About Us: The Ontario COVID-19 Science Advisory Table is a group of scientific experts and health system leaders who evaluate and report on emerging evidence relevant to the COVID-19 pandemic, to inform Ontario's response. Our mandate is to provide weekly summaries of relevant scientific evidence for the COVID-19 Health Coordination Table of the Province of Ontario, integrating information from existing scientific tables, Ontario's universities and agencies, and the best global evidence. The Science Table summarizes its findings for the Health Coordination Table and the public in Science Briefs.

The Mental Health Working Group comprises scientific experts and public health leaders with specific expertise in mental health. Their expertise spans mental health of children and youth, adults and geriatric populations, mental health of health care providers, women's health, mental health among LGBTQ persons, mental health among Black, Indigenous, and other racialized populations, and COVID-19. The Working Group evaluates emerging scientific evidence related to maintaining mental health during COVID-19, the mental health burden of disease and public health interventions on individuals across the lifespan, including children and adolescents, and the older adult population, as well as the need for assessment and recommendations

Burnout in Hospital-Based Healthcare Workers during COVID-19

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Key Message

Burnout is an occupational hazard in healthcare, which harms the healthcare system, patients, and healthcare workers. In the COVID-19 pandemic, burnout has increased to levels that pose a threat to maintaining a functioning healthcare workforce. Elevated burnout and other indicators of stress are anticipated to persist long after the pandemic.

The COVID-19 pandemic has created a cycle of understaffing alongside difficult work conditions which can drive burnout. Robust interventions to bolster individuals, improve work environments and address health system drivers of burnout are important to maintain and support hospital-based healthcare workers. Interventions need to target those most at risk and affected by burnout: nurses, intensive care unit and emergency department staff, women, recent graduates and trainees.

Interventions to reduce burnout need to be implemented at organizational and structural level of healthcare systems, complemented by intervention at the individual level. Further, leadership is a vital enabler to address burnout from organizational leaders and managers as well as policymakers.

Organizations need to ensure adequate staffing through ongoing evaluation of workload including mitigation of data entry and administrative burdens, efforts to reduce overtime and avoid long shifts, and staff deployment in areas where they lack training.

Approaches to mitigate, reduce and address burnout should be multi-faceted and include interventions to improve workplace conditions by fostering a supportive culture, relationships and leadership, as well as individual-level interventions (e.g., education, stress reduction tools, access support for moral distress).

Summary

Background

Burnout is characterized by emotional exhaustion, depersonalization, and diminished professional achievement. Prior to the COVID-19 pandemic, severe burnout was typically found in 20%-40% of healthcare workers. Contributors include workplace factors (e.g., workload, interpersonal conflict, moral distress, administrative burdens and documentation) and provider factors (e.g., low self-efficacy, emotional exhaustion, reduced sense of personal accomplishment,). Burnout is harmful for the healthcare system, workers, and patients. Risk factors have been exacerbated during the pandemic, resulting in an urgent need for intervention.

This brief focuses on healthcare workers in hospitals. Similar challenges exist in other

healthcare settings (e.g., long-term care, primary health care, public health), which are not reviewed here.

Questions

What is burnout and what are the risk factors for burnout?

How has the prevalence of burnout changed during the COVID-19 pandemic for hospital-based healthcare workers?

Which hospital-based healthcare workers are at particular risk?

What interventions for burnout are supported by evidence?

What modifiable mediators of burnout are appropriate targets for intervention?

Findings

In spring 2020, the prevalence of severe burnout was 30%-40%. By spring 2021, rates >60% were found in Canadian physicians, nurses, and other healthcare professionals.

Healthcare professionals in intensive care settings, COVID-19 units or hospitals, and emergency departments have had elevated risk of burnout compared to other hospital healthcare workers. Nurses and younger healthcare professionals or trainees have been at greater risk of burnout.

Organizational interventions have larger effects on reducing burnout than individual ones. Individual-level interventions include education and stress reduction techniques and should be complementary to organization-level interventions. Interventions that reduce burnout by even a small amount reduce adverse consequences.

Groups that have been most affected should be prioritized: nurses, those in intensive care and emergency departments, recent graduates and trainees.

Targets for intervention include (i) maintaining adequate staffing, (ii) leadership, (iii) work conditions, (iv) confidence in performing relevant tasks, (v) support networks, and (vi) moral distress (about constraints on doing the right thing).

System- and organization-level interventions to reduce burnout include visible and authentic senior leadership and managerial support, training to increase worker confidence with unfamiliar tasks, addressing workplace characteristics (e.g., overtime and scheduling shifts >12 hours) and supporting workers experiencing moral distress.

