REVIEW ARTICLE

Psychological impacts of COVID-19 on Iranian Health Care Workers: A Systematic Review

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Abstract

Background: Since the coronavirus spread in Iran, almost all healthcare workers (HCWs) have been fighting this disease. Due to the high workload, high prevalence of the virus, lack of specific treatment, and the uncertainty of the end of this epidemic, they experienced difficult working conditions, which resulted in psychological consequences. This systematic review was conducted to investigate the psychological effects of COVID-19 on health care workers (HCWs). Awareness of their psychological status will help to suggest strategies to improve the situation.

Methods: In this systematic review, the published articles up to August 2022 were systematically searched in PubMed, Scopus, and Google Scholar databases. The following search strategy was used for searching related papers in all databases: "COVID-19" OR "SARS-COV-2" AND "Psychological" OR "Stress" OR "depression" AND "Healthcare workers" AND "Iran".

Results: The studies showed that psychological problems increased in Iranian HCWs during the pandemic. The most prevalent issues were anxiety (40%-97.24%), stress (27.8%-48.97%), and depression (35.1%-38.71%). They also suffered from insomnia, PSTD, and burnout. Factors such as gender, age groups, history of physical illnesses, and history of psychiatric were associated with these problems.

Conclusion: HCWs are exposed to psychological and mental issues. Thus, taking measures that protect them in both physical and psychological dimensions is very important. Implications for nursing management: the findings showed HCWs were more vulnerable to adverse psychological effects such as anxiety, stress, and depression. Policymakers and managers should implement supportive, protective, motivational, encouraging, and training interventions to prevent and reduce these consequences.

Please cite this article as: Janizadeh R, Jafari Malek Abad A, Jahangiri M. Psychological impacts of COVID-19 on Iranian Health Care Workers: A Systematic Review. J Health Sci Surveillance Sys. 2024;12(4):370-380.

Keywords: COVID-19, Healthcare workers, Psychological impacts, Systematic review, Iran

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Received: 03 July 2024
Revised: 04 August 2024
Accepted: 09 September 2024

Introduction

The Covid-19 pandemic that started in Wuhan, China, in 2019 was a threat to human health in the world.[1, 2] This new coronavirus spread rapidly, and more than 220 countries are dealing with it. Since the diagnosis of this virus when this study was carried out, more than 597,000,000 infected cases have been identified, and 6,459,907 deaths have been reported worldwide.[3] Compared to the general population, healthcare workers (HCWs) such as physicians, nurses, and other frontline HCWs had an important role in the care and treatment of infected patients.[4-6] A new WHO working paper estimated that between 80 000 to 180 000 HCWs could have died

from COVID-19 in the period between January 2020 to May 2021, converging to a medium scenario of 115 500 deaths.[7] Due to the high workload, the large volume of patients, unclear end time, and the lack of definitive treatment for COVID-19, HSCWs were identified as the main group of populations that were vulnerable to the negative psychological impact and mental burden.[8-10] During this pandemic, several studies all around the world on HCWs showed psychosocial problems, such as anxiety, insomnia, depression, frustration, and hysteria. They stated several reasons for the development of these problems, including the high risk of infection, loss of control, inadequate protection, lack of experience in managing the disease, overwork, negative feedback from patients, perceived stigma, significant lifestyle changes, quarantine, and less family support.[8, 11] In China, Xiao et al. showed that 58% and 54.2% of HCWs had symptoms of depression and anxiety, and 55.1% of them had psychological stress that was higher than that of HCWs during SARS.[12] More than 70% of HCWs in Italy suffered from somatization and 55% of distress.[13] HCWs in United States[14] and Saudi Arabia[15] also suffered from sleep disturbance, anxiety, suicidal ideation, different levels of depression, irritability, and trouble relaxing. In February 2020, the outbreak of COVID-19 was announced for the first time in Iran.[5] Like all countries, Iranian HCWs were struggling with the COVID-19 pandemic and suffered from psychological problems.[16] Many studies have been carried out in the past two years to assess the psychological impact of COVID-19 on HCWs in Iran. Many researchers have investigated the psychological effects of COVID-19 on HCWs in Iran, but a comprehensive report of these studies has not been provided so far. This study systematically reviewed all quantitative cross-sectional studies on the psychological problems of COVID-19 on HCWs in Iran.

