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A SYSTEMATIC LITERATURE REVIEW OF MINDFULNESS-BASED INTERVENTIONS FOR INTENSIVE CARE UNIT NURSES: IMPACTS ON WELL-BEING AND PATIENT CARE QUALITY

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Abstract

This study systematically reviews the impact of mindfulness-based interventions (MBIs) on the well-being of intensive care unit (ICU) nurses and their effect on patient care quality. A systematic review of 12 peer-reviewed articles published between 2020 and 2025 was conducted. Findings revealed four major themes influencing ICU nurses' well-being. First, MBIs consistently reduce stress and burnout, enhance emotional resilience, and improve emotional intelligence. Second, self-care practices, including mindful self-care and autonomy, support long-term health and career sustainability. Third, workplace stress remains a significant challenge, with adaptive coping strategies such as mindfulness and emotional regulation proving more effective than avoidance or detachment. Finally, workplace dynamics, particularly ethical dilemmas and organizational culture, strongly affect morale, retention, and the delivery of compassionate, high-quality care. Quantitative evidence supports these outcomes; for example, a Mindfulness-Based Stress Reduction (MBSR) program lowered burnout scores from 56.53 to 48.56, and a quasi-experimental study reported significant reductions in emotional exhaustion and depersonalization ($p < 0.001$). Despite these benefits, challenges such as time constraints, limited institutional support, and low engagement in formal mindfulness programs persist. A notable limitation is the heterogeneity of MBI designs and implementation protocols, highlighting the need for standardization and longitudinal research. To enhance accessibility, digital and hybrid mindfulness formats are recommended. This review emphasizes that institutional commitment is essential for integrating mindfulness into ICU settings, positioning MBIs as strategic approaches to promote nurse well-being and improve patient care quality.

Keywords: *Mindfulness-Based Interventions, ICU nurses, Patient Care Quality, Nurse Well-being.*

Abstrak

Penelitian ini secara sistematis meninjau dampak intervensi berbasis mindfulness (Mindfulness-Based Interventions/MBIs) terhadap kesejahteraan perawat di unit perawatan intensif (ICU) serta pengaruhnya terhadap kualitas asuhan pasien. Tinjauan dilakukan terhadap 12 artikel peer-reviewed yang diterbitkan antara 2020 hingga 2025. Hasilnya mengungkap empat tema utama yang memengaruhi kesejahteraan perawat ICU. Pertama, MBIs secara konsisten menurunkan stres dan burnout, meningkatkan resiliensi emosional, serta memperkuat kecerdasan emosional. Kedua, praktik perawatan diri, termasuk mindful self-care dan otonomi, mendukung kesehatan jangka panjang dan keberlanjutan karier. Ketiga, stres kerja tetap menjadi tantangan signifikan, di mana strategi koping adaptif seperti mindfulness dan regulasi emosi terbukti lebih efektif dibandingkan penghindaran atau pelepasan diri. Keempat, dinamika tempat kerja, khususnya dilema etis dan budaya organisasi, sangat memengaruhi moral, retensi, dan kemampuan perawat dalam memberikan asuhan yang penuh kasih dan berkualitas tinggi. Bukti kuantitatif mendukung temuan ini; misalnya, program Mindfulness-Based Stress Reduction (MBSR) menurunkan skor burnout dari 56,53 menjadi 48,56, dan studi kuasi-eksperimental menunjukkan penurunan signifikan pada kelelahan emosional serta depersonalisasi ($p < 0,001$). Meskipun demikian, tantangan tetap ada, seperti keterbatasan waktu, dukungan institusional yang minim, serta rendahnya partisipasi dalam program mindfulness formal. Keterbatasan utama penelitian adalah heterogenitas desain dan protokol implementasi MBIs, sehingga diperlukan standarisasi dan penelitian longitudinal. Untuk meningkatkan aksesibilitas, format digital dan hybrid diusulkan. Tinjauan ini menekankan pentingnya komitmen institusional dalam mengintegrasikan mindfulness di ICU sebagai strategi untuk meningkatkan kesejahteraan perawat sekaligus kualitas asuhan pasien.

Kata kunci: Intervensi Berbasis Mindfulness, Perawat ICU, Kualitas Asuhan Pasien, Kesejahteraan Perawat.

