. Further, terms were excluded that occur less than 2 times, as well as terms that are common and not directly related to the topic. As a result, a network of 214 terms was obtained (see Figure 1).

A visualization map of keywords



RESULTS

Search Results

Initially 1516 papers fitting the keywords were identified in Scopus. After deleting improper papers only 192 articles remained. The final scan of the papers identified 32 papers to be reviewed. The search and the selection process is presented in Figure 2.

Study Characteristics

Occupation

Table 1 contains the characteristics of all 32 articles that were included in this review.

11 papers were devoted to health workers, 7 — students, athletes and school children received 5 papers each, 4 were

Figure 2
Study selection flow diagram

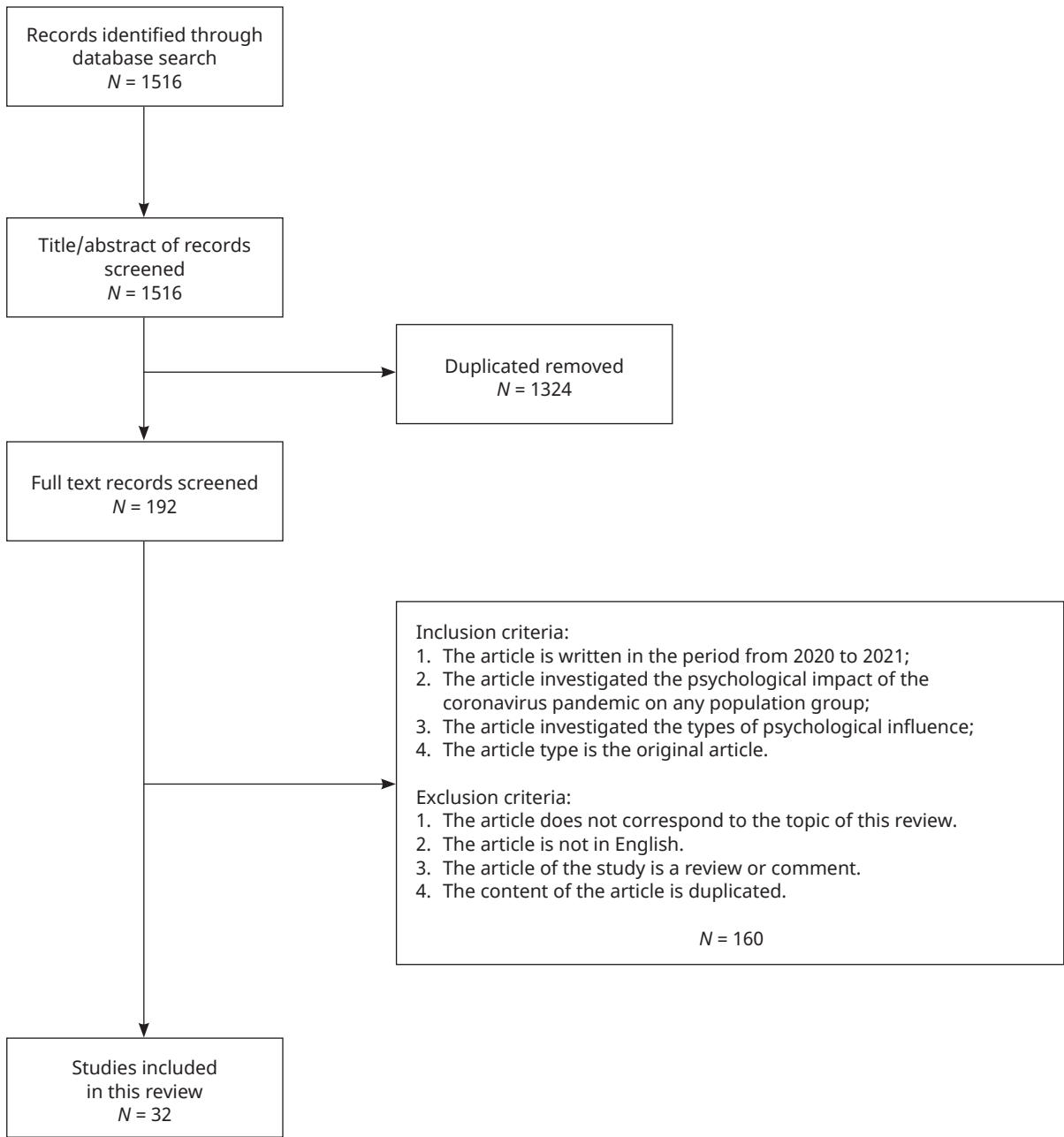
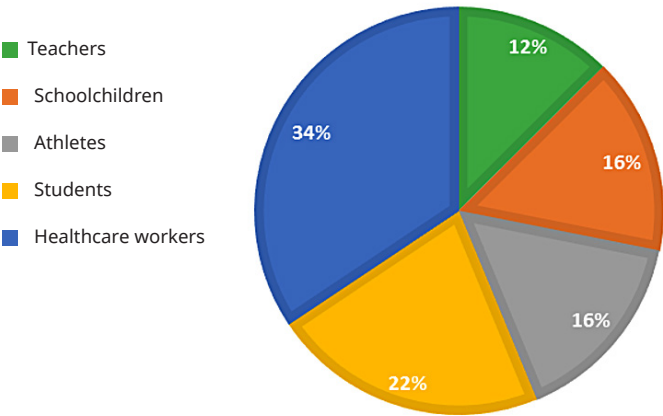