Methods

Search Strategy

The systematic review was carried out according to the preferred reporting items for systematic reviews and Meta-analysis of PRISMA (Figure 1).[17] For this purpose, a systematic search of published papers in PubMed, Scopus, and Google Scholar in August 2022 was done. In these electronic databases, the following search strategy was implemented (title & abstract) in all databases: "COVID-19" OR "SARS-COV-2" AND "Psychological" OR "Stress" OR "depression" AND "Healthcare workers" AND "Iran." From all the articles relevant to the review topic, only original research articles that assessed the psychological issues faced by HCW were included in the systematic review.

Selection Criteria

Only cross-sectional articles that investigated the psychological effects of the current COVID-19 pandemic on healthcare workers in Iran were included.

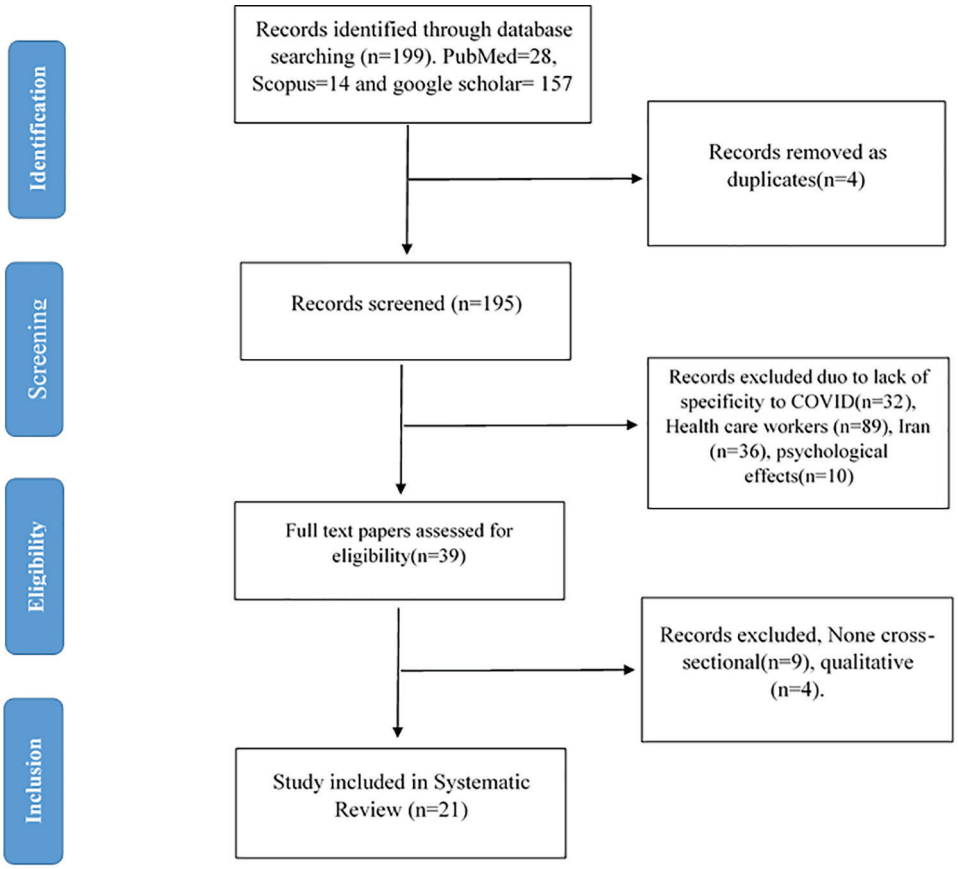

Figure 1: PRISMA diagram for searching resources

The authors participated in three phases of the review (screening, eligibility, and inclusion) independently. In the first phase, the titles and abstracts of the articles obtained from the search against the inclusion criteria were screened by the authors. In the second phase, they retrieved and read the full text of relevant titles or those about the relevance of which there was uncertainty. Finally, related studies that met the inclusion criteria were selected for the systematic review. The methodological quality of the studies was assessed using the Appraisal Tool for Cross- Sectional Studies (AXIS).[18] Two authors (R. J, A. JM) performed the quality assessment separately and disagreements were resolved by consensus in the presence of a third reviewer (M.J). In this tool, a score of one was assigned to each correct answer of the twenty questions.