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Introduction

The Intensive care unit (ICU) is one of the most challenging and high pressure environments in healthcare, where nurses do a critical role in managing the complex needs of critically ill patients (Armbruster et al., 2023; Bryn, 2023; Latour et al., 2022). ICU is a high – stress environment where nurses face significant psychological challenges, including increased workloads and ethical dilemmas. These stressors have led to elevated levels of burnout and emotional exhaustion among ICU nurses, adversely affecting both their well – being and the quality of patient care they provide (Ahmed et al., 2024; Liu et al., 2023; Papazian et al., 2023).

Mindfulness-Based Interventions (MBIs), such as Mindfulness-Based Stress Reduction (MBSR) and Mindfulness-Based Cognitive Therapy (MBCT), have emerged as promising strategies to address psychological distress among healthcare professionals. Mindfulness is commonly defined as the intentional, non-judgmental awareness of the present moment, including thoughts, emotions, bodily sensations, and surroundings. Practicing mindfulness cultivates acceptance, compassion, and emotional regulation skills critical for ICU nurses operating in high-stakes, emotionally intense environments (Cillessen et al., 2020; Zhang et al., 2021).

Recent research has shown that MBIs can reduce stress and burnout, enhance self-compassion, and improve emotional resilience among ICU nurses (Benavides-Gil et al., 2024; Ong et al., 2024; Othman et al., 2023). These improvements are associated with better communication, safer practice, and stronger patient interactions, which are essential in the high-pressure ICU environment (Li et al., 2024; Ramachandran et al., 2023).

Given the critical role nurses play in delivering high-stakes care, investing in mindfulness programs is not only beneficial but essential to support their well-being and effectiveness. However, existing studies remain fragmented and lack comprehensive synthesis. To address this gap, the present review consolidates recent evidence (2020–2025) to examine factors that shape ICU nurses' well-being and patient care quality, with a particular focus on four key themes: the benefits of mindfulness, self-care practices, workplace stress and coping, and workplace dynamics. By synthesizing current literature, this study aims to provide actionable insights to inform clinical practice, guide institutional implementation, and shape policy development in critical care nursing.

This systematic review consolidates recent evidence on the effectiveness of mindfulness-based interventions for ICU nurses, with a focus on their impact on nurse well-being and patient care quality. To ensure relevance, the review synthesizes studies published between 2020 and 2025, a period that reflects the growing interest and rapid development of MBIs in healthcare. By drawing on this contemporary literature, the review aims to provide a comprehensive synthesis of current knowledge and to identify key themes including mindfulness, self-care, workplace stress and coping, and workplace dynamics that shape the well-being of ICU nurses and their capacity to deliver high-quality care.

Methods

This study used the well-known Systematic Literature Review (SLR) method, following the clear structure of Xiao & Watson (2019), to carefully check and combine existing research on a specific topic or research

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question. Unlike traditional literature reviews, the SLR follows a clear and open approach, making sure that the review process is thorough, can be repeated, and is not biased. By following a step-by-step process, it helps researchers to understand what has already been done, see where there are gaps, and spot trends and patterns. For this research, the SLR will be a very important tool. It will help to collect, evaluate, and synthesize existing academic contributions. This will provide a solid foundation for understanding the chosen topic and guiding future research directions.

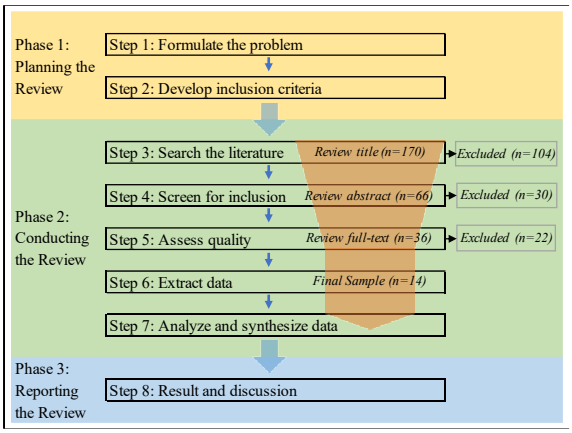

Figure 1. Process of systematic literature review (Xiao & Watson, 2019).

