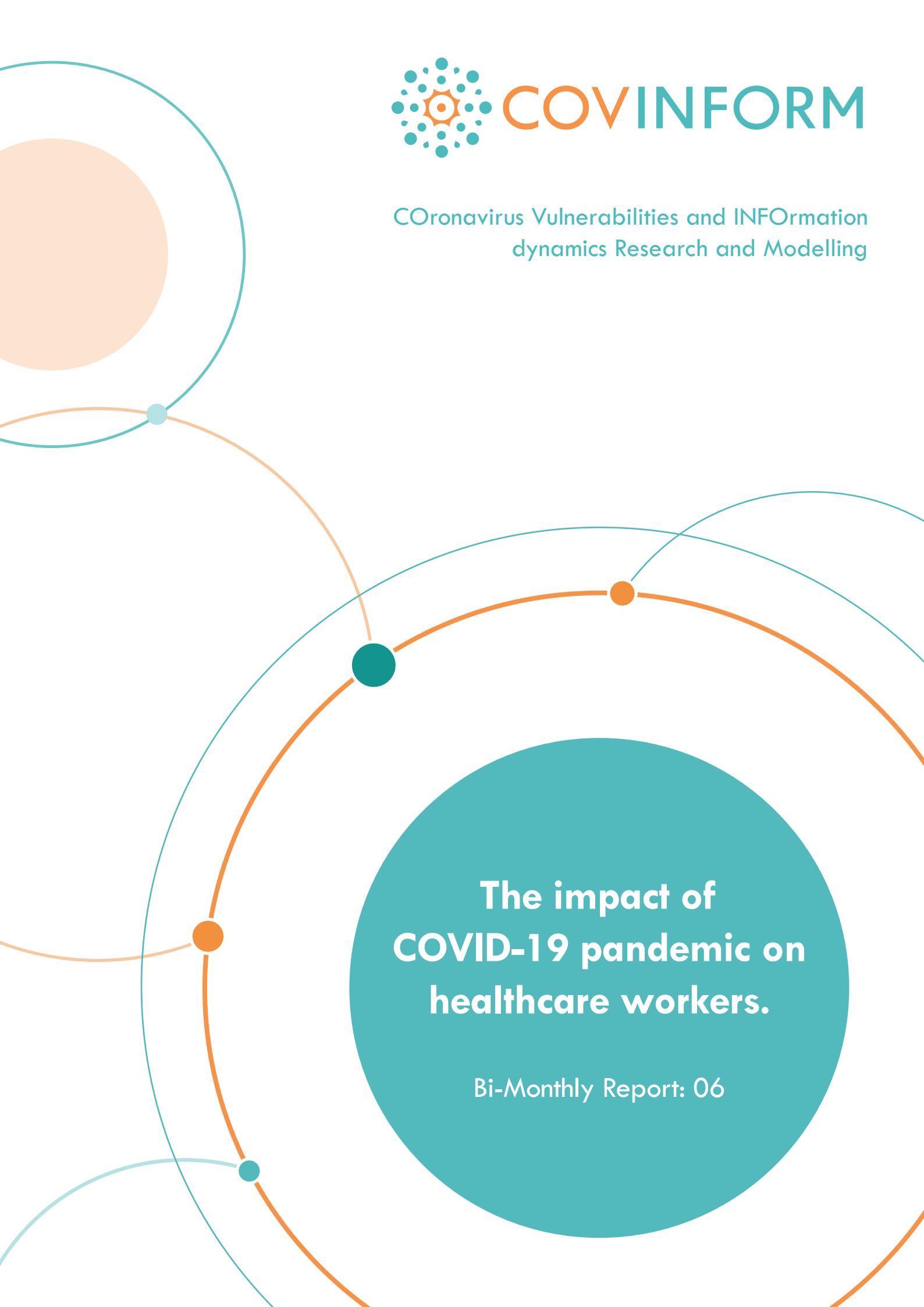




COronavirus Vulnerabilities and INFOrmation
dynamics Research and Modelling

A large, light teal circle is positioned in the lower-right quadrant of the frame. It is intersected by several curved lines in orange and teal, which connect five smaller, solid-colored circular nodes: one teal node at the top-left, one orange node at the top-right, one teal node at the bottom-left, one orange node at the bottom-right, and one teal node at the center. The background outside the main circle is white.

The impact of COVID-19 pandemic on healthcare workers.

