Psychological Trauma: Theory, Research, Practice, and Policy

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A Scoping Review of Resilience Among Intensive Care Nurses: Exploring Strengths That Mitigate Secondary Trauma

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Objective: The stressful and traumatic nature of nursing jobs, especially in specialized units such as the intensive care unit (ICU), puts nurses at higher risk for psychological distress or more severe diagnoses like posttraumatic stress disorder. The purpose of this study is to conduct a scoping review on resilience among ICU nurses, using the resilience portfolio model as a framework. ***Method:*** We searched PubMed and APA PsycInfo for articles that included the terms "ICU nurses" and "resilience," which resulted in 302 articles. After excluding duplicates and articles that focused only on workplace performance, lacked data, or focused on the COVID-19 pandemic, 43 articles remained. ***Results:*** Mindfulness, spirituality/religion, and social support were frequently mentioned as sources of resilience. The importance of social leisure—simply relaxing with friends and family outside of work—emerged as distinct from social support in terms of comfort during times of stress. Support from leadership and mentors was also an important interpersonal resource. ***Conclusions:*** One important adversity among ICU nurses is moral injury, which occurs when people are faced with demands that conflict with their ethical principles (Burton et al., 2020). In the ICU context, nurses can experience moral injury when hospitals, insurers, and patients' loved ones have different desires or expectations. The adversity of moral injury needs more consideration in research on trauma and resilience. Interventions such as a sacred pause after a death hold promise for supporting ICU nurses. This review indicates that a variety of ongoing supports are needed to sustain nurses working in highly stressful environments.

Clinical Impact Statement
This scoping review of resilience among intensive care unit nurses revealed several factors that are seldom discussed in mainstream research on trauma and resilience, such as the importance of social leisure and good leadership at workplaces. Brief interventions such as a "sacred pause" after a patient death hold promise for helping to sustain the well-being of health care providers and first responders.

Keywords: secondary trauma, nurses, moral injury, resilience portfolios, psychosocial strengths

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Nurses in intensive care units (ICUs) work in high-stakes environments, constantly working in life-or-death situations and often simultaneously dealing with understaffing and other workplace issues (Rodríguez-Rey et al., 2019). The stressful and traumatic nature of nursing jobs, especially in specialized units such as ICUs, puts nurses at high risk for psychological distress or more severe diagnoses like posttraumatic stress disorder (PTSD; Li et al., 2021; M. L. Mealer, Jones, & Meek, 2017). However, the impact of stressful and adverse events can be overcome by harnessing psychosocial strengths in a process known as resilience. First responders like nurses may be in special need of resilience but also have unique considerations due to their work. One theoretical model that can be flexibly adapted to different populations is the resilience portfolio model (RPM; Hamby et al., 2018). The RPM focuses on three types of strengths: meaning making (connecting to something larger than oneself), regulatory (managing thoughts, emotions and behaviors), and interpersonal (resources in the social ecology, which includes individuals' relationships with families, peers, and communities). This study uses the RPM as a theoretical framework to guide a scoping review of the literature on resilience among ICU nurses.

The Intensive Care Unit as Workplace Environment

ICUs are stressful and even traumatic work environments, where nurses and other staff are exposed to the aftermath of traumatic events (violence, accidents) and witness death on a regular basis. Even under ideal circumstances, the environment is highly demanding. In their day-to-day activities, nurses must frequently make or execute ethical choices regarding the care of patients in very high-stakes, life-or-death circumstances where sometimes such decisions must be made under enormous time pressure. Further, because of the constant emergencies and understaffing within ICUs worldwide, nurses often neglect their

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personal needs by skipping meal breaks and not using the restroom regularly (Deck, 2022; Jeong & Shin, 2023). As a result, ICU nurses are susceptible to developing symptoms of burnout and posttraumatic stress, which are characterized by emotional distress, fatigue, depression, and anxiety (Colville et al., 2017; Kapoor et al., 2018; M. L. Mealer et al., 2007; Sanchez et al., 2019). Some research suggests this is true even in comparison to nurses working in other kinds of units (M. L. Mealer et al., 2007). Some research suggests that nurses are also exposed to more trauma than some other health professionals, such as physicians and psychologists (Manning-Jones et al., 2016). The impact of trauma is not just psychological—numerous studies have found that stressful workplaces also contribute to allostatic load, which refers to a number of biomarkers, such as inflammation, that assess "wear and tear" on the body (Guidi et al., 2021). In addition to the individual experience of suffering and trauma among ICU nurses, the effects of trauma can also lead to higher turnover rates in hospital employees and poor patient care quality, creating a vicious cycle that inflicts even more adversity on the remaining staff (Deck, 2022).