Interpretation

Hospital-based healthcare workers have experienced substantially increased burnout during the COVID-19 pandemic. Sustained burnout will likely contribute to staff retention challenges due to healthcare providers leaving their workplaces and professions. A vicious circle may be underway where understaffing leads to increased burnout and an even weaker healthcare workforce.

Maintaining the healthcare workforce will benefit from increasing the number of new graduates and by retaining current staff through financial compensation and fostering supportive workplace characteristics including supportive leadership at executive, director, and manager levels, continued professional development, effective communication, appropriate autonomy, and collegial relationships among workers and managers.

Optimal reduction and prevention of burnout depends on stronger evidence. Research evaluating organization and system-level interventions should be promoted.

Background

Burnout affects a wide range of healthcare workers, including those in hospitals,[1,2]

primary care and community settings,[3–5] public health,[6] long-term care,[7] and first responders in emergency medical services.[8,9] Each of these groups have been adversely affected by the COVID-19 pandemic. Given the diversity of these settings and of healthcare providers, this brief focuses on hospitals, where the evidence needed to assess the impact and to guide interventions is richer. However, many of the principles and recommendations may be applicable to those in practice in non-hospital settings.

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Findings

Defining and Measuring Burnout

Burnout is an occupational hazard caused by cumulative workplace stress that was recognized as a substantial problem in healthcare prior to the COVID-19 pandemic. It consists of emotional exhaustion (feeling drained and fatigued), depersonalization (becoming indifferent or emotionally distant), and a diminished sense of professional achievement.[10]

Burnout is associated with worse patient outcomes and reduced workplace satisfaction and productivity for healthcare professionals and trainees of all disciplines. For the healthcare system, burnout poses a risk to adequate staffing by contributing to absenteeism, higher workforce turnover, and greater likelihood that professionals will consider leaving their work.[11–14] Burnout also results in lost productivity and is consistently correlated with depressive symptoms,[15–18] and, in some cases, with thoughts of suicide.[19] Emotional exhaustion, in particular, has been found to be associated with substance use and poor self-reported physical health in physicians,[20] and with anxiety, lower self-esteem, and poor quality of life in nurses.[17] Burnout of healthcare professionals and trainees is also associated with diminished safety, increased medical errors, reduced quality of care, and lower patient satisfaction.[11,21–25]

Rates of burnout have been measured as the rate of cases (prevalence) in cross-sectional surveys of healthcare professionals in many settings. Although most studies survey nurses and/or physicians, studies of other healthcare professions have comparable findings. The prevalence of burnout is sensitive to how it is measured (e.g., scales and cut-off values used to define a case),[26] which makes comparing the results of prevalence studies that have used different methodology challenging. This brief has been based on evidence that identified burnout as defined by the Maslach Burnout Inventory (MBI-EE), so as to identify data from the widest range of research using clear and replicable methods. The MBI-EE is a psychological assessment tool that measures an individual's experience of burnout along three dimensions: emotional exhaustion, depersonalization, and personal accomplishment. When reporting case rates we focus on burnout defined as a score >26 on the emotional exhaustion scale of the MBI-EE.
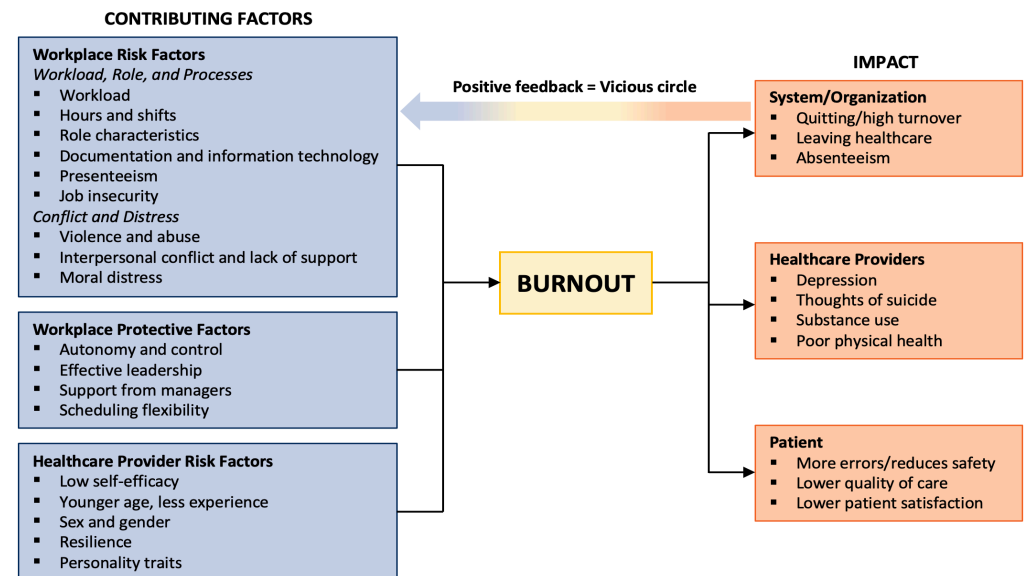
Prior to the COVID-19 pandemic, the prevalence of burnout in healthcare workers ranged from <20% to >50%,[27–29] with many studies of hospital-based nurses and physicians reporting rates of severe burnout in the range of 20-40%,[26] including meta-analyses of nurses in oncology (17 studies of 9959 RNs with severe burnout at

