

Strategies For Healthcare Leaders to Mitigate Physician Burnout, Reduce Medical Errors, And Enhance Quality-Of-Care Outcomes: A Systematic Literature Review

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Abstract: Burnout of healthcare professionals is a significant issue with major consequences. Healthcare leaders are often concerned about physician burnout and medical errors and the potential impact on quality-of-care of patients. The systematic literature review explored successful strategies healthcare leaders use to reduce physician burnout and medical errors while improving the quality-of-care outcomes. A search of the literature employed three academic databases: Public Medline, Web of Science, and Medical Literature Analysis and Retrieval System Online, and followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines. Data from the 28 relevant articles were carefully analyzed, categorizing the data into five common themes. Each theme was related to the research question, including leadership and organizational culture (67%), workload and workflow optimization (36%), mental health and well-being support (53%), Covid-19 impact on healthcare employees (42%), and patient safety and quality of care (43%). The finding indicated five successful strategies to reduce physician burnout and medical errors while improving the quality-of-care outcomes: embracing and building workplace and professional skills, creating a problem-solving culture, incorporating effective communication among staff, and motivating employees. The implications of these findings provide healthcare leaders with a better opportunity to understand the factors associated with developing applicable strategies to address physician burnout, medical errors, and quality-of-care outcomes.

Keywords— healthcare management, Burnout, Care delivery

1. INTRODUCTION

Healthcare environments are challenging, with physicians often under immense pressure. This high-stress environment often leads to physician burnout (Wong, 2020). The term burnout was coined by psychoanalyst Freudenberg who established it as a form of emotional exhaustion contributing to poor work output (De Hert, 2020). According to the World Health Organization (WHO), occupational burnout occurs due to work-related stress and discomfort characterized by a lack of energy to work and psychological distance toward obligated tasks (WHO, 2023). Comparably, the International Classification of Diseases (ICD-11) establishes that burnout results from poorly managed workplace stress (Berg, 2019).

Research indicates that the health sector is the most affected in relation to occupational burnout, with physicians and anesthesiologists being particularly affected. Physicians and anesthesiologists often face high-stress situations, long hours, and administrative burdens, contributing to the high burnout rates among these professions (Stodolska et al., 2023). Several studies suggest that more than half of

practicing physicians and anesthesiologists experience some degree of burnout (Wong, 2020).

Burnout in the healthcare profession is a significant issue with major consequences. It is characterized by emotional exhaustion, which impairs the individual healthcare worker's quality of life and directly affects the quality of patient care (Steffey et al., 2023). A decrease in productivity and engagement can lead to an increase in medical errors, which threatens patient safety (Harbell & Methangkool, 2021). Moreover, it can lead to higher healthcare costs due to mistakes, lower patient satisfaction scores, and higher staff turnover rates (Shin et al., 2023). Additionally, it can contribute to mental health issues among healthcare workers, such as depression and anxiety (Zhang et al., 2020). The cumulative effects of burnout thus have severe implications for healthcare workers' well-being, healthcare institutions' efficacy, and patients' overall health outcomes.

Healthcare leaders often need help managing physician burnout and mitigating medical errors, which could harm patients. In response, healthcare leaders employ various strategies to reduce physician burnout with various effects (Malik & Annabi, 2022). However, healthcare leaders still lack proven successful strategies to decrease the incidence of physician burnout and medical errors. The rationale for the study lies in identifying strategies that can contribute to better healthcare outcomes and create a healthier and safer environment for both healthcare providers and patients. This systematic literature review explored successful strategies that healthcare leaders can use to reduce physician burnout

and medical errors while improving the quality-of-care outcomes.

2. METHODS

The systematic literature review acquired data from diverse sources, such as scholarly articles, research papers, and books. These various data sources help to build a solid research foundation upon which patterns and trends could be identified, compared, and analyzed. The research question was, what successful strategies do healthcare leaders use to reduce physician burnout and medical errors while improving the quality-of-care outcomes?

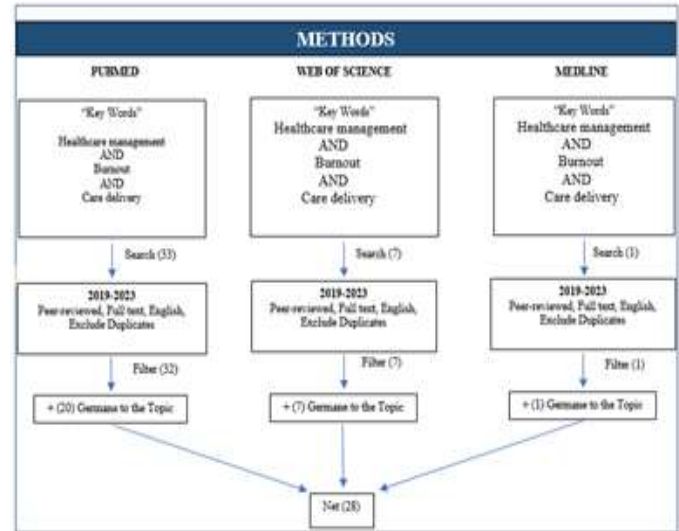
The research employed three academic search engines: PubMed, Web of Science, and Medical Literature Analysis and Retrieval System Online (MEDLINE). databases and followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines (McKenzie et al., 2020; Moher et al., 2009). These platforms were selected for their extensive scholarly articles and research papers repository. Conversely, the keywords used in this search included *healthcare management*, *burnout*, and *care delivery*. These terms were combined to find literature relevant to the research topic. The study involved multiple keywords in providing a broad scope to ensure the researcher captured as many relevant sources as possible. In the first search, 33 articles were identified on PubMed 7 articles were identified in Web of Science, and 1 article in MEDLINE based on the specified keywords. Additionally, several limiters were used, including the publication date, peer-reviewed articles, primary research, and language, as explained by the eligibility criteria below. The limiters used in this research were crucial in fine-tuning the search strategy to isolate the most relevant sources from the vast academic landscape (Ramirez et al., 2022).