One adverse feature of modern health care has come to be known as *moral injury* or *moral distress*. Moral injury refers to situations when people are faced with an ethically challenging situation and are unable to make the most principled choice (Burton et al., 2020). In the ICU context, nurses can experience moral distress from various factors, like feeling torn between the interests of the hospital care team and patients' loved ones or putting patients through uncomfortable treatments due to pressure to keep them alive (Burton et al., 2020; Semler, 2023; Talebian et al., 2022).

ICU nurses are just one element of the hospital environment, and the organization and infrastructure, as much as the inherently stressful nature of working with traumatized patients, also impact nurses and influence their vulnerability to PTSD and other poor outcomes. Many traumatic experiences in the ICU involve deteriorated workplace conditions, which are controlled by hospital administrators and owners. Understaffing in units, unmanageable patient-to-provider ratios, long workdays, inadequate breaks, and not valuing employee input all contribute to daily stress and leave nurses vulnerable to more traumatic experiences (Hiler et al., 2018; Semler, 2023). Further, the lack of nurses' control over many of these workplace features can be an aggravating factor. If nurses are not given sufficient resources to provide comprehensive care, moral injury commonly occurs. These and other stressful elements of the job can all aggravate what is known as secondary trauma or vicarious trauma, which involves exposure to other people's traumatic events. Secondary trauma commonly affects first responders in many professions (e.g., Janczewski & Mersky, 2023; Kendall-Tackett, 2023; Phillips et al., 2023).

Resilience Among Nurses

Resilience is the process of harnessing personal assets and external resources to thrive despite exposure to traumatic experiences (Hamby et al., 2018). The *RPM* offers one social ecological, strengths-based framework for understanding resilience in various populations (Hamby et al., 2018; Gonzalez-Mendez et al., 2021). The RPM considers three psychosocial domains as primary contributors to resilience. Meaning making involves connecting to something larger than oneself and developing one's identity, as through commitment to missions, roles, and beliefs. Regulatory strengths refer to an individual's abilities to manage emotions, thoughts, and behaviors. Interpersonal strengths refer to resources from the social ecology—how our relationships with family, friends, and communities sustain us, as well as our social skills in accessing those resources. Although older approaches to resilience often treated it as an inherent personal characteristic, the RPM emphasizes that there are many assets and resources that can help people overcome trauma and that these are modifiable. Given the diverse and ongoing array of stresses that ICU nurses are exposed to, it is unlikely that a single strength will help maintain their ability to do the work. The model proposes that by acquiring a sufficient "dosage" or portfolio of strengths, people can overcome even substantial exposures to trauma, as indicated by greater well-being, fewer symptoms of depression and anxiety, or other measures of functioning.

Examining resilience processes among first responders can help address the widespread issue of secondary trauma. Although there have been prior reviews of secondary trauma among first responders (e.g., Leung et al., 2023), there has been less attention to synthesizing the literature on the ways that first responders manage to maintain well-being despite their trauma exposure—that is, to resilience. One review examined various coping strategies among first responders (Dautovich et al., 2023), which is considered a regulatory strength in the RPM. However, that review did not examine other strengths that first responders might use to navigate primary and secondary exposures to trauma. Sense of purpose, emotion regulation, psychological endurance, and social support have been important in other RPM studies with the general population (e.g., Brooks et al., 2024; Hamby et al., 2018, Hamby et al., 2024). It would be useful to know which other psychosocial strengths might help ICU nurses as well. Further, because first responders are often less stigmatized than other people exposed to trauma, some strengths might be identified that could be helpful to other victims of trauma too.