Eligibility Criteria

The search result was screened and selected based on the following criteria:

- Cross-sectional studies
- Quantitative studies
- Healthcare workers who were engaged in caring for patients with COVID-19 infection
- Report of the psychological-related outcomes such as depression, stress, anxiety, distress, fear, phobia, sleep disorders, etc.

Study authors and year, sample, location, instruments, main outcomes, and quality score were extracted from the included studies.

Results

A total number of 199 articles were identified through a systematic search in three electronic databases, including PubMed, Google Scholar, and Scopus (Figure 1). After excluding the duplicates (n=4), records that was not related to COVID-19 (n=32), healthcare workers (n=89), Iran (n=36), and psychological effects(n=10) were excluded. Then, the remaining records were assessed based on eligible criteria, and finally, 21 studies were included in the systematic review. The characteristics of the included studies are shown in Table 1. A wide range of tools was used. The most standard instruments to measure depression, anxiety, and stress were the Depression Anxiety Stress Scale-21 (DASS-21), the Corona Disease Anxiety Scale (CDAS), and the Generalized Anxiety Disorder 7-item (GAD-7). For psychological distress, the General Health Questionnaire (GHQ) was often used. Other common tools were the Maslach Burnout Inventory, occupational stress questionnaire comprised of the Impact of Event Scale-Revised (IES-R), Post-traumatic stress disorder-8 (PTSD-8), Generalized Anxiety Disorder 7item (GAD-7), and Connor-Davidson Resilience Scale (CD-RISC).

Most of the included studies evaluated the psychological status of HCWs exclusively under the COVID-19 pandemic. Three studies surveyed both general populations and HCWs. Six studies covered HCWs from all cities of Iran, and Tehran showed more frequency than other cities. Moreover, most of the participants in all included studies were female. The outcomes of most studies were anxiety (16/21), stress (11/21), depression (10/21), job burnout (2/21), and resilience (2/21). In one study, fear, sleep quality, self-efficacy, social support, and general health were the separate outcomes (16). In another study, in addition to anxiety, stress, and depression, intrusion, hypervigilance, and avoidance among HCWs were assessed.[19]

The prevalence of anxiety among healthcare workers in the included studies varied from 40%,[20] 43%,[21] and 65.5%[22] to 97.24%.[23] In one study, 47.9% and 70.5% of the HCWs experienced moderate physical and psychological anxiety levels, respectively.[21] Moayed et al.'s study demonstrated that HCWs had an "extremely severe" level of anxiety.[23] Furthermore, Javadi et al. reported more health anxiety in nurses than in social workers and Red Crescent.[24] The survey by Hasannia et al. showed that the prevalence of anxiety in females was higher than that of males. They also mentioned that the prevalence of anxiety was significantly higher in those aged 30-39 years than in other age groups.[22] In another study, anxiety was significantly correlated with the age ranges of 41-50 and 51-60 years, as well as male participants.[25] Two studies showed that anxiety had a significant negative relationship with resilience.[20, 26] In a sample of hospital staff, personality traits, individual experiences of having close acquaintances infected with COVID-19, and work on the frontline were related to subjective feelings of anxiety.[27]

In addition to anxiety, depression and stress were the prevalent mental health problems in HCWs in Iran. In a study on 217 HCWs, depression and stress were at a severe level with a prevalence percentage of 38.71 and 48.97, respectively. Motahedi et al. stated that having a history of being quarantined due to COVID-19 was associated with a higher level of depression.[28] The depression and stress prevalence in 1343 healthcare providers in Mazandaran were 35.1% and 27.8%, respectively.[25] In another study, female nurses were 4.62 times more likely to have depressive symptoms than male ones.[29] Shekhbardsiri et al. reported a meaningful relationship between stressed, anxious, and depressed nurses in the gender, marital status, level of education, and working hours per month.[30] HCWs with a history of COVID-19 infection had significantly higher depression, anxiety, stress, intrusion, hypervigilance, avoidance, and PTSD-8 than those without COVID-19 infection.[19] Furthermore, a significant relationship was found between job stress and emotional exhaustion of