The inclusion and exclusion criteria for this research were based on a combination of factors to ensure the relevance of the literature selected. For inclusion, the chosen articles had to be within the defined date range of 2019 to 2023 to ensure significance to contemporary healthcare practices and challenges. Articles that had their full text available were included, as this allowed for a comprehensive review of the content rather than relying solely on abstracts which could potentially miss nuanced details. Furthermore, preference was given to articles published in peer-reviewed journals to ensure academic reliability. Also, English-language articles were included to avoid potential misinterpretations arising from translations. In contrast, exclusion criteria were applied where necessary to refine the data. The researcher excluded duplicate articles that appeared in multiple journals to prevent skewing of the analysis from overrepresenting a particular study's findings. Moreover, articles not written in English were excluded. Finally, articles that fell outside our date range and lacked full-text availability or were from non-peer-reviewed sources were excluded. From the 41 articles initially

identified in the three academic databases, only 28 articles met the set criteria.

Figure 1

Flow Diagram



In calculating the Kappa calculation, we started with 41 articles identified and reviewed by two independent reviewers; the kappa coefficient transpired using the kappa coefficient guidelines of (a) 0 = none, (b) .01-.2 slight, (c).21-.40 fair, (d) .41-.60 moderate, (e) .60-.80 substantial, and (f) .80-1 almost perfect, (Cohen, 1960). The Kappa analysis results for this review displayed Kappa calculated at 1 (see Figure 2.) The articles evaluated by two independent researchers demonstrated an agreement of almost perfect.

Figure 2: Cohen Kappa Calculation

Yes = 28

No = 13

R2	R1		
	28	0	28
	0	13	13
	28	13	41

Observed Agreement (OA) = (100 + 41) / (41) = 1

Agreement of Chance (AG) = (100/41) x (100/41) + (28/41) x (28/41) = 0.594

Kappa = (OA-AC)/(1-AC)

(1-0.594) / (1-0.594) = 1

Therefore, the agreement is almost perfect.

3. RESULT

The primary focus of the research revolved around the question, what successful strategies do healthcare leaders use to reduce physician burnout and medical errors while improving the quality-of-care outcomes? The study used databases like Public Medline (PubMed), Medical Literature Analysis and Retrieval System (MEDLINE), and Web of Science in the literature review section. An applied methodology focused on the best practices proposed by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (Page et al., 2021), and a comprehensive literature search, selection, and data analysis occurred. A rigorous search across PubMed, MEDLINE, and Web of Science yielded 41 publications. Among these studies, 28 articles were found to directly apply to the research issue and question (see Figure 1). The 28 articles chosen for the systematic literature review are shown in Table 1, along with their titles, critical summaries, and article numbers. Each item in the table has been numbered 1 through 28 and arranged in ascending numerical order. The article numbers will be used in the findings and discussion sections for citation and clarity purposes.

Table1
Summarized findings of the literature

Title	Findings
[1] A scoping assessment of the effects of mindfulness training on physician burnout (Malik & Annabi, 2022).	Although numerous studies have shown that mindfulness can enhance mental health and well-being, the examined research seemed limited and missed important issues with healthcare leadership, system-level culture, and practices. A compassionate and thoughtful physician leader will be essential to address current practice gaps, prioritize staff mental health, and build an environment that supports innovation.
[2] An overview of systematic reviews and meta-analyses on interventions to lessen physician and nurse burnout (Zhang et al., 2020).	The current analysis highlighted research to reduce physician and nurse burnout, giving health policymakers or clinical managers a base to develop easy-to-implement strategies to lessen stress among doctors and nurses and guarantee patient safety.
[3] A scoping review protocol's factors influencing the use of AI-based clinical decision support systems in	Clinical decision support (CDS) technologies powered by AI increase resource efficiency and treatment quality while lowering burnout among medical professionals. Their

healthcare (Bajgain et al., 2023).	implementation is essential to fully benefit from AI-based CDS technologies in healthcare delivery.
[4] A systematic study of the effects of eHealth treatments on stress reduction and mental health promotion in healthcare workers (López-Del-Hoyo et al., 2023).	Health interventions are efficient, significantly reduce stress, and promote health among healthcare experts. In this case, the most effective interventions include guided, self-guided, 'third-wave' psychotherapies, among other types. In a healthcare setting, 74% of professionals give an effective score of over 80% to these interventions.
[5] Read through A Narrative Review of Mindfulness-Based Interventions for Undergraduate Nursing Students in a University Setting (McVeigh et al., 2021).	Throughout their studies, UG nursing students are subjected to stress linked to burnout and attrition rates as high as 33%. A growing amount of evidence points to the benefits of mindfulness-based therapies for treating anxiety, depression, and well-being, as well as for reducing stress in populations of healthcare professionals.
[6] Patient safety in community-based mental health treatment presents conceptual and practical issues (Averill et al., 2023).	The lack of emotionally stable healthcare professionals exposes the safety of community-based mental health patients. Generally, there is a low data entry regarding the patient's situation, hence lowering the final results after medication in the anticipated timeline.
[7] Use of WhatsApp Messenger in Oncology: a narrative analysis of the Benefits and Drawbacks of a General, adaptable communication tool (Gebbia et al., 2021).	Healthcare professionals now have an excellent opportunity and a practical tool thanks to the spread of instant messaging platforms. Health professionals, cancer patients, caregivers, and members of the public commonly use WhatsApp instant messaging.
[8] A controlled experiment using randomization examined the effects of an office intervention using acceptance and commitment therapy (ACT) on the psychological distress of healthcare professionals. (PrudenziID1 et al., 2022).	According to the study, workplace programs based on Acceptance and Commitment Therapy (ACT) positively influence the general psychological well-being of healthcare experts.