30%),[30] emergency medicine (13 studies of 1,566 RNs with severe burnout at 31%),[31] and primary care (8 studies of 1,110 RNs with severe burnout at 28%) and physicians in emergency medicine (17 studies of 1,943 MDs with severe burnout at 40%).[32,33] Collectively, the range of 20-40% serves as a benchmark for burnout identified using this case definition.

In a global meta-analysis of nurses (113 studies of 45,539 RNs), the prevalence of burnout in North American nurses was similar to that found in Europe, Latin American, and Central Asia, with the highest rates found in Southeast Asia and the lowest in Africa and the Middle East. Among specialties, the highest rates were in intensive/critical care, emergency medicine, and pediatric nursing.[34]

Risk Factors for Burnout

Workplace-associated risk factors are related to the culture, environment and structure present in hospital workplaces. Figure 1 highlights the interplay between these factors, individual characteristics and burnout.

CONTRIBUTING FACTORS

Workplace Risk Factors
Workload, Role, and Processes
- Workload
- Hours and shifts
- Role characteristics
- Documentation and information technology
- Presenteeism
- Job insecurity
Conflict and Distress
- Violence and abuse
- Interpersonal conflict and lack of support
- Moral distress

Workplace Protective Factors
- Autonomy and control
- Effective leadership
- Support from managers
- Scheduling flexibility

Healthcare Provider Risk Factors
- Low self-efficacy
- Younger age, less experience
- Sex and gender
- Resilience
- Personality traits

Positive feedback = Vicious circle

BURNOUT

IMPACT

System/Organization
- Quitting/high turnover
- Leaving healthcare
- Absenteeism

Healthcare Providers
- Depression
- Thoughts of suicide
- Substance use
- Poor physical health

Patient
- More errors/reduces safety
- Lower quality of care
- Lower patient satisfaction

Figure 1. Burnout Framework
Review of the pre-COVID literature identified contributing factors, which are synthesized in this framework. These include workforce risk factors (e.g. workload, role and processes); workforce protective factors (e.g. autonomy and control, leadership, and scheduling flexibility); and healthcare provider (e.g. self-efficacy, age, gender, resilience, personality traits) emerged. This framework also includes the impact of burnout on organizations, healthcare providers, and patients.

Workload

Burnout is consistently associated with high workload. Approaches to operationalizing workload include measuring direct care time, clinician-patient ratio, patient acuity, and patient turnover.[35] There is a strong relationship between nurse-patient ratio and burnout,[1,11,36] but this ratio, in itself, does not consider patient acuity or the presence of supportive services, both of which contribute to workload.[37] A cross-sectional study of 472 British Columbia nurses considered several aspects of workload and found patient acuity was associated with higher emotional exhaustion, whereas job satisfaction was associated with perceived heavy workload which was measured by asking about the frequency of factors such as arriving early/staying late and working through breaks.[38] A similar finding was identified in a U.S. study.[39] Studies of physicians also found a consistent relationship between burnout and workload, variously defined according to daily or weekly work hours, overnight duty, schedule inflexibility, patient load, or consultations per day or week.[21]

Importantly, to the extent that burnout challenges recruitment and retention of

healthcare professionals, a vicious circle may arise in which understaffing is both a cause and consequence of burnout.

Hours and Shifts

As a short-term solution to nursing shortages, nurses are asked to work overtime on days off or to work extended hours. Working extended hours is linked to poor inter-shift recovery and fatigue, amplified stress responses, and increased likelihood of making errors, resulting in adverse patient outcomes.[40–42] It has been recommended, based on a systematic review of nurse work schedules and adverse outcomes, that nursing shifts should not be longer than 12 hours.[43] However, for medical residents, reducing shift length alone has not resulted in improved well-being.[44]

Presenteeism

Presenteeism is working when in poor mental or physical health. A prospective study of 258 hospital nurses over three years found that job demands, including workload and perceived demands from patients, contributed to working when sick, which in turn was associated with burnout.[45]

Job Insecurity

At times of restructuring and economic downturn, perceived job insecurity is associated with higher burnout.[46] This may also be present for workers hired during the pandemic on a temporary basis.