Phase One: Planning the Review. The planning phase begins with the definition of the research question. The objective of this review is to identify the factors that influence the well-being of ICU nurses and examine how these factors affect the quality of patient care. Specifically, the review aims to explore the impact of mindfulness-based interventions, self-care practices, coping strategies, and workplace dynamics on ICU nurses' resilience, stress levels, and professional performance, as well as their implications for care quality. The subsequent stage is to establish the inclusion criteria, with a view to selecting studies that are both relevant and of high quality. In conducting this systematic review, data were sourced from databases including PubMed, ScienceDirect, and Web of Science, targeting publications from 2020 to 2025 to ensure relevance and up-to-date findings. The inclusion criteria were designed to prioritize specific keywords, such as Mindfulness Programs, ICU Nurses Well-being, Self-care, Workplace Stress, and Patient Care Quality. This approach ensured that the selected articles focused on the effectiveness of mindfulness and related factors in supporting nurses and enhancing outcomes in critical care settings.

Phase Two: Conducting the Review. This phase commences with a systematic search of the literature across the predefined databases, utilizing the keywords and inclusion criteria established in the planning phase. The review process was conducted in stages to ensure rigor and transparency. Initially, 170 studies were identified and screened based on their titles, excluding 104 studies that were clearly unrelated to ICU nurses, mindfulness interventions, stress, burnout, or patient care quality, leaving 66 studies for abstract screening. During the abstract review, 30 studies were excluded for not providing primary data, not being empirical research, or lacking clear measures of psychological well-being, stress, burnout, or patient care outcomes, resulting in 36 studies for full-text review. A detailed examination of the full texts led to the exclusion of 24 additional studies due to insufficient methodological rigor or incomplete reporting of relevant data, leaving 12 studies that met all inclusion criteria. The inclusion criteria in this review specifically required that studies examine nurses working in intensive care units (ICUs), and only studies presenting strong and comprehensive data on ICU nurses' psychological well-being, stress levels, burnout rates, and related patient care

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outcomes were included for data extraction and synthesis.

Phase Three: Reporting the Findings. The final phase of the study involves the presentation of the synthesized findings in a structured and transparent manner. This includes the summarization of key outcomes, such as the effect of mindfulness programs on nurses' emotional resilience, stress management, and job satisfaction, as well as their impact on patient safety, complication rates, and recovery timelines. Additionally, the results highlight critical factors such as the duration and intensity of mindfulness training, the incorporation of mindfulness into daily ICU routines, and the role of institutional support in sustaining these programs. By clearly communicating these findings, this review provides actionable insights for healthcare administrators, policymakers, and clinical practitioners aiming to enhance ICU work environments and optimize patient care quality through mindfulness-based interventions.

Results

This systematic literature review analyzed 12 studies published between 2020 – 2025. This review brought together insights from a wide range of studies that looked at how MBIs affect ICU nurses and their work. While each study had its own unique angle, several clear themes emerged:

Table 1. Summary Description of The Study

Authors	Aim	Method	Sample	Findings
(Corder, 2020)	To evaluate the effect of a Mindfulness-Based Stress Reduction (MBSR) intervention on emotional intelligence (EI), burnout, and anticipated turnover among critical care nurses.	Quantitative	32 ICU nurses	Emotional Intelligence increased (mean from 114.53 to 122.44). Burnout decreased (mean from 56.53 to 48.56). Anticipated Turnover decreased (mean from 35.88 to 32.59). Statistically meaningful improvements post-intervention.
(Zeb et al., 2022)	To determine the levels of mindful self-care and the influencing factors (e.g., age, gender, clinical experience, education) of nurses in acute care settings.	Quantitative	258 acute care nurses (61 ICU nurses)	Nurses reported low levels of mindful self-care (Mean score: 89.74/165). Female nurses scored significantly higher than males. Negative correlations were found between mindful self-care and both age and years of clinical experience. Highest scores were in physical care; lowest in supportive structure domain.
(Chipu &	To analyze and clarify the concept of self-care among professional	Concept Analysis using Walker	39 selected articles (2013-2020) from multiple databases.	Identified seven defining attributes of self-care: process, activity, capability, autonomous choice, education, self-