Figure 3
Prevalence of psychological disorders by occupation diagram

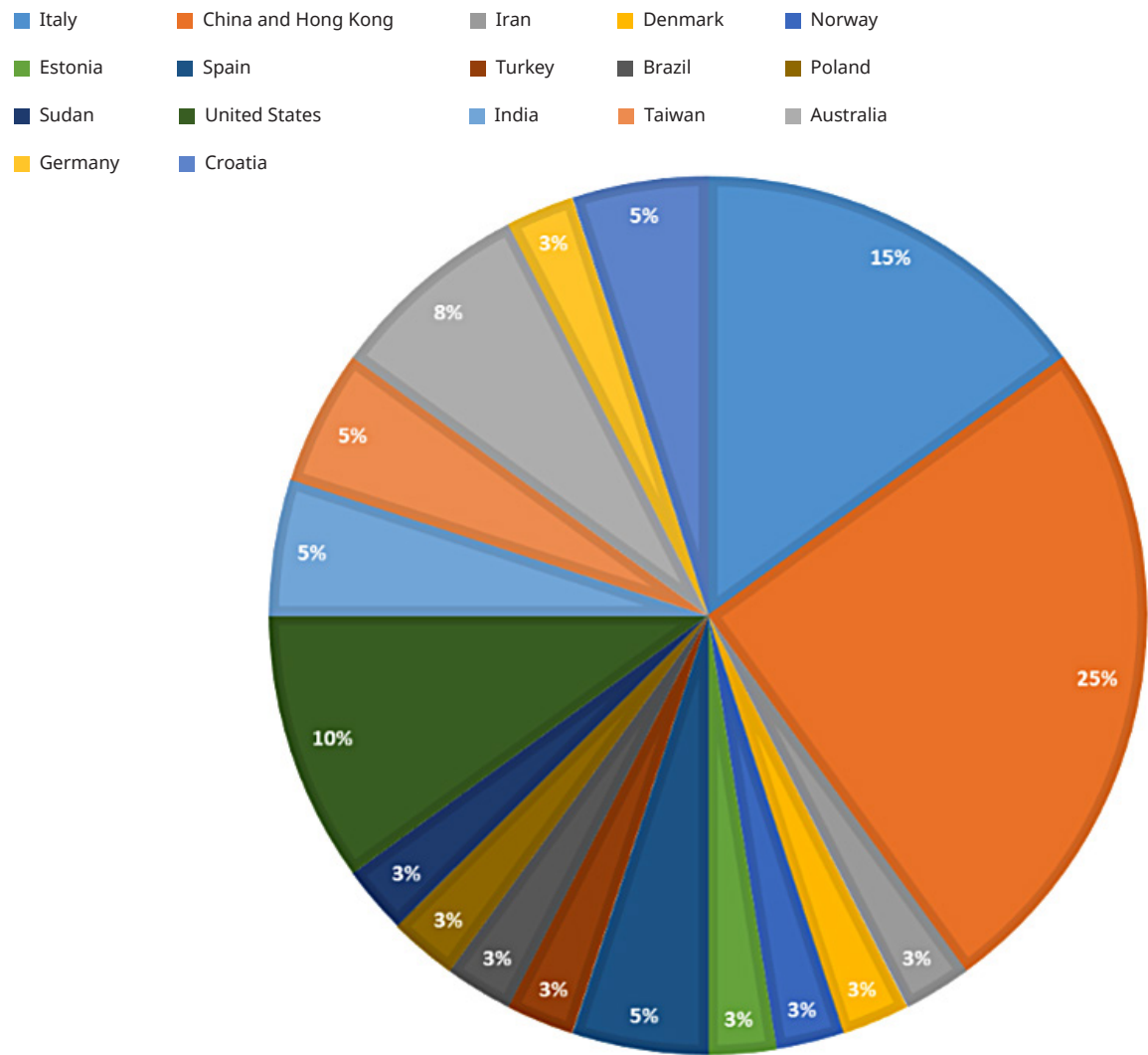


devoted to teachers. The distribution of articles by occupation is shown in Figure 3.

Country

Distribution of psychological disorders by country is shown in Figure 4. The studies analysed in this review were performed in China (10 out of 32), Italy (6 out of 32), United States (4 out of 32), Australia (3 out of 32), Croatia (2 out of 32), Spain (2 out of 32), India (2 out of 32), Taiwan (2 out of 32), Iran (1 out of 32), Denmark (1 out of 32), Norway (1 out of 32), Estonia (1 out of 32), Turkey (1 out of 32), Brazil (1 out of 32), Poland (1 out of 32), Sudan (1 out of 32), German (1 out of 32).

Figure 4
Psychological disorders by country



Psychological Disorders by Country

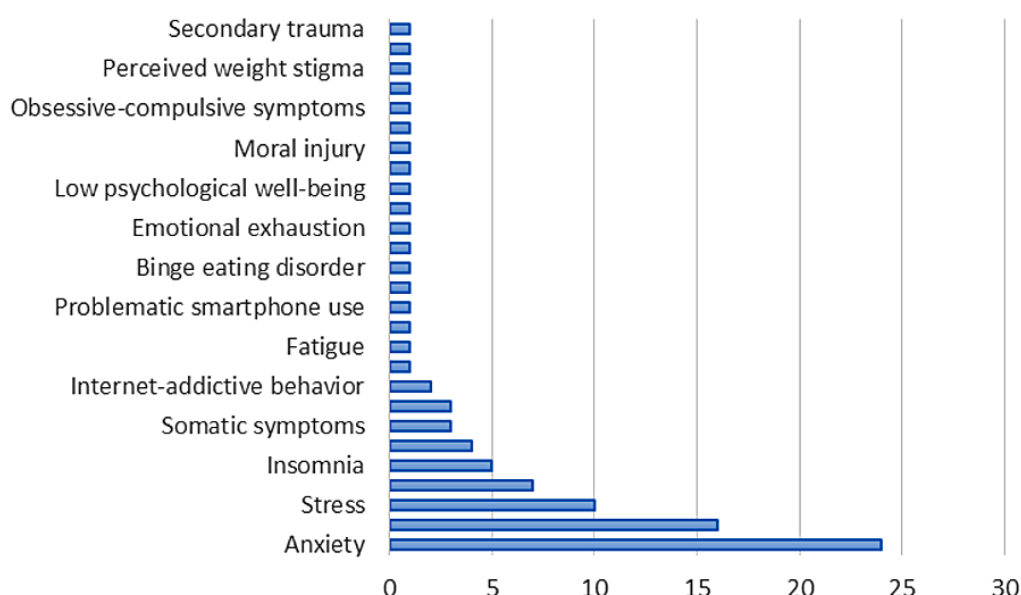
Distribution of psychological disorders are shown in Figure 5.

Psychological disorders that were mentioned in the papers are: anxiety (24 out of 32), depression (16 out of 32), stress (10 out of 32), distress (7 out of 32), insomnia (5 out of 32), post-traumatic stress disorder (4 out of 32), somatic symptoms (3 out of 32), burnout (3 out of 32), internet-addictive behavior (2 out of 32), coping behavior (1 out of 32), fatigue (1 out of 32), isolation feeling (1 out of 32), problem-

atic smartphone use (1 out of 32), affective empathy (1 out of 32), binge eating disorder (1 out of 32), chronic pain experience (1 out of 32), emotional exhaustion (1 out of 32), low interoceptive awareness (1 out of 32), low psychological well-being (1 out of 32), maladaptive perfectionism (1 out of 32), moral injury (1 out of 32), negative mood (1 out of 32), obsessive-compulsive symptoms (1 out of 32), panic disorders (1 out of 32), perceived weight stigma (1 out of 32), problematic social media (1 out of 32), secondary trauma (1 out of 32). Their hierarchy is presented in Figure 5.

Figure 5

Hierarchy of psychological disorders



The Impact of the Pandemic on the Mental Health of Healthcare Workers

The largest number of papers were devoted to healthcare workers. This might be connected with the fact that they are directly confronted with the consequences of the pandemic, and their duties increased becoming more complicated along with the growth of the spread of an infectious disease. Yadav et al. (2021) linked the pandemic with increase in psychological problems such as stress, anxiety, depression, insomnia, somatization and obsessive-compulsive symptoms among healthcare professionals. Most papers addressed the local measurement of medical workers psychological problems. Thus, Si et al (2020) and Que et al (2020) investigated impact of the pandemic on the psychological state of medical workers from China. Both papers note the anxiety and depression, but Si et al (2020)

also emphasizes insomnia as a consequent psychological symptom, while Que et al (2020) focuses on post-traumatic stress disorder.