Role Characteristics

Role conflict, significance, variety, and reward. Greater risk of burnout in nurses is associated with role conflict whereby workers have multiple roles which have contradictory, competing, or incompatible expectations and when there is ambiguity about role expectations.[11] Roles characterized by low perceived task significance and variety,[47–49] and high-effort/low reward are also associated with greater burnout.[50–52]

Moral Distress

Moral distress is the psychological state that arises when external constraints prevent one from pursuing the right course of action (e.g. when a shortage of resources prevents one from maintaining the usual standard of care or frequent contact with futile care in an ICU setting).[53] In nurses, burnout is correlated with the frequency of such events and with experiencing moral distress.[54–56]

Interpersonal Conflict and Lack of Support

There is an association between interpersonal conflict and increased burnout.[11,57–61] This conflict is more frequently documented occurring between colleagues with similar levels of authority,[57,58,62] and in relationships with a power or hierarchy imbalance, such as nurse-physician or nurse-manager relationships.[57–59] In addition, nurses and physicians who do not feel supported by their colleagues and managers have increased levels of burnout.[11,21,58]

Violence and Abuse

Various forms of violence and abuse in healthcare workplaces are common. A 2019 survey of 4462 British Columbia nurses reported these rates: emotional abuse 83%, threat of assault 78%, physical assault 67%, verbal sexual harassment 55% and sexual assault 11%.[63] Similar rates were found in the U.S for nurses.[64] Bullying is commonly experienced by young physicians, especially women (rates 30-95% in a review of 18 studies).[65] These experiences were consistently correlated with burnout.[66–68]

Documentation and Information Technology

Among physicians, burnout is more common among those who report having insufficient time for documentation (2.8 times odds ratio), spending excessive time on electronic health records at home (1.9 times odds ratio) or experiencing daily frustration with electronic health records (2.4 times odds ratio).[69] In a survey of 5,197 U.S. physicians, physician-rated usability of electronic health records had a strong relationship with burnout.[70]

There is evidence of protective factors including culture, leadership and supportive systems alongside staff autonomy and control that can protect workers from burnout.

Authentic Senior or Executive Leadership

A meta-analysis and a systematic review of leadership style in nursing concluded that effective leadership is associated with lower burnout and other positive effects on nurses' well-being.[71,72] Fourteen studies found protective effects of organizational leaders who are "authentic" (e.g., self-aware, transparent, ethical, respectful, and who seek information and insights from a variety of sources when making decisions).[11,69,73] Authentic executive leadership was of increasing importance to a healthy workforce as healthcare complexity increased.[74]

Support from Managers

Evidence for a relationship between feeling support from managers and lower burnout was provided by most studies of nurses,[11] but not all,[75] and was also been found for other healthcare professionals.[76] Other qualities of nurse managers associated with lower burnout in the staff reporting to them were trustworthiness and perceived competence.[11]

Autonomy and Control

Studies of physicians,[77] social workers,[78] and nurses,[11,79] have all found that a high level of autonomy or control over one's practice (e.g., the perception that nurses have the freedom to make important patient care and work decisions) was associated with less burnout, both in Ontario and in international studies.[80–82]

Scheduling Flexibility

Flexibility in scheduling, including the ability to schedule days off, was associated with lower burnout.[11]

There is limited evidence regarding characteristics of health care workers that predispose them to burnout. Fewer individual-level risk characteristics for burnout have been identified. Most are not readily modifiable (sex, gender, age, personality traits), although one modifiable characteristic has been identified, self-efficacy.

Self-Efficacy

This refers to specifically focused confidence: a person's beliefs about their capabilities to perform relevant tasks and to influence events.[83] It can be measured as a general trait, or as self-efficacy with respect to a specific challenge (e.g., working in critical care nursing, doing healthcare work during a pandemic). Self-efficacy can be improved with training in specific, relevant tasks and challenges. For example, training in communication skills increases self-efficacy for that task,[84] and training in managing interpersonal and coping challenges related to a pandemic increases pandemic self-efficacy.[85] A 2016 meta-analysis of 57 studies involving 22,773 teachers, healthcare workers, and other professionals found an association of medium strength (effect size -0.33) between low self-efficacy and burnout. There was no difference between general and specific measures of self-efficacy.[86] Studies specific to healthcare professionals replicate this result.[18,87]