The present study examines strengths used by ICU nurses to overcome workplace trauma, using the RPM to organize the findings. A scoping review was chosen to allow for the inclusion of qualitative as well as quantitative research and to incorporate a variety of research designs. The goal of this research is to gain a better understanding of the current literature on trauma and resilience of ICU nurses and to find promising topics for further research and practice. The results can also be used to inform health care providers about the most effective strategies to develop resilience to prevent and alleviate trauma symptoms.

Method

We searched PubMed and APA PsycInfo for articles that included the terms "ICU nurses" and "resilience." This process resulted in 302 articles. We first removed 54 duplicate articles, leaving $n = 248$. We excluded all articles that focused only on workplace performance (measures such as turnover or employee engagement), had no data (i.e., were reviews or commentaries), or focused on coping with the COVID-19 pandemic. This excluded 189, leaving 59 articles for full-text review. Another 17 were excluded during full-text review for not including data, focusing on the wrong population, or only having data on a single measure (such as psychometric papers), leaving a total of 42 articles. See Figure 1 for the Preferred Reporting Items for Systematic Reviews and Meta-Analyses diagram. We reviewed each article for population (type of ICU ward, such as pediatric or adult), country where study took place, study design (qualitative, cross-sectional quantitative surveys, mixed methods, pretest/posttest, or randomized controlled trial), outcomes (resilience scores, mental health outcomes, or common themes), strengths included (such as social support or emotion regulation), resilience measures (if applicable for quantitative studies),

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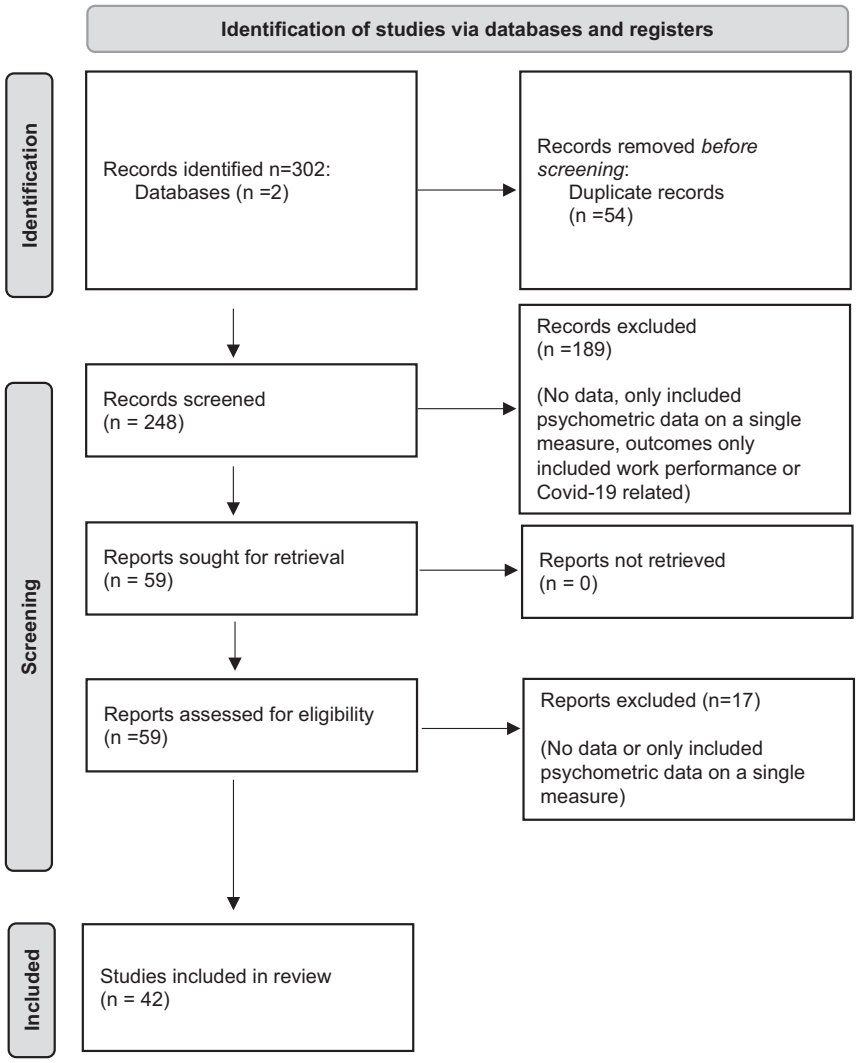
Figure 1

Preferred Reporting Items for Systematic Reviews and Meta-Analyses Flow Diagram of Search



and resilience portfolio domains represented (meaning making, interpersonal, and regulatory).