Researches by Barello et al (2020), Trumello et al (2020) and Zara et al. (2021) should be stressed. Barello et al (2020) and Trumello et al (2020) note a burnout of healthcare professionals during the peak of the COVID-19 pandemic in Italy. Barello et al (2020) also figured out somatic symptoms among frontline healthcare professionals. An overlap of anxiety, depression, post-traumatic stress symptoms (and secondary trauma, which have similar manifestations) can also be identified in Trumello et al (2020) and Zara et al. (2021). However, the particular interest of Trumello et al (2020) is in comparison between frontline and non-frontline medical professionals.

Dale et al (2021) and Shechter et al (2020) investigated the same problems but in USA. In addition to depression and distress, Shechter et al (2020) notes anxiety, and Dale et al (2021) notes burnout.

The remaining three articles consider the impact of the pandemic on the psychological state of specialized types of health workers (Lee et al., 2021; Martínez-Caballero et al., 2021; Vlah Tomičević & Lang, 2021). Lee et al. (2021) identified anxiety, isolation feeling, panic disorders, somatic symptoms among school nurses in Hong Kong, Martínez-Caballero et al. (2021) identified distress, insomnia, post-traumatic stress disorder among emergency workers in Spain, and Vlah Tomičević & Lang (2021) described anxiety, depression, post-traumatic stress disorder and stress found in family medicine healthcare professionals in Croatia.

Health care workers are experiencing many of the psychological effects of the COVID-19 pandemic. Among them: anxiety (8 out of 11), depression (8 out of 11), distress (4 out of 11), post-traumatic stress disorder (4 out of 11), burnout (3 out of 11), insomnia (3 out of 11), somatic symptoms (3 out of 11), stress (3 out of 11), coping behavior (1 out of 32), isolation feeling (1 out of 32), moral injury (1 out of 32), obsessive-compulsive symptoms (1 out of 32), panic disorder (1 out of 32), secondary trauma (1 out of 32). An illustration of the frequency of occurrence of these symptoms is shown in Figure 6.

The Impact of the Pandemic on the Mental Health of Students

The next group in focus investigated students. Reviewing articles on the impact of the coronavirus pandemic on students, it should first be noted that anxiety appears as a symptom in each article (Abas et al., 2021; Busetta et al., 2021; Cao et al., 2020). Abas et al. (2021) gave a description of the psychological state of students at the initial stage of the pandemic, based on data from students at the University of Khartoum. Busetta et al. (2021) based on data from Italian students analyzing the impact of lockdown on anxiety disorder. Cao et al. (2020) looks at the psychological impact of the whole epidemic on Chinese students.

Stress is the next most popular symptom among students. The combination of anxiety and stress is also represented by three articles: Kecojevic et al. (2020), Villani et al. (2020) and Wang et al. (2020). The articles consider the association between epidemic and risk of anxiety and depression symptoms in the data of American, Italian and Chinese students, respectively. Finally, Rehman et al. (2020) describes the impact of the pandemic as a bundle of anxiety, stress and depression that is more common in other occupations.

In the articles under review, anxiety (7 out of 7), stress (3 out of 7), and depression (1 out of 7) were revealed among stu-

Figure 6

Prevalence of psychological disorders in healthcare workers

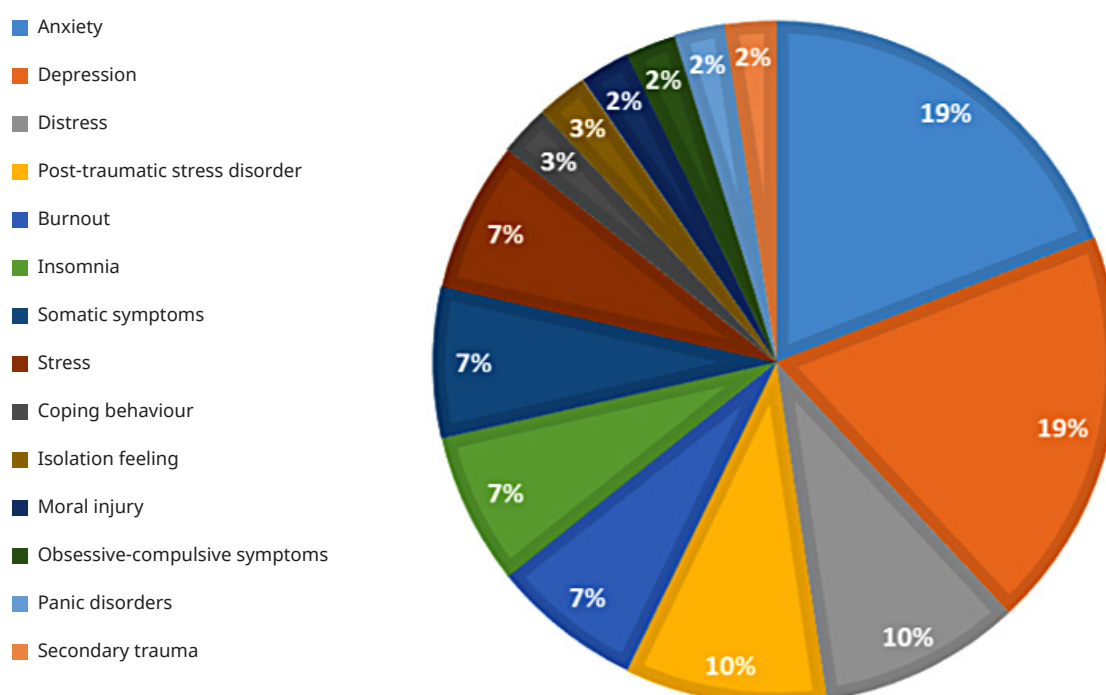
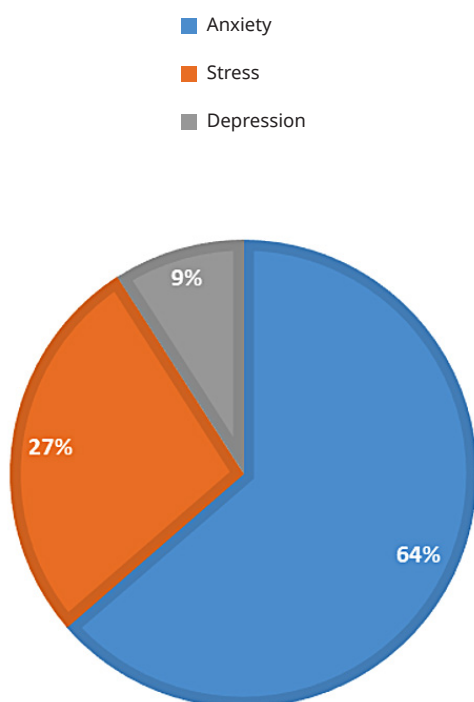


Figure 7

Prevalence of psychological disorders in students



dents. Figure 7 shows that anxiety is the dominant factor relative to the others.

The Impact of the Pandemic on the Mental Health of Schoolchildren

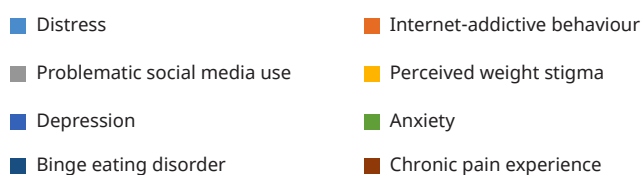
The next group is schoolchildren. Most of the articles about the impact of the epidemic on schoolchildren are devoted to the growth of Internet addictive behavior (Chen et al., 2021; Fung et al., 2021) based on Chinese schoolchildren data. Chen et al. (2021a) and Chen, I. et al. (2021b) describe distress and internet-addictive behavior among schoolchildren. Fung et al. (2021) adds descriptions of cases of anxiety, depression, problematic smartphone use, problematic social media use and perceived weight stigma.