Table 1: Information of the included studies

Author and year	Sample	Location	Instrument	Main outcome	Quality of study (score out of 20)
Abdoli et al., 2021[16]	321 full-time frontline hospital staff.	Kermanshah City	Depression Anxiety Stress Scale-21 (DASS-21), Social Support—Multidimensional Scale of Social Support (MSPSS), Self-Efficacy—General Self-Efficacy Scale-10 (GES-10), Insomnia—Athens Insomnia Scale (38) The General Health Questionnaire-12 (GHQ-12) and Sociodemographic and Job-Related Questions.	Higher scores of depressions, anxiety, and stress were associated with higher insomnia and lower general health.	18
Azizi et al., 2021[21]	7626 HCWs.	Iran Globally.	Sociodemographic characteristics information form, DASS-21, and the Corona Disease Anxiety Scale (CDAS).	Most participants had experienced moderate physical and psychological anxiety, moderate depression, and mild level of stress.	18
Etesam et al., 2021[31]	149 frontline and 175 none-frontline HCWs.	Tehran	Demographic characteristics questionnaire,Maslach Burnout Inventory and Parker and DeCotiis Job Stress Scale.	Job stress showed a significant relationship with emotional exhaustion and depersonalization. HCWs in both wards experienced statistically significant increasing trends of occupational burnout concurrently by increasing their total stress score.	17
Hassannia et al. 2021[22]	2045 participants in both general population and HCWs.	Iran Globally.	Online demographic questionnaires and Hospital Anxiety and Depression Scale (HADS).	Most of the participant had moderate and severe anxiety symptoms. Females significantly experienced higher anxiety than men. Doctors and nurses suffered significantly higher anxiety and depression compared with other occupations.	18
Hosseinzadeh-Shanjani Z et al. 2020[33]	535 HealthCare Members.	Zanjan City (Vali-e-Asr Hospital)	DASS tool.	In the explored medical staff caring for patients with COVID-19 disease, Depression, anxiety, and stress were at healthy levels.	17
Javadi et al., 2022[24]	735 HCWs and health volunteers.	Iran Globally.	Standardized pre-tested questionnaires to assessing social health, health anxiety and corona-related questions respectively.	A significant correlations between social health and health anxiety was observed in HCWs.	17
Kamali et al., 2021[25]	1343 Health Care Providers.	Mazandarn province.	DASS and CDAS.	More than two third of HCPs had moderate anxiety and more than one third of them experienced depression and during this pandemic.	18
Karamizadeh et al., 2021[26]	866 nurses in the COVID-19 wards and 991 nurses in other wards.	Iran Globally.	CDAS, and the Connor-Davidson Resilience Scale (CD-RISC).	Nurses working in the COVID-19 ward experienced more anxiety than the nurses working in other wards. There was a significant negative relationship between resilience and anxiety.	18
Kheradmand et al., 2021[35]	222 HCWs.	Tehran (two tertiary referral hospitals).	Event Scale-Revised (IES-R) and GHQ-12.	High probabilities (98.2%) of mental disorders and low and moderate rates of posttraumatic distress were reported among HCWs.	17
Moayed et al., 2021[23]	217 HCWs.	Tehran (Baqiyatallah Hospital).	DASS-21 questionnaire.	A “severe” level of depression and stress and an “extremely severe” level of anxiety were reported in HCWs.	18
Mohammadian Khonsari et al., 2021[19]	938 HCWs.	Alborz province’s hospitals.	Post-traumatic stress disorder-8 (PTSD-8) and DASS-21 questionnaire.	The Prevalence of stress, anxiety, depression, intrusion, hypervigilance, and avoidance among infected HCWs were significantly higher in comparison to non-infected HCWs.	18