Gender

Gender differences in burnout for healthcare professionals depend on context. For example, a meta-analysis shows that among nurses, men are at higher risk of burnout,[30] whereas among physicians, women may be at higher risk.[88] A meta-analysis found greater emotional exhaustion in women and greater depersonalization in men across disciplines, although both effects were small.[89]

Age and Experience

A systematic review of 41 studies of surgeons and a study of 473 general hospital nurses and nursing students each found that younger professionals and trainees were at elevated risk of burnout. This was consistent with the 2018 Canadian Medical Association survey, which found that residents had 48% higher risk of burnout than practicing physicians.[90–92] Possible explanations which have been suggested included longer work hours, less autonomy and discretion, or a "survival" bias introduced because those with high burnout leave the profession.[90]

Resilience

This is the ability to "bounce back" after stress. It can be understood at organizational and individual levels.[93] For individual healthcare workers, resilience has been conceptualized as a composite of attitudes (e.g., living authentically, maintaining perspective) and behavioural skills (e.g., managing stress, building social networks), and was associated with measures of health.[94] A resilient organization is one that has matched job demands to resources for workers and fosters a culture of connection and transparency. Resilient organizations are well positioned to achieve strategic objectives and face challenges during crises.[95]

Personality Traits

There is some literature from psychology which suggests an association between burnout and personality traits. Personality traits including extraversion (level of energy and sociability), agreeableness (interpersonal skills to approach or reject others) , and conscientiousness (energy and sociability) serve as protective factors.[96,97]

COVID-19 has Exacerbated Risk Factors for Burnout and Increased Prevalence

Many risk factors for burnout have been exacerbated during the pandemic, including increased patient acuity, understaffing due to staff with COVID-19 compatible symptoms, exposure leading to quarantine, increased overtime, presenteeism, reassignment to unfamiliar roles, and circumstances that provoke moral distress.

In addition, working in healthcare during the pandemic has introduced circumstances that are expected to contribute to burnout. These include health risk to oneself and one's family and uncertainty about infectious risks and precautions. Further public health measures such as school and business closures also may impact health care workers and create strain between work and personal or family obligations.

As burnout results from cumulative occupational stress,[98] its impact is expected to increase over time during the pandemic, and appears to be doing so. Early in the pandemic, representative studies of hospital workers in April/May 2020 in Italy and Belgium reported severe emotional exhaustion (MBI-EE >26) in 32-41%,[99–101] which is similar to the pre-pandemic benchmark. A weekly survey of 231 Canadian emergency physicians for 10 weeks from March to May, 2020 found emotional exhaustion and depersonalization did not change, consistent with the expectation that COVID-19-related burnout would build slowly.[102]

One study of intensive care nurses and physicians in the Netherlands reported that burnout had risen in the first wave of the pandemic (from November 2019 to

April 2020). Using a different case definition, so rates are not comparable to others reported here, they found rates had risen from 26% to 38% in nurses and 13% to 29% in physicians.[103]

As the pandemic persists, increased levels of burnout are being reported. A survey of 250 internal medicine specialist physicians in two Vancouver hospitals conducted from August to October 2020, found a prevalence of severe emotional exhaustion (MBI-EE >26) of 63%.[104] A longitudinal survey of a single cohort of 422 staff representing diverse roles (nurses, doctors, professionals of other disciplines, support services, researchers, learners etc.) in a downtown Toronto hospital repeated three times at three-month intervals from November 2020 to May 2021 found high and rising burnout. The prevalence of severe emotional exhaustion (MBI-EE >26) in nurses was 54% (Fall 2020), 62% (Winter 2021), and 63% (Spring 2021), while the prevalence in all other healthcare professionals at the same time points was 43%, 56%, and 62% respectively (Hunter J, personal communication).[105]

Nurses and Workers in Intensive Care and Emergency Department Settings are at Higher Risk of Burnout

Identifying groups at higher risk may serve to focus or sequence interventions. Evidence is consistent across diverse settings that healthcare professionals in intensive care settings have been at higher risk during the pandemic compared to other healthcare settings.[106–110] Working in a COVID-19 unit or hospital or in an emergency department has also been associated with elevated burnout.[108,111,112]

During the pandemic, higher levels of burnout have consistently been reported in nurses than in other hospital-based healthcare professionals in Canada and internationally.[103,105,113–116] Younger healthcare professionals and trainees have also been at elevated risk in all healthcare disciplines.[107,112,114,117–119] Healthcare workers' ethnicity, culture, and race have not received wide study. One Canadian study of internal medicine specialists found that visible minority physicians were more likely to report lower personal accomplishment than others, but these groups did not differ in emotional exhaustion.[104]