Reflexivity Statements

SP is a White female psychology major and research intern at Life Paths Research Center from eastern Tennessee. She is also the daughter of a former ICU nurse (and current family nurse practitioner) and saw firsthand the trauma and burnout that ICU nurses experienced. SH is a White female psychology professor with experience working in medical and psychiatric hospitals. She specializes in research on trauma and resilience and is one of the developers of the RPM. Our personal experiences enhanced our capacity to understand and reflect on the findings. We also used multiple readings and discussions of the articles and reflections from others so that our experiences did not constrain our conclusions.

Results

We identified a wide range of strengths across the 42 included articles, of which 42.9% were based on research conducted in the United States. We present the findings by resilience portfolio domain to facilitate identifying points of comparison and contrast.

Interpersonal Strengths

Twenty-three articles (54.8% of the 42 included articles) provided information on interpersonal strengths. Almost half (11 or 47.8%) of these 23 articles with interpersonal data used a qualitative design (interviews or focus groups), six (26.1%) were cross-sectional quantitative surveys with one wave of data collection, two (8.7%) used mixed methods (focus group and a survey), three (13.0%) collected pretest and posttest data for an intervention (no control

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group), and one (4.3%) was a randomized controlled trial (RCT) with a control group.

Supportive social networks—reliable networks of people who provide help when a person needs support—were the most frequently mentioned interpersonal strengths (19 articles), with higher levels of social support being associated with better outcomes. See Table 1 for a summary of identified strengths. Notably, many of the identified interpersonal strengths were workplace-specific, even though they supported nurses' overall well-being (could not focus only on workplace performance to be included in this review). This included strong support from supervisors, high-quality leadership, leadership continuity, and good teamwork (Colville et al., 2017; Hancock et al., 2020; M. L. Mealer, Hodapp, et al., 2017). Peer support from other nurses and staff was also mentioned as a way to reduce moral distress (Bassola et al., 2023; Helmers et al., 2020; Wolf et al., 2023). The benefits of professional counseling were also mentioned (Bassola et al., 2023; M. L. Mealer et al., 2014). However, although one paper found that better social support was associated with fewer PTSD symptoms at the bivariate level, social support was not a significant predictor in multivariate analyses (Li et al., 2021).

Table 1
Summary of Strengths Identified in Each Resilience Portfolio Domain

Resilience portfolio domain
Interpersonal strengths
Supportive social networks
Support from supervisors
High-quality leadership
Leadership continuity
Good teamwork within unit
Professional counseling
Socializing outside of work
Positive communication within social networks
Compassion satisfaction
Leisure activities
Structured debriefings, case conference discussions
Meaning-making strengths
Spirituality/religion and spiritual care
Meaningful roles
Optimism
Hope
Adopting worldview that death is a part of life
Accepting death as part of work in ICU
Receiving validation as having done everything to save a patient
Meaningful use of self-determined time
Expressive writing
"Sacred pause"
Regulatory strengths
Emotion awareness
Perseverance
Humor
Anger management
Positive coping strategies
Maintaining boundaries
Positive thinking
Mindfulness and mindfulness-based interventions
Exercise
Physical activity at work
Resilience rooms
Yoga
Getting a healthy amount of sleep
More breaks at work, especially after a patient death
Music

Note. ICU = intensive care unit.