Author and year	Sample	Location	Instrument	Main outcome	Quality of study (score out of 20)
Motahedi et al., 2021[28]	140 HCWs.	A hospital in Iran.	Generalized Anxiety Disorder-7 (GAD-7) questionnaire and the Center for Epidemiologic Studies Depression (CES-D) Scale.	The HCWs experienced some degree of anxiety and depression. In addition, a direct relationship was reported between anxiety and depression levels.	18
Mousavi et al., 2021[36]	321 HCWs.	Esfahan Province.	The GHQ, the Insomnia Severity Index, and the Medical Outcomes Study Social Support Survey.	About one-third of participants had some level of psychological problems. insomnia, working as a medical resident, and lack of social support were the predictive variables.	17
Pouralizadeh et al., 2020[29]	441 participants.	Guilan Province's hospitals.	GAD-7 and the Patient Health Questionnaire-9.	HCWs were at high risk of mental illness. Factors such as gender, working in COVID19 designated hospitals, susceptibility to infection and having a chronic disease, were relative to anxiety and depression.	18
Rayani et al., 2021[20]	184 HCWs.	Bushehr and Borazjan Cities.	Sociodemographic and COVID-19-related information, the CDAS, and the Connor-Davidson Resilience Scale.	More than one third of participants experienced moderate and high levels of anxiety. A significant negative relationship was found between anxiety and resilience.	18
Shayganfard et al., 2021[27]	168 hospital staff members	Iran.	sociodemographic characteristics, health anxiety, state–trait anxiety, and job-related information questionnaire.	Several factors, including higher trait anxiety, higher state anxiety, being frontline hospital staff, and being in direct contact with close acquaintances infected with COVID-19, were independently predicted health anxiety.	17
Sheikhbardsiri et al., 2021[38]	403 nurses.	Kerman (four educational hospitals).	CDAS-21 questionnaire.	A moderate level of depression, anxiety, and stress observed among nurses.	17
Zakeri et al., 2021[37]	415 HCWs and 1023 people of general population.	Iran.	Socio-demographic characteristics questionnaire, GHQ −28, and GAD-7.	HCWs suffered from psychological disorders more than the general population, and about one-third to half of subjects in both groups had psychosocial disorders.	18
Zanjani et al., 2021[32]	108 Nurses.	Iran.	GHQ-28, nurses' job Burnout Questionnaire, and Resilience Scale.	About two third of nurses experienced mild to severe mental health problems, and most of them reported job burnout and moderate resilience.	18
Zarabadipour et al., 2020[39]	71 Medical staff and 255 person of general population.	Iran.	A researcher-made questionnaire.	Both groups showed a mild level of stress. In the medical staff, factors including access to social response systems, considerable weight change, and reluctance to perform daily activities had significant relations with stress.	17
Zare et al., 2021[5]	290 Medical staffs.	Different hospitals in Iran.	Demographic information form and occupational Stress Questionnaire (HSE tool indicator).	Nurses showed a higher level of stress compared to cleaning crew and physicians.	18

HCWs in the Etesam et al.'s study.[31] Zanjani et al. analyzed the responses of 108 nurses. They showed that about two-thirds experienced mild to severe mental health problems.[32] In a study by Hosseinzadeh-Shanjani, there was a significant relationship between gender and depression, anxiety, and stress, and a negative relationship between stress and variables of educational level and age.[33]

In another study on Iranian HCWs, risk factors such as age group, female, history of physical illnesses, and history of psychiatric disorders were significantly correlated with depression.

In Zarabipour et al.'s study, access to social response systems, reluctance to perform daily activities and considerable weight change were the factors that had a significant relationship with stress among the medical staff.[34] Besides, factors such as the age groups, female HCWs, occupation, history of physical illnesses, and history of psychiatric disorders could significantly predict the prevalence rate of stress in HCWs during this pandemic.[21] Abdoli et al. reported that full-time frontline hospital staff members had a

3.14 higher chance of complaining about insomnia and significantly lower general health.[16] Kheradmand et al. surveyed the mental health status of HCWs. Their result indicated a 98.2% probability of mental disorders among HCWs.[35] Mousavi researched psychological disorders among HCWs. Their result showed that about 34% of our HCWs suffered from some level of psychological distress. Moreover, having insomnia, working as a medical resident, and not having social support were identified as predictive factors.[36]

Kheradmand et al. reported occupation as a significantly relevant variable to PTSD symptoms. They showed that faculty members had a low level of posttraumatic stress, and doctors experienced mild to moderate distress. At the same time, practical nurses recorded had the highest impact of the novel virus.[35] Working as a resident was also identified as a significant predictive factor for psychological distress.[36] In one study, nurses had the highest percentage of participation among the surveyed HCWs.[33] Zare et al. reported higher stress in nurses compared to cleaning crew and physicians.[5]

