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Physician Burnout in the United States: A Systematic Review of Organizational and Systemic Approaches and their Efficacies, 2014-2024

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Abstract

Physician burnout represents a critical public and clinical health concern in the United States. It compromises patient care and physician safety. Approaches to solve the issue are pervasive, with limited indication of effectiveness. Due to the essential job functions of physicians, the practice of medicine is inherently stressful. However, the introduction of new, more complex stressors, including those exacerbated by the COVID-19 pandemic, and the increase in chronic healthcare conditions have made burnout an unfortunate staple of physician life, with an estimated prevalence of up to 60%. Burnout involves three factors: emotional stress, depersonalization, and reduced job satisfaction. The consequences of leaving these unchecked are dire, including reduced quality of life for physicians, increased medical errors, decreased quality of patient care and poor patient outcomes. Additionally, physician burnout has impactful financial ramifications on the United States healthcare system, with an estimated $4 billion in productivity losses. In the last decade, numerous efforts have been made to better define and develop interventions to tackle physician burnout within the United States; however, these solutions have had narrow success, making it important that resources and time continue to be devoted to this issue.

Introduction

Practicing medicine is often a stressful and demanding profession for several reasons. Physicians face disease, suffering, and death often, which can create emotional exhaustion (Riley, 2019). Making critical, impactful decisions regarding patients' lives is stressful, and because physicians are human, they make errors. The risks associated with making medical errors can be detrimental, including malpractice lawsuits, loss of medical licensure, and patient death (Singh et al., 2023). Additionally, many practicing physicians work long hours and perform many burdensome administrative tasks, which can create physical exhaustion and professional dissatisfaction (Herd & Moynihan, 2021). These factors, along with several changes in the United States healthcare system, have created additional and more complex stressors for physicians.

The aging Baby Boomer population and increases in chronic health conditions have increased the overall demand for the services of physicians; while at the same time, physician matriculation in medical schools has reduced, creating a greater workload for current physicians (Ansah & Chiu, 2023). Dyrbye et al. 2013, found that for every extra hour worked above 51.8 hours, symptoms of burnout increased by 2%. Additionally, other factors, such as the complexity of practicing medicine, patient adherence, clinical culture, organizational system dysfunction, and ignoring the stressors, are all viewed as contributors to burnout. The advance of technology has improved health delivery but may also have worsened physician burnout due in part to the complexity of the training and incorporation of electronic health records (EHRs) into daily routine (Alkhamees et al., 2023). These electronic charting systems have resulted in a major change in the way medical doctors perform their essential job functions; namely, the way they assess and care for their patients. EHRs have also resulted in more time spent on data entry rather

than patient interaction, leading to decreased autonomy and increased professional dissatisfaction (Agency for Healthcare Research and Quality, 2017). While these factors paint a dismal picture for physicians and healthcare organizations within the United States, many of these organizations have taken the time and initiative to explore burnout causes further and determine potential solutions.

Although healthcare organizations within the United States have dedicated much time and effort to defining and developing solutions to physician burnout, including the creation of chief wellness officers (CWOs), implementation of mandatory group support sessions, and increased flexibility in physician scheduling and task management, many interventions have demonstrated limited success (DePorre et al., 2023). Some researchers theorize that current interventions lack sustained, positive outcomes due to the structure of the United States healthcare workforce system and that robust, system-altering changes are needed (DePorre et al., 2023). For example, DePorre et al. postulate that while physicians have a sworn duty to advocate and care for patients and "do no harm," they are prey to the financial goals of their respective healthcare organizations, which dictate their tasks, schedules, and how they care for patients (2023). Padgett and Ascensao argue that the term "moral injury" better describes the combination of emotional stress, depersonalization, and decreased job satisfaction that our healthcare providers face than does "burnout", primarily because burnout focuses on the individual physician, whereas moral injury focuses on the entire workplace structure of physicians, including the inputs from the greater healthcare system (2019). Regardless of which definition is used, it is imperative to examine the organizational and systemic elements that contribute to the issue of physician burnout and the organizational response.

Given the complexity of the issue and the limited success of published interventions, there is a need for a comprehensive literature review to isolate and define more nuanced or effective solutions. Research indicates that there is not a "one size fits all" solution to physician burnout. Various factors, including individual, organizational, ethical, cultural, and geographic influence the stressors faced by physicians and thus, the efficacy of interventions. Several interventions have focused on the unique stressors experienced within the different specialties of medicine, which may indicate that specialty-tailored approaches are necessary. For example, Moody et al. tested whether an 8-week mindfulness education course would be effective in reducing burnout in pediatric oncology healthcare workers, including physicians, mainly due to the specific stressors they encounter (2013). Some of these stressors included witnessing the prolonged suffering and death of children and the socioeconomic burdens these children and their families experience (Moody et al., 2013). While the participants experienced the desired benefits of the mindfulness training, it did not improve their burnout symptoms significantly (Moody et al., 2013). Additionally, the researchers found that these participants reported higher levels of perceived stress than the United States average and proposed that future research should fuse relaxation and stress management techniques with changes in the work environment and task structure (Moody et al., 2013). This is supported by the results of a meta-analysis done by Panagioti et al., in which the researchers found that individualized interventions offer minute benefits alone but are more effective when combined with an organization-directed intervention (2016). Clearly, there is a wide variety of burnout stressors and their origins, and further research efforts are needed to determine what solutions are effective.