<p>[9] Intensive Care Unit and Emergency Department Healthcare Workers' Burnout During the COVID-19 Pandemic: A Systematic Review (Gualano et al., 2021).</p>	<p>A PRISMA-compliant systematic review was conducted between January 1 and November 24, 2020, by searching PubMed, Embase, Psych INFO, and Scopus. Studies on the occurrence and severity of burnout among ICU/ED HCWs during the pandemic were considered. Nine hundred twenty-seven records in all were located. The selection produced eleven studies.</p>		<p>Allergist/Immunologist in Extraordinary Times (Bansal et al., 2020).</p>	<p>disruptions. The allergy/immunology community has quickly adapted by implementing practice adjustments and embracing new treatment approaches to ensure the safety of patients and staff, minimizing the risk of exposure to the severe acute respiratory syndrome coronavirus.</p>
<p>[10] Psychosocial impact of COVID-19 (Dubey et al., 2020)</p>	<p>The global psychosocial effects of the COVID-19 pandemic include a public frenzy, economic hardships, financial losses, and the emergence of "corona phobia." This review aims to examine the psychological symptoms experienced by society as a result of the widespread dread of COVID-19.</p>		<p>[14] It is a scoping analysis of burnout among medical professionals during the COVID-19 epidemic and is a contributing variable (STODOLSKA et al., 2023).</p>	<p>Healthcare professionals (HCWs) on the front lines of COVID-19 care experienced high levels of stress and burnout due to the COVID-19 pandemic, which placed a heavy mental burden on them.</p>
<p>[11] Healing the Professional Culture of Medicine (Shanafelt et al., 2019).</p>	<p>Many medical professionals believe that the healthcare delivery system, instead of enabling high-quality care, hinders it. While physician dissatisfaction and its causes are known, the distress experienced by physicians is largely influenced by underlying concerns shaping professional cultures.</p>		<p>[15] Findings and Guidelines on Provider Technology, Fatigue, and Well-being: Scoping Review (Hilty, 2022).</p>	<p>Even though video and other technologies are revolutionizing the way healthcare is delivered, workflow issues and potential provider fatigue suggest that further investigation is necessary to improve quality and procedure.</p>
<p>[12] Burnout and Leadership Style in Behavioral Health Care: A Literature Review (Kelly et al., 2020).</p>	<p>The COVID-19 pandemic has had significant global psychosocial effects, including a public frenzy, economic hardships, financial losses, and the developing "corona phobia." This review seeks to investigate the psychological symptoms experienced by society due to the pervasive fear and anxiety surrounding COVID-19, providing insights into its psychological impact.</p>		<p>[16] A Narrative Review of Slow Medicine Outcomes (Marx, 2021)</p>	<p>Short appointment times and obtrusive electronic health record duties hurt primary care practices in the United States. This causes physician exhaustion, dissatisfaction among patients and doctors, and unnecessary referrals and actions.</p>
<p>[13] Clinician Wellness During the COVID-19 Pandemic: Unusual Challenges for the</p>	<p>The global spread of the coronavirus disease 2019 (COVID-19) has resulted in rapid and significant societal</p>		<p>[17] Clinical Decision Support and Implications for the Clinician Burnout Crisis (Jankovic & Chen, 2021).</p>	<p>Clinicians may experience dissatisfaction and fatigue because of CDS. CDS fatigue can be lessened by increasing relevance, soliciting input, modifying, tracking results and KPIs, and iterating.</p>
			<p>[18] Oncology Healthcare Professionals' Mental Health during the COVID-19 Pandemic (Granek & Nakash, 2021).</p>	<p>HCPs specializing in oncology deal with their anxieties and the added burden of pandemic-related worries. In the field of cancer, training is crucial for enhancing HCPs' quality of life and patient care.</p>
			<p>[19] Model of Organizational Commitment Applied to Health Management Systems (Rodríguez-Fernández et al., 2021).</p>	<p>Fostering a positive and inclusive culture of staff participation is crucial in implementing a human resources model for hospital administrators. This model</p>

	emphasizes building strong relationships with "patients" rather than viewing them as mere "clients." Additionally, training programs in transformational leadership are valuable resources for empowering employees, fostering commitment to the organization, and prioritizing their overall well-being. These initiatives contribute to a thriving work environment and enhance the quality of patient care.			hampered by burnout among cancer nurses, a lack of staff, and discrepancies in special education.
[20] The Use of Medical Scribes in Primary Care Settings A Literature Synthesis (Ziemann et al., 2021).	Administrative responsibilities put Primary care professionals under stress on top of the changing healthcare environment and labor shortages. Burnout and work discontent may result from these demands, harming patient care.		[25] The impact of COVID-19 on the mental health workforce: A rapid review (Crocker et al., 2022).	Healthcare professionals face obstacles and pressures, such as altered workloads and expectations, when providing mental healthcare in a changing environment.
[21] National Initiatives to promote quality of Care and patient safety: Achievements to Date and challenges ahead (Dreiherr et al., 2020).	Medical scribes have been proposed to reduce administrative duties, enhancing provider satisfaction and other results. They undertake real-time electronic health record documentation.		[26] A comprehensive approach to addressing the rheumatology workforce shortfall (Miloslavsky & Bolster, 2022).	Expanding rheumatology workforce: physician training, utilizing nurse practitioners and pharmacists, embracing telemedicine, and addressing burnout can enhance access to care and alleviate workforce shortage.
[22] The effect of burnout among physicians on observed adverse patient outcomes is a literature review (Mangory et al., 2021).	Despite the links between clinician-rated negative patient outcomes, reduced patient satisfaction, and physical fatigue, there is little research on how these factors affect actual patient outcomes.		[27] What Can We Learn From the COVID-19 Pandemic About Mental Health Support in the Transplant Workforce? (Fernando et al., 2021)?	The organ transplantation workforce faces these issues and numerous more because of the nature of their profession and the environment in which they provide medical treatment. Treating the transplantation workforce's mental health has historically been neglected rather than prioritized.
[23] Opportunities to use electronic health record audit logs to improve cancer care (Huilgol et al., 2022).	Through a stable audit process by emotionally stable healthcare professionals, patients are exposed to an exceptional opportunity for new insights into EHR user behavior and decision-making processes that influence the overall performance of the target patient.		[28] Challenges in providing supportive care to people with cardiovascular disease during the COVID-19 epidemic (Hilla et al., 2021).	The fundamental fabric of civilization and human existence has been impacted by COVID-19, which has also affected healthcare systems. Those made more susceptible by old age and infirmity, notably those with underlying cardiovascular disease, are severely affected by the attrition resulting from this highly contagious disease.
[24] Cancer nursing research priorities: A rapid review (Dowling et al., 2023).	The results show that to satisfy the present needs of cancer patients and their caregivers, a strategic program of cancer nursing research needs to be directed toward digitalization in cancer care. The implementation of some methods of treatment will be			

After reviewing the data from the 28 articles, the information observed was carefully categorized and presented into five common themes. Each theme was related to the research question and was reported in an affinity matrix (Table 2) to determine the rate of occurrence of the common themes in established literature. The five common themes include a) Leadership and Organizational Culture, b) Workload and Workflow Optimization, c) mental health and well-being support, Covid-19 impact on healthcare employees, and e) patient safety and quality of care.

