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Interventions for Healthcare Provider Burnout: A Systematic Literature Review

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Abstract

Burnout, an occupational syndrome resulting from chronic stress and emotionally intense work demands, is highly prevalent among healthcare providers (HCPs). Burnout among HCPs is associated with negative consequences for provider health, patient care, and the healthcare system. There is a lack of clear guidelines on how to assist U.S.-based healthcare organizations develop interventions for HCP burnout, including effective intervention types and preferred metrics for quantifying burnout. To address this, this author conducted a systematic literature review. The literature review identified U.S.-based interventions for HCP burnout as well as measures used to assess burnout. The studies included in the literature review ($N = 28$) describe interventions that can be grouped into the following six categories: mindfulness-based interventions, workplace improvement interventions, positive reflection interventions, stress management interventions, interventions focused on coping with patient death, and other interventions that could not be grouped in any of the predominant categories. The Maslach Burnout Inventory was most used to assess burnout, but the Mini-Z survey, the Professional Quality of Life Survey, the Copenhagen Burnout Inventory, and intervention-specific scales were also used to quantify burnout. Analysis of the literature led to key recommendations for burnout intervention development and evaluation. These include implementing evidence-based interventions at both the individual and the organizational levels, testing for intervention acceptability, and assessing burnout with valid and reliable instruments. These guidelines may assist healthcare organizations implement their own evidence-based interventions and help reduce widespread burnout among their employees, thereby improving patient safety and quality of care.

Keywords: burnout, healthcare providers, evidence-based interventions, social ecological model

Introduction

Burnout is an occupational syndrome resulting from chronic stress associated with emotionally intense work demands (West et al., 2018). This syndrome, initially described by Freudenberger (1974) and later expanded by Maslach and colleagues (1997), is characterized by emotional exhaustion, depersonalization, and a reduced sense of personal accomplishment. In other words, someone experiencing burnout may feel emotionally drained, cynical, and dissatisfied with their work. While burnout can be experienced by anyone, it is especially prominent among healthcare providers (HCPs) (De Hert, 2020). Burnout among HCPs has been further compounded by stressful conditions imposed by the COVID-19 pandemic (Leo et al., 2021).

HCP burnout is associated with negative consequences for provider health, patient care, and the healthcare system (West et al., 2018). Consequences may include, respectively: emotional and physical fatigue of the provider, decreased quality of care and safety, and increased provider turnover. These effects may create a downward spiral of burnout. Since mental health professionals are among the HCPs affected by burnout, HCPs may face increasing difficulty accessing quality mental health care, leading to worsening HCP burnout. This compounds existing barriers to mental health care among HCPs, including stigma. Doctors are especially reluctant to seek mental health treatment due to feelings of shame and worries about negative professional consequences relating to fitness to practice (Galbraith et al., 2020).

The goal of this paper is to investigate existing interventions for HCP burnout to inform future strategies for prevention and management. This paper concludes with multilevel recommendations for prevention and management strategies in accordance with the social ecological model. For the purpose of this paper, the terms "healthcare provider/HCP", "healthcare professional", and "healthcare worker/HCW" are used interchangeably.

Background

Defining the Problem

While up to 20% of the general working population are estimated to experience burnout, physicians and other HCPs tend to have even higher levels of burnout (De Hert, 2020). According to a recent study, 47% of surveyed physicians practicing in the United States reported burnout, representing an increase from 42% in the previous year (Kane, 2022). Nurses and allied health professionals also experience high levels of burnout, sometimes reported at rates on par with or higher than physicians (Morgantini et al., 2020; Zhang et al., 2020). Though few comparative studies on burnout between different health professions exist, reasons for any possible discrepancies in burnout between professions may relate to differences in responsibilities, autonomy, and pay. Non-physician frontline HCPs–including nurses, MAs, PAs, and scheduling and support staff–experience burnout due to a number of reasons, including (but not limited to): high patient volumes, increased patient acuity (i.e., increased severity of patient condition or level of care needs), inadequate staffing, high-stress environments, perceived lack of control, inadequate reward (including wages and recognition), and conflicts with physicians or other team members (Green et al., 2020; Hersch et al., 2016).

While it is unclear which profession experiences the most burnout, there are consistently high rates of burnout among both clinical and non-clinical healthcare professionals. In a global survey of healthcare professionals, over half of the respondents (51.4%) self-reported burnout (Morgantini et al., 2020). Highest self-reported burnout was reported in the United States, at a rate of 62.8%. However, these figures may not accurately represent the actual prevalence of burnout among healthcare professionals since the study used a non-validated questionnaire, used a single-item indicator for burnout, and may have been subject to selection bias given the sampling method using social media selected for healthcare professionals more active on social media forums.

Overall burnout prevalence is difficult to correctly and comprehensively capture given disagreement in the literature over the definition of burnout and how to measure it (De Hert, 2020; Leo et al., 2021). This paper uses the World Health Organization (WHO; 2022) definition of burnout as provided in the *International Classification of Diseases* 11th revision (ICD-11), which reads as follows:

> Burnout is a syndrome conceptualized as resulting from chronic workplace stress that has not been successfully managed. It is characterised by three dimensions: 1) feelings of energy depletion or exhaustion; 2) increased mental distance from one's job, or feelings of negativism or cynicism related to one's job; and 3) a sense of ineffectiveness and lack of accomplishment. Burnout refers specifically to phenomena in the occupational context and should not be applied to describe experiences in other areas of life.

While this definition identifies the syndrome of burnout as a consequence of chronic work-related stress, burnout is not synonymous with stress. Furthermore, while aspects of burnout such as exhaustion and cynicism may overlap with depressive symptoms, the concepts of burnout and depression are distinct from each other. However, these concepts are interrelated–burnout increases risk of developing depression, and vice versa (De Hert, 2020; Kane, 2022).

Time Trends, Health Outcomes, and Costs

Despite the heterogeneity in estimates of burnout prevalence, there is an observable trend of burnout increasing over time among HCPs in the United States (Reith, 2018). According to one study, the percentage of U.S. physicians reporting burnout increased by 12% between 2021 and 2022 (Kane, 2022). The COVID-19 pandemic imposed additional physical and mental strain on the healthcare workforce, drawing widespread attention to the phenomenon of burnout in the United States and globally (Batra et al., 2020; Leo et al., 2021). Burnout among U.S. healthcare workers has become increasingly evident as many have gone

on strikes or quit en masse; about 20% of the healthcare workforce–including 30% of nurses–

have resigned in the past two years (Weldon, 2022).

The deleterious effects of burnout range across the individual, interpersonal,

organizational, and systemic levels (Salyers et al., 2016). HCPs with burnout frequently

experience harm to their physical and/or behavioral health and to their relationships. For

instance, HCP burnout is linked to poor sleep, anxiety and depression, alcohol or substance

use, and even suicidal ideation (Leo et al., 2021). Greater provider burnout is also associated

with worsened quality and safety of patient care, including occurrence of medical errors, worse

health outcomes, and decreased patient satisfaction (Tawfik et al., 2019). On the organizational

level, burnout is associated with absenteeism, poor performance, and increased turnover

(Salyers et al., 2016; Reith, 2018). Increased turnover especially adds strain to the U.S.

healthcare system given mounting shortages of nurses, physicians, and other healthcare

workers (Stevenson, 2018). Recent estimates project a shortage of up to 3.2 million U.S.

healthcare workers by 2026 (Bateman et al., 2021). While the economic costs of burnout are

poorly understood, one study estimated the attributable cost of physician burnout (as related to

turnover and reduced clinical hours) at $4.6 billion annually in the United States (Han et al.,

2019).