To continue efforts to reduce physician burnout in the United States, an analysis of current research to determine what has been effective is required. Given the complexity of the

issue, the multitude of factors that produce and aggravate burnout, and the lack of consensus regarding effective solutions, it is imperative to find and fill the gaps in existing research. In doing so, the direction of future physician burnout reduction interventions can be determined. This work aims to accomplish these by examining if organizational and systemic approaches to mitigate physician burnout have been effective. Additionally, this work aims to examine which approaches to reduce physician burnout have produced the most efficacy.

Background and Literature Review

The term "burnout" is not new or unique to the practice of medicine. The concept of burnout was introduced in the 1970s by American psychologist Herbert Freudenberger as a condition of "physical and mental exhaustion" resulting from repeated exposure to stressful factors within the workplace, and since then, has been redefined in a myriad of ways (Nene & Tadi, 2023). However, the most accepted definition of burnout is a mix of emotional exhaustion, depersonalization, and reduced job satisfaction (Bianchi & Schonfeld, 2017). Bianchi & Schonfeld note that although this definition is most widely used, it remains difficult to quantify burnout and estimate the true prevalence (2017). According to Lacy and Chan, physicians experiencing burnout symptoms state they are "overworked, overextended, and may describe a sense of having nothing left to give" (2018). These feelings detach physicians from their work, patients, and fellow healthcare professionals and resemble symptoms of depression (Lacy & Chan, 2018). In fact, a study by Bianchi & Schonfeld that sought to examine the similarities among the psychopathology of burnout and depression discovered that 90% of participants who noted having feelings of burnout met the diagnostic criteria for clinical depression (2014).

Because the definition of burnout is not fully standardized, the measurement and reduction of burnout are complex tasks. Currently, the Maslach Burnout Inventory (MBI), Burnout Measure (BM) and Shirom-Melamed Burnout Measure (SMBM) tools are most often used to measure physician burnout and consist of 21 to 22 questions that focus on levels of emotional exhaustion and disengagement related to work (Patel et al., 2019). These tools are frequently used in the early stages of physician burnout interventions to adequately identify and assess burnout symptoms and formulate solutions (Patel et al., 2019).

Many interventions that target physician burnout have been structured to affect change at two levels: individual and organizational (Patel et al., 2019). Individual physician burnout reduction interventions focus on behavioral changes, including self-assessment of burnout symptoms and stress levels, stress management tools, and coping mechanisms training (Patel et al., 2019). The Institute for Healthcare Improvement's (IHI) Guide to Promoting Health Care Workforce Well-Being recommends physicians and other healthcare professionals develop a "Psychological First Aid" and "Psychological PPE" mindset, in which mental health resilience and remediation are the primary focuses (Institute for Healthcare Improvement [IHI], 2020). IHI also vouches for peer support, including group therapy and having a designated peer support "buddy" to discuss mental health state and stressful events with an understanding member of the workforce (IHI, 2020). These strategies are commonly implemented in individual-based interventions to reduce physician burnout and have smaller significant reductions in burnout; however, most of the evidence demonstrates that these strategies have a much less significant impact on reducing burnout compared to organizational-level interventions (Panagioti et al., 2017).

Though organizational interventions to reduce physician burnout may be impactful, they are less common for several reasons. Implementing change within an organization is difficult due to the multitude of factors at play that must be identified and controlled, including the physical workplace structure, policies and procedures, schedules, division of tasks, and volume of patients, to name a few (von Thiele Schwarz et al., 2020). Another contributing factor in the lack of organizational-level interventions available, and one is perhaps the most limiting, is cost (Goitein, O'Malley, & Redberg, 2017). Like most for-profit businesses in the United States, healthcare organizations rely on abundant financial resources to sustain operations, manage

change, fund research and development, and stimulate growth and innovation (Goitein, O'Malley, & Redberg, 2017). The risks involved with implementing these organizational-level interventions may be unfavorable, especially if financial resources are limited within the organization (von Thiele Schwarz et al., 2020). Failure may lead to major disruptions in operations and poor financial outcomes. Additionally, there may be resistance to the change from stakeholders, including administrators, patients, physicians, and other members of the healthcare workforce (Noblet & LaMontagne, 2008). These interventions require continuous management and improvement to sustain the effects, which translates to more resources used over time (von Thiele Schwarz et al., 2020). Nonetheless, it is important to examine the design and outcomes of these interventions to determine if they are a useful pathway to the sustained reduction of physician burnout, and if so, to further illustrate the need for more financial resources devoted to designing, implementing, and maintaining them.

