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Review

REVIEW

The impact of the COVID-19 pandemic on the mental health of healthcare professionals

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Summary

Introduction: Healthcare professionals (HPs) have been confronted by unprecedented traumatic experiences during the novel coronavirus disease (COVID-19) pandemic, especially in countries that had not experienced similar epidemic outbreaks in recent years.
Aim: To analyze the impact of the COVID-19 pandemic on the mental health of HPs.
Method: We comprehensively reviewed the studies published in MEDLINE (PubMed), Web of Science and Google Scholar between December 2019 and May 2020.
Results: Most studies report a high prevalence of anxiety and depressive symptoms among HPs that can be associated with: (i) COVID-19 exposure; (ii) epidemiological issues; (iii) material resources; (iv) human resources; and (v) personal factors. The role of certain variables, before, during and after the pandemic, remains unexplored. Longitudinal studies will help elucidate which factors are associated with a higher risk of developing long-lasting negative effects. Qualitative studies may contribute to understanding the influence of individual and social narratives in HPs' distress.
Conclusion: A deeper analysis on the individual, institutional, political and socio-cultural factors, meanings and values influencing HPs distress and resilience during the COVID-19 pandemic is needed.

Introduction

In December 2019, a new severe type of pneumonia, later known as novel coronavirus disease (COVID-19), was reported in Wuhan, Hubei, China. Over the subsequent months, it rapidly extended around the world although not all countries have been equally affected. By 24 May 2020, the World Health Organization (WHO) had been informed of 5 165 481 cases of COVID-19, including 336 430 deaths.[1]

Previous research on other infectious diseases, including the Severe Acute Respiratory Syndrome (SARS), the Middle East respiratory syndrome (MERS) and the Ebola virus disease, consistently showed that many healthcare professionals (HPs) reported symptoms of anxiety and depression, both during and after the outbreak, causing a severe impact on their coping abilities, in some cases with long-lasting effects.[2,3]

In many countries, especially in those that had not experienced recent epidemic outbursts, HPs have been confronted to unexpected traumatic experiences during the COVID-19 pandemic.[4,5] Moreover, many public healthcare systems in western societies faced this unprecedented situation with significantly reduced material and human resources as a result of the economic cuts that followed the Great Recession (2008). The situation deteriorated further during the COVID-19 epidemic after many HPs became infected and needed to be quarantined, thus reducing the workforce capacity. In Spain, for instance, more than 50 000 HPs have been infected so far, thus needing to be quarantined, and around 10% of them have been hospitalized for COVID-19.[6] In Italy, more than 10 000 HPs were infected from March 23 to April 9.[3]

The aim of this study is to analyze the current evidence-based information about the impact of the COVID-19 pandemic on the mental health of HPs.

Methods

We identified 260 studies published in English and Spanish between December 2019 and May 2020 available in MEDLINE (PubMed), Web of Science and Google Scholar. We used the approach recommended by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines.[7] We chose 232 records, after duplicates were removed, of which 193 records were excluded based on the review of the title and abstract. Finally, of the 39 articles remaining, 30 were selected.

The search was performed on 7 May 2020 using a broad combination of terms: 'mental health' OR 'stress' OR 'distress' OR 'emotional exhaustion' OR 'burnout' OR 'depression' OR 'anxiety' OR 'suicide' OR 'substance related disorders' OR 'addict*' OR 'quarantine' OR 'social isolation' with those related to medical professionals ('physicians' OR 'medical staff hospital' OR 'doctor' OR 'health personnel' OR 'nurses') and terms related to COVID-19 ('2019-nCoV' OR 'SARS-CoV2' OR '2019 novel coronavirus'). The type of studies selected only included original research articles and clinical reports. Editor's letters, clinical guidelines, preventive recommendations and reviews were excluded.

Results

The first studies on the impact of the coronavirus pandemic on HPs were developed in China[4,8–17] but, as the pandemic spread, other countries started to publish cross-sectional studies analyzing the psychological response of healthcare workers to the pandemic.[3,18–20]

Most studies report a high prevalence of anxiety (ranging from 30% to 70%) and depressive symptoms (20–40%).[3,8–20] Insomnia, burnout, emotional exhaustion or somatic symptoms were also similarly reported.[3,10–12]

In Table 1, we display the factors that may potentially be related to HPs' mental distress and highlight those whose role has been analyzed in recently published studies. Risk and protective factors can be grouped as follows.