Risk Factors

Notable factors relating to the COVID-19 pandemic that contribute to HCP burnout

include limited hospital resources (e.g., understaffing, insufficient personal protective

equipment, and lack of medical equipment), fear of exposure to the virus, increased workload

and resulting neglect of personal needs, insufficient communication, and dilemmas resulting in

moral injury (Raudenská et al., 2020). Moral injury, defined by Litz et al. (2009) as damage to

one's moral conscience resulting from perceived moral transgression, may arise when HCPs

have to prioritize scarce hospital resources in treating patients with life-threatening decisions,

such as having to deny some patients access to ventilators or hospital beds. Risk of burnout in

the COVID-19 era is highest among healthcare workers who are younger, female, black and/or

Latino, medical residents, nurses, hospital workers, nursing assistants, medical assistants, and

social workers (Leo et al., 2018). Physicians and other HCPs working in front lines of care

(emergency medicine, critical care, obstetrics and gynecology, infectious diseases, and family

medicine) are also at higher risk of experiencing burnout (Kane, 2022; Morgantini et al., 2020;

Reith, 2018). Among physicians, top contributing work-related factors to burnout include too

many bureaucratic tasks (e.g., charting, paperwork), too much time at work, decreased

autonomy, and increased computerization of practice (Kane, 2022; West et al., 2018). Individual

factors, including job performance-based self-esteem and congruence of values (between

employee and organization), also predict HCP burnout (Langballe et al., 2010).

Current Solutions

Within the field of public health, it is widely recognized that health results from the

interplay of individual, social, and environmental factors–often referred to as the social

determinants of health (Centers for Disease Control and Prevention, 2021). As such, public

health issues such as HCP burnout are viewed within the lens of the social ecological model.

This model, initially proposed by Brofenbrenner (1977) and later adapted by McLeroy and

colleagues (1988), emphasizes the need for interventions directed at changing factors at the

individual, interpersonal, organizational, community, and public policy levels (Figure 1).

Figure 1

Social Ecological Model
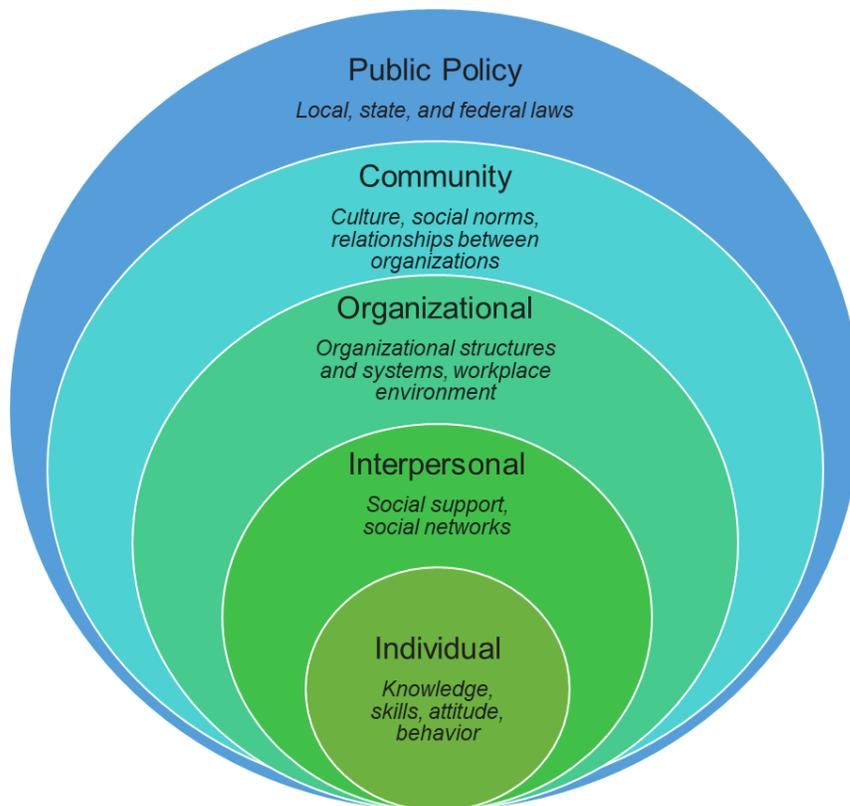
Existing efforts to address burnout may address one or more of these socio-ecological levels. At the individual level, interventions address HCP knowledge, skills, attitudes, and behaviors. Such interventions include yoga and meditation, massage, mindfulness-based stress reduction, online-based psychiatric interventions, stress management skills and communication skills training (Aryankhesal et al., 2019; Zhang et al., 2020). Interpersonal-level interventions, which address HCP social networks and social support systems, may include E-mental health interventions, support groups, and team-based programs (Aryankhesal et al., 2019). Interpersonal-level interventions also include Balint training, debriefing sessions, and focus groups (Zhang et al., 2020).

Organizational interventions typically address organizational structure or workplace environment in an effort to prevent or reduce burnout. Such interventions may include offloading clerical tasks to other personnel (e.g., medical scribes, schedulers, and other administrative staff) (Fred & Scheid, 2018; Corby et al., 2021); gratitude or workplace appreciation events (Aryankhesal et al., 2019); workload or schedule rotation, and psychosocial or stress management training programs (Zhang et al., 2020). Organizational-level interventions appear to be less common in the literature than individual- and interpersonal-level interventions, though many researchers agree that addressing organizational sources of strain is important to prevent future HCP burnout.

Less common in the literature are interventions at the community (culture, social norms, interorganizational relationships) and public policy (local, state, and national laws and policies) levels. However, the U.S. Surgeon General recently issued an advisory on addressing health worker burnout, naming the crisis a top priority (Office of the Surgeon General, 2022). To this author's knowledge, no federal or state policies have been implemented to specifically address HCP burnout, but the Surgeon General Advisory includes recommendations that may lead to policy development.

Select interventions at the individual, interpersonal, and organizational levels have demonstrated effectiveness. Mixed-level interventions (e.g., stress management workshops) have also demonstrated effectiveness (Zhang et al., 2020). While many interventions are focused at the individual level (such as psychiatric interventions), more structural/systemic interventions are needed (Fred & Scheid, 2018).

The strain on healthcare systems placed by COVID-19 has renewed public interest in addressing HCP burnout. This is evidenced by a recent call to action from the U.S. Surgeon General: "We must seize this moment to reimagine and create a health care system where patients, communities, and health workers can all thrive" (Office of the Surgeon General, 2022,

p. 18). However, there is a lack of clear guidelines on how to assist U.S.-based healthcare organizations develop interventions for HCP burnout.

Given potential differences in workforce culture between the United States and other countries, a review of interventions limited to the United States would be beneficial in guiding future U.S.-based organizational interventions. Furthermore, there is a need for recommendations pertaining to measures for HCP burnout. In completing a systematic literature review, this paper will aim to identify effective U.S.-based interventions and preferred measures for HCP burnout.

Methods

A systematic literature review was conducted to find existing interventions for HCP burnout. Databases searched included Pubmed, Scopus, and Google Scholar. Results were limited to clinical trial publications in English published from January 2002 to July 2022.

Keywords. Search keywords included: ("healthcare provider" OR "healthcare worker" OR "physician" OR "nurse") AND ("burnout" OR "emotional exhaustion" OR "depersonalization") AND ("prevention" OR "intervention").

Inclusion and exclusion criteria. After examining the titles and abstracts of search results, inclusion and exclusion criteria were applied. Inclusion criteria included: Included studies must describe interventions for burnout; included studies must be aimed toward healthcare professionals; included studies must be located in the United States; included studies must have been published between January 2002 and July 2022. Exclusion criteria included: Study was non-interventional; study targeted nonprofessional caregivers; study outcomes did not include either burnout or psychosocial wellbeing; study took place entirely outside of the United States; study was not published between January 2002 and July 2022.

Data extraction. Data for author names, country, study design, year of publication, participants, sample size, intervention type, intervention effects, and other study findings were extracted. Extracted data was analyzed for answers to the two following research questions:

1. What types of interventions address HCP burnout in the United States?

    a. Which interventions are effective in reducing HCP burnout?

    b. What are the key elements of effective interventions?

    c. What are the limitations, if any, of the interventions described?