Organizational-level interventions to reduce physician burnout have primarily focused on improving physician autonomy in the workplace and altering the required tasks, workload, workplace structure, and schedules of physicians (Goitein, O'Malley & Redberg, 2017). Panagioti et al. performed a meta-analysis of 20 controlled interventions on 1550 medical doctors and found that organizational interventions that made efficient changes in workplace structure and allowed physicians to focus on their essential job functions were most effective in reducing burnout (2017). They point out that though these organizational approaches are more likely to reduce physician burnout, there were many varying factors between the interventions, including the organizational environments, which makes repeatability difficult (2017). De Simone, Vargas, & Servillo demonstrate that some organizational-level interventions have led to positive outcomes via the following changes:

1. Implementing reasonable work-hour limits to prevent excessive fatigue and stress.

2. Streamlining processes and clinical workflows and reducing administrative burdens to alleviate stress.

3. Appointing a Chief Wellness Officer (CWO) to focus on physician well-being. (2019)

De Simone, Vargas, & Servillo also noted during their systematic review and meta-analysis of organizational strategies to reduce physician burnout that organization-level interventions had more success improving two components of burnout in physicians: depersonalization and job satisfaction (2019). If physician burnout is exacerbated by disruptions in the larger systems, i.e., the organization and the United States healthcare system, then organizational-level approaches that combine elements of individual-level approaches could formulate the optimal way to target and reduce physician burnout. This leads to the formulation of two research questions:

1. Have organizational and individual-based approaches to reduce physician burnout been effective?

2. Which approaches have produced the most efficacy?

Methods

To attempt to achieve the aims of this work, a combination of a comprehensive literature review and a systematic review approach was used to evaluate existing data. To guide this work, the tools of a comprehensive review were applied using databases via the University of Nebraska Medical Center McGoogan Health Sciences Library, including:

- PubMed

- MEDLINE

- MeSH

- APA PsycInfo

A search strategy was created using a combination of the following keywords:

- Physician burnout

- Physician burnout solution*

- Organizational solution* to physician burnout

- Individual solution* to physician burnout

- Physician burnout intervention*

- Effective physician burnout approach*

These terms were placed into a search strategy table (Table 1) to better visualize a precise search phrase. Once the search phrase was curated and executed in the databases, articles were screened for inclusion and exclusion criteria. Articles included were those published from 2014-2024 to ensure relevance, articles published entirely in English, systematic reviews, meta-analyses, and randomized controlled trials that focused on physician burnout interventions and the following outcomes: burnout level (via MBI, BM, SMBM answers), emotional stress,

depersonalization, job satisfaction, and depression. Articles that were duplicates, did not examine

any of the outcomes, not published entirely in English and did not include physicians were

excluded from analysis. The total number of articles that met the criteria after the inclusion and

exclusion process was 15. Figure 1 illustrates a PRISMA diagram of the study screening process.

Table 1 – **Search Strategy Table**

Physician burnout	Physician burnout solution	Organizational solutions	Individual solutions	Physician burnout intervention	Effective burnout approaches
"Physician burnout"	"Physician burnout solution*"	"Organizational physician burnout solution*"	"Individual physician burnout solution*"	"Physician burnout intervention*"	"Effective physician burnout approach*"
"Physician emotional stress"	"Physician burnout reduction"	"Organizational physician burnout reduction"	"Individual physician burnout reduction"	"Clinician burnout intervention*"	"Efficient physician burnout approach*"
"Physician depersonalization"			"Physician-led burnout reduction"		"Effective clinician burnout approach*"

"Physician job satisfaction"					
"Provider burnout"					

Using this table, the master search term that was developed was **((physician burnout OR physician stress OR physician job satisfaction OR provider burnout) AND (physician burnout solution* OR physician burnout reduction*)) AND (structural burnout solution* OR organizational burnout solution*)) AND (individual burnout solution* OR individual approach*)) AND (effective physician burnout solution* OR efficient physician burnout solution*).**

A total of 181 articles appeared in the results using the search phrase. An additional 11 articles were found via webpage search or citation tracking. After duplicates were removed, a total of 125 abstracts were screened. Those not published from 2014-2024, not entirely in English, and not including physicians in the intervention were excluded. A total of 43 full-text articles were analyzed for measurement of physician burnout outcomes pre- and post-intervention (via MBI, BM, and SMBM answers), emotional stress, depersonalization, job satisfaction, and depression and for the quality of the interventions via TIDieR and CASP review tools. A total of 15 eligible articles were included for qualitative analysis and examined for quality.

The quality of the intervention elements was evaluated by utilization of a Template for Intervention Description and Replication (TIDieR) checklist in conjunction with the TIDieR

guide. This 12-item checklist is useful because it is structured to allow readers to extract and describe "all necessary details within complex interventions", for readers to use the information within the intervention properly, and to ensure future replication (Hoffmann et al., 2014). If any of the items from the checklist were not located, a note was made during the review and are discussed in the overall assessment of studies section. Figure 2 shows a TIDieR checklist example. To organize and determine validity of intervention results, a Critical Appraisal Skills Programme (CASP) Checklist tool was utilized. The CASP Checklist contains 10 items that assist in evaluating the quality of an intervention and its results:

1. Was there a clear statement of the aims of the research?

2. Is a qualitative methodology appropriate?

3. Was the research design appropriate to address the aims of the research?

4. Was the recruitment strategy appropriate to the aims of the research?

5. Was the data collected in a way that addressed the research issue?

6. Has the relationship between researcher and participants been adequately considered?

7. Have ethical issues been taken into consideration?

8. Was the data analysis sufficiently rigorous?

9. Is there a clear statement of findings?

10. How valuable is the research? (Critical Appraisal Skills Programme, 2022).

The response options for each question are "yes", "no", or "can't tell"; however, some researchers have modified the use of this checklist by adding "somewhat" as a response, which is

useful if an intervention makes a thoughtful attempt at some aspect of the intervention, but has clear limitations (Long et al., 2020). Finally, a Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) diagram was created to describe the identification, screening, eligibility, and inclusion of articles that were included in the scope of review (Selcuk, 2019) and is depicted in Figure 1.

