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The impact of the COVID-19 pandemic on healthcare workers

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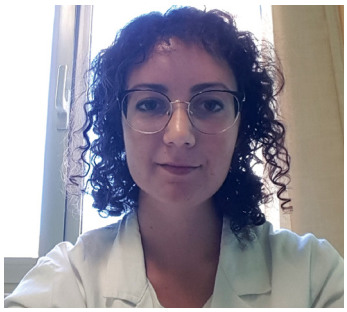

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Summary

The pandemic of coronavirus disease (COVID-19) seriously impacts the health and well-being of healthcare professionals, who have been confronted with an unprecedented traumatic experience. In a battlefield-like scenario, facing uncertainty about resources, capabilities and risks, exposure to suffering, death and threats to their own safety, healthcare workers continued to work and care for patients. Literature reveals high levels of distress, anxiety, depression, insomnia and burnout among health professionals. It is, therefore, imperative to promote the implementation of supportive services for mental health and resilience of healthcare workers.

Multiple evidence indicates that the COVID-19 pandemic is having profound psychological and social effects. The psychological consequences of the pandemic are likely to persist for months and years to come. Numerous studies conducted over the past year indicate that COVID pandemic is associated with high levels of distress, anxiety, fear of infection, depression and insomnia in the general population but also among healthcare workers [1].

Although they are accustomed to witnessing traumatic situations and coping with illness and loss, during the COVID-19 pandemic the absence of effective treatments and the consequent restrictive policies implemented in many countries changed the lifestyle and working environment in which healthcare professionals operate. Many of them have experienced feelings of uncertainty, fear, sadness, anxiety, while continuing to care for patients [2].

The first studies about the impact of the coronavirus epidemic on health workers were developed in China [3] but, as the pandemic progressed, other countries began to publish cross-sectional studies aiming to assess the psychological responses of health professionals to the actual crisis [4-7].

Most studies report a high prevalence of anxiety among health workers (ranging from 30 to 70%) and depressive symptoms (with frequencies of 20 to 40%). The highest prevalence of anxiety and depressive symptoms was found among professionals who work in closest contact with infected patients, those with greater clinical responsibility and those who had tested positive for infection. The main cause of stress was found to be the fear of becoming infected or infecting colleagues and family members [2].

The highest exposure to COVID-19 occurs among frontline workers: emergency rooms, intensive care units, ambulance services and primary care staff. Fear of infection, especially among frontline workers, has also been associated with a lack of personal protective equipment [4,8,9].

A recent review of the literature shows a worsening of sleep quality and increased insomnia in healthcare workers compared to the general population; significantly higher levels of fear, depression, somatization and obsessive-compulsive symptoms, irritability, difficulty in managing emotions and stress. Increased levels of anxiety were particularly present in less experienced staff

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compared to professionals with more years of experience, who were more resilient in front of stressful situations [10]. The main cause of stress was the fear of becoming infected or to infect family members [2]. Specific personality traits, such as loneliness, previous mental disorders or the presence of physical disorders, have been linked to a higher risk of anxiety or depression [2,4,11]. Some studies indicate an increased risk for female health workers of both physical and mental health problems during the pandemic [11].

Younger professionals were found to be more concerned about contagion while older professionals were more concerned about the risk of death. Middle aged practitioners, on the other hand, appeared to be less likely to develop psychological symptoms. Fear of being infected, or of infecting their relatives, was higher among those healthcare workers with children. Excessive working hours was found to increase the risk of insomnia and emotional exhaustion [3,12,13]. Finally, the probability of developing symptoms of mental distress was correlated with the different impact of the pandemic in each geographic area and the stage of the epidemic at the time the studies were conducted: a higher incidence of COVID cases was correlated with higher prevalence of anxiety and depressive symptoms [8].

The 2003 MERS epidemic was associated with a 30% increase in suicides in people over 65 years of age; about 50% of hospitalised patients continued to suffer from anxiety and 29% of healthcare workers experienced symptoms of emotional distress [14]. Some consequences of the pandemic on the mental health of health workers, such as post-traumatic stress symptoms or alcohol and/or substance abuse, were also reported after months and years from the onset of SARS, mainly among those with high-risk exposure or who had been quarantined. Social support represented a key protective factor in preventing the onset of psychological distress, particularly during difficult times [13,15,16].

On the other hand, providing the wellbeing of healthcare workers, for example ensuring adequate time to take a break and get enough sleep, organizing resting areas both at work and outside (e.g. in dedicated hotels), helped to reduce the impact of physical and emotional exhaustion and also proved to be more effective than psychological support [17].