Bi-Monthly Report: 06

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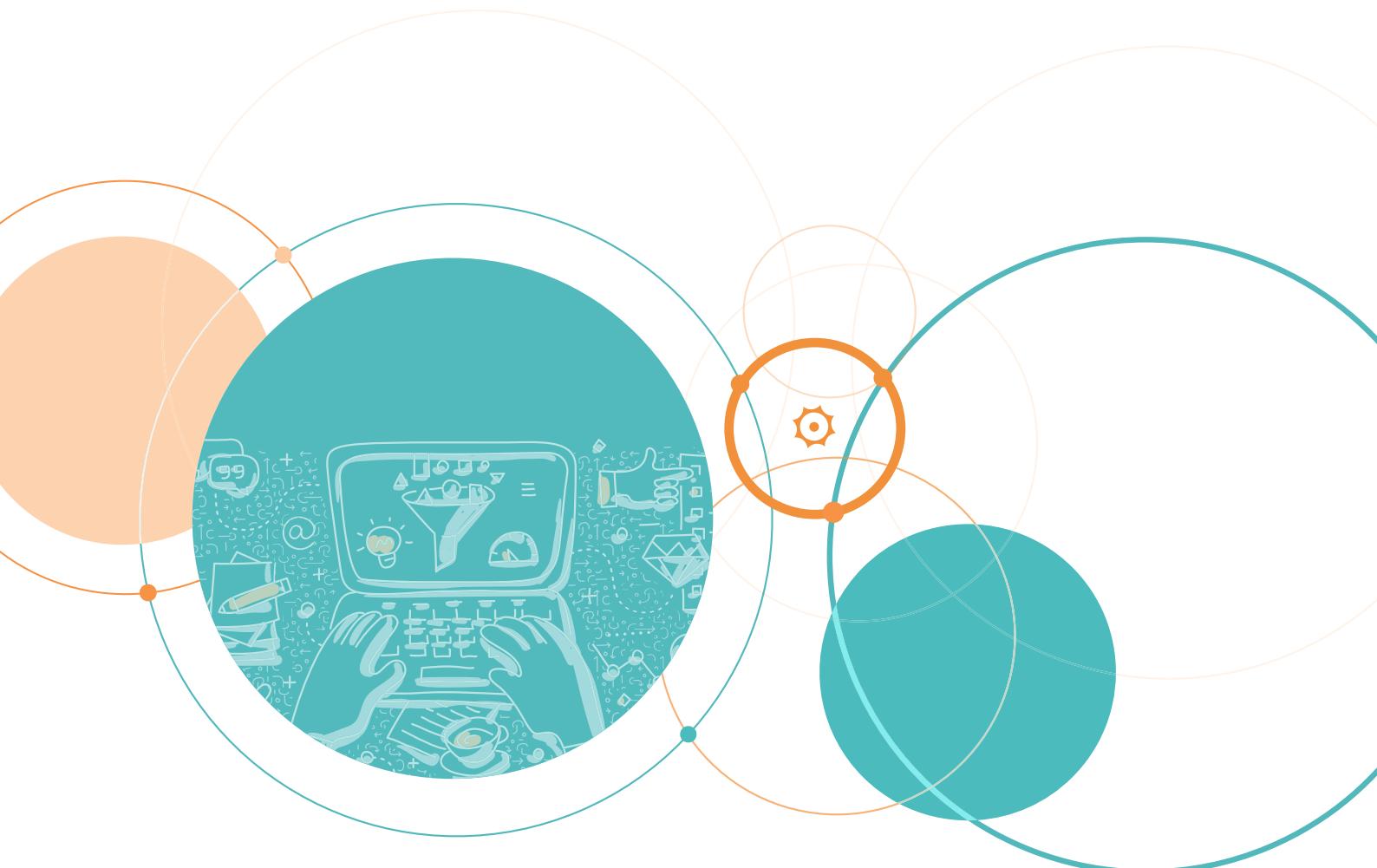
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INTRODUCTION

In Italy, 144,812 cases of COVID-19 have been recorded in **healthcare workers (HCWs)**, out of which 1,444 were reported in October 2022. The World Health Organization (WHO) suggested that worldwide 115,000 HCWs died from COVID-19 between January 2020 and May 2021. The unpreparedness of health systems worldwide has left HCWs exposed to a higher risk of contagion than the general population, enclosing them into a high vulnerability group. Aim of this bi-monthly report is to summarize the impact of COVID-19 on HCWs.

ARE HCWS AT INCREASED RISK?