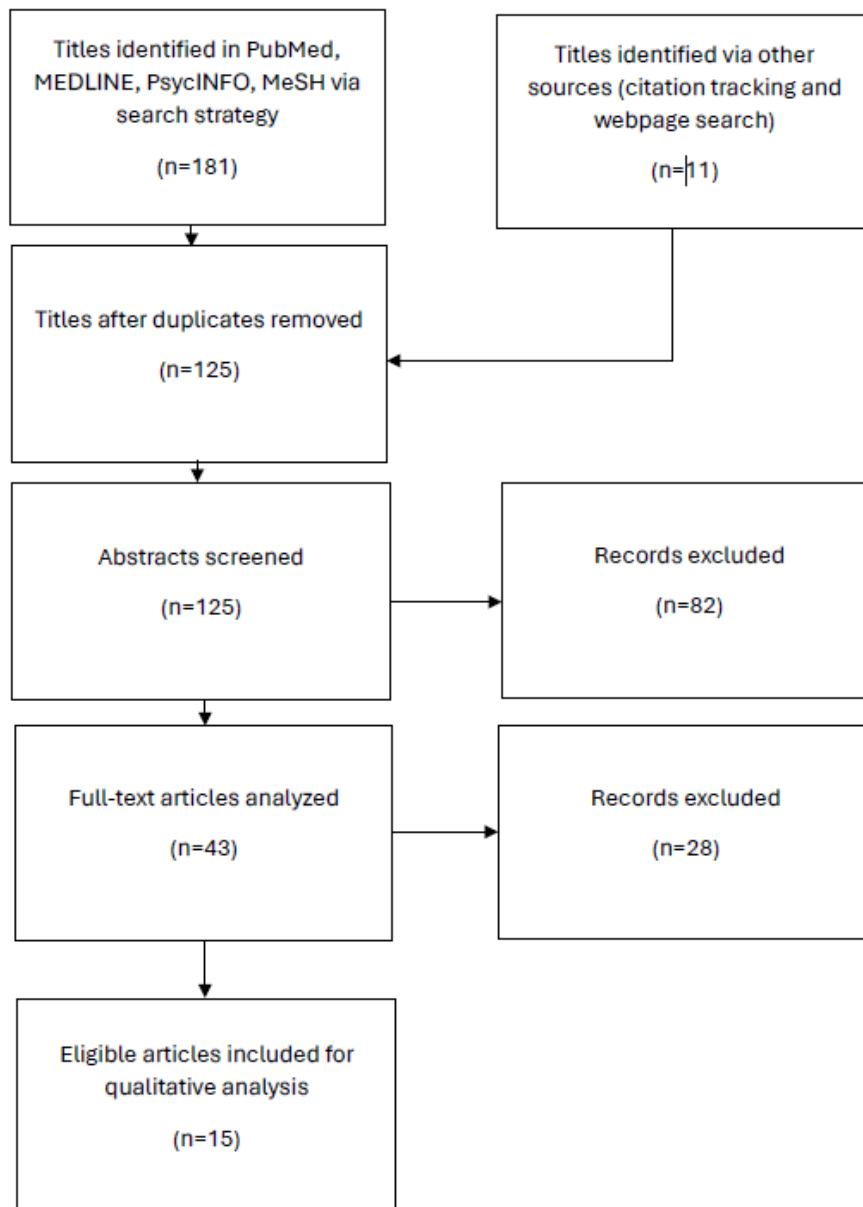*Figure 1* – **PRISMA diagram of study screening process**

Figure 2 – **TIDieR checklist** (adapted from The Equator Network's PDF TIDieR Checklist, located at https://www.equator-network.org/wp-content/uploads/2014/03/TIDieR-Checklist-PDF.pdf)

Item Number	Item	Where located in the article	
		Page #	Other
1	Brief name or phrase that describes the intervention.		
2	Describe any rationale, theory, or goal of elements essential to intervention.		
3	Materials: Describe any physical/informational materials used in the intervention, including those provided to participants or used in intervention delivery or in the training of intervention providers.		
4	Procedures: Describe each of the procedures, processes, and/or activities used in the intervention, including any support activities.		
5	Describe expertise, background, and specific training of each intervention provider.		
6	Describe modes of delivery of intervention and whether it was given individually or in group setting.		
7	Describe the type(s) of location(s) where the intervention occurred, including any necessary infrastructure or relevant features.		

8	Describe the number of times the intervention was delivered and over what period, including # of sessions, schedule, duration, intensity or dose.		
9	Describe any tailoring of the intervention (personalization, titration, or adaptation).		
10	Describe if intervention was modified during course of the study and what changes were made.		
11	Describe how well the intervention met adherence to study protocols and what, if any, strategies were used to maintain fidelity.		
12	Describe the extent to which the intervention was delivered as planned.		

Results

The core elements of the final 15 articles are summarized in Table 2. The articles are documented in chronological order of publication to demonstrate evolution of intervention strategies. Those published in the same year are ordered alphabetically. The title of the article, all authors and publication date, study design of intervention, and interpretations of the key findings of the intervention are documented in the table.