Regarding sex differences, women healthcare personnel (including nurses, physicians, pharmacists, and other healthcare workers) have had higher emotional exhaustion,[104,112,114,117,119–121] whereas males report higher depersonalization.[112,114,117,121,122] Regarding gender, a study of U.S. anesthetists in March 2020 found that those who identify as LGBTQ2S+ experienced greater burnout.[123] Similarly, burnout was greater in individuals identifying as having non-binary gender in a nationwide U.S. survey of diverse healthcare professions between May and October 2020.[124] Among internal medicine specialist physicians at two Vancouver hospitals, there was no difference in emotional exhaustion or depersonalization by sexual orientation.[104]

Evidence-Based Interventions for Burnout

Systematic reviews and meta-analyses summarize evidence for interventions at the level of organizations, individual interventions, and their combination.[2,125,126] Since most known risk factors for burnout occur at the organization-level, it is consistent that a pre-pandemic meta-analysis of interventions for physicians found that organizational interventions were more effective than individual interventions (organizational mean difference -12.46[-17.47, -7.45 95%CI], individual mean difference -3.36[-9.90, 3.17 95%CI, p=0.03).[2] The interventions included shortened length of rotations for attending staff, reduced hours of duty shifts, and modifications to clinical work processes (e.g., communication improvements through monthly clinical meetings; medical assistants to enter electronic health record data; automating prescriptions). Another meta-analysis suggested the combination of organizational and individual interventions resulted in larger and/or longer-lasting benefits.[127] The interventions reviewed in

these meta-analyses are too heterogeneous to support specific recommendations.[128]

Professional organizations have also emphasized the importance of system level responses to burnout, including streamlining documentation, ensuring equitable compensation, and promoting the seamless integration of digital tools.[3]

Despite substantially less evidence for individual-level burnout risk factors, individual interventions are more widely studied. On the whole, studies of these interventions indicate that they provide significant, but only moderately large, short-term benefits, with no evidence to support greater effectiveness of any particular intervention.[2,125] Those studied include small group education, stress management/self-care (yoga, mindfulness, relaxation techniques), communication skills training, coping skills training.[2,125] Regarding prevention, cognitive behavioural therapy interventions have resulted in modest benefits with small to medium effect sizes.[125]

Importantly, interventions that reduce burnout by even a small amount are meaningfully associated with reducing adverse consequences of burnout including healthcare system turnover and absenteeism;[2,11,129] medical errors, reduced patient safety and satisfaction;[25] healthcare provider depression,[17] suicide,[130] substance use, and decreased physical health.[20]

Modifiable Mediators of Burnout that are Appropriate Targets for Intervention

Given the limitations of evidence for specific interventions, we have reviewed the literature to identify the most plausible modifiable risk factors for pandemic-related burnout, based on consistent evidence of association with burnout prior to COVID-19 and evidence of correlation with burnout during the pandemic.

Work Conditions, Workload, and Fatigue

Longer shifts (more than 12 hours,[131] for nurses) and a greater workload were associated with increased burnout in physicians and nurses in several settings during the pandemic.[99,112,118,132] A meta-analysis of studies of nurses spanning 11 countries among Europe, Asia, and North America during COVID-19 identified higher burnout in settings that reported insufficient material resources and understaffing.[112] Poor sleep and fatigue have also been identified as potential exacerbating factors.[105,116,121]

Self-Efficacy

In a study of 2,014 nurses in hospitals in Wuhan, China in February, 2020, both general self-efficacy and specific confidence in one's own and one's institution's readiness to deal with COVID-19 were associated with lower burnout.[106] A Romanian study found that lower self-efficacy, in addition to a lack of access to training, professional development, and continuing education, were significant predictors of burnout during the COVID-19 pandemic.[133] In a Toronto hospital, self-efficacy with respect to pandemic-related challenges (e.g. "How confident are you that you will be able to perform duties that are outside your usual job") in Fall 2020 was a strong predictor of lower burnout at two time points over the following six months in healthcare professionals of all disciplines.[105] A meta-analysis of nurses found lower levels of specialized training were associated with greater burnout.[112]

Moral Distress

Moral distress has been a prominent theme for healthcare workers during the pandemic.[134–137] In a study in the Netherlands, two sources of moral distress that increased in COVID-19 (scarcity of resources and the perception of colleagues acting unsafely) were significant predictors of burnout.[103] In a Toronto hospital, moral distress was strongly related to emotional exhaustion and accounted for most of the difference in burnout between roles (nurses vs. other health professionals vs. other staff with regular patient contact; Hunter J, personal communication). Interventions that have

been suggested to reduce the harmful effects of moral distress include education about the concept and critical reflective practice that allows cognitive reframing.[138] More research is needed to evaluate such interventions.