2. What measurement tools are used to quantify burnout?

    a. Which of these measures are most used?

    b. What are the limitations of these measures, if any?

Results

The author conducted a literature search from June 27, 2022 to June 28, 2022 on Pubmed, Scopus, and Google Scholar. A total of 81 studies were identified from an electronic search of the aforementioned databases. One additional article was identified through hand-searching for an original study referenced by a journal critique from the initial results. After removing duplicate studies, this author examined study titles and abstracts. Inclusion and exclusion criteria were applied, resulting in 28 studies that were included in the final analysis. The full process of study identification and selection is outlined in the PRISMA diagram in Figure 2.

Figure 2

PRISMA Flowchart Showing Results
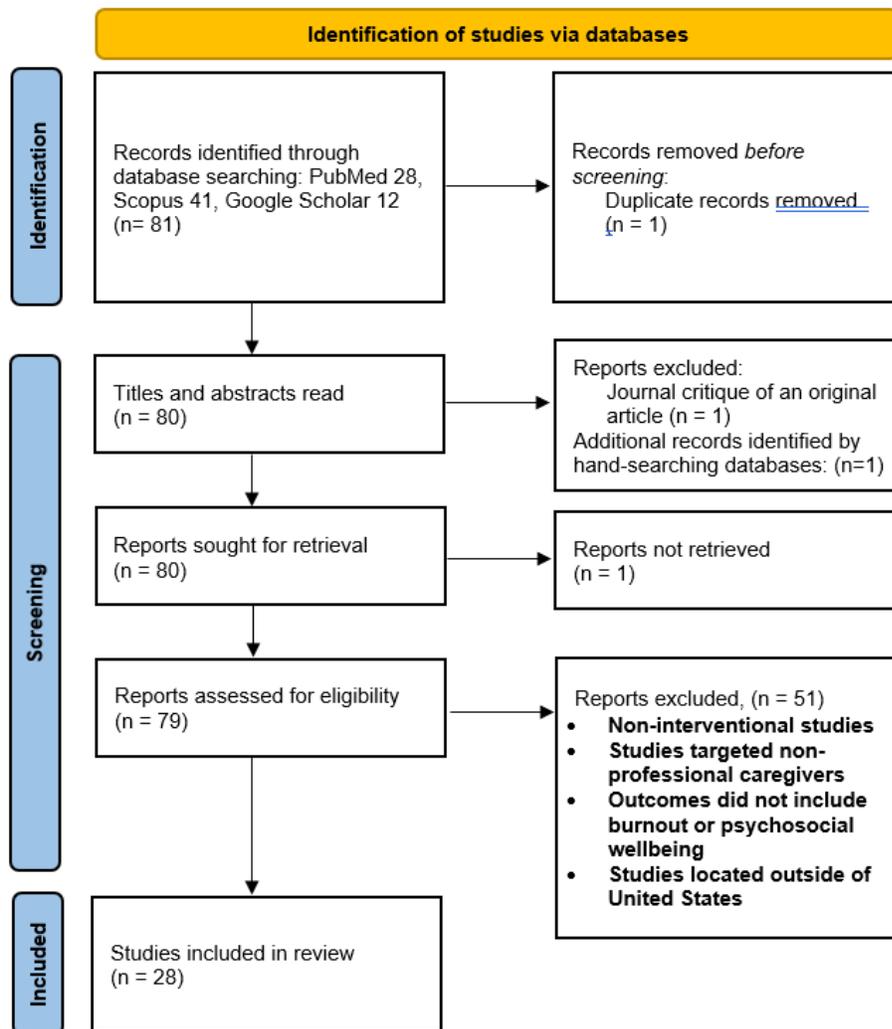
Note. Adapted from "The PRISMA 2020 statement: an updated guideline for reporting systematic reviews," by M. J. Page et al., 2021, *BMJ (Clinical research ed.)*, *372*, n160. Copyright 2021 by PRISMA. https://doi.org/10.1136/bmj.n160

The studies included in the literature review (*N* = 28) describe interventions that can be grouped into the following six categories: mindfulness-based interventions (*n* = 11), workplace improvement interventions (*n* = 5), positive reflection interventions (*n* = 4), stress management interventions (*n* = 2), interventions focused on coping with death and severe illness (*n* = 2), and

other interventions that could not be grouped in any of the predominant categories (*n* = 4). The interventions span across multiple levels of the social ecological model, ranging from the individual level to the community level (see Figure 1). Of the 28 studies included, 23 described individual-level interventions, 5 described interpersonal-level interventions, 7 described organizational-level interventions, and 1 described community-level interventions. Though individual-level interventions are the most popular, researchers acknowledge that these are insufficient on their own–more systems-focused interventions are needed to address or prevent sources of strain from HCPs' personal and professional environments (Hart et al., 2018; Sexton & Adair, 2019). Lastly, these interventions included participants from a diverse range of clinical and non-clinical healthcare workers (HCWs), with substantial focus on professions in high-stress environments such as intensive care units, emergency medicine, and COVID-19 units (see Table 1). Characteristics of the included studies are summarized in Table 1.

Table 1

*Characteristics of U.S.-Based Interventional Studies Addressing HCP Burnout (*N *= 28)*

Author	Participants	Intervention Design	Category	Level	Measure[a]	Findings
Adair, Kennedy, & Sexton, 2020	Clinical and non-clinical adult HCWs	Three Good Things (3GT), Looking Forward, and gratitude letter-writing (positive reflection interventions)	Positive reflection	Individual	EE[b] subscale of MBI[c] (MBI-EE)	Significant decrease in EE
Adair, Rodriguez-Homs et al., 2020	Clinical and non–clinical adult HCWs	Gratitude letter-writing	Positive reflection	Individual	MBI-EE	Significant decrease in EE
Ameli et al., 2020	Full-time clinical and non-clinical HCWs	Mindfulness-based self-care (MBSC) training	Mindfulness	Individual	2 items from MBI (1 for EE, 1 for DP[d])	No effect for EE or DP, but stress and other outcomes improved
Bateman et al., 2020	Intensive care physicians, nurses,	Death Cafe debriefs (informal	Coping with death	Interpersonal	MBI	N/a[e] (study protocol only, results not

Author	Participants	Intervention Design	Category	Level	Measure[a]	Findings
	pharmacists, and therapists	reflective discussions on death, dying, grief, loss, and illness)				published)
Clemow et al., 2018	Clinical and non-clinical HCWs with high blood pressure	Multi-component cognitive-behavioral intervention for stress and anger management (Williams LifeSkills Workshop)	Stress management	Individual	MBI	Significant decrease in EE only
Corpora et al., 2021	HCPs involved in care of severely ill patients	Memorial service (music therapy, chaplain support, and mindfulness-promoting provisions)	Coping with death	Individual	Self-rated burnout (non-validated tool)	Unable to determine effect on burnout (no pre-test), but most participants appreciated the service
Ducar et al., 2020	Emergency medical service providers	Mindfulness for Healthcare Providers (modified mindfulness-based stress reduction)	Mindfulness	Individual	Professional Quality of Life (ProQOL)	Significant decrease in burnout
Duchemin et al., 2015	Surgical intensive care unit personnel	Mindfulness-based group intervention	Mindfulness	Individual	MBI, ProQOL	NS effect on burnout, but % of individuals with high EE decreased in intervention group only
Etingen et al., 2020	Clinical and non-clinical HCWs	Animal-assisted support program	Other	Organizational	Copenhagen Burnout Inventory (CBI)	Significant decrease in patient-related burnout
Fainstad et al., 2022	Female resident physicians	Online group-coaching program	Other	Individual, interpersonal	MBI	Significant decrease in EE, NS improvements in DP and PA[f]
Green et al., 2020	Infusion center nurses, medical assistants, and physician assistants	Staff engagement (team huddle & staff recognition)	Workplace improvement	Organizational	Mini-Z Burnout survey	Significant decrease in burnout
Griffith et al., 2008	Hospital staff	Qigong (mind-body exercise)	Mindfulness	Individual	N/a	Significant improvements in stress and