Table 2 – **Key components and findings of final 15 interventions**

Article Title	Author(s) & Date Published	Study Design	Interpretations of Key Findings
Intervention to promote physician well-being, job satisfaction, and professionalism: a randomized clinical trial	West, C. P., Dyrbye, L. N., Rabatin, J. T., Call, T. G., Davidson, J. H., Multari, A., Romanski, S. A., Hellyer, J. M., Sloan, J. A., & Shanafelt, T. D., 2014	Randomized controlled trial	1. 19 biweekly facilitated physician discussion groups with 74 physicians at the Mayo Clinic in Rochester, MN improved significantly rates of depersonalization, emotional exhaustion, and overall burnout in the trial intervention arm.

A Cluster Randomized Trial of Interventions to Improve Work Conditions and Clinician Burnout in Primary Care: Results from the Healthy Work Place (HWP) Study	Linzer, M., Poplau, S., Grossman, E., Varkey, A., Yale, S., Williams, E., Hicks, L., Brown, R. L., Wallock, J., Kohnhorst, D., & Barbouche, M., 2015	Cluster randomized controlled trial	Burnout significantly improved with workflow interventions and targeted quality improvement projects, and interventions in communication improved provider job satisfaction.
Physician Burnout and Well-Being: A Systematic Review and Framework for Action	Rothenberger, 2017	Systematic review	Two highly effective strategies in mitigating physician burnout are aligning personal and organizational values and allowing physicians to devote 20% of their work time to tasks that are meaningful to them.
An Organizational Intervention to	Gregory, S., Menser, &	Natural experiment	Implementation of a workload intervention that altered work process within 4 primary care clinics significantly reduced emotional

Reduce Physician Burnout	Gregory, B., 2018		exhaustion dimension of burnout and improved workload.
Intervention for Physician Burnout: A Systematic Review	Wiederhold, B. K., Cipresso, P., Pizzioli, D., Wiederhold, M., & Riva, G., 2018	Systematic review	Significant reduction of burnout was observed in interventions that implemented the following strategies: 1. Increased physician control over work environment and order in clinical setting. 2. Combination of art therapy and cognitive behavioral therapy. 3. Team-based intervention program with staff support group and participatory action research approach to reduce burnout. 4. Counseling intervention. 5. Mindful communication strategies. 6. Stress management reduction tools. 7. Respiratory One Method (ROM). 1. Changes in physicians' professional effort.
Organizational strategies to reduce physician burnout: a systematic	De Simone, Vargas, & Servillo, 2019	Systematic review/meta-analysis	1. Organizational-direction interventions were associated with a medium reduction in burnout scores and physician-directed interventions were associated with a moderate reduction in burnout scores.

review and meta-analysis			2. Organization-directed interventions reduced depersonalization and improved personal accomplishment better than physician-directed interventions. 3. Organization-directed interventions that were most effective in significantly reducing burnout implemented changes in workload and schedules.
Organizational strategies to reduce physician burnout and improve professional fulfillment	Olson, K., Marchalik, D., Farley, H., Dean, S. M., Lawrence, E. C., Hamidi, M. S., Rowe, S., McCool, J. M., O'Donovan, C. A., Micek, M. A., & Stewart, M. T., 2019	Systematic review	1. Organizational attention to physician well-being significantly improves burnout symptoms, patient quality of care, retention, and productivity. 2. Leadership development, improving physician control and autonomy, improved team-based care teams, collegiality, appreciation, structured workplace efficiency, shared EHR tasks, and wellness programs significantly improved burnout.
A Review on Strategies to Manage	Patel, R. S., Sekhri, S., Bhimanadham,	Systematic review	Significant reduction of burnout was observed in interventions that implemented the following strategies:

Physician Burnout	N. N., Imran, S., & Hossain, S., 2019		1. Four-hour course for administrators and physicians called RESPECT that helped both parties recognize and prevent burnout.
			2. Eight-week mindfulness course, followed by ten-month maintenance course.
			3. Psychodynamic, cognitive, educational, and motivational interviewing counseling methods.
			4. Physicians took three assessments and organizational interventions curated based on physician feedback, including restructuring of work tasks and schedules.
			5. APEX family medicine program (Ambulatory Excellence Program), which allowed medical assistants to take on some roles that gave physicians more time to concentrate on physical examinations and medical decisions.
			6. Providing professional coaching, which increased the internal sense of control. Physician discussion groups and team bonding activities on paid time.

Coaching for primary care physician well-being: A randomized trial and follow-up analysis	McGonagle, A. K., Schwab, L., Yahanda, N., Duskey, H., Gertz, N., Prior, L., Roy, M., & Kriegel, G., 2020	Randomized controlled trial	1. 29 primary care physicians that were enlisted in a six-session positive psychology-based coaching intervention to improve burnout symptoms demonstrated significant reduction of burnout, increased work engagement, and job satisfaction from the control group.
Physician Anxiety and Burnout: Symptom Correlates and a Prospective Pilot Study of App-Delivered Mindfulness Training	Roy, A., Druker, S., Hoge, E. A., & Brewer, J. A., 2020	Prospective study	An app-based mindfulness program was given to 34 physicians at a large United States healthcare network that experienced burnout, which resulted in a significant decrease in cynicism and emotional exhaustion after using the app for 10 minutes each day for 30 days.
Multidisciplinary approach to enhancing provider well-	Shields, Jennings, & Honaker, 2020	Prospective study	Provider well-being scores decreased (indicating better well-being) after three years post-implementation of the following strategies:

being in a metropolitan medical group in the United States			1.Provider engagement and growth, mentorship and wellness/professional coaching for physicians. 2.Improved workflow and office efficiency, including scribes and optimization of EHR usage. 3.Relationship building, especially between providers and administrators. Communication skills, including required council meetings for all specialties.
Interventions to reduce burnout of physicians and nurses	Zhang, X. J., Song, Y., Jiang, T., Ding, N., & Shi, T. Y., 2020	Systematic review/meta-analysis	Interventions that produced the most efficacy in reducing burnout were individual and organization-based approaches with the following implementations: 2. Teamwork and communication skills training with physicians and nurses. 3. Workload or schedule rotations. Stress management and self-care workshops.
Physician Burnout: Solutions for Individuals and Organizations	Carrau & Janis, 2021	Systematic review/meta-analysis	Effective burnout reduction interventions combined individual and organization-based approaches, including changes to the following:

			3. Workload, job demands, efficiency, resources.
			4. Control, flexibility, and work/life balance.
			5. Social support.
			Alignment of cultures and values and meaning in work.
Effect of a Novel Online Group-Coaching Program to Reduce Burnout in Female Resident Physicians	Fainstad, T., Mann, A., Suresh, K., Shah, P., Dieujuste, N., Thurmon, K., & Jones, C. D., 2022	Randomized clinical trial	Female resident physicians who were randomly assigned to a 6-month group coaching program had significant reductions in emotional exhaustion than physicians in the control group.
Workplace interventions to improve well-being and reduce burnout for nurses, physicians and allied healthcare professionals: a	Cohen, C., Pignata, S., Bezak, E., Tie, M., & Childs, J., 2023	Systematic review	Organizational-based interventions were more effective in reducing burnout and promoting physician well-being than individual-based approaches and included strategies such as reduction of occupational stress by changing the structure of work schedules and tasks. Individual-based studies implemented strategies focusing on stress management and mindfulness techniques and helped decrease

systematic review			burnout symptoms such as emotional exhaustion and improved resilience.

Discussion

The 15 articles selected for review contained a variety of individual and organizational intervention methods and strategies to mitigate or reduce physician burnout. After applying both TIDieR and CASP-review tools, the selected studies were found to meet quality standards. Based on the studies reviewed, the interventions that were interpreted to be most effective at reducing physician burnout were organization-directed and implemented practices to address optimizing physician workload, workflow efficiency, mandatory group discussions, and improving physician autonomy. Additionally, several studies indicated that some individual-targeted interventions meaningfully improved MBI metrics such as emotional exhaustion and depersonalization, including personal and professional coaching, mindfulness strategies, and improved communication skills. These findings indicate that a combination of individual and organization-based approaches may be a promising direction of future research to reduce physician burnout; however, there were several gaps identified in the literature that must be explored further.

One major gap in the literature that must be examined in future studies is the differences in physician burnout experiences between men and women. Chesak et al. point out that while there are a lack of sufficient interventions addressing gender disparities between physicians with respect to burnout, there is ample evidence to demonstrate that women physicians experience "gender discrimination, gender biases, deferred personal life decisions, and barriers to professional advancement, all of which may contribute to burnout" (2020). The article by

Fainsted et al. noted that women physicians are more likely to experience imposter syndrome throughout their careers, which impacts job satisfaction and burnout (2022). Mullangi and Jagsi echo this in their 2019 article regarding imposter syndrome in women physicians, postulating that women have different expectations of behavior in public and in the workplace that contribute to burnout. The article by Fainsted et al., in which a six-month group coaching program for female physicians was implemented and found significant reductions in burnout compared to the control group, showed promising direction; however, it would be useful to see a similar study implemented in both men and women physicians to examine differences in burnout experience and what strategies are effective to reduce burnout in both groups (2022).

Another gap in research that was identified during this review is the lack of study regarding how policy and regulations affect physician burnout, and if interventions can be strategized to target this. Many policies and regulations within the United States healthcare system introduce stress and administrative burden for physicians, including the presence of multiple payment systems with complicated coding systems and incentives that change often; and maintaining compliance with HIPAA, especially as telehealth continues to become an increasingly popular avenue of healthcare in the post-COVID world (Berg, 2020). It will be important for healthcare organizations to examine the impact of these regulations and policies on the job functions of physicians, and for legislative bodies to garner feedback from physicians during the policy-making process to determine how a potential law will affect the delivery of care.

Common Themes from Organizational-Level Interventions

Optimizing Physician Workload

Olson et al. noted in their systematic review that allowing physicians to suggest changes to the design of clinical structures and processes was imperative to reducing burnout (2019). Not only does this promote leadership training and development of physicians, but it improves collaborative teamwork and engagement and empowers the physicians to make thoughtful decisions and solve complex problems, leading to greater job satisfaction (Olson et al., 2019). Additionally, several studies altered the process of electronic health record workflows, a major source of physician burnout (Olson et al., 2019). Some included creation of medical scribe positions within the organization, as was the case the 2020 study done by Shields, et al. In this study, the incorporation of scribes ensured that physicians were maximizing time spent on clinical tasks, such as examinations and diagnoses, which improved job satisfaction and emotional exhaustion (Shields et al., 2020). Cohen et al.'s systematic review found that some studies reduced physician workload by allowing other members of the medical staff to complete certain clerical tasks, such as coordination of appointments and managing prescription refill requests (2023).