Table2
Frequency of occurrence in the literature

Theme	Occurrences	Instances of Attributes (n)	Percentage (%)
Theme 1: Leadership and Organizational Culture	1,2,3,4,5,6,9,10,11,12,13,14,17,19,22,23,24,26,28	n-19	67%
Theme 2: Workload and Workflow Optimization	2,4,7,9,10,11,15,17,24,27	n-10	36%
Theme 3: Mental health and well-being support.	1,2,3,6,8,9,12,15,18,20,21,23,24,26,28	n-15	53%
Theme4: Physician Engagement and Empowerment Pandemic on Healthcare Employees Burnout	1, 2, 3, 4, 5, 6, 9, 13, 14, 15, 17, 18	n-12	42%
Theme 5: Patient Safety and Quality of Care	1,3,6,8,9,13,15,16,18,20,25,27	n-12	43%

From the research findings, 67% of articles documented Burnout and Well-being of Healthcare [1 (Malik & Annabi, 2022), 2 (Zhang et al., 2020), 3 (Bajgain et al., 2023), 4 (López-Del-Hoyo et al., 2023), 5 (McVeigh et al., 2021), 6 (Averill et al., 2023), 9 (Gualano et al., 2021), 10 (Dubey et al., 2020), 11 (Shanafelt et al., 2019), 12 (Kelly et al., 2020), 13 (Bansal et al., 2020), 14 (STODOLSKA et al., 2023), 17 (Jankovic & Chen, 2021), 19 (Rodríguez-Fernández et al., 2021), 22 (Mangory et al., 2021), 23 (Huilgol et al., 2022), 24 (Dowling et al., 2023), 26 (Miloslavsky & Bolster, 2022), 28 (Hilla et al., 2021)]. Thirty-five percent of the articles addressed Workload and Workflow Optimization [2 (Zhang et al., 2020), 4 (López-Del-Hoyo et al., 2023), 7 (Gebbia et al., 2021), 9 (Gualano et al., 2021), 10 (Dubey et al., 2020), 11 (Shanafelt et al., 2019), 15 (Hilty, 2022), 17 (Jankovic & Chen, 2021), 24 (Dowling et al., 2023), 27 (Fernando et al., 2021)]. Fifty-three percent addressed Mental Health and Well-being Support [1 (Malik & Annabi, 2022), 2 (Zhang et al., 2020), 3 (Bajgain et al., 2023), 6 (Averill et al., 2023), 8 (PrudenziID1 et al., 2022), 9 (Gualano et al., 2021), 12 (Kelly et al., 2020), 15 (Hilty, 2022), 18 (Granek & Nakash, 2021), 20 (Ziemann et al., 2021), 21 (Dreiherr et al., 2020), 23 (Huilgol et al., 2022), 24 (Dowling et al., 2023), 26 (Miloslavsky & Bolster, 2022), 28 (Hilla et al., 2021)]. Forty-two percent of

the articles displayed Physician Engagement and Empowerment [1 (Malik & Annabi, 2022), 2 (Zhang et al., 2020), 3 (Bajgain et al., 2023), 4 (López-Del-Hoyo et al., 2023), 5 (McVeigh et al., 2021), 6 (Averill et al., 2023), 9 (Gualano et al., 2021), 13 (Bansal et al., 2020), 14 (STODOLSKA et al., 2023), 15 (Hilty, 2022), 17 (Jankovic & Chen, 2021), 18 (Granek & Nakash, 2021)]. The data also showed that 42% of articles were concentrated on or exhibited Patient Safety and Quality of Care [2 (Zhang et al., 2020), 3 (Bajgain et al., 2023), 4 (López-Del-Hoyo et al., 2023), 5 (McVeigh et al., 2021), 6 (Averill et al., 2023), 8 (PrudenziID1 et al., 2022), 9 (Gualano et al., 2021), 10 (Dubey et al., 2020), 11 (Shanafelt et al., 2019), 13 (Bansal et al., 2020), 14 (STODOLSKA et al., 2023), 15 (Hilty, 2022), 16 (Marx, 2021), 18 (Granek & Nakash, 2021), 20 (Ziemann et al., 2021), 25 (Crocker et al., 2022), 27 (Fernando et al., 2021)].

4. DISCUSSION

Healthcare organizational leaders are concerned about the issue of physician burnout and medical errors and the potential impact on quality-of-care of patients within their operations. The systematic literature review aimed to explore successful strategies that healthcare leaders can use to reduce physician burnout and medical errors while improving the quality-of-care outcomes. The study involved analyzing strategies healthcare leaders embraced in reducing physician burnout and medical errors while improving the quality-of-care outcomes. In this regard, the research was embraced by analyzing 28 peer-reviewed published articles from 2019 to 2023. In review, the analysis discovered five essential themes, as listed in Table 2. These five identified themes included leadership and organizational culture in improving the quality of care (1,2,3,4,5,6,9,10,11,12,13,14,17,19,22,23,24,26,28), workload, and workflow optimization, improving the quality of care (2,4,7,9,10,11,15,17,24,27), mental health and well-being support improving the quality-of-care (1,2,3,6,8,9,12,15,18,20,21,23,24,26,28), physician engagement and empowerment pandemic on healthcare employees burnout (1, 2, 3, 4, 5, 6, 9, 13, 14, 15, 17, 18), and patient safety and quality of care (1,3,6,8,9,13,15,16,18,20,25,27). The following themes describe vital strategies available to healthcare leaders to reduce physician burnout and medical errors while improving the quality-of-care outcomes.