Any human activity involves potential risks, especially during a worldwide pandemic; however, some activities are simultaneously highly exposed and essential for the common good. HCWs are seven times more likely to catch severe COVID-19 infections than others in "non-essential" jobs (Mutambudzi et al., 2020). HCWs' job is to safeguard and improve the health of their communities (WHO, 2006), and they were called to make important sacrifices in the fight against COVID-19. HCWs had to face isolation from their families and society while struggling to save lives. The increased responsibilities and workload have imposed a significant mental and physical burden on HCWs. The unpreparedness of health systems worldwide has left HCWs exposed to a higher risk of contagion than the general population, enclosing them into a high vulnerability group (Smith, 2020). The current literature (Mhago et al., 2020) highlighted two types of risk conditions for HCWs: lack of personal protective equipment (PPE) and work overload. The

shortage of PPE affected almost all health systems worldwide during the first wave of the pandemic, but it is still an important issue in developing countries. Without PPE, drugs, and vaccines, HCWs have been exposed to higher infection rates than the general population due to close contact with infected patients (Nguyen et al., 2020). On the other hand, factors such as work overload and the absence of universally recognized protocols or guidelines caused by the pandemic's unpredictable nature have heavily impacted HCWs' psychological health (Mhago et al., 2020). A recent umbrella review (Fan et al., 2021) highlighted that prevention of HCWs' health risks should be a priority for both policymakers and public health authorities, who should develop risk mitigation strategies that can be translated into concrete interventions.

WHAT IS THE PSYCHOSOCIAL IMPACT OF COVID-19 ON HCWS?



Lots of studies have been conducted to analyse the impact of COVID-19 on people's psychological health and daily life. A recent meta-analysis (De Souza et al., 2021) has found that the COVID-19 pandemic has increased the prevalence of mental health problems from 20 to 36%; however, HCWs presented a higher prevalence of anxiety, depression, and post-traumatic stress disorder (PTSD) than the general population. HCWs showed a higher prevalence of intensified sleep disorders, stress levels and burnout syndrome, defined as psychophysiological stress conditions (De Souza et al., 2021). In the literature, the increased rates of anxiety and depression among HCWs have been the object of research (Fernandez et al., 2021; Abraham et al., 2021; Lenzo et al., 2021). These estimates are considered to be even higher since the data can be conditioned by the cultural taboo of 'not complaining' or the fear of being labelled as unstable. Inevitably, high rates of anxiety and

depression among HCWs were found in settings with higher rates of COVID-19 infection and mortality (Fernandez et al., 2021). Fernandez et al. (2021) suggested that these increases can be explained by the higher workload related to the pandemic peaks. The impact on HCWs' daily lives and sleep quality has significantly increased (De Souza et al., 2021). Insomnia disorders were common in many HCWs during the peaks of the pandemic (Mccall et al., 2021) and can impact their provision of care. To mitigate this impact, institutions and stakeholders should regularly screen HCWs for levels of insomnia and psychological disorders (Sahebi et al., 2021). The adoption of appropriate supportive measures and timely interventions can reduce the incidence of more severe psychological disorders that can impact long-term HCWs work efficiency (Sahebi et al., 2021). Figure 1 summarize the most common outcomes used to measure the impact of COVID-19 on HCWs.