Author	Participants	Intervention Design	Category	Level	Measure[a]	Findings
						quality of life suggest possible utility for burnout
Goodman & Schorling, 2012	Diverse range of HCPs (including physicians, nurses, psychologists, and social workers)	Mindfulness course	Mindfulness	Individual	MBI	Significant improvement in burnout (EE, DP, and PA)
Hart et al., 2018	Emergency medicine resident physicians	"The Happiness Practice" wellness initiative (didactic sessions)	Other	Individual	MBI	NS effect on burnout; intervention negatively perceived by participants, despite prior success with other hospital professions
Hersch et al., 2016	Nurses (including nurse managers)	*BREATHE*, a web-based stress management program; content tailored to role (nurse vs nurse manager)	Stress-management	Individual, organizational	N/a	Significant improvement in nursing-related stress
Klatt et al., 2020	Adult clinical and non-clinical HCWs	Mindfulness in Motion (MIM), a mindfulness-based intervention	Mindfulness	Individual, interpersonal	MBI	Significant improvement in burnout (EE, DP, and PA)
Klatt et al., 2021	Adult clinical and non-clinical HCWs	Virtual delivery of MIM	Mindfulness	Individual, interpersonal	MBI	Significant improvement in burnout (EE, DP, and PA); similar effectiveness to in-person and hybrid modalities
Leary et al., 2018	Veteran Affairs HCPs directly involved in patient care	Mantram repetition	Mindfulness	Individual	MBI-General Survey (MBI-GS)	Significant decrease in EE, NS changes in DP or PA
Lebares et al., 2021	First-year surgical and mixed-specialty resident physicians	Enhanced stress resilience training (ESRT)	Mindfulness	Individual	MBI	Variable improvement in burnout (EE, DP, and PA)
Linzer et al., 2015	Primary care clinicians	Heterogenous interventions	Workplace improvement	Organizational	5-item scale primarily	Significant improvement in

Author	Participants	Intervention Design	Category	Level	Measure[a]	Findings
		aimed to improve work conditions, categorized under communications, workflow, and targeted quality improvement (QI)			measuring EE	burnout among intervention clinicians; burnout more likely to improve with workflow changes and targeted QI projects
Place & Talen, 2013	Family medicine resident physicians	Multiple wellness initiatives based in positive psychology; interventions categorized under concrete resources, positive conversations, curriculum, and control	Workplace improvement	Individual, interpersonal, organizational, community	MBI	N/a–study rationale only, results not available
Pratt et al., 2022	Nurses in COVID-19 units	LIFT app (mobile mindfulness intervention)	Mindfulness	Individual	MBI	N/a–results not yet posted
Profit et al., 2021	Newborn intensive care unit HCWs	Web-based Implementation for the Science of Enhancing Resilience (WISER) (positive psychology evidence-based interventions)	Positive reflection	Individual	5-item derivative of MBI-EE	Significant decrease in EE
Robinson & Kersey, 2018	Physicians	Advanced electronic health record (EHR) education with wellness tips	Other	Individual	N/a	Significant improvement in quality efficiency in chart review; increased timeliness may help reduce EHR-related burnout
Salyers et al., 2011	Mental health professionals	"BREATHE" one-day mindfulness retreat	Mindfulness	Individual	MBI	Significant decreases in EE and DP, NS change in PA
Sexton & Adair, 2019	Clinical and non-clinical adult HCWs	Three Good Things (3GT) (positive reflection intervention)	Positive reflection	Individual	MBI-EE	Significant decrease in EE

Author	Participants	Intervention Design	Category	Level	Measure[a]	Findings
Stevens et al., 2020	Otolaryngology resident physicians	Weekly protected nonclinical time	Workplace improvement	Organizational	MBI, Mini-Z survey	Clinically meaningful improvements in MBI-EE and Mini-Z burnout scores; no clinically meaningful improvements in MBI-DP or MBI-PA scores
West et al., 2014	Physicians	Employer-provided protected time with physician small-group curriculum	Workplace improvement	Individual, organizational	MBI	Significant improvements in EE and DP

[a] 'Measure' refers to tools used to assess burnout only; other psychometric scales are not listed.

[b] EE = Emotional exhaustion. [c] MBI = Maslach Burnout Inventory. [d] DP = Depersonalization. [e] N/a = Not available. [f] PA = Personal accomplishment.

Intervention Types

Mindfulness-based Interventions

Mindfulness is the most predominant theme–nearly 40% ($n = 11$) of the included studies described mindfulness interventions. The underlying logic behind using mindfulness-based interventions (such as mindfulness-based stress reduction [MBSR], yoga, and qigong) to treat burnout is that they are well-established evidence-based interventions to reduce stress and increase overall well-being (Ameli et al., 2020; Griffith et al., 2008; Goodman & Schorling, 2012). Since burnout is thought to develop from chronic workplace stress, stress reduction seems a reasonable target for addressing HCP burnout.

One notably effective mindfulness intervention for burnout, Mindfulness in Motion (MIM), tailors evidence-based mindfulness programming to a range of clinical and non-clinical healthcare professionals (Klatt et al., 2020). The 8-week program is pragmatically delivered during work and onsite, which reduces barriers to participant engagement and builds a mindful

work environment. The intervention is delivered in a group format–weekly group meetings with individual practice in-between–that promotes social support. Another strength of this intervention is that it has been adapted from in-person delivery to hybrid and online delivery (Klatt et al., 2021). In one study, in-person delivery of MIM significantly decreased the amount of participants meeting burnout criteria by 27% ($p < .00001$; Klatt et al., 2020). In a subsequent study, differences in burnout reductions between pre-COVID (in-person delivery) and COVID (hybrid and online delivery) cohorts were non-significant, thereby demonstrating similar levels of efficacy across the different modalities ($p = .295$; Klatt et al., 2021). However, the sustainability of these effects is not yet known, as longer-term studies are needed. Nonetheless, these studies support implementation of organizationally sponsored, targeted, evidence-based mindfulness interventions for reducing burnout in the workplace.

Limitations and Challenges

Mindfulness-based interventions for burnout may have limitations, as demonstrated in a study by Ameli et al. (2020). The researchers performed a randomized clinical trial to determine the efficacy and feasibility of a mindfulness-based self-care (MBSC) training intervention: a 5-session, 7.5-hour program offered to HCPs during work hours that incorporated mindfulness exercises in group and at-home practice. While the intervention did reduce stress, it had no significant effect on burnout. This may have been due to a floor effect–in other words, measurable reductions in burnout were limited because participants did not endorse high levels of burnout at baseline. Alternatively, since stress level was the primary outcome instead of burnout, it is possible that reducing stress is not enough to reduce burnout. Furthermore, neither this nor any of the other included studies on mindfulness interventions address larger structural factors of burnout (e.g., high workload and lack of autonomy or control). Healthcare organizations planning to implement mindfulness interventions for burnout should design their interventions to target both individual and workplace factors for burnout.

Workplace Improvement Interventions

Nearly 18% ($n = 5$) of the included studies described workplace improvement interventions. These were interventions that aimed to improve work conditions in areas such as workplace culture, scheduling, team communication, and workflow. Since the focus of these interventions is on the workplace itself instead of individual HCPs, these are largely organizational-level interventions.