COVID-19 exposure

HPs working in the first line of care, with higher clinical responsibilities and those who have been infected have had higher prevalence of anxiety and depressive symptoms.[3,8–20] Fear of colleagues, families or themselves being infected has been a major cause of distress.[13] However, little is known about some related situations that they may have gone through during the pandemic, including HPs that had to be quarantined or those who needed hospitalization; having to make difficult end-of-life decisions; and some vicarious trauma experiences, such as accompanying dying patients when the family could not be present due to preventive measures. It would also be useful to explore the mental status of those in the second line of care and the impact of using remote treatment devices on their wellbeing.

Epidemiology

The likelihood of developing distress is also related to the impact of the pandemic in each territory and to the pandemic stage when the study was conducted, with greater suffering when the number of cases was increasing.[3,8–19] Higher incidence rates positively correlated with higher prevalence of anxiety and depression. Recent experience in similar epidemic outbursts helped to decrease the distress as both HPs and the general population were more familiar with what was likely to occur once the first cases of COVID-19 had been identified.

Public health policies

The effect of political issues on HPs' mental health during the pandemic has not been studied. A wider analysis should include information on the extent to which each government achieved data transparency and designed a clear and effective prevention and treatment plan. Information about the coverage of public health systems in each country should also be considered.

Material resources

Shortage of personal protection equipment has been associated with fear of contagion among HPs, especially among those at the first line of care.[3,8–20] On the other hand, providing healthcare workers with resting places and giving them adequate time totake a break and sleep, whether in their work locations or outside, i.e. adapted hotels, have contributed to lessen the impact of physical and emotional exhaustion and it even proved to be more effective than offering psychological support during the outburst of the pandemic.[14] Differences between working in the public and private health sectors have seldom been analyzed.[18]

Human resources

Close contact with infected patients and higher level of professional responsibility increased the likelihood of suffering from mental distress.[3,8–20] Higher exposure to COVID-19 was present among those in the first line of care: emergency departments, intensive care units, COVID-19 hospitalization units, support ambulance services and primary care personnel. HPs with previous healthcare working experience were found to be more resilient when faced with stressful situations. Excessive hours on duty increased the risk of developing insomnia and emotional exhaustion.[10,12,17] However, it would also be interesting to know: the impactof having to rapidly acquire expertise to attend COVID-19 patients (for instance, pediatricians working as internal medicine specialists); the impact on resident or in-

Table 1. Factors related to the impact of the COVID-19 pandemic on healthcare professionals

COVID-19 EXPOSURE	Epidemiology	Health policies	Material resources	Human resources	Personal factors
• **First line of care (Emergency/Intensive care units/Primary care/ COVID-19 hospitals)** • **COVID + (quarantined)** • **Peer infection/ deaths** • **Vicarious trauma** (type) • Hospitalized for COVID-19 • End-of-life decisions • Degree of responsibility • Second line of clinical care • Remote teleworking	• **Previous epidemics** • **Incidence (country/region)** • **Pandemic stage**	• Public data transparency • Government global action plan • Public health strategy • Public health system coverage	• **Personal protection equipment availability** • **Time/place to rest** • Health system capacity (hospitals, intensive care units) • Treatment resources availability	• **Psychological support resources** • **Hours on ward** • 'Converted' medical professionals • Internal residents • New teams' formation • Reinforcement staff	• **Sex** • **Age** • **Social support** • **Coping strategies** • **Personality traits** • **Attachment style** • **Having children** • **Pre-morbid mental disorders** • **Recent physical symptoms** • Ageing family members • Deaths of relatives • Legal/illegal drug misuse • Alcohol use

Highlighted factors are those referred to the systematic review selection.

training HPs; how they dealt with new teams specially created during the pandemic; and the psychological impact on reinforcement staff (including retired HP that had reincorporated during the pandemic).