Many health workers have been affected by the virus, underwent quarantine or hospitalization. From the experiences of previous outbreaks, it has been found that quarantined health workers tend to feel more anxious, frustrated and helpless than those who do not work in the health sector [18]. In the last MERS and SARS outbreaks, numerous cases of infection and deaths among health workers have been reported and the same happened during the actual epidemic [19]. From the data of previous epidemics, we know that many health workers experienced feelings of worry, for themselves and their families, and painful experiences of fear and anxiety [20]. Professionals who worked closely with COVID-positive patients sought or thought about seeking psychological support significantly more frequently than those who did not work with COVID patients [21]. Nonetheless, healthcare workers continued to work and care for infected patients, even with symptoms of burnout, anxiety and depression [22].

It is of fundamental importance to recognize burnout, particularly in the healthcare sector, as it affects not only the workers but also the patients. Numerous studies have attempted to outline the risk factors and specific prevalence of burnout in different professions and to explore possible individual and institutional interventions to prevent and treat the symptoms of this diseases [23]. In May 2019, the 11th edition of the International Classification of Diseases (ICD-11) defined Burnout as "a syndrome resulting from chronic workplace stress that has not been successfully managed. It is characterized by three dimensions: feelings of exhaustion or depletion of energy, increased mental distance from one's work or feelings of negativism or cynicism about one's work, and reduced professional effectiveness" [24]. In October 2019, the National Academy of Sciences published a groundbreaking comprehensive report outlining the cost and consequences of Burnout among physicians [25].

In a multicentric cross-sectional study, a questionnaire was distributed to physicians, nurses, health care workers, administrative or managerial staff, and support staff in several public hospitals in Singapore [26]. All different health care professionals were found to be susceptible to high levels of Burnout during the current pandemic. Some demographic factors were found to be significantly associated with a higher incidence of Burnout, such as ethnicity and educational level. High levels of anxiety or depression, working shifts of more than eight hours per day and being assigned to a new job were found to be the factors most strongly correlated with higher scores on the Burnout subscale. The analysis did not show significant differences between different healthcare professionals [26]. Modifiable workplace factors to reduce the risk of Burnout include adequate training, avoiding long shifts and promoting safe working environments. Addressing Burnout among healthcare staff should be a priority, to support patient care efforts in the face of a prolonged pandemic [26].

A first attempt to account the psychological and physical impact of COVID-19 epidemic on healthcare workers in Italy is provided by a study, conducted on 1,153 healthcare professionals, who were asked to answer an online questionnaire that included the Maslach Burnout Inventory (MBI) and specific items to assess psychosomatic symptoms and the subjectively perceived health status [27]. Italian healthcare workers reported high levels of work-related psychological pressure, emotional burnout and somatic symptoms. In particular, increased irritability, changes in eating habits, difficulty in falling asleep and muscle tension were experienced very frequently by the majority of the respondents. Healthcare workers directly

involved in the care of COVID-19 patients were found to be at higher risk of developing COVID-related psychological consequences, in line with the results of other studies [6,28]. The levels of emotional exhaustion appeared to be superior than the normal ones and the percentage of workers with Burnout was significantly higher than in other Italian samples before the COVID-19 epidemic. This result needs attention, as emotional stress can be associated with long - lasting effects, including the developing of post-traumatic stress disorder, negatively affecting the level of efficiency in patients care [27].

Therapists usually know how to help others but are less effective in taking care of themselves. However, caring for ours own mental health is crucial in order to be able to do the best to help the patients [29]. In particular, in the field of mental health, the work of professionals (psychiatrists, psychologists, physicians and social workers) is always stressful and can trigger Burnout, but it is even more true during this pandemic period [30]. Occupational stress is detrimental to the psychological and emotional well-being of clinicians, and is related to anxiety, depression and anger, which end up resulting in a reduction of the quality of care provided to patients [29].

Intervention strategies

COVID-19 forced health workers to face unexpected, life-threatening experiences that found them unprepared. Although healthcare professionals are used to deal with the experiences of loss and trauma [31], a lot of new variables characterizing the actual pandemic (high morbidity and mortality rates, lack of protective equipment, fear of infection, the absence of an effective treatment or vaccine available in the short term, together with the restrictions implemented in most countries), changed the normal scenario in which they were accustomed to work [2].