Workplace interventions that were effective in reducing burnout were team-based and collaborative. For example, Green et al. (2020) incorporated a combination of team huddle and staff recognition interventions targeted toward infusion center (IC) nurses, medical assistants, and physician assistants. The study incorporated a qualitative component with an open-ended statement at the end of a quantitative survey; the open-ended statement was used to identify workplace stressors specific to IC professionals as well as recommendations to address these stressors. Through identifying scheduling opportunities, patient needs, and staff backup, these staff engagement interventions significantly decreased burnout from 42.3% to 25% among the participating IC team while fostering positive team culture, resilience, and collaboration.

Some studies described multiple workplace interventions. Linzer and colleagues (2015) describe a list of interventions implemented to improve work conditions and improve primary care clinician burnout. These interventions are grouped under three categories: 1) communication, 2) changes in workflow (e.g., time, pressure, and pace), and 3) targeted quality improvement (QI) projects (i.e., projects addressing clinician concerns to transform care delivery for improved quality and safety). Burnout significantly decreased among clinicians enrolled in the intervention compared to clinicians in the control arm of the study. Burnout was more likely to improve with workflow interventions (Odds Ratio [OR]=5.9) and with QI interventions (OR=4.8). Interestingly, stress did not significantly improve among clinicians despite improvements in burnout, highlighting that stress and burnout are distinct concepts. This study's

findings suggest workflow changes and QI interventions are effective organizational-level interventions for HCP burnout.

Two of the included studies described interventions characterized by protected nonclinical time provided by employers (Stevens et al., 2020; West et al., 2014). Protected nonclinical time is paid time (e.g., 1-2 hours) during the workday in which physicians are not assigned clinical work. Both protected-time interventions were associated with decreased burnout among physician participants. West et al. (2014) randomly assigned participating physicians to a small-group physician wellness curriculum during protected time (intervention group) or to unstructured time (control group). The team later compared data with non-trial participants. Overall burnout significantly decreased in the intervention group, slightly decreased in the control, and increased in non-trial participants. This indicates that coupling institutionally supported individual wellness interventions (i.e., mindfulness-based interventions) with restructuring of the institutional environment maximizes benefits. Findings from both studies suggest that protected nonclinical time is an effective organizational intervention for reducing physician burnout; more studies are needed to assess this intervention's effectiveness for reducing burnout in non-physician clinicians.

Limitations and Challenges

The workplace intervention studies included in the literature review are subject to limitations. Some of the studies, such as the ones by West et al. (2014) and Stevens et al. (2020), had small sample sizes and limited generalizability to one specialty or a single medical center. More comparative studies with large cohorts are needed to assess the impacts of these workplace interventions across a diverse range of HCPs. Furthermore, none of the studies investigated how the implemented workplace interventions affected all healthcare workers involved. For example, impacts of workflow changes in the study by Linzer et al. (2015) were only assessed among participating physicians, nurses, and physician assistants but not among the medical assistants (MAs) or clinic schedulers who were integral to these changes. When

implementing workplace interventions, it may be helpful to evaluate impact on burnout among all staff who are involved.

Despite these limitations, the studies highlighted key components for successful workplace improvement interventions. All effective workplace improvement interventions included in this review focused on teamwork and collaboration, aligned with the organizational mission and core values, and transformed care delivery. Workflow changes, QI projects, and protected nonclinical time are examples of effective HCP burnout interventions, particularly among clinicians. Finally, when planning to implement workplace improvement interventions, organizational leadership must collaborate with HCP staff in both selecting and tailoring interventions.

Positive Reflection Interventions

Roughly 14% ($n = 4$) of the included studies described interventions that used positive reflection to address burnout. Positive reflection, like mindfulness, is a positive psychology tool that promotes positive emotions and engagement (Adair, Kennedy, & Sexton, 2020). Rather than focus on dysfunction, these types of interventions work to promote happiness in HCPs.

Four types of positive reflection interventions emerged from the included studies: 1) Three Good Things (3GT), which asked HCPs to reflect on what went well in the work day); 2) gratitude letter-writing, which invited HCPs to write an appreciative letter to a positive influence; 3) a Looking Forward tool, which asked HCPs to reflect on positive future events); and 4) WISER (Web-based Implementation for the Science of Enhancing Resilience), which combined multiple evidence-based positive psychology practices (Adair, Kennedy, & Sexton, 2020; Adair, Rodriguez-Homs et al., 2020; Profit et al., 2021; Sexton & Adair, 2019). Each of these interventions, except for the Looking Forward tool which did not assess participant burnout, was associated with significant improvement in emotional exhaustion.

Of the three positive reflection interventions, the gratitude letter is noted to have shown the greatest benefit (Adair, Rodriguez-Homs et al., 2020). In a prior study, the gratitude letter demonstrated the largest post-test effect sizes in terms of increased happiness ($\lambda^2 = 0.49$; $p < .05$) and decreased depressive symptoms ($\lambda^2 = 0.36$; $p < .05$) compared to the other positive reflection tools (Seligman et al., 2005). Adair, Rodriguez-Homs and colleagues (2020) conducted a randomized single-exposure trial examining the effectiveness of a gratitude letter-writing intervention on improving HCP well-being (including emotional exhaustion, happiness, and work-life balance). Both self- and other-focused prompts resulted in significant improvements in all HCP well-being outcomes ($p < .001$).

One study by Adair, Kennedy, and Sexton (2020) examined 3GT, gratitude letter-writing, and the Looking Forward tool. They noted that all three interventions were associated with significant improvements in some or all of the well-being metrics of interest, including emotional exhaustion (measured only in 3GT and the gratitude letter intervention). Some effects lasted long-term: improvements conferred by 3GT were sustained at 12-month post-intervention follow-up. These "simple, brief, and uplifting web-based positive psychology tools" (Adair, Kennedy, & Sexton, 2020, p. 619) are promising low-cost interventions for improving burnout and/or overall well-being among HCPs.

Limitations and Challenges

Though promising, positive reflection interventions are limited in that they only address individual-level factors for burnout. Since these interventions are singularly aimed at increasing positive emotions among HCPs, they will not directly address workplace stressors. Healthcare organizations hoping to address HCP burnout should not treat these tools, or any other individual-level interventions, as a panacea; rather, these interventions should be used as part of a much larger set of tools addressing both individual and institutional factors for burnout. Furthermore, healthcare organizations interested in implementing positive reflection

interventions may do well to ensure that the interventions are acceptable by involving target HCPs in the planning process.

Stress Management Interventions

Two of the included studies examined stress management interventions. This category of intervention uses cognitive-behavioral and relaxation techniques to help HCPs cope with and lessen personal stress (Clemow et al., 2018; Hersch et al., 2018). The rationale for using stress management interventions to treat HCP burnout is similar to that of mindfulness interventions: reducing stress, including work-related stress, may lead to reductions in burnout.

Of the two stress management intervention studies that were included, only one (Clemow et al., 2018) specifically assessed burnout. The researchers for this study evaluated the effect of a cognitive-behavioral group intervention for stress and anger management among HCPs with high blood pressure. The program, consisting of 10 weekly 1-hour group sessions during the workday, followed the Williams LifeSkills Workshop manual and video (V. Williams & R. Williams, 2020). The program facilitator led participants through several behavioral skills for coping with stressful situations, including self-monitoring, problem solving, assertiveness in dealing with stressors, deflection skills to reduce distress, communication skills, and positive relationship-building. The intervention significantly decreased participants' systolic blood pressure compared to controls (-7.5 mm Hg differential change between groups; $p = .04$) but had a small effect on psychosocial measures. There was significant reduction of the emotional exhaustion dimension of burnout (-2.5 points; $p = .03$) but no significant changes in the depersonalization or personal accomplishment dimensions.