Several articles also pointed to the importance of social support outside the workplace (Afoko et al., 2022; Chipu & Downing, 2022; Davis & Batcheller, 2020; Groves et al., 2022; Kerasiotis & Motta, 2004; M. L. Mealer, Jones, & Moss, 2012; Shin & Choi, 2024). One study found that resilient nurses had positive social networks consisting not only of colleagues but also close friends and family members (M. L. Mealer, Jones, & Moss, 2012). Additionally, Rippstein-Leuenberger et al. (2017) found that positive communication within social networks—productive conversations or being checked on by family members, for example—nurtured relationships that provide social support for nurses.

There was an interesting distinction in several papers between social support as comfort when distressed versus the importance of an active social life. Several articles mentioned the value of spending enjoyable time with people outside work (Davis & Batcheller, 2020; Groves et al., 2022; Lee et al., 2015; Lovell et al., 2023; M. L. Mealer, Jones, & Moss, 2012). This distinction went beyond just recognizing the size of nurses' social networks or the availability of help to emphasize the value of pleasurable social interactions. Ongoing social leisure helped ICU nurses sustain their stressful jobs. The importance of social time was also consistent with the findings of a randomized control trial of a program that included six well-being interventions, two of which focused on engagement and relationships (Lovell et al., 2023). Social events such as group breakfasts that provided food and a place to interact in a relaxing atmosphere had the highest participation rate of 75%. Although there was no significant association between the intervention and subsequent well-being in the quantitative results, qualitative results showed that food-related social interventions boosted morale in the ICU. Participants also preferred purely social events to ones that were more explicitly designed to be helpful (Lovell et al., 2023).

A program by Davis and Batcheller (2020) created *resiliency bundles*, a set of interventions designed to build resilience. There were 10 elements in resiliency bundles, and seven had a strong interpersonal focus, including structured debriefings with pastoral care, discussions with colleagues and supportive staff, and case conference discussions. Postimplementation, three of the top four resilience enhancement techniques, as rated by participants, were social activities with friends (39%), time with family (35%), and informal debriefing with coworkers (35%; the top one was exercise with 61% identifying it as important). Self-reported resilience was significantly higher at posttest for program participants.

Meaning-Making Strengths

Twenty-one articles (50.0% of the total pool) provided data on meaning-making strengths. Ten (47.6%) articles with meaning-making data used a qualitative design, seven (33.3%) were cross-sectional surveys, two (9.5%) were RCTs, one (4.8%) was a pre–post single-group program evaluation, and one (4.8%) used mixed methods (focus group and survey).

Spirituality/religion and spiritual care were the most frequently mentioned meaning-making strengths (in $n = 12$ articles), with higher levels of spirituality and religiosity being associated with better mental health outcomes (Afoko et al., 2022; Chipu & Downing, 2022; Davis & Batcheller, 2020; Jeong & Shin, 2023; Kapoor et al., 2018; Lamiani et al., 2022; Lee et al., 2015; M. L. Mealer, Jones, &

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Moss, 2012; M. Mealer, Jones, Newman, et al., 2012; Smiechowski et al., 2021; Talebian et al., 2022; Yu et al., 2020). Results also showed an association between higher moral distress and a lack of religious or spiritual beliefs (Lamiani et al., 2022). Numerous other meaning-making strengths were also identified, including holding meaningful roles (e.g., health care provider or parent), having meaninful activities outside work, optimism, and hope (Colville et al., 2017; M. L. Mealer, Jones, & Moss, 2012; Talebian et al., 2022). Other basic meaning-making strengths were mentioned, such as positive thinking or optimism (Bassola et al., 2023; M. L. Mealer, Jones, & Moss, 2012).

One inescapable reality of ICU work is frequent exposure to death, and several studies addressed how meaning making can help nurses cope with this. Nurses in some studies discussed the importance of adopting the worldview that death is a part of life, learning to accept death as part of ICU work, and being validated as having done everything they could to save patients' lives (Groves et al., 2022; M. L. Mealer, Jones, & Moss, 2012). One qualitative study found that the meaningful use of self-determined time was beneficial (Rippstein-Leuenberger et al., 2017).