Two studies compared HCWs and the general population concerning the COVID-19 psychological impacts. In Hasannia et al.'s study, the majority of the medical staff and general population suffered from anxiety and depression symptoms. They reported that anxiety and depression prevalence was significantly higher among doctors and nurses compared with other occupations.[22] In the second study, 29.8% of the general population and 48.2% of the HCWs had psychological disorders. In the general population, psychological disorders were significantly associated with gender, marital status, income, being at risk for infection with the coronavirus, and the most crucial coronavirus concern. While in HCWs, there was a significant association between psychosocial disorder, gender, and income.[37]

Discussion and Conclusion

In this review based on PRISMA guidelines, finally 21 articles were included. Various tools were used in this study that can be categorized based on their content as follows: Depression and Anxiety (DASS-21, HADS, PHQ-9, GHQ-12, CES-D Scale),[16, 21, 22, 25, 33, 35] Social Support (MSPSS, Medical Outcomes Study Social Support Survey), Self-Efficacy (GES-10), Insomnia (AIS, Insomnia Severity Index),[36] Job-Related Stress and Burnout (Maslach Burnout Inventory, Parker and DeCotiis Job Stress Scale, Nurses' Job Burnout Questionnaire, HSE Tool Indicator),[5] COVID-19 Related Anxiety and Stress (CDAS, CDAS-21 questionnaire, socio-demographic characteristics questionnaire, health anxiety, state-trait anxiety, and job-related information questionnaire),[20, 24-27, 38] Resilience (CD-RISC, Resilience Scale),[20, 26, 32] and Post-Traumatic Stress Disorder (PTSD) (PTSD-8, IES-R).[19] It is worth mentioning that some of the tools may assess multiple content areas or may be used in different contexts. For example, the CDAS and CDAS-21 questionnaires assess COVID-19 related anxiety and stress but may also overlap with anxiety and depression measures.

The study found that mental and psychological problems were significant health issues among HCWs in Iran during the COVID-19 pandemic. HCWs who deal with infected patients suffer mainly from anxiety, stress, and depression. They also experienced insomnia, burnout, and psychological problems. In the case of a pandemic situation, due to the rapid occurrence of disease and the high number of cases and deaths, it is common to observe psychological disorders in healthcare providers. Similar situations with severe mental problems were also found in HCWs during the outbreak of H1N1 influenza, severe acute respiratory syndrome (SARS), Middle East respiratory syndrome (MERS), and Ebola virus.[40] Studies reported both acute and post-traumatic stress, anxiety, feeling stigmatized, burnout, and psychological distress in HCWs related to these pandemics. Studies reported both acute and post-traumatic stress, anxiety, feeling stigmatized, burnout, and psychological distress in HCWs related to these pandemics.[41, 42]

This review showed that anxiety, stress, and depression were the most frequent and important issues among healthcare workers in Iran. These results were consistent with those of Sheratona et al.'s review. They reported that anxiety, depression, stress, insomnia, and PTSD were the most prevalent problems among HCWs globally.[11] In Dante's review, Western frontline healthcare professionals suffered moderate and high stress levels, anxiety, depression, sleep disturbance, and burnout.[43] Some systematic reviews and meta-analyses have reported the prevalence of anxiety among HCWs. Raoofi et al. found that the prevalence of anxiety among hospital staff was 26.1%.[44] Vali et al. reported that Insomnia (32.03%) and Distress (29.34%) were the main psychological problems of HCW.[45] Santabarbara et al. reported 25% anxiety among HCWs, with the highest proportion in doctors and nurses.[46] Li et al.'s review also showed that 22.1% of HCWs suffered from moderate anxiety.[47]

Various studies assessed the factors related to the psychological effects of the pandemic. Nayak et al. surveyed 395 HCWs and found that HCWs' contact with patients with confirmed COVID-19 and communication with patients with suspected COVID-19 were associated with depression and gender, and marital status was correlated with anxiety.[48] The main concerns of HCWs in China were infection of colleagues, infection of family members, protective measures, and medical violence.[49] In another study in China, HCWs showed different stress levels in terms of job titles and years of work experience;gender,

intermediate title, protective measures, and contact history were the independent risk factors for anxiety.[50] The current review found that women were more susceptible to depression, anxiety, and stress during the pandemic. The same findings have been reported in a study in Oman.[51] In Italian HCWs, being female and not having children were associated with higher levels of distress.[52]