The other stress management intervention study included, authored by Hersch and colleagues (2016), did not evaluate for changes in burnout. The study examined a web-based stress reduction program, *BREATHE: Stress Management for Nurses*. This program consisted of seven educational modules for nurses focused on stress-coping skills (such as identifying stressors and avoiding negative coping). An additional module was provided for nurse

managers to help managers reduce stress by identifying workplace stressors and implementing positive management practices. One strength of this intervention was that it was designed specifically for nurses, so program material was highly relevant to nursing-related stressors. The intervention significantly improved nursing-related stress compared to the control, demonstrating promise for reducing stress and potentially reducing burnout in nurses; however, results may not be widely generalizable due to the small sample size ($N = 104$).

Limitations and Challenges

More research is needed on the efficacy of stress management interventions for alleviating HCP burnout. While these interventions may effectively reduce stress, they may not necessarily reduce burnout. Furthermore, since these interventions primarily address HCP stress-coping skills, they are typically limited to the individual level of the social ecological model. If healthcare organizations choose to implement stress management interventions in burnout-reduction efforts, they should consider combining them with other evidence-based interventions targeted at individual and institutional sources of burnout.

Interventions for Coping with Patient Death and Severe Illness

Two of the included studies described interventions aimed at helping HCPs with patient death and severe illness. HCPs experience a range of emotional responses to patient deaths– such as a sense of loss, grief, or self-doubt–that can contribute to burnout (Corpora et al., 2021). HCPs who are routinely involved in care for severely ill or terminal patients are especially vulnerable to burnout (Granek et al., 2014). COVID-related deaths of both patients and co-workers may further exacerbate this type of burnout; thus, interventions aimed to provide social support and help HCPs cope with death are needed.

One pilot intervention described by Corpora et al. (2021) included a memorial service for patient death consisting of music therapy, chaplain support, and mindfulness resources (e.g., remembrance stones inscribed with the words "hope" or "breathe"). Given the posttest-only design of the study, the effectiveness of the intervention was unable to be determined.

However, most of the participants (adult HCWs, $N = 53$) described the session as helpful for their well-being.

A similar intervention was modeled after 'Death Cafes', informal discussions focusing on death, dying, grief, loss, and illness (Bateman et al., 2020). Death Cafes are pop-up events that originated in various public settings in Switzerland but have since become a global phenomenon (Miles & Corr, 2017). Though refreshments are often included at these events, Death Cafes are not necessarily located within restaurants or cafes; in fact, the Death Cafe debriefing sessions described by Bateman et al. (2020) were held virtually through a teleconferencing platform. The included article relating to this intervention only details the study protocol, as the results are not yet published. However, preliminary studies suggest debriefing sessions may reduce HCP burnout (Eagle et al., 2012; Govindan et al., 2019). Further research is needed on the efficacy of memorial services, Death Cafes, or other coping-with-death interventions for reducing burnout among HCPs.

Limitations and Challenges

The coping-with-death interventions that were included in this review have multiple limitations. Despite the clear need for this type of intervention, there appears to be limited research dedicated to evaluating its efficacy on HCP burnout reduction. Neither of the included studies were able to determine effectiveness of the interventions–Corpora et al. (2021) used a posttest-only design, and Bateman et al. (2020) have not yet published the results of their study. Additionally, it is unclear whether these interventions are culturally acceptable across diverse HCPs. Since death and mourning rituals vary across different cultures, it is important that these interventions are tailored and culturally informed (Kagawa-Singer, 1998).

Other Interventions

The remaining four of the included studies described interventions that could not be grouped in the aforementioned categories. These included an animal-assisted support program (Etingen et al., 2020), advanced electronic health record (EHR) training with a wellness

component (Robinson & Kersey, 2018), web-based group-coaching for female residents
(Fainstad et al., 2022), and a corporate wellness initiative ("The Happiness Practice" [THP]; Hart
et al., 2018). These interventions targeted sources of HCP burnout at individual, interpersonal,
and/or organizational levels.

To improve workplace atmosphere, Etingen et al. (2020) implemented an animal-
assisted support program for healthcare employees. Though few studies on the effects of
animal-assisted support on HCP burnout exist, there is evidence in the literature that such
programs can significantly improve employee well-being, reduce workplace stress, and improve
job satisfaction (Wilkin et al., 2016). Post-intervention, participants reported significantly lower
levels of patient-related burnout and significant immediate improvements in mood; however,
generalizability of these findings are limited by the study's small sample size ($N = 39$).

Another approach to addressing HCP burnout includes EHR education. Given that
increased computerization of practice is a significant source of physician burnout, more studies
describing EHR-related interventions were expected among those included in this review (Kane,
2022; West et al., 2018). While burnout was not specifically assessed, an EHR educational
intervention with a wellness component did increase documentation efficiency among
participating physicians ($N = 3500$), 78% of whom reported time savings of 4 minutes or more
per hour (Robinson & Kersey, 2018). Potentially, the resulting increase in timeliness and
workload reduction may reduce burnout among physicians. However, more research on EHR
interventions is needed to determine efficacy in reducing HCP burnout.

In another study, Fainstad et al. (2022) implemented a pilot randomized controlled trial of
a multiformat, web-based group-coaching intervention among female resident physicians. The
program, Better Together Physician Coaching, used an inquisition- and metacognition-based
professional coaching tool that included live coaching calls (via Zoom video conferencing), a
written forum, and self-study consisting of worksheets/modules. Post-intervention, the
intervention group experienced statistically significant decreases in emotional exhaustion

dimension of burnout and in impostor syndrome scores, as well as a significant increase in self-compassion scores. Improvements in the depersonalization and personal accomplishment dimensions of burnout were not statistically significant, suggesting that the intervention may not effectively address all aspects of burnout in residents. Even so, this group-coaching intervention demonstrates promise in reducing physician burnout among female residents. Future studies should examine the effect of this intervention on burnout among male residents and other HCPs.

The last of the miscellaneous intervention studies describes a corporate wellness initiative, "The Happiness Practice" (THP), implemented for emergency medicine (EM) residents. The intervention, developed and led by two former business executives (the co-founders of THP), consisted of 6 monthly hour-long didactic sessions. These sessions, while not explicitly rooted in any psychological theory, aimed to, "increase each individual's happiness and resilience through helping them develop 'new ways of thinking, feeling and behaving that positively impact their life, their work and their environment'" (Hart et al., 2018, p.139). Despite prior reports of improving burnout and overall wellness among non-physician EM HCPs (predominantly nurses) and hospital-based executive leadership teams, THP did not reduce burnout among EM residents. In fact, the EM residents who participated in the study perceived the intervention negatively. Participants found THP content to be largely irrelevant to residency stressors and EM work, felt the sessions needed to be better tailored to HCPs, and noted the sessions were generally unhelpful. Though the intervention was not effective for the target population (EM residents), the study underscores important lessons for healthcare organizations in developing and implementing their own burnout interventions. All interventions must undergo formative evaluations to assess for feasibility, interest, and acceptability among the target audience. Formative evaluations may help guide intervention content and messaging, which increases the likelihood of program success.

Limitations and Challenges

Since the categorization of interventions involved substantial subjectivity on the part of the author, it is possible that these miscellaneous interventions could have been grouped more appropriately. As they are currently grouped, these interventions are fully distinct from each other and are difficult to compare. Furthermore, some of the studies are limited by small sample size or lack generalizability. Larger and more comparative studies are needed for each of these interventions to make stronger conclusions about their effectiveness in reducing HCP burnout.

Measures Used to Assess Burnout

Maslach Burnout Inventory

The Maslach Burnout Inventory (MBI) is a commonly used, 22-item scale developed by Maslach and colleagues (1997) that captures three dimensions of burnout: emotional exhaustion (EE), depersonalization (DP), and sense of personal accomplishment (PA). Example items from the scale include "I feel emotionally drained from my work" (EE), "I've become more callous toward people since I took this job" (DP), and "I have accomplished many worthwhile things in this job" (PA). This multidimensional scale is preferable because it aligns with the current WHO and ICD-11 definition of burnout syndrome.