Support Networks

Insufficient support at work, in the form of peer social support or institutional support, has been a risk factor for burnout during COVID-19.[112,123] Support from leadership or supervisors, in the form of feedback and recognition, has also mediated burnout.[133] In a study of Malaysian healthcare workers, increased burnout during COVID-19 was associated with perceived inadequate psychosocial support at work and feelings of stretched work relationships with superiors and colleagues.[139]

Interpretation

Burnout was a significant problem for hospital-based healthcare workers prior to the COVID-19 pandemic and has increased substantially. Multiple Canadian studies indicate that by the fall of 2020 and afterwards, more than 60% of healthcare workers surveyed were experiencing severe emotional exhaustion.

It is not known how long elevated levels of burnout will persist. Two considerations suggest that elevated levels of burnout will not resolve quickly: (1) After the severe acute respiratory syndrome (SARS) outbreak of 2003, which was much more circumscribed in scope and severity, elevated burnout and other indicators of chronic stress persisted in affected healthcare workers for as long as they were studied (18-24 months);[140] (2) the pre-pandemic benchmark of 20-40% of hospital based healthcare workers with severe emotional exhaustion suggests that a "return to normal" would be a return to conditions that are not optimal for recovery.

A marked and sustained increase in burnout is likely to lead healthcare professionals to seek work that involves less direct patient contact, shorter or more predictable hours, or to leave the profession altogether. The likelihood of a workforce reduction is supported by survey data indicating that 43% of members of the 1,716 Registered Nurses Association of Ontario members surveyed in January-February 2021 were considering leaving nursing after the pandemic (27% somewhat likely, 7% likely, 9% very likely).[141] This concern is also supported by a survey of 131 physicians and nurses in a Montreal hospital where the intention to quit was reported by 50% of nurses and 20% of physicians and a survey of 257 physicians in Vancouver of whom 21% were considering quitting.[104,113] In a Toronto hospital in Spring 2021, 30% of nurses and 13% of physicians surveyed reported considering leaving their jobs, specifically because of moral distress (Hunter J, personal communication). Observation indicates that professionals are acting on their intention to leave. Media accounts have reported many Canadian nurses leaving their profession as a result of COVID-19 stresses,[142] emergency department closures due to understaffing,[143–146] and an Ontario hospital emergency department offering a large "signing bonus" to attract new nurses.[147]

A vicious circle of understaffing leading to burnout, which in turn leads to further challenges to recruitment and retention creates the potential for a sustained and worsening problem in healthcare, which may be underway. A further challenge is that these conditions are present outside Ontario as well, indeed globally, which reduces the pool of healthcare workers available to replace those who reduce or cease direct patient care.

Multi-Faceted Mitigation Strategies are Needed for Burnout

The below recommendations align with a previous review of best practices.[148] A number of professional organizations have developed recommendations for system level responses to burnout. While it is challenging to assess the evidence of impact

of such recommendations, they are worth noting given the challenges identified in this document. In August, 2021 the Ontario Medical Association (OMA) Burnout Task Force released 5 system level recommendations to physician burnout which highlighted the need to reduce documentation and administrative work,[3] fairly and equitably compensate work, make organizational policy changes to improve work-life balance, promote integration of digital health tools into workflows and provide institutional wellness supports.

The Registered Nurses' Association of Ontario (RNAO) released a series of recommendations related to nurse well-being and burnout related to increasing support for early, mid-career and senior nursing positions, increase overall staffing of nurses, bolster admission to nursing programs to ensure adequate workforce and increase nurse practitioner positions.[141]

In the long-term, maintaining an adequate healthcare workforce will benefit from support for an expansion of training opportunities to increase the number of new graduates. Planning for adequate health human resources will necessitate inter-ministerial collaboration (including, for example, the Ministry of Colleges and Universities) to ensure that university and college-based training programs tasked with producing the next generations of healthcare workers (e.g., nurses, physicians, psychologists, and other allied healthcare workers) are able to meet the needs of the broader health system and patient needs. The health human resources strategy can also recognize risks to a healthy workforce such as burnout,[149] and mitigate healthcare worker shortages due to changing careers, and the impending health human resource crisis as a consequence of retirements due to an aging workforce.