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Authors	Aim	Method	Sample	Findings
Downing, 2020)	nurses in intensive care units, including its defining attributes, antecedents, and consequences.	and Avant's eight-step method.		control, and interaction. Seven antecedents: self-motivation, participation, commitment, resources, beliefs, social/professional support, and time. Consequences: health maintenance, autonomy, self-esteem, empowerment, and stress coping.
(Xie et al., 2020)	To evaluate the effectiveness of an 8-week mindfulness-based intervention in alleviating occupational burnout in ICU nurses, compared to an educational intervention on burnout.	Parallel, controlled trial	106 female ICU nurses	MBIB group showed: Significant reduction in emotional exhaustion (MBI-E), depersonalization (MBI-D), and experiential avoidance (AAQ-II) Significant increase in mindfulness (MAAS) and personal accomplishment (MBI-P) Effects sustained for 3 months post-intervention. EB group showed no significant improvement in any measure.
(Hançerlioğlu & Konakçı, 2020)	To determine the attitudes and behaviors of intensive care unit (ICU) nurses towards end-of-life care.	Quantitative	216 ICU nurses	Higher education (Master's) = significantly more positive attitudes and behaviors. Nurses in 3rd level ICUs had more positive attitudes than those in 1st/2nd level ICUs. Nurses with knowledge of end-of-life care, who encountered death daily, and with more experience and age, showed more positive scores across all subscales.
(Xie et al., 2021)	To construct structural equation models to test the mediating role of emotional intelligence in the relationship between mindfulness and occupational burnout (emotional exhaustion, depersonalization, and personal accomplishment) among ICU nurses.	Descriptive, correlational, cross-sectional study	883 ICU nurses from 29 ICUs in seven tertiary hospitals in Chengdu, China.	Mindfulness is negatively associated with emotional exhaustion and depersonalization. Emotional Intelligence (EI) partially mediates the relationship between mindfulness and emotional exhaustion (24% of total effect), and depersonalization (28.8%). EI fully mediates the relationship between mindfulness and personal accomplishment. All model fits were statistically acceptable (CMIN/DF < 3; CFI, GFI > 0.90).

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Authors	Aim	Method	Sample	Findings
(Babkair et al., 2024)	To examine stress levels and stressors among ICU nurses in Saudi Arabia, investigate their coping strategies, and explore the main workplace stressors they face.	Mixed-methods study: 1.Quantitative – Descriptive cross-sectional 2. Qualitative – Semi-structured interviews	103 ICU nurses	91.3% reported moderate stress, 8.7% high stress. Top coping strategies: Religious activities, approach coping (active coping, planning), humor, avoidant coping. Themes from interviews: 1. “It is an overwhelming job” (stress from patient acuity, staffing, pandemic). 2. “Just stay strong” (coping through meditation, workshops, positivity, and family).
(Mealer et al., 2021)	To evaluate the effectiveness, feasibility, and acceptability of a Mindfulness-Based Cognitive Therapy (MBCT) program in improving resilience and reducing burnout syndrome symptoms among critical care (ICU) nurses.	Randomized Controlled Trial (RCT)	131 ICU nurses	MBCT was feasible and acceptable with high satisfaction in Weeks 2–4. No statistically significant improvement in resilience scores vs control (CD-RISC Δ = 5.0 vs 7.0, p = 0.30) Virtual MBCT group showed greater improvement in emotional exhaustion (p = 0.049) Adherence better with shortened 4-week format.
(Othman et al., 2023)	To examine the effectiveness of a Mindfulness-Based Intervention (MBI) on burnout, mindfulness, and self-compassion among critical care nurses (CCNs) caring for COVID-19 patients.	Quasi-experimental, prospective study	60 ICU nurses	Significant reductions in emotional exhaustion and depersonalization ($p < 0.001$) Significant increase in personal accomplishment (PA) scores ($p < 0.001$) Mindfulness (FFMQ) scores improved significantly in 4 of 5 facets ($p < 0.001$) Self-compassion (SCS) scores improved in 5 of 6 subscales ($p < 0.001$) Large effect sizes for all outcome measures (Cohen’s $d > 0.8$)
(Anderson, 2021)	To evaluate the effects of an 8-week Mindfulness-Based Stress Reduction (MBSR) intervention on critical care nurses’ quality of life, perceived	Quality Improvement Project using a pre-post intervention design	23 ICU nurses	Significant improvements in: Life satisfaction at 8 weeks ($P < .001$), not sustained at 4 months ($P = .41$). Perceived stress reduced significantly at 8 weeks and 4 months ($P < .001$). Mindfulness awareness increased significantly at 8 weeks and 4 months ($P < .001$). No