Theme1: Leadership and Organizational Culture in Improving the Quality-Of-Care

Leadership and organizational culture in improving the quality of care was documented by 67 percent of the chosen articles (1,2,3,4,5,6,9,10,11,12,13,14,17,19,22,23,24,26,28). According to articles (2, 12, 14, 26), for an organization to attain some of its intentions and goals, there must be a strong understanding of leadership. Therefore, successful organizational leadership in management is typically accompanied by effective processes that help prevent the risk

of uncertainty accompanying the future (Rodríguez et al., 2021). Productive leaders are necessary for implementing improvement aims that equip staff with the necessary skills and methods to attain organizational goals (Kelly & Hearld, 2020). From the perspective of Kelly & Hearld (2020), appropriate leadership aids in aligning systems, thus building a management structure that supports improvements in various operations undertaken in a healthcare Centre. Therefore, the information observed from Kelly and Hearld, (2020) was that in many cases, suitable organizational leadership in management is supported by appropriate processes that help prevent the risk of uncertainty accompanying the future.

Additionally, influential leaders create a culture that aids in problem-solving. From this perspective, Shanafelt et al. (2019) embrace that leaders are necessary for generating improvement goals that create a culture that enhances innovation and thus promotes problem-solving. In a company's operation, leadership and organizational culture generate an organization's capability of diffusing knowledge (Shanafelt et al., 2019). However, effective leadership's role incorporates every aspect of an organization. For instance, according to Kelly & Herald (2020), impactful leadership and organizational culture embrace a greater chance of providing the organization's ability to examine various knowledge from different external sources. The results demonstrated that leadership and organizational culture aid organizations in various processes by incorporating effective mechanisms to carry out other tasks efficiently.

Theme 2: Workload and Workflow Optimization in improving the quality-of-care

Workload and workflow optimization improving the quality of care was shown by 36 percent of the chosen articles (2,4,7,9,10,11,15,17,24,27). Miloslavsky & Bolster (2020) noted that information focusing on clinical workload and workflow optimization is vital in determining the critical problems and organization solutions to enhance the quality of care in each healthcare. From this perspective, there is a need to ensure well-being, a reasonable workload, and the safety of patients and healthcare providers.

On the other hand, workflows can aid in automating and streamlining repeatable clinical operations, thus reducing the chances of medical errors and thus improving the general efficiency of hospital operations (Zhang et al., 2020); López-Del-Hoyo et al., 2023; Gebbia et al., 2021 and Gualano et al., 2021). In turn, this could improve the quality-of-care outcome. Therefore, workload and workflow optimization could reduce dependency on the organization and thus aids in resolving inquiries faster (Gualano et al. (2021).

However, Shanafelt et al. (2019) portrayed that some workflows in healthcare are designed while others arise gradually and evolve. However, organizations' methods and systems to tackle workflow issues and goals vary radically, even though they are straightforward compared to other

organizational problems (Gebbia et al., 2021). Conversely, wherever workflow processes are isolated, the processes appear efficient and logical in the string to attain the given goals. Therefore, the contact between the processes gives room for complexities, and some of these contacts hide challenges in prioritizing various roles in medical organizations. For instance, what the physician team is responsible for completing versus what the nursing team is accountable for and their work schedule. The finding from Gebbia et al. (2021) perspective indicated that a rational workload and workflow optimization reduce the occurrence of mistakes and medical errors, accepting the possibility of accessing the positive clinical history of the patient in an ideal and convenient manner.

Theme 3: Mental Health and Well-Being Support in Improving the Quality-Of-Care

Mental health and well-being support improving the quality of care were reported in 53 percent of the articles (1,2,3,6,8,9,12,15,18,20,21,23,24,26,28). According to Zhang et al. (2020), leadership is crucial to employees' mental health. How stockholders interact with their staff strongly impacts employees' well-being. In this context, a leader should generate a supportive atmosphere for workers to embrace a culture that favors mental well-being. Conversely, Fernando et al. (2021) indicated that appropriate leadership improves engagement and morale, thus reducing workplace stress and creating a well-developed mental health environment where everyone feels valued and respected, aiding in reducing medical errors (Fernando et al., 2021); Zhang et al., 2020), As the results noted, supporting employees' mental health and well-being helps in improving the quality-of-care outcomes of patients.

Mental health is a psychological state that enables individuals to deal with life problems, comprehend their potential, and work well (Granek & Nakash, 2022). Positive thinking creates a sense of inner peace, thus, enhances self-esteem. From this perspective, leaders can generate favorable support by embracing open organizational communication. They can engage staff in conversations about their mental and emotional well-being (Crocker et al., 2022). In this context, stakeholders must foster an open dialogue around anticipations, embrace vibrant communication concerning organization policies, and inspire workers to portray their challenges, particularly emotional well-being. The outcomes in Crocker et al. (2022), along with Granek and Nakash (2022) works, indicated that providing proactive support by involving staff in conversations about mental health issues aids in reducing medical errors and, as a result, improving the quality-of-care outcomes.

Theme 4: Physician Engagement and Empowerment and Pandemic on Healthcare Employees Burnout

The physician engagement and empowerment and pandemic on healthcare employees' burnout were noted by 42% of the chosen articles (1, 2, 3, 4, 5, 6, 9, 13, 13, 14, 15,

17, and 18). Burnout in healthcare providers results in various impacts. Employee burnout can lead to negative results in the health care system, patient care, and personal levels, and was particularly observed during the coronavirus pandemic (Gualano et al., 2021). During the covid-19 pandemic, an analysis explored the prevalence of burnout and the contributing aspects based on the perception of the health workforce leadership. However, among the various responses in the study, it was identified that depression and anxiety remained significantly linked with all forms of burnout after controlling for the strong impact of work factors and demographics, especially operating in hospitals or the public sectors (Mangory et al., 2021). From this perspective, burnout is common among healthcare providers, including primary care physicians. It has been linked with reduced health outcomes and lower patient satisfaction. The coronavirus (Covid-19) helped to increase burnout among healthcare physicians at the time they were needed the most by their patients.