Improving Workflow Efficiency

Improving workflow efficiency was effective in reducing burnout in several studies. In the 2020 study by Shields et al., in which a scribe position was created to improve physician workload, an optimization project was created by the EHR company to improve workflow. Several physicians noted frustration with the time they spent on entering data into the EHR, which left them with less time to perform their licensed duties (Shields et al., 2020). This project involved creation of an optimization team by the EHR Company, who performed several audits and observations to determine how efficiently the medical staff utilized the system and to determine where improvements could be made (Shields et al., 2020). This led to adoption of

more EHR tasks by nursing assistants and scribes, which improved physician job satisfaction and emotional exhaustion (Shields et al., 2020). Carrau & Janis's systematic review found that allowing staff such as medical assistants to share more clerical duties improved efficiencies in plastic surgery practices, which decreased physician burnout symptoms related to completing repetitive, mundane tasks like scheduling appointments (2021).

Mandatory Group Discussions

Group discussions are a common strategy implemented in organizational-based approaches to reduce physician burnout. Wiederhold et al. found that physician support group meetings were key to reducing physician burnout symptoms (2018). Group therapy is a common method used to target many specific physical and mental health issues, like depression, anxiety, alcoholism, and others, particularly because of the benefits of speaking with others who are facing a similar issue. Not only does group therapy reduce the stigma, shame, and isolation associated with many of these issues, but it provides a diverse network of perspectives and avenues for change (Deblinger, Pollio, & Dorsey, 2015). Wiederhold et al. noted that physician support group meetings allowed providers to share work-related issues and provide each other with potential solutions, which resulted in a significant reduction in emotional exhaustion immediately after and six months post group therapy program (2018).

Improving Physician Autonomy

Improving physician autonomy was another major proponent of reducing physician burnout in several of these interventions. Rothenberger discovered that allowing physicians to spend approximately one-fifth of their work time dedicated to areas of special interest significantly reduced burnout by reducing the amount of time spent on mundane tasks and

improved job satisfaction (2017). This finding was echoed in the systematic review done by Olson et al., in which significant burnout reductions were noted when physicians were allowed to spend professional time dedicated to tasks that were most meaningful to them (2019). Additionally, Olsen et al. discovered that "job crafting" was another strategy to improve physician autonomy, in which physicians were given the freedom to structure their workdays around preferential activities (2019). These practices align with strategies like improving workflow efficiency and reducing physician workload; by optimizing task structures and ensuring physicians are spending minimal time on non-essential job functions, the time they spend with patients and on other medical duties can be maximized, improving job satisfaction.

Common Themes from Individual-Level Interventions

Personal and Professional Coaching

An individual-directed approach to reducing burnout that made meaningful impact in a few studies was the implementation of personal and professional coaching. McGonagle et al. found that goal-oriented one-on-one discussions between physician and psychologist helped physicians establish personal and professional goals and dictate what they wanted to learn during the sessions, which improved engagement, autonomy, and job satisfaction (2020). The researchers noted that the environment was curated specifically to be different from a therapy session by allowing physicians to take control of the sessions (McGonagle et al., 2020). Fainstad et al. implemented a six-month online group coaching program tailored to female resident physicians that focused on encouraging team-driven commitment to reducing burnout and improving psychological resilience (2022). They also noted that the coaching improved

emotional exhaustion significantly, and the group setting created an environment where physicians felt safe to be vulnerable with one another and bonded via their shared experience (Fainsted et al., 2022).

Mindfulness Strategies

Many of the published individual-based approaches to reduce physician burnout include training on mindfulness strategies. These strategies focus on breathing techniques, meditation, yoga, acupuncture, single-tasking, and other methods to help physicians remain present and prevent their emotions from overwhelming themselves (Salvado et al., 2021). Cohen et al. found that mindfulness-based practices significantly improved well-being and stress reduction; however, the long-term benefits were not understood clearly (2023). De Simone, Vargas, & Servillo argue that physician-based approaches to reduce burnout, including mindfulness strategies, are associated with less impactful reductions in burnout than organizational-based approaches (2019). This is perhaps because inefficient workplace environments create feelings of burnout, and while mindfulness strategies improve stress and some burnout symptoms momentarily, the root cause of burnout remains. More research is needed that combines mindfulness strategies with organizational-based approaches such as changing workplace structure and task schedules for physicians to verify.

Improved Communication Skills

Training on improved communication skills was a burnout reduction strategy mentioned in several of the selected studies. Shields, Jennings, & Honaker found that the practice of improving communication between providers and administrators had a meaningful impact on

physician well-being (2020). This was due to the increased trust that was forged between the two parties and improved empathy in administrators (Shields, Jennings, & Honaker, 2020). Another goal of this strategy was for administrators to notice burnout symptoms in individual physicians prior to the issue worsening and for physicians to feel comfortable speaking up regarding burnout and how the workplace environment can be improved to mitigate it (Shields, Jennings, & Honaker, 2020). Wiederhold et al. found that strategies that improve communication between physicians and other members of a patient's care team, including nurses, effectively reduced burnout in several interventions (2018). They also hypothesize that emotional awareness training and learning to effectively communicate emotions decreased burnout in several studies by improving collaboration, teamwork, and reducing stress (Wiederhold et al., 2018).