In the current study, in terms of occupation, studies showed that nurses were more vulnerable to psychological problems. Tolga Saracoglu et al.'s research indicated that nurses had the highest deterioration in sleep quality; in addition, nurses and physicians in the intensive care unit had a higher rate of moderate-to-severe depressive symptoms than in other wards.[53] Batra et al. reported higher anxiety and depression prevalence among females, nurses, and frontline responders than among males, doctors, and second-line healthcare workers.[54]

Researchers in other countries also assessed the problems among healthcare workers. In China, during COVID-19, more than 70% of HCWs suffered from psychological distress, including anxiety, depression, and insomnia.[55] 71% and 55% of HCWs in Italy complained of somatization and distress, respectively.[13] In the USA, HCWs who contracted COVID-19 also reported higher levels of anxiety symptoms, depressive symptoms, and burn-out.[56]

In the current review, HCWs showed more psychological problems than the general population, which was consistent with Ahmed et al.'s study. Their results showed that HCWs had a higher frequency of anxiety and higher rates of severe depression than the general population.[57] Moreover, García-Fernández reported that fear, irritability, frustration, anger, and helplessness were significantly more frequent among HCWs than non-HCWs.[58]

Some researchers suggested measures to prevent and reduce the psychological effects of HCWs. Conversano believes that the first instrument for minimizing the psychological effects of the pandemic on HCWs is creating or providing appropriate emotional support to control isolation anxiety.[59] Ehrlich et al. stated that the implementation of accessible counseling services and effective measures would be helpful to HCWs' health and well-being.[60] One study reported that physical activity/exercise was the most common coping behavior, and access to an individual therapist with online self-guided counseling garnered the most interest in the healthcare providers.[61] Sood et al. suggested some actions to identify and manage psychological problems, including support lines for anxious people, tele-counseling, virtual connection and help groups, meditation encouragement, research conducted on psychological consequences, and development and use of suitable interventions.[62]

In conclusion, HCWs had a key role in combating coronavirus disease. Due to the high workload, the large volume of patients, and the lack of definitive treatment for COVID-19, they were more vulnerable to adverse psychological effects. Most of them suffered from anxiety, stress, depression, insomnia, and burnout. Thus, considering actions that protect them in both physical and psychological dimensions is very important. Providing preventive, supportive, encouraging, and training interventions is necessary to protect them.

Since healthcare workers have always been part of critical jobs and are equally risky in terms of occupational health, they are exposed to psychological effects. The results of this systematic review showed that pandemic conditions created or enhanced these adverse effects. Therefore, occupational health officials should consider both physical and psychological health dimensions of HCWs. Maintaining HCWs' psychological and mental health should be a priority in occupational health programs and policies. Continuous monitoring of their mental state, implementation of incentive systems, appropriate shift rotation, and reduction of workload are among the measures that can be taken by occupational health professionals to improve the working conditions of HCWs.

In summary

Mental and psychological problems are significant health issues among HCWs in Iran during the COVID-19 pandemic in Iran.

Anxiety, stress, and depression were the most frequent and important adverse effects among HCWs in Iran.

Providing preventive, supportive, encouraging, and training interventions is necessary to protect HCWs.

Strengths and Limitations

One of the strengths of this study is the systematic investigation of the psychological effects of the coronavirus on healthcare workers in Iran and can provide useful information to health policy makers and managers. Lack of access to some databases due to Internet disruptions is the weak points of this study.

Authors' Contribution

M.J. Study design and supervision, screening and eligibility assessment, quality assessment of included articles, review and editing of the manuscript. R.J. study design, systematic search in databases, screening and eligibility assessment, writing the manuscript, and quality assessment of included articles. A.JM. systematic search in databases, screening and eligibility assessment, quality assessment of included articles, review and

editing of the manuscript.

Acknowledgement

We would like to express our sincere gratitude to Shiraz University of Medical Sciences for their support of our research.

Funding

This research received funding from Shiraz University of Medical Sciences, under grant number 27213.

Conflict of Interest: None declared.

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