Mangory et al. (2021) indicated that physician engagement enhances patient outcomes and improves the quality of patient referrals, leading to a steady revenue source for the organization. Therefore, increasing physician engagement is an approach to generating a solid relationship between healthcare organizations and physicians (Kelly & Hearld, 2020). A high level of physician engagement is associated with improved patient safety, greater efficiency, low cost, and enhanced patient care (Gualano et al., 2021). Therefore, based on Kelly & Hearld (2020); Gualano et al. (2021), the outcomes indicated that effectively implemented physician engagement approaches are significant to success in traversing the cohesive nature of delivery system transformation and enabling effective quality care in healthcare.

Theme 5: Patient Safety and Quality of Care

Patient safety and quality of care are displayed in 43% of the chosen articles (1,3,6,8,9,13,15,16,18,20,25,27). Patient safety has been an area of concern in various healthcare settings. Various investigations have embraced consistent perceptions on whether patient safety and its adoption positively influence a firm's operation (6, 15, 20, and 25). However, many analysts emphasize that healthcare organizations must enhance patient safety. According to Dreier et al. (2020), a successful leader knows how to generate effective workplace culture where there exist high and safe quality patients. A leader should be able to develop a culture that enhances inter-professional teamwork within the organization (3, 6, 15, and 25).

Leaders must create a workplace culture that establishes organizational strategic goals for patient safety. In so doing, they minimize the chances of medical errors and physician burnout in the organization. Therefore, leaders must be flexible in controlling patient safety and account for concerns or instances that could influence patient safety. The finding displayed that there is a need for effective leaders to

adopt active engagement with staff and patients as an overall strategy for minimizing medical errors and thus bearing on safer patient care (8, 9, 13, 15, 16, 18, and 20).

In conclusion, the results have shown that healthcare leaders use several successful strategies to reduce physician burnout and medical errors while improving the quality-of-care outcomes. These strategies include the following components:

- Effective communication: A leader should embrace vibrant communication concerning organizational policies and clarify the organization's needs.
- Motivating employees: Leaders should inspire workers to portray their challenges, particularly emotional well-being.
- Building skills: A good leader should equip staff with the necessary skills and methods to attain organizational goals.
- Create a problem-solving culture: A leader should be able to generate a supportive atmosphere for workers to embrace a culture that favors mental well-being.

Limitations of the Study

There is an acknowledgment that some limitations may have occurred in the systematic literature review. The study of healthcare leaders' strategies to reduce physician burnout and medical errors while improving quality-of-care outcomes occurred over 12 weeks. The analysis excluded non-English language articles that prevented the inclusion of some articles. A thorough search of PubMed, MEDLINE, and Web of Science academic databases transpired using key terms, but using these terms may have excluded additional articles from being discovered. In addition, a limited amount of information was available on the research topic. Lastly, the subjective nature of the article reviewer may have also led to different interpretations of the findings.

These limitations were mitigated by adhering to the PRISMA-based systematic review practices. Filters were implemented once 41 articles were collected to exclude articles irrelevant to the research question. All remaining articles were reviewed in depth to determine whether they could inform the research question. Even though the study has limitations, the findings indicated that several successful strategies exist that healthcare leaders could use to reduce physician burnout and medical errors while improving the quality-of-care outcomes.

The Future Research and Implications

Future researchers can build upon the findings of this systematic literature review by applying various research methods or designs that include qualitative interviews, questionnaires, or surveys to comprehend the research topic further. Based on the findings, healthcare leaders can apply this new knowledge in developing successful strategies in

their workplace. According to the results, one could improve quality-of-care outcomes by implementing strategies that address physician burnout and medical errors. Future scholars may also decide to broaden or narrow the study's scope, allowing for an in-depth assessment of specific facets concerning physician burnout, medical errors, and quality-of-care outcomes. Finally, researchers can work with other industry leaders to collectively address the problem, offering a different approach and fostering innovative solutions.

5. CONCLUSION

The research showed that healthcare leaders use several successful strategies to reduce physician burnout and medical errors while improving the quality-of-care outcomes. From the analysis, building workplace and professional skills, creating a culture that aids in problem-solving, embracing effective communication concerning organization policies, and employee motivation play a crucial role in reducing physician burnout and medical errors while improving the quality-of-care outcomes. The themes from the review included leadership and organizational culture (67%), workload and workflow optimization (36%), mental health and well-being support (53%), Covid-19 impact on healthcare employees (42%), and patient safety and quality of care (43%). The findings indicated that strengthening successful strategies enhances patient safety and quality of care outcomes. The study found that potential leaders should be able to implement necessary strategies that equip staff with the required skills and methods to attain organizational goals. Therefore, appropriate leadership aids in aligning systems, thus building a management structure that supports improvements in various operations undertaken in a healthcare center. The outcomes displayed that information focusing on clinical workload and workflow optimization is vital in determining the critical problems and organization solutions to enhance the quality of care in each healthcare setting. From this perspective, there is a need to ensure well-being, a reasonable workload, and the safety of patients and healthcare providers. In this context, a leader should generate a supportive atmosphere for workers to embrace a culture that favors mental well-being. The findings demonstrated a link between a successful leader that can create an effective workplace culture where high and safe quality patients exist. From this perspective, a good leader should include various successful strategies such as incorporating the necessary skills to meet organizational goals, creating a culture that aids in problem-solving, embracing effective communication concerning organization policies, and motivating employees. In so doing, organizational leaders create a culture that enhances inter-professional teamwork. Such strategies help an organization to speed up various processes by embracing an effective mechanism to carry out different tasks efficiently.