Strengths and Limitations

Strengths of this systematic review included its reproducibility, specificity, and reliability of the studies selected. This review also identified some important gaps in research, which may provide a solid basis for decision-making regarding future interventions. The decision to include articles from the last 10 years was another strength as this ensured relevance and showed how strategies to reduce physician burnout have changed over a short period of time. The strategies shifted from singular individual or organizational-based interventions to interventions that combined changes to both levels. There were several limitations of this study, however, that must be addressed.

Several key limitations can be examined, including the small number of articles that were included and reviewed. An electronic literature review system was not used to search, filter, and

cite articles; rather, these tasks were completed by hand. This manual process is subject to human error and is time-consuming, preventing more articles from being screened and analyzed. Using an electronic literature review system is ideal for conducting systematic reviews such as these due to their ability to comprehensively review thousands of published articles in a short period, extract and organize data efficiently, reduce human error, and provide a broader perspective of the subject in question.

Another limiting factor was the lack of variability of the study design of the included interventions. 8 of the 15 articles were systematic reviews or meta-analyses, while the remaining 7 were a combination of 4 randomized controlled trials, 2 prospective studies, and one natural experiment. Systematic reviews are an excellent source of comprehensive information and are designed to answer specific research questions, which can prove useful for assessing gaps in literature (Kolaski et al., 2023). Conversely, they are overly common, have a narrow scope, and are subject to inclusion and exclusion bias, publication bias, and selective reporting bias, which may not accurately reflect the results of the articles in question (Kolaski et al., 2023). Including more experimental studies in future systematic reviews may better illustrate cause-and-effect relationships between systemic factors and physician burnout (Chew, 2019). Additionally, experimental studies offer precision, replicability, and valuable insights that cannot be produced by a systematic review (Chew, 2019). Consequently, these studies can be costly, poise ethical risk to subjects involved, and subject to their own biases, including selection bias, information bias, confirmation bias, and observer-expectancy bias (Chew, 2019).

Another limitiation was the limiting factor of not being able to include non-English articles that address physician burnout. There are thousands of published interventions that aimed to reduce physician burnout, many of which are not published in English and thus, were

excluded from consideration for this project. Physician burnout is not common only in the United States, but globally. In 2018, more than 60% of Chinese doctors and 80% of British doctors reported suffering from burnout symptoms (*The Lancet*, 2019). Academic and medical experts from around the world have devoted resources to addressing burnout in their home countries, and this data was excluded. Additionally, *The Lancet* journal pointed out in a 2019 article that there is much data available regarding physician burnout in high-income countries, but very little data in low to middle-income countries, which presents a challenge for addressing burnout on the global front.

Conclusion

Clearly, physician burnout is a major problem the United States healthcare system must address to improve lives of physicians and efficiency of healthcare operations. There are many contributing factors to physician burnout, including clinical demands, administrative burden, lack of autonomy, and work overload (West, Dyrbye, and Shanafelt, 2018). Many organizations have dedicated resources to address and mitigate the issue, but there is a lack of understanding regarding effective solutions. According to the studies selected in this systematic review, clearly there is no "one size fits all" solution to reduce physician burnout; however, interventions that combine individual-based and organizational-based strategies are most likely to be successful. Workplace environments should be structured in a way that allows physicians to perform essential and meaningful job functions and minimize mundane, clerical tasks that can be performed by other staff members. Additionally, organizations should provide their physicians with the tools they need to identify burnout and reduce symptoms, whether by using mindfulness and stress reduction techniques, or by communicating their concerns directly with administrators.

Perhaps a "system-altering" change in the United States healthcare structure is needed to reduce burnout altogether; however, this direction is more feasible.

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Application of Public Health Competencies

This project focused on several foundational public health competencies: evidence-based approaches to public health, public health & healthcare systems, and leadership. Evidence-based approaches to public health was demonstrated by using a qualitative analysis to evaluate the current issue of physician burnout and project directions of future research. Public health & healthcare systems were evaluated by determining the factors of the U.S. healthcare system that create and catalyze physician burnout and what strategies are needed to mitigate it going forward. Leadership was a strong focus of the project because it is necessary for healthcare administration and human resources teams to undertake the issue of physician burnout and make its reduction an organizational priority, and to lobby for policy changes that create a better system for our healthcare teams.

The project also focused on two MPH Concentration Competencies: HRSAMPH1 (Demonstrate the skills to analyze and resolve organizational issues through a multidisciplinary systems-based approach) and HRSAMPH4 (Summarize the legal, political, social, and economic issues that impact the structure, financing, and delivery of health services within health systems in the US). HRSAMPH1 was focused on on by evaluating the current climate of healthcare organizations and the context in which they contribute to physician burnout. HRSAMPH4 was another important focus of the project due to the need to examine the legal, political, social, and economic factors contributing to physician burnout and how those impact delivery and quality of patient care, healthcare costs, and overall healthcare structure.

Human Subject Research Statement:

This project did not require International Review Board review and approval.