Kendel Jovanović et al. (2021) establishes the impact of COVID-19 lockdown on changes in body mass index and lifestyle of schoolchildren from Croatia. Rau et al. (2021) addresses the more specific problem of the relationship between chronic pain and psychological change during the COVID-19 epidemic.

Distress was the most common among schoolchildren (4 out of 5). In second place in terms of frequency are Internet addictive behavior (2 out of 5), anxiety (2 out of 5) and anxiety (2 out of 5). The smallest part of all occurring psy-

Figure 8

Prevalence of psychological disorders in schoolchildren



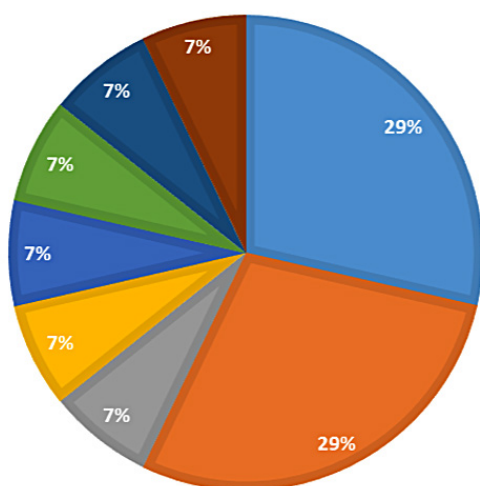
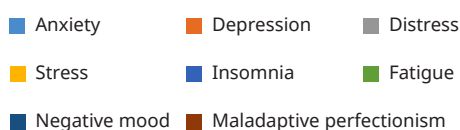
chological disorders is problematic social media use (1 out of 5), binge eating disorder (1 out of 5), chronic pain experience (1 out of 5). The illustration of these relationships is shown in Figure 8.

The Impact of the Pandemic on the Mental Health of Athletes

Athletes are mentioned in five articles. Şenışık et al. (2021) conducted research both among team athletes and among individual ones. Both cases showed similar levels of symptoms of anxiety and depression. Şenışık et al. (2021) also notes that there was a negative correlation between physical activity level and mental health symptoms. Facer-Childs et al. (2021) revealed the relationship between the introduction of restrictive measures, the abolition of sports training with a change in the sleep schedule. It was noted that there was a significant increase in total sleep time and sleep latency, as well as a delay in mid-sleep. Mehrsafari et al. (2021) revealed the following effects of the coronavirus pandemic during quarantine and during the lifting of quarantine restrictions on the psychological state of elite athletes: mental health, life satisfaction and positive mood decreased during the period of home confinement compared to periods of easing coronavirus restrictions. Parm et al. (2021) found that athletes are worried about the lack of training, as a result of which they experience symptoms of distress, de-

Figure 9

Prevalence of psychological disorders in athletes



pression and insomnia. Leguizamo et al. (2021) revealed the connection between perfectionism and personal anxiety. However, this study showed low levels of anxiety, depression and stress, which sets it apart from the rest.

The most common among athletes are anxiety (4 out of 5) and depression (4 out of 5). Other symptoms mentioned include distress (1 out of 5), stress (1 out of 5), insomnia (1 out of 5), low mood (1 out of 5), maladaptive perfectionism (1 out of 5). The ratio of the frequency of occurrence of symptoms relative to each other is shown in Figure 9.

The Impact of the Pandemic on the Mental Health of Teachers

The last group in terms of the number of mentions in papers is teachers. Silva et al. (2021) investigated the state of mental health of teachers in Brazilian schools during the COVID-19 pandemic. As a result of the study, it was found that teachers are inclined to anxiety and / or depression. In addition, some teachers reported that they began to drink more alcohol, take drugs to relax. Matiz et al. (2020) in the article talks about the impact of the pandemic on female teachers, as well as the impact of therapy on mental health. The article noted that teachers who received therapy showed significant improvements in anxiety, depression, affective empathy, emotional exhaustion, psychological

well-being, interoceptive awareness, personality traits, and levels of mindfulness. Jakubowski & Sitko-Dominik (2021) in his study note that all the teachers who completed the survey experienced anxiety, stress, and depression in one way or another. The research also revealed a direct relationship between the limitations of social contacts and the deterioration of the psychological state. Fan et al. (2021) investigated the psychological state of teachers during the COVID-19 pandemic following two deferent approaches: (1) the teacher was not sick with coronavirus and (2) was sick. In the second case, the symptoms of psychological disorders were more pronounced, post-traumatic stress was more often observed.

Teachers are most prone to anxiety (3 out of 4) and depression (3 out of 4). Also found are insomnia (1 out of 4), affective empathy (1 out of 4), emotional exhaustion (1 out of 4), low psychological well-being (1 out of 4), low interoceptive awareness (1 out of 4), stress (1 out of 4), post-traumatic stress disorder (1 out of 4). The ratio of the frequency of occurrence of symptoms relative to each other is shown in Figure 10.

Table 1 contains the characteristics of all 32 articles systematized by occupation, types of psychological disorders and countries, that were included in this review.

Figure 10

Prevalence of psychological disorders in teachers

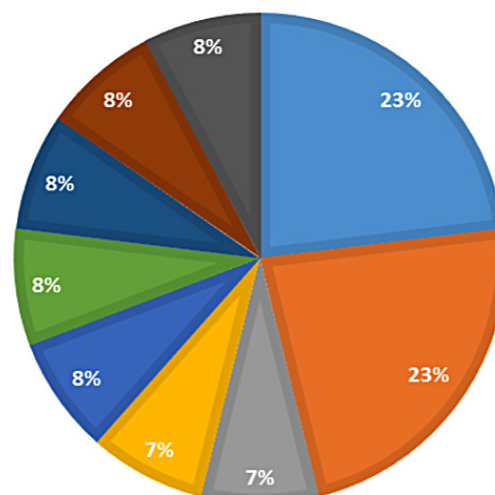
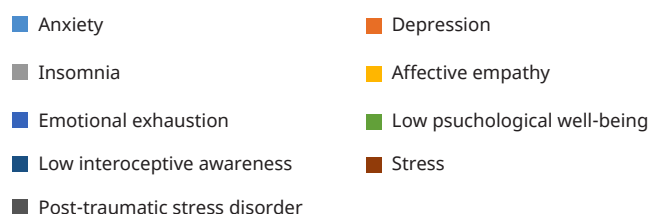