6. REFERENCES

[1] Berg, S. (2019). Who adds burnout to ICD-11. What it means for physicians. <https://www.ama-assn.org/print/pdf/node/34891>

- [2] De Hert, S. (2020). Burnout in healthcare workers: Prevalence, impact and preventative strategies. *Local and Regional Anesthesia, Volume 13*, 171–183. <https://doi.org/10.2147/lra.s240564>
- [3] Harbell, M. W., & Methangkool, E. (2021). Patient Safety Education in anesthesia: Current state and future directions. *Current Opinion in Anaesthesiology, 34*(6), 720–725. <https://doi.org/10.1097/aco.0000000000001060>
- [4] Malik, H., & Annabi, C. A. (2022). The impact of mindfulness practice on Physician Burnout: A scoping review. *Frontiers in Psychology, 13*. <https://doi.org/10.3389/fpsyg.2022.956651>
- [5] Shin, P., Desai, V., Hobbs, J., Conte, A. H., & Qiu, C. (2023). Time out: The impact of physician burnout on Patient Care Quality and safety in Perioperative Medicine. *The Permanente Journal, 27*(2), 160–168. <https://doi.org/10.7812/tpp/23.015>
- [6] Steffey, M. A., Griffon, D. J., Risselada, M., Buote, N. J., Scharf, V. F., Zamprogno, H., & Winter, A. L. (2023). A narrative review of the physiology and Health Effects of burnout associated with veterinarian-pertinent occupational stressors. *Frontiers in Veterinary Science, 10*. <https://doi.org/10.3389/fvets.2023.1184525>
- [7] Stodolska, A., Wójcik, G., Barańska, I., Kijowska, V., & Szczerbińska, K. (2023). Prevalence of burnout among healthcare professionals during the COVID-19 pandemic and associated factors – a scoping review. *International Journal of Occupational Medicine and Environmental Health, 36*(1), 21–58. <https://doi.org/10.13075/ijomeh.1896.02007>
- [8] WHO. (2023). *Burn-out an “Occupational phenomenon”*: International Classification of Diseases. World Health Organization. <https://www.who.int/news/item/28-05-2019-burn-out-an-occupational-phenomenon-international-classification-of-diseases>
- [9] Wong, A. M. F. (2020). Beyond burnout: Looking deeply into physician distress. *Canadian Journal of Ophthalmology, 55*(3), 7–16. <https://doi.org/10.1016/j.jcjo.2020.01.014>
- [10] Zhang, X., Song, Y., Jiang, T., Ding, N., & Shi, T. (2020). Interventions to reduce burnout of physicians and nurses. *Medicine, 99*(26). <https://doi.org/10.1097/md.00000000000020992>
- [11] Ramirez, D., Foster, M. J., Kogut, A., & Xiao, D. (2022). Adherence to systematic review standards: Impact of librarian involvement in Campbell Collaboration’s education reviews. *The Journal of Academic Librarianship, 48*(5), 102567. <https://doi.org/10.1016/j.acalib.2022.102567>
- [12] Moher, D., Liberati, A., Tetzlaff, J., & Altman, D. G. (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA

- Statement. *PLOS Medicine*, 6(7), e1000097. <https://doi.org/10.1371/journal.pmed.1000097>
- [13] Cohen, J. (1960). A Coefficient of Agreement for Nominal Scales. *Educational and Psychological Measurement*, 20(1), 37–46. <https://doi.org/10.1177/001316446002000104>
- [14] Author links open overlay panelMatthew J. Page a, a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, ... AbstractThe Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) statement. (2021a, March 29). *The Prisma 2020 statement: An updated guideline for reporting systematic reviews*. *Journal of Clinical Epidemiology*. <https://www.sciencedirect.com/science/article/pii/S0895435621000731>
- [15] Averill, P., Vincent, C., Reen, G., Henderson, C., & Sevdalis, N. (2023). Conceptual and practical challenges associated with understanding patient safety within community-based mental health services. *Health Expectations*. Retrieved from <https://onlinelibrary.wiley.com/doi/10.1111/hex.13515>
- [16] Bajgain, B., Lorenzetti, D., Lee, J., Sauro, K. (2023). Determinants of implementing artificial intelligence-based clinical decision support tools in healthcare: A scoping review protocol. *BMJ Open*. Retrieved from <https://bmjopen.bmj.com/content/13/2/e068373.full>
- [17] Bansal, P., Bingemann, T. A., Greenhawt, M., Mosnaim, G., Nanda, A., Oppenheimer, J., Sharma, H., Stukus, D., & Shaker, M. (2020). Clinician wellness during the COVID-19 pandemic: Extraordinary times and unusual challenges for the allergist/immunologist. *The Journal of Allergy and Clinical Immunology: In Practice*. Retrieved from [https://www.jaci-inpractice.org/article/S2213-2198\(20\)31062-1/fulltext](https://www.jaci-inpractice.org/article/S2213-2198(20)31062-1/fulltext)
- [18] Crocker, K. M., Gnat, I., Haywood, D., Butterfield, I., Bhat, R., Lalitha, A. R. N., Jenkins, Z. M., & Castle, D. J. (2022). The impact of COVID-19 on the mental health workforce: A rapid review. *International Journal of Mental Health Nursing*. Retrieved from <https://onlinelibrary.wiley.com/doi/10.1111/inm.12967>
- [19] Dowling, M., Efstathiou, N., Drury, A., Semple, C., Fernández-Ortega, P., Brochstedt Dieperink, K., Pape, E., Kotronoulas, G., Miguel, S., Colomer-Lahiguera, S., & Bağcıvan, G. (2023). Cancer nursing research priorities: A rapid review. *European Journal of Oncology Nursing*. Retrieved from [https://www.ejoncologynursing.com/article/S1462-3889\(22\)00154-9/fulltext](https://www.ejoncologynursing.com/article/S1462-3889(22)00154-9/fulltext)
- [20] Dreiher, D., Blagorazumnaya, O., Balicer, R., & Dreiher, J. (2020). National initiatives to promote quality of care and patient safety: Achievements to date and challenges ahead. *Israel Journal of Health Policy Research*. Retrieved from <https://ijhpr.biomedcentral.com/articles/10.1186/s13584-020-00417-x>
- [21] Dubey, S., Biswas, P., Ghosh, R., Chatterjee, S., Jana Dubey, M., Chatterjee, S., Lahiri, D., & Lavie, C. J. (2020). Psychosocial impact of COVID-19. Elsevier. Retrieved from <https://www.sciencedirect.com/science/article/pii/S1043661820329796>
- [22] Fernando, B., Reynolds, T., Izzy, M., Kirchner, V. A., Wren, B., & Spiro, M. (2021). Mental health support in the transplantation workforce: What can we learn from the COVID-19 pandemic? *Experimental and Clinical Transplantation*. Retrieved from <https://www.ectrx.org/form/abstracts/v20i3s1/pdf/e00071.pdf>
- [23] Gebbia, V., Piazza, D., Valerio, M. R., & Firenze, A. (2021). WhatsApp Messenger use in oncology: A narrative review on pros and cons of a flexible and practical, non-specific communication tool. *ecancermedicalscience*. Retrieved from <https://ecancer.org/en/journal/article/1319-whatsapp-messenger-use-in-oncology-a-narrative-review-on-pros-and-contras-of-a-flexible-and-practical-non-specific-communication-tool>
- [24] Granek, L., & Nakash, O. (2022). Oncology healthcare professionals' mental health during the COVID-19 pandemic. *Current Oncology*. Retrieved from <https://current-oncology.com/index.php/oncology/article/view/6432/5614>
- [25] Gualano, M. R., Sinigaglia, T., Lo Moro, G., Rousset, S., Cremona, A., Bert, F., & Siliquini, R. (2021). The burden of burnout among healthcare professionals of intensive care units and emergency departments during the COVID-19 pandemic: A systematic review. *International Journal of Environmental Research and Public Health*. Retrieved from <https://www.mdpi.com/1660-4601/18/16/8681>
- [26] Hilty, D. M., Armstrong, C. M., Smout, S. A., Crawford, A., Maheu, M. M., Drude, K. P., Chan, S., Yellowlees, P. M., & Krupinski, E. A. (2022). Findings and guidelines on provider technology, fatigue, and well-being: Scoping review. *JMIR*. Retrieved from <https://www.jmir.org/2022/2/e27579>
- [27] Huilgol, Y. S., Adler-Milstein, J., Ivey, S. L., & Hong, J. C. (2022). Opportunities to use electronic health record audit logs to improve cancer care. *Cancer Medicine*. Retrieved from <https://onlinelibrary.wiley.com/doi/full/10.1002/ca.m4.4416>
- [28] Jankovic, I., & Chen, J. H. (2021). Clinical decision support and implications for the clinician burnout