Consistent with prior literature, the MBI was the most widely used measure ($n = 20$) for burnout in the studies reviewed. Of the 28 articles reviewed, 20 used the MBI in some capacity. While the version of the MBI used was not always specified, the MBI-Human Services Survey (MBI-HSS), MBI-HSS for Medical Personnel (MBI-HSS [MP]), and MBI-General Survey (MBI-GS) may be used (Raudenská et al., 2020). All three of these versions of the MBI are commercially owned and must be purchased for use.

Some of the included studies only used a subscale or components of a few subscales of the MBI for the sake of brevity or simplicity. For example, Adair, Kennedy, and Sexton (2020) approximated burnout using a 5-item derivative of the EE subscale, noting that EE consistently produces the largest and most consistent coefficient alpha compared with DP and PA (Wheeler et al., 2011). In fact, the MBI-EE appears to be the most favored of the subscales–while multiple

of the included studies used the EE subscale alone, the DP and PA subscales were never used

alone (Table 1). Though EE appears to be a strong approximation for burnout, the choice to use

this subscale alone should be weighed against the need to capture all three dimensions of

burnout.

Mini-Z Burnout Survey

The Mini-Z Burnout survey, developed and validated by Linzer and Poplau (2017), is a

10-item questionnaire assessing work-related burnout. Green and colleagues (2020) used the

Mini-Z Burnout survey to measure primary (burnout) and secondary outcomes (job-related

stress, job satisfaction) of their intervention. They noted the simplicity and brevity of the survey

was a strength. In another study, Stevens and colleagues (2020) used the Mini-Z survey in-

tandem with the MBI to assess burnout and related outcomes. While the Mini-Z is favored for its

brevity, researchers must note that only one of the items (question 3) directly measures burnout;

this question asks respondents to rate their level of burnout on a scale of 1 to 5, based on their

own definition of burnout. However, this single-item burnout measure has been externally

validated against the MBI with strong correlations with the MBI EE subscale (Stevens et al.,

2020). Furthermore, five other items of the scale assess outcomes related to burnout, such as

job satisfaction, job-related stress, control over workload, sufficiency of time for documentation,

and time spent at home on the EHR (Linzer & Poplau, 2017; Stevens et al., 2020). Given the

Mini-Z assesses burnout and the aforementioned related outcomes, researchers may choose to

use it as a brief tool that captures a comprehensive picture of burnout.

Other Measures

In addition to the MBI and the Mini-Z, included studies used other measures such as the

Professional Quality of Life (ProQOL) survey, the Copenhagen Burnout Inventory (CBI), and

intervention-specific scales. Two of the included studies used the ProQOL to measure burnout:

Ducar et al. (2020) used this scale by itself, and Duchemin et al. (2015) used this scale in

combination with the MBI. The ProQOL, developed by Stamm (2005), is a validated 30-item

scale that assesses compassion satisfaction, risk of burnout, and secondary traumatic stress. Though this measure is not as commonly used as the MBI, the ProQOL is free to use with permission from the measure's owner, the Center for Victims of Torture (2021).

In one study, Etingen et al. (2020) used the Copenhagen Burnout Inventory (CBI) to measure burnout. The CBI is a 19-item measure of employee perceptions of burnout (Kristensen et al., 2005). The scale assesses 3 types of burnout: personal, work-related, and client (patient)-related burnout (see Appendix). None of the other included studies used this tool, but it is a valid and reliable measure of burnout experienced by employees in various domains, including HCPs. Since the CBI is in the public domain, it is a valuable no-cost alternative to the MBI.

Two of the included studies measured burnout using scales designed specifically for their respective interventions. In one study, Corpora et al. (2021) measured "self-rated burnout" on a 5-point scale, then dichotomized self-rated burnout as no burnout (1-3) and burnout (4-5). To this author's knowledge, this measure was not validated against other measures of burnout, such as the MBI. In another study, Linzer et al. (2015) used survey tools adapted from the MEMO (Minimizing Error, Maximizing Outcome) and Physician Worklife (PWS) studies; this survey assessed burnout with a 5-item scale primarily focused on EE. Unlike the other intervention-specific measure, the items on this scale were previously validated against the MBI. Though intervention-specific burnout scales may help examine unique aspects of the intervention, they may lack the reliability of pre-existing scales widely tested in existing literature; researchers who choose to use such scales should test them rigorously and use them with caution.

Recommendations

The recommendations detailed below are aimed to guide hospitals and other health organizations based in the United States in designing, implementing, and evaluating interventions for HCP burnout. Key recommendations from the literature review are summarized

as a set of guidelines in Table 2. These are divided into two categories: intervention guidelines

and measurement guidelines. This set of guidelines may assist healthcare organizations

implement their own evidence-based interventions and help reduce widespread burnout among

their employees, thereby improving patient safety and quality of care.

Table 2

Guidelines for Burnout Interventions and Preferred Burnout Measures

Intervention Guidelines	
● Mindfulness-based interventions are popular and effective in reducing HCP burnout but are limited to targeting individual- and interpersonal-level factors.	→ **Combine mindfulness-based, positive reflection, or other evidence-based individual- and interpersonal-level interventions with larger-level (organizational, community, or policy) interventions.**
● Workplace improvement interventions are effective organizational-level interventions for improving HCP burnout.	→ **Implement evidence-based workplace interventions such as workflow changes, team huddles, staff recognition, and QI projects to reduce burnout and promote positive team culture.**
● Interventions that reduce burnout in some HCP populations may not be effective in reducing burnout for others.	→ **Use formative evaluation methods to assess for intervention feasibility and acceptability among the target audience.** → **Use content and messaging relevant to the target HCPs and their specific work-related stressors.**
Measurement Guidelines	
● The Maslach Burnout Inventory (MBI) is the most widely used tool for capturing all three dimensions of burnout syndrome: emotional exhaustion, depersonalization, and personal accomplishment.	→ **If feasible, use the entire 22-item questionnaire to capture all three dimensions of burnout. If only one subscale will be used, use the emotional exhaustion subscale**.
● The Copenhagen Burnout Inventory (CBI) and Professional Quality of Life (ProQOL) survey are valid, reliable, cost-free measures for burnout and related factors.	→ **Use the CBI or ProQOL as cost-free alternatives to the MBI.**
● Burnout measures designed for specific interventions may lack the reliability or validity of other scales.	→ **Use intervention-specific scales with caution–test these measures rigorously for validity and reliability.**

Intervention Guidelines

Based on the data analyzed from the literature review, mindfulness-based interventions are widely utilized and effective in reducing HCP burnout. However, since these interventions are restricted to targeting individual- and interpersonal-level factors of burnout, they do not address larger-level (e.g., organizational) factors of burnout. This same limitation is evident for other evidence-based individual- and interpersonal-level interventions, such as positive reflection and stress management interventions. To compensate for this limitation, healthcare organizations may consider a more holistic approach toward HCP burnout. Specifically, they should combine interventions targeted at multiple levels of the social ecological model to address both individual and institutional sources of HCP burnout.

Though most of the interventions included in the literature review were targeted at the individual level, organizational-level interventions were identified. Most interventions at this level are workplace improvement interventions. Such interventions include workflow changes, team huddles, staff recognition, communication improvement, and quality improvement (QI) projects. Healthcare organizations should consider implementing these evidence-based workplace improvement interventions to reduce HCP burnout and promote positive team culture.

Lastly, interventions that reduce burnout in some HCP populations may not effectively reduce burnout in others. For example, the corporate wellness initiative, "The Happiness Practice", *worsened* subjective burnout among emergency medicine residents, despite reports of prior success among nurses and hospital executive teams (Hart et al., 2018). This underscores the need to use formative methods (e.g., focus groups) to assess for intervention feasibility and acceptability among target HCPs. Furthermore, intervention content and messaging should be tailored toward the target HCPs and their specific work-related stressors.