Table 1

Characteristics of the articles

No	Title	Author and year	Occupation	Types of psychological disorders	Country
1	Anxiety among the Sudanese university students during the initial stage of COVID-19 pandemic	Abas et al., 2021	Students	Anxiety	Sudan
2	Burnout and somatic symptoms among frontline healthcare professionals at the peak of the Italian COVID-19 pandemic	Barello et al., 2020	Healthcare workers	Burnout, somatic symptoms	Italy
3	Effects of COVID-19 lockdown on university students' anxiety disorder in Italy	Busetta et al., 2021	Students	Anxiety	Italy
4	The psychological impact of the COVID-19 epidemic on college students in China	Cao et al., 2020	Students	Anxiety	China
5	Internet-Related Behaviors and Psychological Distress among Schoolchildren during the COVID-19 School Hiatus	Chen, C. et al., 2021	Schoolchildren	Distress, internet-addictive behavior	Taiwan, Hong Kong, China
6	Internet addiction and psychological distress among Chinese schoolchildren before and during the COVID-19 outbreak: A latent class analysis	Chen, I. et al., 2021	Schoolchildren	Distress, internet-addictive behavior	China, Taiwan, Hong Kong
7	Morally Distressing Experiences, Moral Injury, and Burnout in Florida Healthcare Providers during the COVID-19 Pandemic	Dale et al., 2021	Healthcare workers	Depression, distress, moral injury, burnout	United States
8	Sleep and mental health in athletes during COVID-19 lockdown	Facer-Childs et al., 2021	Athlete	Anxiety, depression, stress	Australia
9	Trauma exposure and the PTSD symptoms of college teachers during the peak of the COVID-19 outbreak	Fan et al., 2021	Teacher	Post-traumatic stress disorder	China
10	Problematic Use of Internet-Related Activities and Perceived Weight Stigma in Schoolchildren: A Longitudinal Study Across Different Epidemic Periods of COVID-19 in China	Fung et al., 2021	Schoolchildren	Anxiety, depression, distress, problematic smartphone use, problematic social media use, perceived weight stigma	Hong Kong, United States, Australia
11	Teachers' mental health during the first two waves of the COVID-19 pandemic in Poland	Jakubowski & Sitko-Dominik, 2021	Teacher	Anxiety, depression, stress	Poland
12	The impact of the COVID-19 epidemic on mental health of undergraduate students in New Jersey, cross-sectional study	Kecojevic et al., 2020	Students	Anxiety, stress	United States

Continuation of the table 1

No	Title	Author and year	Occupation	Types of psychological disorders	Country
13	The outcome of COVID-19 lockdown on changes in body mass index and lifestyle among Croatian schoolchildren: A cross-sectional study	Kenđel Jovanović et al., 2021	Schoolchildren	Binge eating disorder, distress	Croatia
14	A qualitative exploration of the experiences of school nurses during COVID-19 pandemic as the frontline primary health care professionals	Lee et al., 2021	Healthcare workers	Anxiety, isolation feeling, panic disorders, somatic symptoms	Australia, Hong Kong
15	Personality, Coping Strategies, and Mental Health in High-Performance Athletes During Confinement Derived From the COVID-19 Pandemic	Leguizamo et al., 2021	Athlete	Maladaptive perfectionism	Spain
16	Analyzing the impact of COVID-19 trauma on developing post-traumatic stress disorder among emergency medical workers in Spain	Martínez-Caballero et al., 2021	Healthcare workers	Distress, insomnia, post-traumatic stress disorder	Spain
17	Positive impact of mindfulness meditation on mental health of female teachers during the COVID-19 outbreak in Italy	Matiz et al., 2020	Teacher	Affective empathy, anxiety, depression, emotional exhaustion, low psychological well-being, low interoceptive awareness	Italy
18	Mental Health Status, Life Satisfaction, and Mood State of Elite Athletes During the COVID-19 Pandemic: A Follow-Up Study in the Phases of Home Confinement, Reopening, and Semi-Lockdown Condition	Mehrsafar et al., 2021	Athlete	Anxiety, depression, negative mood, stress	Iran, Denmark, Norway
19	Impact of the COVID-19 Pandemic on Estonian Elite Athletes: Survey on Mental Health Characteristics, Training Conditions, Competition Possibilities, and Perception of Supportiveness	Parm et al., 2021	Athlete	Anxiety, depression, distress, insomnia, fatigue	Estonia
20	Psychological impact of the COVID-19 pandemic on healthcare workers: A cross-sectional study in China	Que et al., 2020	Healthcare workers	Anxiety, depression, insomnia	China
21	Chronic Pain in Schoolchildren and its Association with psychological wellbeing before and during the COVID-19 pandemic	Rau et al., 2021	Schoolchildren	Anxiety, depression, chronic pain experience	Germany
22	Depression, anxiety and stress among Indians in times of COVID-19 lockdown	Rehman et al., 2020	Students	Anxiety, stress, depression	India
23	The effect of isolation on athletes' mental health during the COVID-19 pandemic	Şenışık et al., 2021	Athlete	Anxiety, depression	Turkey

Continuation of the table 1

No	Title	Author and year	Occupation	Types of psychological disorders	Country
24	Psychological distress, coping behaviors, and preferences for support among New York healthcare workers during the COVID-19 pandemic	Shechter et al., 2020	Healthcare workers	Anxiety, depression, distress, coping behavior	United States
25	Psychological impact of COVID-19 on medical care workers in China	Si et al., 2020	Healthcare workers	Anxiety, depression, post-traumatic stress disorder	China
26	Working conditions, lifestyle and mental health of Brazilian public-school teachers during the COVID-19 pandemic	Suze Souza e Silva et al., 2021	Teacher	Anxiety, depression, insomnia	Brazil
27	Psychological Adjustment of Healthcare Workers in Italy during the COVID-19 Pandemic: Differences in Stress, Anxiety, Depression, Burnout, Secondary Trauma, and Compassion Satisfaction between Frontline and Non-Frontline Professionals	Trumello et al., 2020	Healthcare workers	Anxiety, burnout, depression, secondary trauma, stress	Italy
28	Impact of the COVID-19 pandemic on psychological well-being of students in an Italian university: A web-based cross-sectional survey	Villani et al., 2020	Students	Anxiety, stress	Italy
29	Psychological outcomes amongst family medicine healthcare professionals during COVID-19 outbreak: A cross-sectional study in Croatia	Vlah Tomičević & Lang, 2021	Healthcare workers	Anxiety, depression, post-traumatic stress disorder, stress	Croatia
30	Prevalence of anxiety and depression symptoms, and the demands for psychological knowledge and interventions in college students during COVID-19 epidemic: A large cross-sectional study	Wang et al., 2020	Students	Anxiety, stress	China
31	Psychological distress in healthcare workers during COVID-19 pandemic	Yadav et al., 2021	Healthcare workers	Anxiety, depression, distress, insomnia, obsessive-compulsive symptoms, somatization, stress	India
32	The long psychological shadow of COVID-19 upon healthcare workers: A global concern for action	Zara et al., 2021	Healthcare workers	Anxiety, depression, post-traumatic stress symptoms	Italy

DISCUSSION

This review identified 32 articles devoted to studying the impact of the COVID-19 pandemic on the psychological health of people from 18 countries. The trajectory of articles on this topic is rapidly increasing. From 2020 to 2021, more people have experienced the new corona virus and took part in psychological research. The issue of the impact of the pandemic on the following groups is especially acute: doctors, students, schoolchildren, athletes, teachers. Thus, there are a sufficient number of articles addressing the topic of the impact of the COVID-19 pandemic on people with different types of activities.