In terms of program evaluations, one study looked at the benefits of a *sacred pause* after the death of a patient (Kapoor et al., 2018). In a sacred pause, a chaplain or nurse would start by thanking and acknowledging the efforts of the ICU team and patient's family and honoring the life of the patient who just died. The team would then observe a 45-s to 1-min pause. Finally, the team would thank each other and the family for their efforts before returning to their duties. Approximately four in five nurses in this study reported that sacred pauses helped them achieve closure and feel appreciated. Other interventions known to promote meaning making, such as mindfulness practices, were also associated with increased resilience (Klatt et al., 2015). Some interventions had multiple elements that could enhance meaning making, such as expressive writing and mindfulness-based stress reduction, which significantly reduced PTSD symptoms by helping nurses remain in the present moment and cope with situational stress that is out of the caregivers' control (i.e., the patient is too ill to save; M. L. Mealer et al., 2014).

Regulatory Strengths

Thirty-five (83.3%) of the 42 included articles provided information on regulatory strengths (strengths that help manage emotional, cognitive, and behavioral challenges), making it the most frequently addressed RPM domain in this review. Fifteeen (42.9%) articles with regulatory data used a cross-sectional design, seven (20.0%) were qualitative, seven (20.0%) were pretest–posttest, four (11.4%) were RCTs, and two (5.7%) used mixed methods (focus groups and interviews). Most studies that used a specific resilience scale (instead of a more open approach to identifying strengths that help overcome adversity) used some version of the Connor–Davidson Scale (Connor & Davidson, 2003). We characterized this and similar measures as primarily regulatory based on item analysis.

Many studies found an association between higher resilience scores (using self-report measures that primarily assessed regulatory strengths such as perseverance) and better mental health. Examples include fewer PTSD symptoms (Arrogante & Aparicio-Zaldivar, 2017; Cho & Kang, 2017; Colville et al., 2017; Schäfer et al., 2018) and lower depression and anxiety (M. Mealer, Jones, Newman, et al., 2012). Additionally, one study found that higher resilience scores are negatively associated with psychological distress (Wang et al., 2022). Qualitative research identified a range of coping strategies (Hancock et al., 2020; Helmers et al., 2020). In survey research, positive coping strategies were also positively associated with the outcome posttraumatic growth (Rodríguez-Rey et al., 2017, 2019). Maintaining boundaries was also mentioned (Bassola et al., 2023; Groves et al., 2022; Smiechowski et al., 2021).

Mindfulness was examined in six (16.6%) articles. Although mindfulness can produce many benefits, we consider it to be primarily regulatory in its focus on managing posture, breath, and attention. Three studies (all RCTs) using mindfulness-based intervention or mindfulness-based stress reduction evaluated the effectiveness of mindfulness intervention programs in building resilience (Duchemin et al., 2015; Klatt et al., 2015; M. L. Mealer et al., 2014). All three studies found that resilience scores (using self-report measures focusing primarily on regulatory strengths) increased at posttest. One pretest–posttest study, however, did not yield significant results from a mindfulness and exercise intervention to reduce anxiety, but this could have been due to its small sample size of $n = 8$ (Deck, 2022).

Exercise was addressed in six (16.6%) articles, with more exercise being positively associated with self-reported resilience. As this is also about managing behavior and establishing a routine, we consider this a regulatory intervention. One study found that moderate to high levels of physical activity at work are positively associated with resilience (Yu et al., 2020). Also, the *resiliency bundles* study by Davis and Batcheller (2020) found that 61% of participants found exercise to be an important practice to increase resilience.

Another study used resilience rooms—rooms dedicated to help nurses decrease stress to build resilience—in a pretest–posttest study to evaluate its effectiveness. Nurses had two different rooms in which they could decompress: exercise and relaxation. The relaxation room was used more frequently than the exercise room, but the reason for that was not discussed in the text (Prendergast et al., 2023). Another study implemented a relaxation room, which was also associated with higher resilience scores in the posttest (Wood, 2022).

In qualitative studies, nurses mentioned the need for more breaks, especially after a patient death (Lee et al., 2015; Wolf et al., 2023). ICUs are often understaffed, so nurses are usually expected to move on to other duties immediately after a patient death. This lack of opportunity for honoring deceased patients can add significantly to nurses' distress. The Lee study found that a break after a patient death was one of the least utilized interventions to increase resilience, despite being one of the most requested.