Measurement Guidelines

Among all the studies included in the literature review, the Maslach Burnout Inventory was the most widely used instrument for assessing HCP burnout, with 20 studies using at least part of the MBI. This tool may be preferred since it captures all three dimensions of burnout syndrome as defined by the WHO: emotional exhaustion, depersonalization, and reduced sense of personal accomplishment. If feasible, researchers evaluating burnout interventions should use the entire 22-item MBI questionnaire to assess all three dimensions of burnout. However, should researchers opt to use just one of the three subscales, they should utilize the emotional exhaustion subscale as this is the strongest approximation for burnout (Wheeler et al., 2011).

One of the key limitations of the MBI is its cost; the MBI is not in the public domain, so researchers must pay to use it. Cost-free alternatives to the MBI were identified in the literature review. The most prominent of these included the Copenhagen Burnout Inventory and the Professional Quality of Life survey. Though few of the studies included in the literature review used them, both of these measures are valid and reliable measures of burnout and related factors. Since cost may be a limiting factor in intervention implementation and evaluation, researchers should consider using these cost-free alternatives to the MBI.

Some interventional study designs may call for burnout measures created specifically for the implemented intervention. However, such measures may lack the robust reliability and validity of other, widely tested measures (e.g., the MBI). Researchers planning to create their own burnout measures from scratch should use them with caution. Namely, such measures should be tested to reach comparable levels of validity and reliability of well-established burnout measures.

Implications and Discussion

Studies included in the literature review demonstrated the effectiveness of mindfulness-based interventions for improving HCP burnout and other aspects of well-being. These

interventions were the most popular but were limited to addressing individual-level (skills, knowledge, attitude, behavior) and interpersonal-level (social support, social networks) factors of HCP burnout. Mindfulness, positive reflection, and other individual- or interpersonal-level burnout interventions should be used as part of a larger toolkit in addressing both individual and institutional factors of HCP burnout. Ultimately, implementing burnout interventions without working toward any systemic change will not solve the root causes of HCP burnout. Any burnout intervention must be accompanied by a genuine promise to resolve structural causes of burnout, such as excessive workload and time spent at work, lack of autonomy and voice, and barriers to mental health care. Workplace interventions (e.g., workflow changes, staff engagement) may help address some of these structural factors, but more studies investigating workplace interventions are needed. Implementing larger systemic change, such as national policies for burnout prevention, may be more challenging and resource-intensive than implementing individual-level interventions, yet it is crucial for longer-term burnout prevention and management. For this purpose, health care institutions may partner with community organizations and governmental leadership to implement interventions for HCP burnout across all levels of the social ecological model.

Included studies described effective workplace-based interventions that targeted organizational-level factors for HCP burnout. These included workflow changes, team huddles, staff recognition, protected nonclinical time, and QI projects to reduce burnout and promote positive team culture. Interventional elements that contributed to success included teamwork and collaboration, alignment with the organizational mission and core values, and transformation of care delivery. Many of the workplace-focused interventions described were limited to clinician HCWs, so more studies on workplace improvement interventions for non-clinician HCW burnout are needed. In the initial stages of workplace intervention design and implementation, researchers and organizational leadership must collaborate with HCP staff in both selecting and tailoring interventions.

One limitation of this literature review is that it is difficult to assess the generalizability of the interventions' effectiveness in diverse HCPs. For instance, the online group-coaching program described by Fainstad et al. (2022) was designed and implemented specifically for female resident physicians at a single institution (University of Colorado School of Medicine); consequently, the generalizability of the study's findings to HCPs of other genders, professions, or institutions may be limited. Similarly, the stress management intervention implemented by Clemow et al. (2018) specifically targeted hypertensive adult urban medical center employees (18-70 years) who were identified through workplace blood pressure screenings; it is possible that this stress and anger management intervention may not be appropriate or similarly effective for rural or nonhypertensive HCWs. More research is needed on the included interventions to determine efficacy in reducing burnout in a diverse range of HCPs.

A similar limitation of this literature review is that the included studies (and their respective interventions) cannot be directly compared. Not only do the interventions differ between studies, but so do the methodologies. It is thereby difficult to ascertain which category of intervention (mindfulness-based, positive reflection, workplace improvement, etc.) is "most effective" for a specified HCP population. There needs to be more quantitative and qualitative research on the differential effects of each intervention on different healthcare professions. For example, how effective is a mindfulness intervention for reducing burnout among doctors compared to nurses, physician assistants, social workers, and other healthcare employees? Or, are group-focused interventions more effective in reducing HCP burnout compared to individual-focused interventions? Future research in these directions may help illuminate which HCP burnout interventions are most effective, and for whom they are most effective.

Regarding preferred measures for HCP burnout, the MBI was identified as the most prevalent among the included studies. However, some studies only used the EE subscale or just included a few items from different subscales. The rationale behind using the EE subscale alone is that EE consistently produces the largest and most consistent coefficient alpha

compared with DP and PA (Wheeler et al., 2011). If researchers opt to use just one of the MBI subscales, they may not fully capture all dimensions of burnout in their data.

The MBI is limited by another factor: cost. Since this measure is commercially owned, researchers must pay to use it. There are cost-free alternatives to the MBI in the included literature; namely, these publicly available burnout measures include the ProQOL and the CBI (Kristensen et al., 2005; Stamm, 2005). Another option would be to develop new, study-specific measures for burnout, yet rigorous testing would be needed to assess the reliability and validity of such measures.

Conclusion

This literature review successfully identified literature that describe U.S.-based interventions for addressing HCP burnout at multiple social ecological levels, ranging from individual to community levels. Predominant categories included mindfulness-based interventions, workplace improvement interventions, positive reflection interventions, stress management interventions, interventions for coping with death and severe illness, and other interventions. The MBI was identified as the most-utilized measure to assess HCP burnout, yet cost-free alternatives such as the ProQOL and CBI are also valid and reliable burnout measures. Future directions for research include examining differential effects of each intervention type on burnout across a diverse range of HCPs. Lastly, healthcare organizations planning to address HCP burnout should consider a holistic approach, implementing multi-component interventions that address both individual and institutional sources of burnout while advocating for policy-level change.

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Appendix

Copenhagen Burnout Inventory

Personal burnout

1. How often do you feel tired?
2. How often are you physically exhausted?
3. How often are you emotionally exhausted?
4. How often do you think: "I can't take it anymore"?
5. How often do you feel worn out?
6. How often do you feel weak and susceptible to illness?

Response categories and corresponding % score: Always (100), Often (75), Sometimes (50), Seldom (25), Never/almost never (0).

Work-related burnout

1. Is your work emotionally exhausting?
2. Do you feel burnt out because of your work?
3. Does your work frustrate you?
4. Do you feel worn out at the end of the working day?
5. Are you exhausted in the morning at the thought of another day at work?
6. Do you feel that every working hour is tiring for you?
7. Do you have enough energy for family and friends during leisure time?

Response categories and corresponding % score:
First three questions: To a very high degree (100), To a high degree (75), Somewhat (50), To a low degree (25), To a very low degree (0).
Last four questions: Always (100), Often (75), Sometimes (50), Seldom (25), Never/almost never (0). Reversed score for last question.

Client*-related burnout

*Client, patient, social service recipient, elderly citizen, or inmate.

1. Do you find it hard to work with clients?
2. Do you find it frustrating to work with clients?
3. Does it drain your energy to work with clients?
4. Do you feel that you give more than you get back when you work with clients?
5. Are you tired of working with clients?
6. Do you sometimes wonder how long you will be able to continue working with clients?

Response categories and corresponding % score:
First four questions: To a very high degree (100), To a high degree (75), Somewhat (50), To a low degree (25), To a very low degree (0).
Last two questions: Always (100), Often (75), Sometimes (50), Seldom (25), Never/almost never (0).

Note. Copenhagen Burnout Inventory (CBI). Adapted from "The Copenhagen Burnout Inventory:

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