Personal factors

Most studies point to an increased risk for women of having worse physical and mental health during the pandemic.[3,8–15,17,19] Younger HPs were more afraid of contagion while older HPs were also worried about the risk of death.[3] Middle-aged HPs seemed to be more protected against distress. However, fear of being infected, either themselves or their relatives, was higher among those having children although little is known about those in charge of ageing relatives or who have had deaths from COVID-19 in their families. Social support has been consistently regarded as a protective factor that reduces the risk of experiencing mental distress during the pandemic.[3,8,10] Some personality traits, such as neuroticism, feeling loneliness, having previous mental disorders or physical complaints, have been found to increase the likelihood of suffering from anxiety or depressive symptoms, while extraversion, self-efficacy or parental attachment style have been found to foster resilience.[3,12,15,20] On the other hand, little is known yet about self-treatment with legal drugs (e.g. sedatives, opiates), alcohol or illegal drug use among HPs during the COVID-19 pandemic as a maladaptive coping strategy and the risk of developing substance use disorders.

Discussion

The COVID-19 has confronted many HPs with unexpected, life-threatening experiences for which they had not been trained. Although they are used to witnessing trauma and to regularly dealing with loss,[21] the high morbidity and mortality rates of this pandemic, the shortage in personal protective equipment, the fear of they or their family members becoming infected, the absence of an effective treatment/vaccine on the immediate horizon and the new restrictive public health policies activated in most countries, have changed their normal scenario. Therefore, during the pandemic, the majority of them have experienced unpleasant emotions, including fear, hyper-arousal, intrusive memories and insomnia, as well as some related to sadness or emotional exhaustion. The more they were exposed to unexpected life-threatening situations or uncertainty, the more mental distress they were likely to experience. However, most HPs have chosen to take care of patients with COVID-19 infections despite the risk to themselves and their families.

During the COVID-19 pandemic, many have been infected, needing to be quarantined or even hospitalized. From previous experiences, we learnt that those quarentined tend to feel more anxious, frustrated, helpless and isolated than non-healthcare workers.[2] Their main fear is the infection risk to themselves or their family members, especially when children are involved and they feel guilty and powerless as they cannot help their peers.

With respect to the long-lasting mental health consequences of the pandemic, we know that posttraumatic stress symptoms, depression and alcohol or substance misuse were reported by HPs months and years after the SARS outbreak, mainly among those with high-risk exposure or who needed to be quarantined, although it was lower among those with altruistic acceptance of risk during the outbreak or with higher social support.[22,23]

In fact, a big concern is that HPs may be reluctant to ask for help if needed. Self-treatment, denial, rationalization or minimization may be initial defense mechanisms used to confront stressful situations but may result in not seeking appropriate help when developing a mental disorder. During the COVID-19 outbreak, this tendency might have changed.[9,24] The social recognition HPs are receiving during this pandemic together with the the mass and social media diffusion of their testimonies could help to lower the internal psychological barriers to seeking professional aid if necessary. However, when it comes to severe mental disorders, self-stigmatizing attitudes may persist. Easy access to medication or potentially lethal means may increase the risk of not asking for help in such circumstances. Psychological assistance provided to HPs during the pandemic[25] should be extended afterwards for cases at higher risk of developing mental disorders.

Longitudinal studies should help ascertain the long-lasting consequences of the acute distress among HPs facing this pandemic. More ambitious research strategies, using big data analysis, may shed some light into how proximal factors (related to HPs experience) and distal factors (linked to institutional, political or socio-cultural issues) have influenced HPs' mental health during the COVID-19. Despite the importance of quantitative analysis, qualitative research may contribute to draw a more accurate picture of individuals and socio-cultural narratives related to the pandemic and their influence on trauma response as we already know that providing a meaning to traumatic experiences and having social support correlates with a lower presence of mental distress in the short and mid-to-long term.

The psychobiological underpinnings of acute and chronic responses to trauma are diverse.[25] Nevertheless, a comprehensive approach to trauma should include the specific psychosocial context within which the response to trauma is embedded. Socio-cultural narratives, including communitarian beliefs such as ideologies or religions, personal life meaning, social support or coverage of basic needs modulate human response to trauma. Although throughout history mankind has suffered many traumatic experiences, resilience is not an exception but, fortunately, it is the most common human response to suffering.

A profound analysis on the individual and contextual factors influencing HPs' psychological response to similar traumatic experiences has to focus not only on mental distress but also on why most of them prove to be resilient during and after traumatic experiences.

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