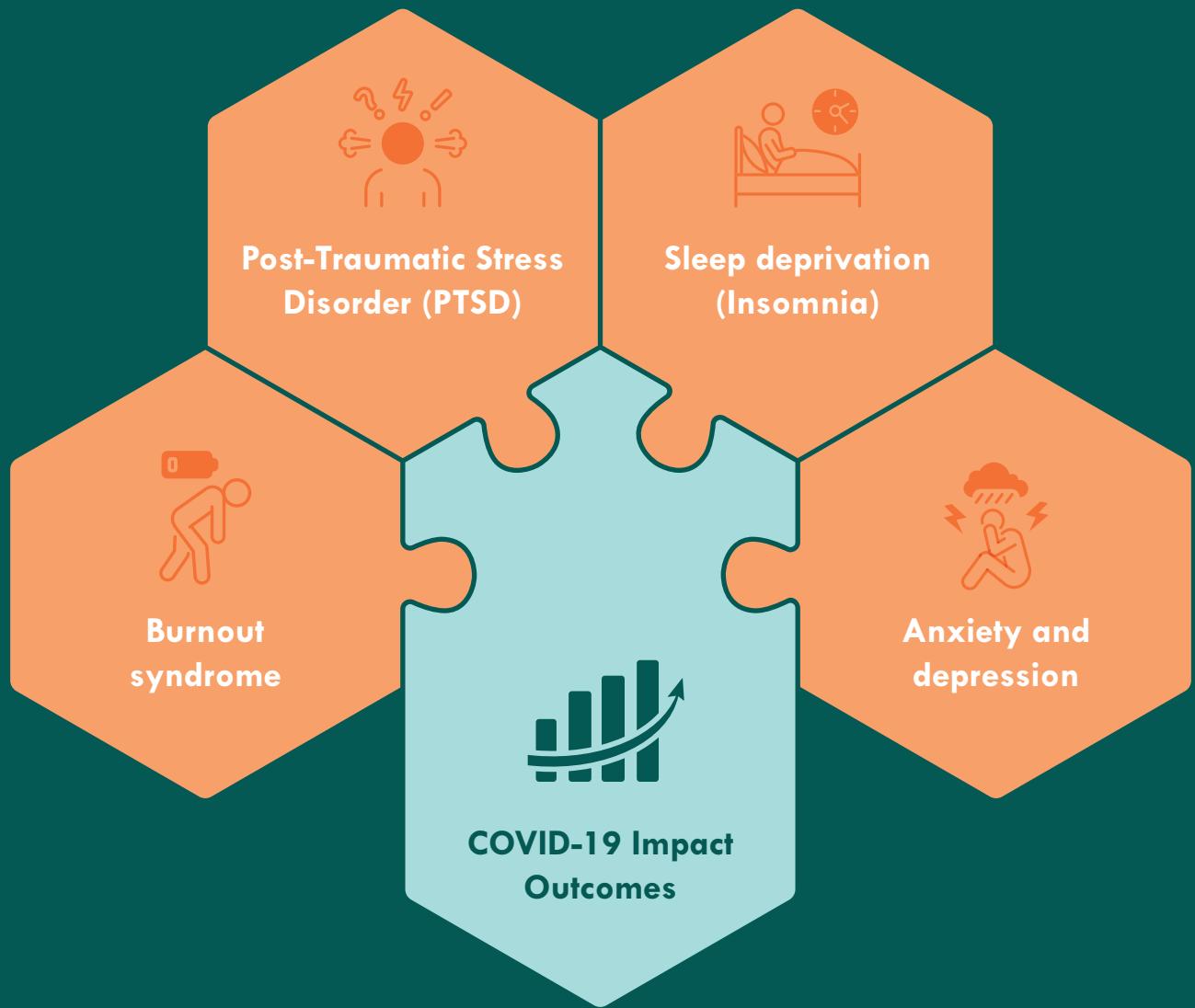


Figure 1 - Most common COVID-19 impact outcomes on HCWs

WHAT CAN WE LEARN FROM HCWS' EXPERIENCES?



The issues linked to the pandemic risks for HCWs' mental and physical health have received enormous attention since the early waves. There have been numerous attempts of intervention to support HCWs' mental health and mitigate the long-term pandemic effects, but there is still a lack of consensus on which measures are the most helpful in this regard. HCWs' opinions and experiences on what type of support is the most effective for them are to consider in order to create support interventions that are appropriate, timely and in line with their needs (Billings et al., 2021). A recent meta-synthesis (Billings et al., 2021) on the experiences of frontline HCWs during the COVID-19 pandemic highlighted that one of the most critical aspects was access to help, which was often limited by HCWs' isolation and fear that their condition may not be fully understood by their colleagues of the psychological support service. This issue undermined HCWs' use of social support desks (Billings et al., 2021) and may have negative long-term consequences.

On the contrary, peer-support groups seem to have been highly appreciated by the HCWs (Billings et al., 2021). HCWs desired to share their burdens with someone they thought could understand them, having lived the same experience. Another systematic qualitative review (Koontalay et al., 2021) showed that HCWs felt inadequately prepared to face the pandemic. The onset of new emotional challenges and the lack of PPE and information were triggers that emotionally upset the HCWs, leading to burnout syndrome (Koontalay et al., 2021). Involving qualitative research in our analysis allows us to obtain a deeper understanding of the phenomenon, and policies and stakeholders should account for HCWs' narrations in their decision-making processes.

WHAT PROGRAMS HAVE BEEN DESIGNED TO MITIGATE COVID-19 EFFECTS ON HCWS?