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Authors	Aim	Method	Sample	Findings
	stress, mindfulness awareness, and sickness/absence rates as part of a quality improvement project.			significant changes in sickness absence (P = .69). 70% retention rate at 4 months
(Mock, 2021)	To assess whether participation in an asynchronous, web-based mindfulness program (eMLife) improves mindfulness and professional quality of life (pro-QOL) among ICU nurses.	Quasi-Experimental	20 ICU nurses	Among 17 participants: 0% reported high burnout (BO) or secondary traumatic stress (STS); 35% reported high compassion satisfaction (CS); 29% low BO; 35% low STS. In the follow-up survey (n=116), 90% had heard of mindfulness, but 57% did not practice it. Top barriers: forgetting (n=32), not knowing how (n=29), lack of time (n=23).
(Liu et al., 2023)	To explore the experiences of intensive care nurses in China coping with ethical conflict in clinical practice, aiming to identify their coping strategies and inform future supportive interventions.	Qualitative	15 ICU nurses	Two overarching themes were identified: Detachment and Engagement, with four subthemes: Ignoring ethical problems• Seeking ways to express emotions. Perspective-taking. Identifying positive assets These revealed a dynamic coping process involving emotional regulation, meaning-making, and distancing.

Benefit of mindfulness. Mindfulness-based interventions have emerged as powerful strategies to support the emotional and psychological well-being of healthcare professionals. Evidence consistently shows that mindfulness fosters calmness, focus, empathy, and self-awareness, while simultaneously reducing burnout and stress. It enhances emotional intelligence, strengthens resilience, and promotes greater life satisfaction, allowing nurses and clinicians to sustain mindful awareness even in high-pressure environments. Beyond personal benefits, these practices contribute to professional growth by improving compassion, self-regulation, and overall quality of care. Collectively, mindfulness interventions not only mitigate the adverse effects of workplace stress but also empower healthcare professionals to thrive in their roles, ultimately elevating both personal well-being and patient outcomes (Anderson, 2021; Corder, 2020; Mealer et al., 2021; Mock, 2021; Othman et al., 2023; Xie et al., 2020, 2021).

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Self-Care in Nursing. Self-care emerged as a crucial category in nursing, encompassing the practices and strategies that enable nurses to sustain their health, manage stress, and maintain overall well-being. It is characterized by mindful self-care, autonomy, education, and intentional processes that empower nurses to protect their physical, emotional, and psychological resilience. Prioritizing self-care not only helps mitigate the risk of burnout but also supports professional fulfillment and long-term career sustainability. Importantly, fostering a culture that values and supports self-care through education, organizational resources, and institutional encouragement ensures that nurses are better equipped to thrive personally while delivering high-quality care to patients (Chipu & Downing, 2020; Zeb et al., 2022).

Workplace Stress and Coping. Workplace Stress and Coping is a critical theme in nursing, reflecting the high-pressure demands and ethical challenges that nurses routinely encounter. Nurses frequently experience moderate to high levels of stress, particularly in acute and critical care settings, where the emotional and physical demands are intense. Coping strategies vary widely, ranging from adaptive approaches such as emotional regulation, mindfulness, and engagement, to less effective methods like avoidance or detachment. Ethical conflicts further compound workplace stress, often requiring nurses to balance professional responsibilities with personal values. These complexities highlight the urgent need for supportive interventions that promote healthy coping mechanisms, strengthen resilience, and reduce the negative impact of stress on both professional performance and personal well-being (Babkair et al., 2024; Liu et al., 2023).

Workplace Dynamics. Workplace dynamics, encompassing professional attitudes and ethical challenges, play a vital role in shaping nurse well-being and job satisfaction. Attitudes toward sensitive areas such as end-of-life care, coupled with the ethical dilemmas that often arise in clinical practice, can significantly affect morale and emotional resilience. Ethical conflicts are frequently cited as major sources of workplace stress, highlighting the importance of organizational support and clear policies to guide nurses in navigating these complex situations. Creating a supportive, ethically aware work environment not only enhances nurse retention and professional fulfillment but also ensures the delivery of compassionate, high-quality patient care (Hançerlioğlu & Konakçı, 2020).