One study implemented an anger management program in the ICU, which was effective in increasing overall resilience scores at posttest (Turan, 2021). Self-esteem (which can be seen as managing and maintaining high self-regard) was another skill found to increase resilience scores after a resilience training intervention (Babanataj et al., 2019).

More individualistic approaches like self-care were also mentioned. Chipu and Downing (2022) created a framework for self-care strategies, many of which focused on regulation, such as nutrition and exercise. Self-care also appeared in a pretest–posttest study as a skill to ease stress (Semler, 2023). Another study included self-care in their list of regulatory strengths to enhance resilience, in addition to self-awareness and reframing (Smiechowski et al., 2021). Self-awareness was mentioned by Sala Defilippis et al. (2020) as a strategy to pay attention to one's physical sensations and remain attentive in distressing situations.

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Harmonizing Connectedness: A Multidomain Construct

A qualitative study introduced a concept, *harmonizing connectedness*, which refers to the need for reciprocal emotional relationships (Sala Defilippis et al., 2020). Harmonizing connectedness consists of respect and appreciation, which one participant described as making sure every colleague feels like they are heard by their peers—an interpersonal construct. This article drew explicit connections among constructs in multiple domains, proposing that harmonizing connectedness also depended on two other elements: moral well-being and awareness of self. One nurse provided an example of moral well-being, saying that when her patient died peacefully, she could go home happy with the outcome of her workday despite the emotionally taxing event of a patient death. Moral well-being involves acknowledging and accepting the intersection of a nurse's private and professional life, because nursing is a morally intense profession with major responsibilities. Awareness of self and others, a regulatory strength, was another element. Nurses who are more aware of their physical and emotional sensations can nurture self-confidence and connectedness with others (showing how regulatory strengths can support interpersonal strengths). A second study by Varasteh et al. (2023) further supported harmonizing connectedness and the interconnections among these elements.

Discussion

This scoping review on resilience among ICU nurses found that numerous psychosocial strengths, in the domains of interpersonal, meaning-making, and regulatory strengths, were associated with better functioning. Many of these strengths have been identified in numerous other studies, such as social support and spirituality/religion. However, some were identified that have received much less attention in mainstream resilience research, including the need for an active social life—spending time with others in enjoyable social settings (vs. social support as seeking comfort while in distress)—and the importance of good workplace support in the form of high-quality supervision, leadership continuity, and strong teamwork on units. Regarding the benefits of good supervision, leadership, and teamwork, it is important to note that in this review, these contributed to ICU nurses' overall well-being, not just improved work performance. This suggests underappreciated benefits of a well-functioning ICU. The use of qualitative methodologies in many of these papers facilitated identifying strengths specific to the experiences of ICU nurses. In addition, several interventions offered promising support for ways to increase ICU nurses' resilience. Some of these focused on well-established techniques such as mindfulness and exercise, but some intriguing alternatives have also been developed, such as the benefits of taking a sacred pause with family members after a patient death.

Regarding interpersonal relationships, although social support was mentioned in terms of comfort and help during times of distress, the importance of social leisure—simply relaxing with friends and family outside of work—also came up. We believe this is a key finding from this study, because, in many traumatized samples, the social ecology is only assessed in terms of help offered during crises or other difficulties. We note that this finding can be connected to the results of a review of resilience among refugee children—another group who is exposed to ongoing trauma. Pieloch et al. (2016) found that, across several studies, safe access to play and social activities like sports were associated with better adjustment among refugee youth. A review of work–life balance, a related concept, similarly found that better work–life balance was associated with resilience (Bernuzzi et al., 2022).

As noted in the introduction, the role of ICU nurse is inherently one that is embedded in the larger system of the hospital, an environment that has faced numerous challenges in recent years (Hiler et al., 2018; Semler, 2023). Several of the beneficial resources from the social ecology pointed to needed organizational support, such as high-quality supervision, leadership continuity, and strong teamwork on units. A greater focus on these kinds of systems-level resources could benefit all the nurses at a hospital or perhaps in even bigger health care networks and alleviate some of the individual burden of coping with the ICU environment.