Supporting the mental health of health care workers is one of the major challenges for the public health response during the COVID-19 pandemic. A recent systematic review (Buselli et al., 2021) showed that many supportive care programs were developed in various hospitals through a multidisciplinary approach. Supportive care involves the provision of emotional support through counselling or motivational interventions. Many of the supportive care interventions involved strategies such as team training, peers and institutional support. Buselli et al. (2021) stated that the common goal of all the supportive care programs was to manage the psychosocial impact of COVID-19 on HCWs and prevent long-term mental health problems. Many of these interventions are still ongoing; however, critical issues were related to the heterogeneity of protocols, the absence of rigorous procedures, and primary objective outcomes (Buselli et al., 2021). Even if the impact of COVID-19 on HCWs' mental health is well-known, it seems we still lack policies and a homogeneous

approach to deal with mental health problems. Drissi et al. (2021) systematic review showed that the majority of the mental health programs delivered by institutions to support HCWs were delivered digitally. Technology offers several solutions in managing psychological problems, and in the past years, we have faced an increase in the delivery of e-health interventions. Even though very heterogeneous in their core elements, the e-health interventions seemed to be effective in reducing stress and burnout among HCWs (Drissi et al., 2021). Drissi et al. (2021) suggested that the e-health interventions are well suited to meet the COVID-19 pandemic restriction measures and HCWs' support needs. Further research should be conducted to test the cost-benefit of digital psychological interventions compared to standard supportive care programs to inform policies. The main features of the programs designed to mitigate COVID-19 effects on HCWs are summarized in Figure 2.



Figure 2 - Programs to mitigate COVID-19 impact on HCWs

A NEW CHALLENGE: HCWS AND VACCINE HESITANCY.



Given their vulnerability, HCWs were among the first to receive COVID-19 vaccines; however, a recent meta-analysis on vaccine hesitancy (Luo et al., 2021) suggested that only 51% of them were in favour of receiving the vaccine. This alarming data is confirmed by a substantial number of HCWs who remain hesitant after one year into the pandemic (Toth-Manikowski et al., 2021). While in December 2020 the hesitancy was likely due to the HCWs' worries about the efficacy and safety of the vaccines (Luo et al., 2021), nowadays, the reasons underneath HCWs' hesitancy are not clear. HCWs are a heterogeneous group, but they all have advanced knowledge and health literacy compared to the general population. Although there may be a general understanding that vaccines are safe and effective, not all HCWs have the same level of understanding about how vaccines work. The rates of vaccines hesitancy among HCWs vary by country, vaccine, and type of health professional. For example, a cross-sectional survey sent to French HCWs (Gagneux-Brunon et al., 2021) displayed

that, on average, pharmacists and physicians are less hesitant than nurses. Biswas et al. (2021) implied that the prevalence of vaccine hesitancy worldwide among HCWs ranged from 4.3 to 72%, with a weighted average of 22.51%. Factors such as older age, being male and holding a doctoral degree were associated with a reduction in vaccine hesitancy among HCWs (Biswas et al., 2021). Italy has been the first country to introduce mandatory vaccination for HCWs, which has contributed to a lower infection rate in the past months. Nowadays, no comprehensive statistical analysis exists on the vaccine hesitancy among HCWs. HCWs play a key role in pandemic management and represent a model of behaviours for the general population, and the issue of HCWs' vaccine hesitancy should be taken seriously. Communication and training strategies should be implemented to increase vaccination uptake (Biswas et al., 2021). Other strategies to increase vaccine confidence may rely on participatory approaches, such as motivational interventions, but further studies are needed.

HOW CAN WE MEASURE COVID-19 IMPACT ON HCWS?



Monitoring and measuring the impact of COVID-19 on HCWs has been a challenge since the beginning of the pandemic. COVID-19 has impacted psychological and social dimensions, which are subjective and difficult to measure. Many scales have been designed and validated to measure the psychological impact of COVID-19 on HCWs. Chung et al. (2020) developed the Stress and Anxiety to Viral Epidemics-9 (SAVE-9) scale for assessing work-related stress and anxiety in HCWs in response to COVID-19. The SAVE-9 has shown good internal consistency and construct validity (Chung et al., 2020; Tavormina et al., 2020). The Tokyo Metropolitan Distress Scale for Pandemic (Shiwaku et al., 2021) was developed to measure the psychological impact of COVID-19

on HCWS, and it has adequate construct validity and convergent validity. Alternatively, reliable scales such as the Posttraumatic Stress Disorder Checklist for DSM-5 (Cheng et al., 2020), the Impact of Event Scale Revised (Marcomini et al., 2021) and the Depression Anxiety Stress Scales-21 (Lenzo et al., 2021) were used. A scoping review of the existing scale measuring the impact of COVID-19 (Chandu et al., 2020) highlights that the majority of the scales focus on psychiatric symptoms rather than psychosocial. Moreover, many scales were not designed ad hoc for HCWs and do not assess a comprehensive measure to document all the mental health problems posed by the COVID-19 pandemic (Chandu et al., 2020).

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