We agree with Rohr et al. (2020) who looked at the impact of the pandemic on different populations and found that it is physicians who suffer the most psychologically. They experienced depression, distress and post-traumatic stress disorder. The author notes that the fact of the greatest impact of the pandemic on medical workers is associated with increased workload during this period of time. Uphoff et al. (2021) studied the impact of coronavirus infection on the psychological state of children and doctors, since, in his opinion, they are the most vulnerable groups in the population. The author identified the most common symptoms experienced by children and healthcare workers during the COVID-19 pandemic: depression, anxiety, and post-traumatic stress disorder. among healthcare professionals in its review of the impact of the novel coronavirus pandemic on the most vulnerable populations, including physicians. These results also correlate with the findings of this review.

However the mentioned studies do not consider the level of attention paid to the consideration of the psychological impact of the pandemic through geographical dimension, which is done in this review. The largest number of articles

included in this review were written in China and Hong Kong and Italy, which may be due to the greatest spread of the incidence of a new coronavirus infection in the first and second waves of the pandemic in these countries.

Röhr et al. (2020) in his review came to the conclusion that it is doctors who are subject to the strongest psychological influence caused by a pandemic of the disease, which exactly agrees with the results of our review. The authors also note that the following types of psychological disorders were most common: depression, anxiety, stress. Uphoff et al. (2021) noted that depression, anxiety and post-traumatic disorder are common among healthcare professionals. These results also correlate with the findings of this review.

CONCLUSION

In response to the rapidly growing number of publications, this scoping review was conducted to summarize the existing literature on the psychological impact of the COVID-19 pandemic on different population groups, identified by their occupations, psychological disorders and countries. The review found that the greatest impact on mental health was experienced by healthcare workers. The most common symptoms are anxiety, stress and depression. In addition, we managed to find out that most of the articles relevant to the topic of this review were written in China and Hong Kong, Italy. The results of previous reviews correlate well with the results of this review. Thus, both during past pandemics and during the COVID-19 coronavirus pandemic, doctors were at increased risk for the psychological impact exerted during the pandemic. It would be desirable that further studies cover a wider range of human activities as well as more countries. This would help for a more extensive analysis of the impact of the COVID-19 pandemic on human mental health. ■

REFERENCES

- Abas, I., Alejail, I., & Ali, S. M. (2021). Anxiety among the Sudanese university students during the initial stage of COVID-19 pandemic. *Heliyon*, 7(3), e06300. <https://doi.org/10.1016/j.heliyon.2021>
- Almomani, E., Qablan, A., Atrooz, F., Almomany, A., Hajjo, R., & Almomani, H. (2021). The influence of coronavirus diseases 2019 (COVID-19) pandemic and the quarantine practices on university students' beliefs about the online learning experience in Jordan. *Frontiers in Public Health*, 8. <https://doi.org/10.3389/fpubh.2020.595874>
- Alomyan, H. (2021). The impact of distance learning on the psychology and learning of university students during the COVID-19 pandemic. *International Journal of Instruction* 14(4), 585-606. <https://doi.org/10.29333/iji.2021.14434a>
- Barello, S., Palamenghi, L., & Graffigna, G. (2020). Burnout and somatic symptoms among frontline healthcare professionals at the peak of the Italian COVID-19 pandemic. *Psychiatry Research*, 290, 113129. <https://doi.org/10.1016/j.psychres.2020.113129>
- Busetta, G., Campolo, M. G., Fiorillo, F., Pagani, I., Panarello, D., & Augello, A. (2021). Effects of COVID-19 lockdown on university students' anxiety disorder in Italy. *Genus*, 77, 25. <https://doi.org/10.1186/s41118-021-00135-5>

- Cao, W., Fang, Z., Hou, G., Han, M., Xu, X., Dong, J., & Zheng, J. (2020). The psychological impact of the COVID-19 epidemic on college students in China. *Psychiatry Research*, 287, 112934. <https://doi.org/10.1016/j.psychres.2020.112934>
- Chen, C., Chen, I., Pakpour, A., Lin, C., & Griffiths, M. (2021). Internet-related behaviors and psychological distress among schoolchildren during the COVID-19 school hiatus. *Cyberpsychology, Behavior, and Social Networking*, 24(10), 654–663. <https://doi.org/10.1089/cyber.2020.0497>
- Chen, I., Chen, C., Liu, C., Ahorsu, D., Griffiths, M., Chen, Y., Kuo, Y., Lin, C., Pakpour, A. H., & Wang, S. (2021). Internet addiction and psychological distress among Chinese schoolchildren before and during the COVID-19 outbreak: A latent class analysis. *Journal of Behavioral Addictions*, 10(3), 731–746. <https://doi.org/10.1556/2006.2021.00052>
- Cielo, F., Ulberg, R., & Di Giacomo, D. (2021). Psychological impact of the COVID-19 outbreak on mental health outcomes among youth: A rapid narrative review. *International Journal of Environmental Research and Public Health*, 18(11), 6067. <https://doi.org/10.3390/ijerph18116067>
- Commodari, E., La Rosa, V.L., Carnemolla, G., & Parisi, J. (2021). The psychological impact of the lockdown on Italian university students during the first wave of COVID-19 pandemic: Psychological experiences, health risk perceptions, distance learning, and future perspectives. *Mediterranean Journal of Clinical Psychology* 9(2), 1–19. <https://doi.org/10.13129/2282-1619/mjcp-3009>
- Dale, L., Cuffe, S., Sambuco, N., Guastello, A., Leon, K., & Nunez, L., Allen, B. R., & Mathews, C.A. (2021). Morally distressing experiences, moral injury, and burnout in Florida healthcare providers during the COVID-19 pandemic. *International Journal of Environmental Research and Public Health*, 18(23), 12319. <https://doi.org/10.3390/ijerph182312319>
- De Sio, S., Buomprisco, G., La Torre, G., Lapteva, E., Perri, R., Greco, E., Mucci, N., & Cedrone, F. (2020). The impact of COVID-19 on doctors' well-being: results of a web survey during the lockdown in Italy. *European Review for Medical and Pharmacological Sciences*, 24(14), 7869–7879. https://doi.org/10.26355/eurrev_202007_22292
- Di Cagno, A., Buonsenso, A., Baralla, F., Grazioli, E., Di Martino, G., & Lecce, E., Calcagno, G., & Fiorilli, G. (2020). Psychological impact of the quarantine-induced stress during the coronavirus (COVID-19) outbreak among Italian athletes. *International Journal of Environmental Research and Public Health*, 17(23), 8867. <https://doi.org/10.3390/ijerph17238867>
- El Keshky, M., Basyouni, S., & Al Sabban, A. (2020). Getting through COVID-19: The pandemic's impact on the psychology of sustainability, quality of life, and the global economy — A systematic review. *Frontiers in Psychology*, 11. <https://doi.org/10.3389/fpsyg.2020.585897>
- Facer-Childs, E., Hoffman, D., Tran, J., Drummond, S., & Rajaratnam, S. (2021). Sleep and mental health in athletes during COVID-19 lockdown. *Sleep*, 44(5). <https://doi.org/10.1093/sleep/zsaa261>
- Fan, C., Fu, P., Li, X., Li, M., & Zhu, M. (2021). Trauma exposure and the PTSD symptoms of college teachers during the peak of the COVID-19 outbreak. *Stress and Health*, 37(5), 914–927. <https://doi.org/10.1002/smi.3049>
- Fung, X., Siu, A., Potenza, M., O'Brien, K., Latner, J., & Chen, C., & Lin, C. Y. (2021). Problematic use of internet-related activities and perceived weight stigma in schoolchildren: A longitudinal study across different epidemic periods of COVID-19 in China. *Frontiers in Psychiatry*, 12. <https://doi.org/10.3389/fpsyg.2021.675839>
- Georgieva, I., Lantta, T., Lickiewicz, J., Pekara, J., Wikman, S., & Loseviča, M., Raveesh, B.N., Mihai, A., & Lepping, P. (2021). Perceived effectiveness, restrictiveness, and compliance with containment measures against the COVID-19 pandemic: An international comparative study in 11 countries. *International Journal of Environmental Research and Public Health*, 18(7), 3806. <https://doi.org/10.3390/ijerph18073806>
- Greer, S., King, E., da Fonseca, E., & Peralta-Santos, A. (2020). The comparative politics of COVID-19: The need to understand government responses. *Global Public Health*, 15(9), 1413–1416. <https://doi.org/10.1080/17441692.2020.1783340>
- Jakubowski, T., & Sitko-Dominik, M. (2021). Teachers' mental health during the first two waves of the COVID-19 pandemic in Poland. *PLOS ONE*, 16(9), e0257252. <https://doi.org/10.1371/journal.pone.0257252>
- Jones, E., Mitra, A., & Bhuiyan, A. (2021). Impact of COVID-19 on mental health in adolescents: A systematic review. *International Journal of Environmental Research and Public Health*, 18(5), 2470. <https://doi.org/10.3390/ijerph18052470>
- Jurecka, A., Skucińska, P., & Gądek, A. (2021). Impact of the SARS-CoV-2 coronavirus pandemic on physical activity, mental health and quality of life in professional athletes— A systematic review. *International Journal Of Environmental Research And Public Health*, 18(17), 9423. <https://doi.org/10.3390/ijerph18179423>
- Karakose, T., & Malkoc, N. (2021). Psychological impact of the COVID-19 pandemic on medical doctors in Turkey. *Social Behavior and Personality: An International Journal*, 49(1), 1–10. <https://doi.org/10.2224/sbp.9890>
- Kecojevic, A., Basch, C. H., Sullivan, M., & Davi, N. K. (2020). The impact of the COVID-19 epidemic on mental health of undergraduate students in New Jersey, cross-sectional study. *PLOS ONE*, 15(9), e0239696. <https://doi.org/10.1371/journal.pone.0239696>