- crisis. Yearbook of Medical Informatics. Retrieved from <https://www.thieme-connect.com/products/ejournals/pdf/10.1055/s-0040-1701986.pdf>
- [29] Kelly, R. J., & Hearld, L. R. (2020). Burnout and leadership style in behavioral health care: A literature review. *The Journal of Behavioral Health Services & Research*. Retrieved from <https://link.springer.com/article/10.1007/s11414-020-09716-5>
- [30] López-Del-Hoyo, Y., Fernández-Martínez, S., Pérez-Aranda, A., Barceló-Soler, A., Bani, M., Russo, S., Urcola-Pardo, F., Strepparava, M. G., García-Campayo, J. (2023). Effects of eHealth interventions on stress reduction and mental health promotion in healthcare professionals: A systematic review. *Journal of Clinical Nursing*. Retrieved from <https://onlinelibrary.wiley.com/doi/10.1111/jocn.16484>
- [31] Mangory, K. Y., Ali, L. Y., Isaksson Rø, K., & Tyssen, R. (2021). Effect of burnout among physicians on observed adverse patient outcomes: A literature review. *BMC Health Services Research*. Retrieved from <https://bmchealthservres.biomedcentral.com/articles/10.1186/s12913-021-06371-x>
- [32] Marx, R., & Kahn, J. G. (2021). A narrative review of slow medicine outcomes. *The Journal of the American Board of Family Medicine*. Retrieved from <https://www.jabfm.org/content/34/6/1249.full>
- [33] McVeigh, C., Ace, L., Ski, C. F., Carswell, C., Burton, S., Rej, S., & Noble, H. (2021). Review Mindfulness-Based Interventions for Undergraduate Nursing Students in a University Setting: A Narrative Review. *Healthcare*. Retrieved from <https://www.mdpi.com/2227-9032/9/2/1493>
- [34] Miloslavsky, E. M., & Bolster, M. B. (2020). Addressing the rheumatology workforce shortage: A multifaceted approach. *Seminars in Arthritis and Rheumatism*. Retrieved from <https://www.sciencedirect.com/science/article/pii/S004901722030124X/pdf?md5=925ce0c7eb67daff785c221b4dc70f89&pid=1-s2.0-S004901722030124X-main.pdf>
- [35] Prudenzi, A., Graham, C. D., Flaxman, P. E., Wilding, S., Day, F., & O'Connor, D. B. (2022). A workplace Acceptance and Commitment Therapy (ACT) intervention for improving healthcare staff psychological distress: A randomized controlled trial. *PLOS ONE*. Retrieved from <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0272982>
- [36] Rodríguez-Fernández, M., Herrera, J., & de las Heras-Rosas, C. (2021). Model of organizational commitment applied to health management systems. *International Journal of Environmental Research and Public Health*. Retrieved from <https://www.mdpi.com/1660-4601/18/8/4496>
- [37] Shanafelt, T. D., Schein, E., Minor, L. B., Trockel, M., Schein, P., & Kirch, D. (2019). *Healing the professional culture of medicine*. Elsevier. Retrieved from [https://www.mayoclinicproceedings.org/article/S0025-6196\(19\)30245-0/fulltext](https://www.mayoclinicproceedings.org/article/S0025-6196(19)30245-0/fulltext)
- [38] Ziemann, M., Erikson, C., & Krips, M. (2021). The use of medical scribes in primary care settings: A literature synthesis. *Medical Care*. Retrieved from https://journals.lww.com/lww-medicalcare/Fulltext/2021/09000/The_Use_of_Medical_Scribes_in_Primary_Care.9.aspx