Discussions

Benefits of Mindfulness

This review demonstrates that mindfulness-based interventions consistently reduce burnout, enhance resilience, and improve emotional intelligence among ICU nurses. These findings align with prior studies highlighting the role of mindfulness in fostering calmness, empathy, and self-awareness in high-stress environments (Anderson, 2021; Xie et al., 2020, 2021). Importantly, mindfulness not only improves nurses' personal well-being but also strengthens their capacity to deliver compassionate care. However, much of the current evidence relies on self-reported measures, which may overestimate effectiveness, and few studies track long-term outcomes. Future research should adopt longitudinal designs to confirm the sustainability of these benefits. Embedding mindfulness into professional development programs offers a practical pathway to improve both nurse well-being and patient outcomes.

Self-Care in Nursing

The findings highlight self-care as a crucial factor in sustaining health, reducing burnout risk, and ensuring long-term career satisfaction. Practices such as mindful self-care, autonomy, and education enable nurses to preserve their resilience and psychological well-being, consistent with previous evidence (Chipu & Downing, 2020; Zeb et al., 2022). Despite its recognized importance, self-care is often undervalued within organizational cultures. Institutions can address this gap by promoting education on self-care strategies, providing accessible resources, and fostering a supportive culture that prioritizes the health of nurses. Strengthening organizational commitment to self-care will not only improve individual outcomes but also enhance the overall quality of care.

Workplace Stress and Coping

Workplace stress remains a critical challenge, especially in acute and critical care settings where nurses face intense emotional and physical demands. This review shows that while adaptive coping strategies such as mindfulness and emotional regulation are effective, many nurses still resort to maladaptive methods like avoidance or detachment. These findings reflect earlier research emphasizing the variability in coping mechanisms (Liu et al., 2023; Babkair et al., 2024). Addressing workplace stress requires targeted interventions that promote healthy coping, reduce exposure to chronic stressors, and strengthen resilience. Future studies should explore organizational interventions such as stress management programs and supportive leadership that can systematically reduce stress and reinforce adaptive coping.

Workplace Dynamics

Workplace dynamics, including professional attitudes and ethical challenges, significantly shape nurse well-being and job satisfaction. This review found that ethical dilemmas, particularly in sensitive areas like end-of-life care, are major contributors to workplace stress. These findings echo prior studies underscoring the role of ethical conflicts in undermining morale and retention (Hançerlioğlu & Konakçı, 2020). Despite this, relatively few studies propose concrete solutions for managing these challenges. Practical measures include clearer institutional policies, ethics training, and structured debriefing sessions to help nurses navigate complex clinical situations. Cultivating an ethically supportive workplace environment can enhance professional fulfillment while ensuring the delivery of compassionate, high-quality care.

Taken together, these four themes benefits of mindfulness, self-care in nursing, workplace stress and coping, and workplace dynamics illustrate the complex and interconnected nature of nurse well-being. The evidence highlights the importance of embedding mindfulness and self-care into professional development, addressing workplace stress with healthier coping strategies, and fostering ethically supportive environments to improve both nurse resilience and patient care. At the same time, these findings should be interpreted with caution. Most of the included studies were cross-sectional or relied on self-reported data, which limits causal conclusions and generalizability. Variations in study design and outcome measurement also make comparisons difficult, while the exclusion of grey literature and potential publication bias may have influenced the scope of available evidence. In addition, the predominance of short-term research means that the long-term impact of mindfulness-based interventions on ICU nurses and patient outcomes remains uncertain. These limitations point to the need for more rigorous, longitudinal, and

culturally inclusive studies in the future, ensuring a stronger evidence base to guide both practice and policy.

Conclusions

This review highlights four interconnected pathways that shape ICU nurses' well-being. First, mindfulness provides a practical tool for staying calm, focused, and compassionate even in the most stressful situations. Second, self-care empowers nurses to sustain their resilience, protect their health, and find balance in demanding roles. Third, effective coping strategies help mitigate the toll of relentless workplace stress, while maladaptive approaches like avoidance risk worsening strain. Finally, workplace dynamics especially ethical dilemmas and organizational culture profoundly influence morale, retention, and the capacity to deliver high-quality care. Together, these findings emphasize that supporting nurses requires more than individual effort; it calls for system-level changes that nurture mindfulness, prioritize self-care, promote healthy coping, and foster ethically supportive environments. Strengthening these areas is essential not only for protecting nurses' well-being but also for safeguarding patient outcomes.

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