Given evidence that high stress and the intention to leave nursing is particularly common among recent graduates,[150–152] it is relevant that transition to practice programs consisting of formal teaching, preceptorship, and mentorship, lasting 27–52 weeks, appear to promote retention and reducing turnover among novice nurses.[153]

In an environment in which there is competition between organizations for staff, financial compensation is likely to influence where professionals choose to work.

Regarding opportunities to make the workplace more attractive, there is clear evidence for the "magnet" characteristics which lead nurses to choose one workplace over another. These include: nursing leadership which is visible, supportive, visionary, and holds high status in the organization; processes for continuing professional development; clear communication and responsiveness from leaders; a relatively flat organizational hierarchy, local autonomy, and control of decision-making and scheduling; and collegial nurse-physician relationships.[154] Importantly, magnet characteristics are also associated with lower burnout and better patient outcomes.[155,156]

Individual-Level Interventions to Reduce Burnout

Individual-level interventions to reduce burnout should be complemented by organizational interventions. There is no evidence for the superiority of any one type of intervention and so it is recommended to provide access to a variety of evidence-supported resources. Interventions that have been supported in well-designed research trials include small group education, stress management, yoga, mindfulness, relaxation techniques, communication skills training, coping skills training, and cognitive-behavioural therapy interventions.

Providing individual resources to professionals who have been harmed by circumstances beyond their control risks the perception of assigning responsibility for repair to the person who has been harmed (e.g., blaming the victim). Individual-level interventions should be understood to be complementary to organization and system level approaches.

Further research should be promoted to determine if understanding individuals' context (e.g. family circumstances, race, ethnicity) would allow for effectively tailored interventions.

Organizational-Level Interventions

The most appropriate targets for system- and organization-level interventions are addressing shift length and scheduling, ensuring adequate training, offering education and support for moral distress.

Shift Length and Scheduling

Shifts should not be longer than 12 hours for nurses, and overtime hours should be avoided. Scheduling should ensure adequate inter-shift recovery. Avoiding overtime hours requires maintaining sufficient numbers of staff. For all disciplines, appropriate levels of staffing depend on numerous factors including patient acuity, direct care time, and availability of supportive services. Ongoing monitoring and evaluation of workload is necessary to inform shift length, scheduling, and staffing levels.

Training and Self-Efficacy

Training and support should be provided to promote healthcare providers' competence and confidence with respect to (1) unfamiliar work tasks, such as those that result from reassignment to new areas, and (2) challenges that are directly related to burnout, such as managing interpersonal conflict, dealing with workplace violence and abuse, and responding to moral distress.

Leadership

Leaders have a critical role in creating a supportive work environment and culture.[157] Leaders should be visible, transparent, ethical, respectful, and should seek information from a variety of sources, including frontline staff, when making decisions. Support of staff by managers is crucial and should be promoted by organizational leaders. Such support may include fostering a culture that promotes well-being (e.g. discourages presenteeism), actively working to reduce systemic contributors to burnout, openness and responsiveness to feedback, and recognition of achievements and sacrifices.

Support Networks

A positive workplace culture should facilitate mutual support between colleagues. The development of peer support programs is also recommended. In addition, individual psychological assessment and treatment should be available for those who wish it.

Moral Distress

Organizations should recognize that the COVID-19 pandemic has increased healthcare professionals' exposure to moral distress. Although interventions to reduce the harmful effects of moral distress are not yet well-studied, education about the concept and group-based critical reflective practice that allows cognitive reframing may be valuable.

Interventions to reduce burnout should be first directed towards groups who have been most affected. These include nurses, early career professionals and trainees, healthcare workers in intensive care and emergency departments, and those who have worked in high acuity settings with large numbers of COVID-19 patients or outbreaks.

Methods Used for This Science Brief

We searched PubMed, Google Scholar, the COVID-19 Rapid Evidence Reviews, LitCovid in PubMed, and the World Health Organization's Global Literature on Coronavirus Disease. In addition, we retrieved reports citing relevant articles through Google Scholar

and reviewed references from identified articles for additional studies. Selected media reports of recent trends were included when relevant. The search was last updated on [July 31, 2021]. The COVID-19 Evidence Synthesis Network performed a research evidence scan for this Science Brief, published in an Evidence Synthesis Briefing Note. The COVID-19 Evidence Synthesis Network is comprised of organizations in Ontario's evidence synthesis and knowledge translation community who collectively provide high-quality, relevant, and timely synthesized research evidence about COVID-19.

Author Contributions

The Mental Health Working Group conceived the Science Brief. RGM, NDH, GS, HDS wrote the first draft of the Science Brief. LJ, CM and LM reviewed and revised the draft. All authors revised the Science Brief critically for important intellectual content and approved the final version.

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