For meaning-making strengths, spirituality and religion were associated with better well-being in many studies. Additionally, the *sacred pause* (Kapoor et al., 2018) was a promising intervention to help nurses cope with death in the ICU. This inexpensive, brief intervention could become an important support for ICU nurses. Although we classified mindfulness as a regulatory intervention, with its focus on managing posture, breath, and attention, we note that past research has shown that it improves meaning in life too (Manco & Hamby, 2021). Given the central role of meaning making in sustaining well-being (Hamby, 2025; Park, 2010), research in this area would benefit from exploring meaning making outside of specific spiritual or religious beliefs.

Regarding regulatory strengths, again, several findings were consistent with broader research on trauma and resilience. This includes the benefits of mindfulness, exercise, and anger management. Some ideas were more specific to ICU nurses' work, including the need for regular breaks (not necessarily trying to create a sacred moment, but just a chance to rest). The idea of creating spaces to promote resilience, such as relaxation rooms (Prendergast et al., 2023; Wood, 2022), suggests a way to use the built environment to promote better regulation and management of the stress of the ICU. This is consistent with other work that is increasingly focused on how the built environment can support resilience (Mouratidis, 2022).

Although most of the strengths studied could be categorized in one of the three resilience portfolio domains, two papers proposed an idea, harmonizing connectedness, that embodied all three domains (Sala Defilippis et al., 2020; Varasteh et al., 2023). In this regard, harmonizing connectedness could be seen as another type of resilience portfolio concept, by integrating a variety of different strengths into a higher order concept. The "resiliency bundles" program (Davis & Batcheller, 2020), although keeping elements more distinct, also overlaps with the resilience portfolio idea. There are increasing trends toward developing models that incorporate multiple strengths into a model of resilience (e.g., Panzeri et al., 2021; Ungar & Theron, 2020), and these efforts contribute to that reconceptualization.

Additionally, many studies focused more on alleviating moral distress rather than promoting well-being. Although these studies have contributed a lot of knowledge in relieving suffering, we recommend that future research take strengths-based approaches to enhance resilience and well-being despite trauma.

Limitations

Although we believe that this is the first scoping review of resilience among ICU nurses, some limitations should be acknowledged. Our search terms may have missed relevant articles. Relevant "gray literature" (unpublished reports and articles) may not have

appeared in databases. We only included scientific papers that were published in English. It is also notable that many descriptions of resilience measures (and in some articles, other measures) did not clearly specify the content of their items, or they combined indicators of several different strengths into one aggregate score. Further, we opted to exclude articles focusing on COVID-19 in order to capture more typical experiences of ICU nurses, but this could have limited our findings.

Implications

Many studies were excluded because they primarily focused on work performance, and we recommend that there is more investment in studying and ensuring nurses' overall well-being. Nurses' well-being is important outside of how they can contribute to the functioning of a hospital. We also suggest that more research on ICU nurses and resilience should be done outside of the United States to get a more well-rounded representation of this specific population of health care providers, as almost half of the studies were done in the United States. Although none of the articles in the current review examined physiological markers of stress, it is possible that some interventions could alleviate increases in allostatic load associated with secondary trauma, as has been found for some interventions in other populations (e.g., Seeman et al., 2020). More research is needed in that area.

Several programs evaluated in these studies hold promise for wider implementation. Although related to the systemic problem of ICUs lacking sufficient employees, finding ways to provide breaks should receive greater priority. Some feasible interventions that could be implemented in ICUs are "resilience rooms," which allow nurses to have a break in a nonstressful space to decompress from the stressful nature of the unit. Another intervention we recommend is giving nurses access to mindfulness-based intervention/mindfulness-based stress reduction programs, especially ones that allow nurses to utilize mindfulness techniques on their own time. Some strengths, such as socializing outside work (not just social support for problems), and interventions could be useful for others. Many of these could be readily implemented with other first responders, but we also think that many might be more broadly helpful for other people exposed to trauma, as they also seek to put together the elements of a good life and find ways to navigate their cumulative trauma exposure.

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