Implementing rapid and effective intervention strategies to improve the mental and physical wellbeing of healthcare workers, is important not only for the present time. In fact, the experience with previous epidemics shows that distress can persist beyond the peak period of the pandemic. During the 2003 SARS outbreak, a study compared levels of perceived stress in health workers with high-risk versus low-risk exposure and found equal (high) levels in both groups [32]. At a one year follow-up and at the end of the epidemic, stress perception decreased in the low-risk group, but increased in the high-risk group, and high-risk workers had significantly higher depression scores [32]. Again from the SARS experience, in a two-years follow-up after the outbreak, it was found that health workers in hospitals that had treated patients with SARS had significantly higher levels of distress and PTSD when compared with health workers in hospitals in the same are, that had not treated patients with SARS [33]. We can therefore probably expect to see a decrease in stress perception in the low risk group, but an increase in the high risk group. We can therefore probably expect that the COVID-19-related psychological distress that has emerged in recent months in healthcare workers will continue to have an impact on their mental health in the years to come. It is also important to underline that there is an association between clinical-environmental stressors in the workplace and long-term cardiometabolic risk [34-36], and in turn, stress can affect health in direct (systemic inflammation, arterial damage, increased blood pressure) and indirect (maladaptive coping strategies such as substance use and poor sleep) ways. Furthermore, prolonged psychological distress and sleep deprivation may alter the physiological balance of the body's stress response system, thus contributing to an additional health risk [37].

From previous experience, we have learned that quarantined healthcare workers tend to feel more anxious, frustrated, powerless and isolated than non-healthcare workers [18]. Human contact and attachment are key factors to well-being, which is why punishments such as isolation in detention centers are considered a form of torture. Anxiety and stress may become more prevalent in individuals experiencing self-isolation or compulsory lockdown. For health professionals such as physicians and psychologists, who support physical health, mental health and well-being, the challenge may become greater during the pandemic phase as they are expected to navigate the crisis while continuing to provide their services in managing patients' physical and psychological health problems, either in person or with the help of virtual platforms [38].

A first level of care for health workers is therefore social support and logistical assistance, which has been shown to be effective in reducing levels of stress, anxiety and depression [39]. Participatory reorganization of the team, adequate debriefing time and the provision of personal protective equipment lead to a decrease in occupational stress. However, practical interventions are also needed to reduce health workers concerns for their loved ones by structuring, for example, childcare services, disinfection protocols, priority access to diagnostic tests for infection and personal protective equipment. It is also important to maintain breaks during work [40,41] and daily dietary and hygiene rules should be encouraged: sleep, physical activity, reducing exposure to screens and mass media, limiting consumption of alcohol, medication or drugs.

During the past SARS outbreak in 2003, meeting sessions with psychologists/psychiatrists proved particularly useful in providing support to health workers, even when psychological support was provided remotely (e.g. by telephone or Skype) when the priority objective was to have as few people as possible on site, thus exposed to infection [42].

Starting from these encouraging data, which have been transferred to the current reality of the COVID-19 pandemic, screening and psychological assistance services have been activated, practically ubiquitously at international level, specifically aimed at health workers

through the creation of dedicated 24/7 telephone lines or virtual platforms [41,43-45].

A different, innovative and structured strategy to support health workers in this rather homogeneous scenario regarding intervention strategies in this difficult historical period has been implemented by the Mount Sinai Hospital System in New York, which has over 40,000 employees across eight member hospitals. The Mount Sinai Center for Stress, Resilience, and Personal Growth (CSRPG), an innovative mental health and resilience-building service whose cornerstones are strong community involvement, screening for symptoms of mental distress, including through a dedicated app created ad hoc, resilience training seminars and, when necessary, specialized care services, was set up for its workers within a few weeks of the start of the pandemic [46].

Based on their previous experiences with disasters, including 11 September 2001 [4,7], it became clear that a long-term program focusing on mental health and especially resilience was not only useful, but necessary. Resilience has been defined in many ways, including the ability to successfully adapt to adversity, and although it has sometimes been seen as a character trait, there is evidence that it can be acquired through learning processes [48].

To this end, CSRPG developed a series of workshops on resilience, comprising an introductory session followed by a discussion and teaching sessions each focusing on one of the 10 resilience factors: Optimism and positive emotions, Coping with fears, Personal morality, Faith and spirituality, Social support, Resilience models to follow, Physical well-being, Cognitive fitness, Cognitive and emotional flexibility, Meaning and purpose [49].