- Kendel Jovanović, G., Dragaš Zubalj, N., Klobučar Majanović, S., Rahelić, D., Rahelić, V., Vučak Lončar, J., & Pavičić Žeželj, S. (2021). The outcome of COVID-19 lockdown on changes in body mass index and lifestyle among Croatian schoolchildren: A cross-sectional study. *Nutrients*, 13(11), 3788. <https://doi.org/10.3390/nu13113788>
- Kunz, M., Strasser, M., & Hasan, A. (2021). Impact of the coronavirus disease 2019 pandemic on healthcare workers: systematic comparison between nurses and medical doctors. *Current Opinion in Psychiatry*, 34(4), 413-419. <https://doi.org/110.1097/ycp.0000000000000721>
- Lee, R., West, S., Tang, A., Cheng, H., Chong, C., Chien, W., & Chan, S. (2021). A qualitative exploration of the experiences of school nurses during COVID-19 pandemic as the frontline primary health care professionals. *Nursing Outlook*, 69(3), 399-408. <https://doi.org/10.1016/j.outlook.2020.12.003>
- Leguizamo, F., Olmedilla, A., Núñez, A., Verdager, F., Gómez-Espejo, V., Ruiz-Barquín, R., & Garcia-Mas, A. (2021). Personality, coping strategies, and mental health in high-performance athletes during confinement derived from the COVID-19 pandemic. *Frontiers In Public Health*, 8. <https://doi.org/10.3389/fpubh.2020.561198>
- Liu, P., Zhong, X., & Yu, S. (2020). Striking a balance between science and politics: understanding the risk-based policy-making process during the outbreak of COVID-19 epidemic in China. *Journal of Chinese Governance*, 5(2), 198-212. <https://doi.org/110.1080/23812346.2020.1745412>
- Martínez-Caballero, C., Cárda-García, R., Varas-Manovel, R., García-Sanz, L., Martínez-Piedra, J., Fernández-Carbajo, J., Pérez-Pérez, L.; Madrigal-Fernández, M. A., Barba-Pérez, M. Á., Olea, E.; Durantez-Fernández, C., & Herrero-Frutos, M. T. (2021). Analyzing the impact of COVID-19 trauma on developing post-traumatic stress disorder among emergency medical workers in Spain. *International Journal of Environmental Research and Public Health*, 18(17), 9132. <https://doi.org/10.3390/ijerph18179132>
- Matiz, A., Fabbro, F., Paschetto, A., Cantone, D., Paolone, A., & Crescentini, C. (2020). Positive impact of mindfulness meditation on mental health of female teachers during the COVID-19 outbreak in Italy. *International Journal of Environmental Research and Public Health*, 17(18), 6450. <https://doi.org/10.3390/ijerph17186450>
- Meherali, S., Punjani, N., Louie-Poon, S., Abdul Rahim, K., Das, J., Salam, R., & Lassi, Z. (2021). Mental health of children and adolescents amidst COVID-19 and past pandemics: A rapid systematic review. *International Journal of Environmental Research And Public Health*, 18(7), 3432. <https://doi.org/10.3390/ijerph18073432>
- Mehrsafar, A., Moghadam Zadeh, A., Gazerani, P., Jaenes Sanchez, J., Nejat, M., Rajabian Tabesh, M., & Abolhasani, M. (2021). Mental health status, life satisfaction, and mood state of elite athletes during the COVID-19 pandemic: A follow-up study in the phases of home confinement, reopening, and semi-lockdown condition. *Frontiers In Psychology*, 12. <https://doi.org/10.3389/fpsyg.2021.630414>
- Nearchou, F., Flinn, C., Niland, R., Subramaniam, S., & Hennessy, E. (2020). Exploring the impact of COVID-19 on mental health outcomes in children and adolescents: A systematic review. *International Journal of Environmental Research and Public Health*, 17(22), 8479. <https://doi.org/10.3390/ijerph17228479>
- Parm, Ü., Aluoja, A., Tomingas, T., & Tamm, A. (2021). Impact of the COVID-19 pandemic on Estonian elite athletes: survey on mental health characteristics, training conditions, competition possibilities, and perception of supportiveness. *International Journal of Environmental Research and Public Health*, 18(8), 4317. <https://doi.org/10.3390/ijerph18084317>
- Patel, S., & Clark-Ginsberg, A. (2020). Incorporating issues of elderly loneliness into the coronavirus disease-2019 public health response. *Disaster Medicine and Public Health Preparedness*, 14(3), e13-e14. <https://doi.org/10.1017/dmp.2020.145>
- Pieh, C., Budimir, S., & Probst, T. (2020). The effect of age, gender, income, work, and physical activity on mental health during coronavirus disease (COVID-19) lockdown in Austria. *Journal of Psychosomatic Research*, 136, 110186. <https://doi.org/10.1016/j.jpsychores.2020.110186>
- Que, J., Shi, L., Deng, J., Liu, J., Zhang, L., & Wu, S., Gong, Y., Huang, W., Yuan, K., Yan, W., Sun, Y., Ran, M., Bao, Y., & Lu, L. (2020). Psychological impact of the COVID-19 pandemic on healthcare workers: A cross-sectional study in China. *General Psychiatry*, 33(3), e100259. <https://doi.org/10.1136/gpsych-2020-100259>
- Rau, L., Grothus, S., Sommer, A., Grochowska, K., Claus, B., Zernikow, B., & Wager, J. (2021). Chronic pain in schoolchildren and its association with psychological wellbeing before and during the COVID-19 pandemic. *Journal of Adolescent Health*, 69(5), 721-728. <https://doi.org/10.1016/j.jadohealth.2021.07.027>
- Rehman, U., Shah Nawaz, M. G., Khan, N. H., Kharshiing K. D., Khursheed, M., Gupta, K., Kashyap, D., & Uniyal, R. (2021). Depression, anxiety and stress among Indians in times of COVID-19 lockdown. *Community Ment Health Journal*, 57, 42-48. <https://doi.org/10.1007/s10597-020-00664-x>
- Röhr, S., Müller, F., Jung, F., Apfelbacher, C., Seidler, A., & Riedel-Heller, S. (2020). Psychosoziale folgen von quarantänemaßnahmen bei schwerwiegenden coronavirus-ausbrüchen: Ein rapid review [Psychosocial consequences of quarantine measures in severe coronavirus outbreaks: A rapid review].

