

The health outcomes of pandemics for health care workers: Implications for the COVID-19 pandemic

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Abstract

A rapid evidence assessment of previous pandemic research highlights some short- and long-term commonalities when considering the health outcomes of pandemics for health care workers (HCWs). This includes the key role that organisations and government health bodies play in promoting adaptive coping and reducing health worries and the emotional and psychological stress caused by this. Evidence also highlights particular groups that are at higher risk of developing mental health issues, both in the short and long term (e.g. nurses, those with children at home, women in the short-term but men in the long-term), and even certain time points in the short-term where risk may increase (e.g. initial response phase and when quarantined).

Context

The early stages of responding to the COVID-19 pandemic and understanding this new virus are fraught with uncertainties and challenges. As previous pandemics demonstrate, managing this type of incident will pose substantial risks to HCWs' physical^{3,9,10,14} and mental health^{1,13,15}, and may result in HCWs questioning career choices or being unable to treat patients that are infected^{5,11}. This report details the findings of a rapid evidence assessment conducted to understand the short- and long-term health impacts of pandemics on HCWs in order to provide recommendations regarding the form of interventions required, the target populations most in need, and at what points in time. Whilst HCWs have not faced COVID-19 before, synthesising knowledge from past pandemics that share similar features with COVID-19, including the 2009 H1N1 influenza and 2003 SARS outbreaks, can help to anticipate potential health impacts.

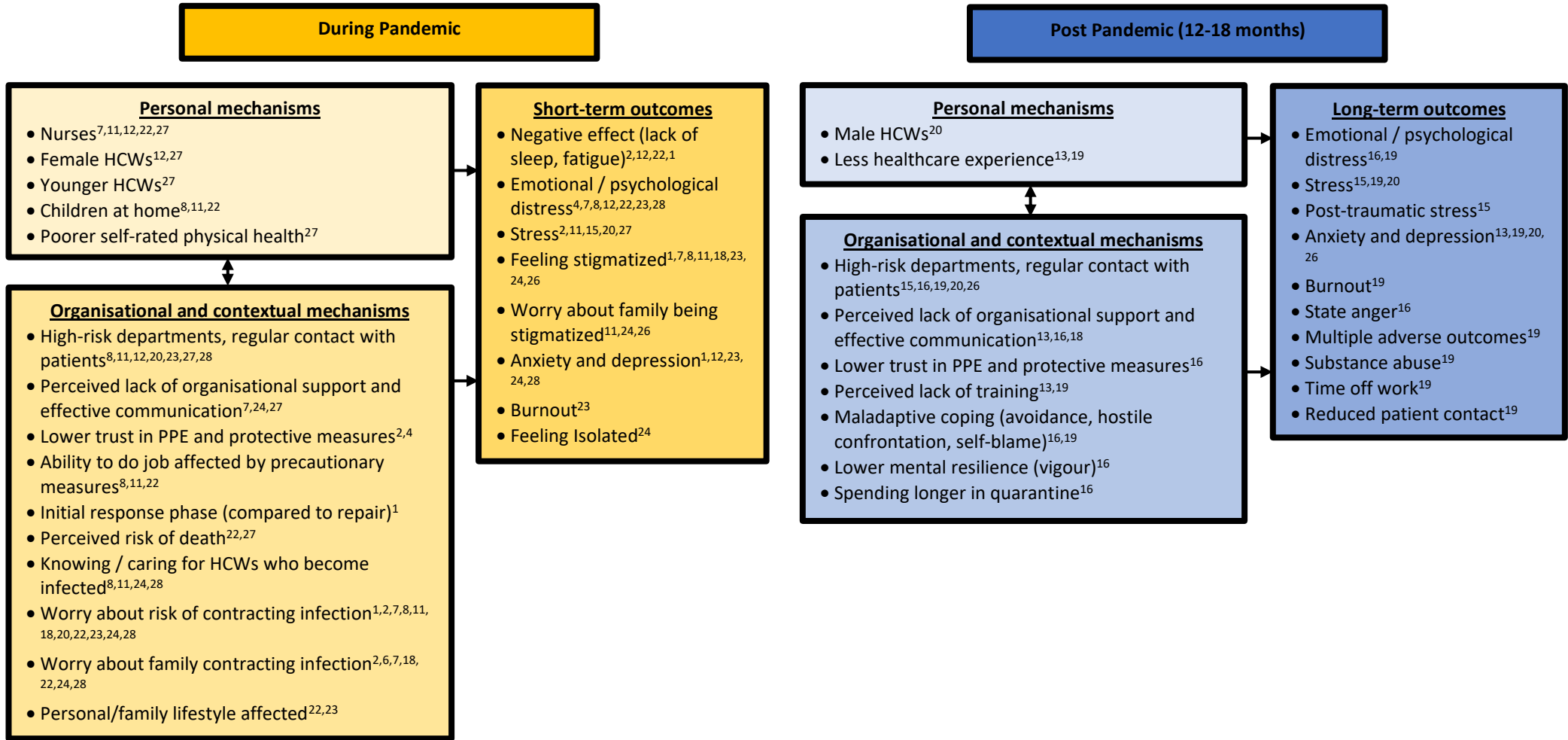
Annually, seasonal influenza is estimated to result in 3 to 5 million cases of severe illness, 250,000 to 650,000 deaths, and a global mortality rate of approximately 0.1%²⁹. Whilst the 2009 H1N1 influenza pandemic was more infectious, resulting in 60.8 million cases in the US alone, the number of fatalities was much lower at 18,500 (estimated global mortality rate of 0.001-0.007%). In contrast, the 2003 SARS pandemic was more deadly with a global mortality rate of 11%, but less infectious with 8,098 people worldwide becoming ill. However, a large proportion of those that contracted SARS were HCWs, and the majority of infections worldwide were hospital acquired¹.