These workshops, organized in several meetings per week, are held to coincide with common work shifts and break times so that it is easier for each operator to be present.

A relevant aspect concerns the long-term sustainability of this program, which will require ongoing federal support, particularly given the economic impact of the pandemic on health systems [50].

It is hoped that through these systematic efforts we will be able to maintain the mental and physical well-being of health workers and, consequently, a high level of care for patients. It will be time, in the years to come, to reveal the effectiveness of this intervention strategy.

A further intervention that stands out for its originality, in some ways also focusing on preventive strategies to promote resilience, at an organizational and personal level, is the result of a multidisciplinary collaboration between the Department of Anesthesiology, Psychiatry and Behavioral Sciences at the University of Minnesota Medical Center. The assumption is that the pandemic has catapulted health workers into a battlefield-like scenario, with health workers facing continued uncertainty about resources, capabilities and risks, exposure to suffering, death and threats to their own safety. A model of peer support, the Battle Buddies, has therefore been borrowed from the US Army. The US Army assigns a 'Battle Buddy' to each soldier, starting with basic training and throughout their military career, thus ensuring that no one is left behind, especially in combat. Each Battle Buddy is supposed to assist their partner in and out of combat. Through their daily contact, they can address and validate each other's professional and personal stressors that could potentially distract them from maintaining focus on their mission. Battle Buddies have reduced suicide rates in the military because, since each person observes their partner's actions over time, a Battle Buddy may be the first to notice a worsening of negative thoughts and feelings and be the first to push for help [51]. The method of 'stress inoculation', which was developed to manage exposure to psychological stress in disaster workers, has also been incorporated [52].

Overall, therefore, this approach is organized into three levels of support:

1. peer support: Battle Buddies (in a 1:1 ratio derived from US Army practice); peers are matched on the basis of demographics, job role, professional experience. The relationship is centered on listening to each other, validating experiences and providing feedback to each other;
2. support of the unit/department by a mental health specialist as a counsellor: during the sessions, the specialist assists the Battle Buddies in identifying their likely risk factors of stress/exposure and planning how they will manage these factors, through their personal resilience plan. Small group sessions are also offered according to the Anticipate-Plan-Deter model [53] on the importance of stress inoculation: cognitively and emotionally preparing healthcare staff for the specific stressors they will face. Briefly, in the Anticipation phase, healthcare staff identify the exact nature of the trauma and the cumulative stressors they will be exposed to, including their expected specific stress responses, such as sleep disturbance, fear and anxiety, grief, anger, etc. In the Planning phase, a personal resilience plan is developed, in which the specific stressors that individual caregivers perceive to be most difficult for them are identified, and a set of personalized coping strategies, responses and adaptive resources are prepared to address them. In the Dissuasion phase, they engage in effective implementation of the action plan and seek further help if needed. The comprehensive APD model was adopted in 2 rescue teams during the 2014-2015 Ebola outbreak in Africa and was found to be effective in protecting high-risk health workers from the negative psychological consequences of exposure to traumatic and cumulative stressors [53]. During the 2003 SARS outbreak in Canada, moreover, this stress adaptation model proved useful in naming and thus normalizing expected stress reactions (e.g., anxiety, worry) and in supporting staff to adapt rather than seeing these reactions as pathological [54];

3. individual support from the mental health specialist assigned to the unit/department, in the form of a confidential conversation, not a clinical meeting, and therefore without opening the medical file for health workers who are experiencing a high degree of stress and who require rapid and specialized access to additional resources. They are referred for further assessment and treatment to immediate mental health support with formal assessment and treatment if necessary [52].

Conclusions

Given the abundant evidence available in literature on the long-term effects of psychological stress on healthcare workers involved in pandemic emergencies, it becomes imperative to decisively and systematically address these risks and actively promote resilience in healthcare workers. The hope is that, by collecting data on the subject, the long-term benefits of prevention programs such as those outlined above, can be discovered in order to better cope with future emergency situations. Human beings are, by their nature, remarkably adaptable to change, and it is our belief that the majority of us will emerge stronger, wiser, with many new relationships and skills, and with a renewed sense of strength in our community. The positive side of all this, might be found in the "post-traumatic growth", a phenomenon reported in literature that takes the form of positive responses to significant adversity. Taking one last example from the 2003 SARS outbreak, health workers who worked during that outbreak subsequently reported improved relationships with family members and co-workers, had a renewed sense of priorities (including a new respect for their profession), and perceived a significant increase in altruism [55].

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