- es of quarantine measures in serious coronavirus outbreaks: A rapid review]. *Psychiatrische Praxis*, 47(04), 179–189. <https://doi.org/10.1055/a-1159-5562>
- Şenışık, S., Denerel, N., Köyağasioğlu, O., & Tunç, S. (2020). The effect of isolation on athletes' mental health during the COVID-19 pandemic. *The Physician and Sportsmedicine*, 49(2), 187–193. <https://doi.org/10.1080/00913847.2020.1807297>
- Shechter, A., Diaz, F., Moise, N., Anstey, D., Ye, S., Agarwal, S., Birk, J. L., Brodie, D., Cannone, D. E., Chang, B., Claassen, J., Cornelius, T., Derby, L., Dong, M., Givens, R. C., Hochman, B., Homma, S., Kronish, I. M., Lee, S., Manzano, W., ... Abdalla, M. (2020). Psychological distress, coping behaviors, and preferences for support among New York healthcare workers during the COVID-19 pandemic. *General Hospital Psychiatry*, 66, 1–8. <https://doi.org/10.1016/j.genhosppsych.2020.06.007>
- Si, M., Su, X., Jiang, Y., Wang, W., Gu, X., Ma, L., Li, J., Zhang, S. K., Ren, Z. F., Ren, R., Liu, Y. L., & Qiao, Y. L. (2020). Psychological impact of COVID-19 on medical care workers in China. *Infectious Diseases of Poverty*, 9(1). <https://doi.org/10.1186/s40249-020-00724-0>
- Sun, Z., Cheng, X., Zhang, R., & Yang, B. (2020). Factors influencing rumour re-spreading in a public health crisis by the middle-aged and elderly populations. *International Journal of Environmental Research and Public Health*, 17(18), 6542. <https://doi.org/10.3390/ijerph17186542>
- Suze Souza e Silva, N., Cabral Barbosa, R., Lemos Leão, L., das Graças Pena, G., de Pinho, L., & Almeida de Magalhães, T., Silveira, M. F., Rossi-Barbosa, L., Silva, R., & Haikal, D. S. (2021). Working conditions, lifestyle and mental health of Brazilian public-school teachers during the COVID-19 pandemic. *Psichiatriki*. <https://doi.org/10.22365/jpsych.2021.045>
- Trumello, C., Bramanti, S., Ballarotto, G., Candelori, C., Cerniglia, L., & Cimino, S., Crudele, M., Lombardi, L., Pignataro, S., Viceconti, M. L., & Babore, A. (2020). Psychological adjustment of healthcare workers in Italy during the COVID-19 pandemic: differences in stress, anxiety, depression, burnout, secondary trauma, and compassion satisfaction between frontline and non-frontline professionals. *International Journal of Environmental Research and Public Health*, 17(22), 8358. <https://doi.org/10.3390/ijerph17228358>
- Uphoff, E., Lombardo, C., Johnston, G., Weeks, L., Rodgers, M., & Dawson, S., Seymour, C., Kousoulis, A. A., & Churchill, R. (2021). Mental health among healthcare workers and other vulnerable groups during the COVID-19 pandemic and other coronavirus outbreaks: A rapid systematic review. *PLOS ONE*, 16(8), e0254821. <https://doi.org/10.1371/journal.pone.0254821>
- Villani, L., Pastorino, R., Molinari, E., Anelli, F., Ricciardi W., Graffigna, G., & Boccia, S. (2021). Impact of the COVID-19 pandemic on psychological well-being of students in an Italian university: A web-based cross-sectional survey. *Global Health*, 17, 39. <https://doi.org/10.1186/s12992-021-00680-w>
- Vlah Tomičević, S., & Lang, V. (2021). Psychological outcomes amongst family medicine healthcare professionals during COVID-19 outbreak: A cross-sectional study in Croatia. *European Journal of General Practice*, 27(1), 184–190. <https://doi.org/10.1080/13814788.2021.1954154>
- Wang, Z. H., Yang, H. L., Yang, Y. Q., Liu, D., Li, Z. H., Zhang, X. R., Zhang, Y. J., Shen, D., Chen, P. L., Song, W. Q., Wang, X. M., Wu, X. B., Yang, X. F., & Mao, C. (2020). Prevalence of anxiety and depression symptoms, and the demands for psychological knowledge and interventions in college students during COVID-19 epidemic: A large cross-sectional study. *Journal of Affective Disorders*, 275, 188–193. <https://doi.org/10.1016/j.jad.2020.06.034>
- Yadav, R., Vaidya, A., Kumar, R., Jain, S., Shukla, A.K. (2021). Psychological distress in healthcare workers during COVID-19 pandemic. *Journal of Medical Pharmaceutical and Allied Sciences*, 10(1), 2644–2652. <https://doi.org/10.22270/jmpas.v10i1.1019>
- Zara, G., Settanni, M., Zuffranieri, M., Veggi, S., & Castelli, L. (2021). The long psychological shadow of COVID-19 upon healthcare workers: A global concern for action. *Journal of Affective Disorders*, 294, 220–226. <https://doi.org/10.1016/j.jad.2021.07.056>