In comparison, just five months after the initial outbreak of COVID-19 in Wuhan, 1,444,822 cases and 83,109 associated deaths have already been confirmed globally (8th April 2020; John Hopkins CSSE). The vast majority of fatalities are people over the age of 70 or with underlying health conditions, but HCWs are amongst these numbers. The World Health Organization has estimated the global death rate to be 3.4%³⁰ but the true figure is unknown given that symptoms are mild to moderate in 80% of cases and many countries are currently only testing people with severe symptoms that have been hospitalised. What early figures do indicate though is that COVID-19 is more deadly than seasonal influenza and H1N1, and more infectious than SARS. Many people who contract COVID-19 may be asymptomatic or symptoms may take several days to appear, which means that they could be infecting others without knowing it. This combination of features poses substantial challenges for managing the COVID-19 pandemic, and places healthcare systems and HCWs under extreme burden.

Rapid Evidence Assessment

The figures on pages two and three present the findings of a rapid evidence assessment conducted to identify the health outcomes of pandemics on HCWs. In total, the literature search resulted in 28 papers of relevance to addressing the aim of this rapid evidence assessment; the table below highlights the parameters used to conduct the literature search.

Population	Health care workers responding to pandemics or protracted incidents
Timeframe	From 2000 onwards
Database	Discover
Search Terms	Health outcomes (synonyms - medical, physical, mental, emotional, health, social, costs, outcomes, consequences, short term, long term); Health care workers (synonyms - doctors, physicians nurses, paramedics, emergency responders); Pandemics (synonyms - epidemics)
Inclusion Criteria	Papers (peer reviewed) focused on HCWs in high and upper middle-income countries; Paper written in English; Papers that include empirical data on health outcomes (e.g. observational/prevalence)
Exclusion Criteria	Focus on health care workers in lower and lower-middle income countries; Not available in English; No empirical data on health outcomes



**Short-term
Summary & Implications**

- During the response to pandemics, HCWs who are working in high-risk departments and regularly treating patients that are infected are at greatest risk of experiencing a range of mental health issues.
- Nurses and female HCWs are at increased risk of developing mental health issues, which may relate to nurses being in more regular direct contact with patients and a larger proportion of nurses being female.
- Younger HCWs are also at greater risk of experiencing stress and negative effects such as issues with sleep and fatigue, which may relate to having less healthcare experience.
- HCWs with children are more worried about contracting the infection and becoming seriously ill or dying and transmitting the illness to their family. This worry increases psychological and emotional distress.
- Perceived lack of organisational support and effective communication about risks and how to safeguard families further exacerbates health worries, distress, fatigue and lack of sleep.
- Issues with access to appropriate PPE and feeling that protective measures are inadequate also increases stress, fatigue and lack of sleep.
- Organisations and Government bodies have a crucial role to play in mitigating the psychological impact of pandemics on HCWs by ensuring appropriate PPE, protective and support measures are in place, and risk information is communicated effectively, in order to minimise health concerns and the psychological and emotional distress associated with this.
- Support also needs to be provided to HCWs' families as pandemics have the potential to significantly impact their lifestyle and place them at increased risk.

**Long-term
Summary & Implications**

- Pandemics pose substantial long-term impact on HCWs' mental health and ability to work. Accordingly, support will need to be in place for a prolonged period post-pandemic, and work planning will need to account for long-term reductions in staffing and reduced ability of staff to maintain patient contact.
- Both individually and in combination, maladaptive coping, perceived lack of training and organisational support (effective communication of risk information, measures for addressing this both in the workplace and at home, and providing workplace support), and issues with access to PPE and protective measures have significant long-term impact on HCWs' mental health. Indeed, both providing appropriate organisational support and training can serve as protective factors that improve adaptive coping. Accordingly, during and post-pandemic, it is vital to ensure the effectiveness of organisational support and training, access to appropriate PPE and that suitable protective measures are in place to minimise staff worries about becoming infected and transmitting infection to family and friends as this exacerbates emotional and psychological strain.
- Male HCWs and those working in high-risk units specialising in treating severe cases of an infection are at particular risk of long-term mental health issues. It is important for interventions to target these populations and identify strategies to encourage them to access support.
- Mental resilience serves as a protective factor that minimises the negative psychological impact of responding to pandemics on HCWs. Focus should therefore also be directed to promoting mental resilience and adaptive coping in HCWs.

Conclusion

Overall, findings highlight that targeted interventions are needed to support HCWs to cope with fear of infectivity and the risks posed to their families. In particular, coherent, consistent and easily accessible information is needed from public health bodies, infection control experts, and healthcare management, and hospitals and government bodies must ensure that infection-control policy and procedure are clearly and vigorously enforced, including ensuring appropriate access to PPE. Providing advice for HCWs on how to talk with children about these risks would also be beneficial. In addition, findings indicate that the negative effects of contact with patients may be reduced by improving perceived organizational support (including providing prompt, accurate and transparent information, updates and guidelines, and facilitating reflection on normal emotional responses to unusual stress, and providing opportunities for staff to be involved in workplace decision making), promoting mental resilience, and directing particular attention to HCWs that are quarantined. Interventions that focus on reducing maladaptive coping are important for decreasing prolonged mental health issues, and effective organizational support and communication can promote more adaptive coping, as too can ensuring appropriate protective measures and access to PPE and training. It is important to note that during pandemics, including the current outbreak of COVID-19, despite hotlines and counseling services being set up, the uptake was low and frontline HCWs seldom considered professional counseling¹². Focus is therefore needed to identify ways of encouraging the use of support mechanisms and ensuring that interventions are targeted toward higher risk groups at the points in time when they are most likely to need them.

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