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Conducting a Needs Assessment to Inform The Development of a Burnout Mitigation Program for Critical Care Nurses

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CONDUCTING A NEEDS ASSESSMENT TO INFORM THE DEVELOPMENT OF A BURNOUT MITIGATION PROGRAM FOR CRITICAL CARE NURSES

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ABSTRACT

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Burnout among nurses is at monumental levels, contributing to high levels of job dissatisfaction and turnover. Some interventions existed in the literature to support burnout reduction programming among nurses; however, the literature failed to identify effective burnout reduction interventions based upon the specific needs of critical care nurses who face unique stressors related to high patient acuity and other environmental considerations.

This project aimed to explore critical care nurses' needs and strategies designed to mitigate burnout in the clinical setting. Outcomes from this assessment would inform future interventions for the early identification and prevention of burnout among critical care nurses.

The setting for this project was two intensive care units in a large, suburban hospital in the Rocky Mountain region of the United States. The subjects were nurses with at least one year of experience in the critical care setting. This project used a single-center, descriptive design.

This project was guided by the advancing research and clinical practice through close collaboration model—an evidence-based, system-wide model used to advance evidence-based practice implementation and sustainability. An evidence-based needs assessment was created and implemented to measure the current level of burnout and the unmet needs of critical care nurses at the project site. The results were analyzed using descriptive statistical procedures. Based on

the findings, an organization-specific burnout mitigation plan will be presented to the project site stakeholders.

Keywords: Burnout, Critical Care Nursing, Needs Assessment, Burnout Mitigation

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CHAPTER I

INTRODUCTION

Burnout among professionals is a long-known and defined syndrome. Initially defined in the 1970s, burnout is increasingly recognized as a concerning phenomenon in the human services sector including health care. Defined by the World Health Organization (WHO, 2019), burnout is "a syndrome conceptualized as resulting from chronic workplace stress that has not been successfully managed" (para. 4). Numerous initiatives and calls to action have brought attention to this occupational phenomenon but clinicians report experiencing increasing levels of burnout with mostly inadequate responses from organizations and employers (Kelly et al., 2021). As a result, nursing is seeing the most significant exodus of nurses leaving or considering leaving the bedside in the profession's history. Burnout among nurses has become an occupational hazard and while it affects healthcare professionals of all types, it is more common in those who care for the critically ill (Moss et al., 2016). A study by Mealer et al. (2009) found 86% of critical care nurses had symptoms consistent with burnout, 16% with anxiety, and 22% with posttraumatic stress disorder (PTSD). In 2021, the rate of PTSD among intensive care unit (ICU) nurses was again detected at 22.38% (Li et al., 2021). There has been a notable increase in burnout among ICU nurses since the onset of the COVID-19 pandemic (Guttormson et al., 2022). In a national study by Guttormson et al. (2022), 31.1% of critical care nurses had moderate to severe anxiety, 44.6% of the respondents' met the criteria for moderate to severe depression, and the percentage of nurses at risk of developing PTSD doubled from previous studies at 46.7%. Additionally,

55.6% of responding critical care nurses in the study felt their life was threatened or they might die due to caring for COVID-19 patients (Guttormson et al., 2022).

Critical care nurses care for the sickest population in intense environments, manage high acuity conditions, oversee complex medical care, and carry out specialized tasks using multiple technologies; they often deliver this care with limited staff while simultaneously addressing the complex emotional needs of patients and their families (Alharbi et al., 2016; Jun & Costa, 2020). This repeated and prolonged exposure to stress and trauma increases the risk for burnout. Burnout has crossed into a realm where the threats of chronic pain, heart disease, gastrointestinal distress, PTSD, depression, or anxiety are not the only consequence of burnout that nurses face. Nurses have a higher rate of suicide than the general population and suicide is now recognized as an occupational hazard caused by an increased workload, burnout, fatigue, multifaceted challenges, and increased substance abuse (Awan et al., 2022; Davidson et al., 2019)

Background

Nurses are critical to the healthcare workforce and comprise a majority of the professionals in the sector. According to the American Nurses Association (ANA, 2022) and U.S. Bureau of Labor Statistics, an estimated one million nurses were needed by 2022 with an additional 275,000 nurses being needed by 2030 (Haddad et al., 2022). Nursing is the fastest growing profession in the workforce. Several factors contribute to the increasing demand for nurses: the aging population, aging workforce, nurse burnout, career and family conflicts, specific regions of need, population growth, and violence in the healthcare setting causing nurses to leave clinical positions (Haddad et al., 2022). Among the many factors contributing to the growing needs of nursing, burnout remains one of the most preventable.

Burnout manifests when one (or more) of six mismatches between individual and job is present: workload, control, rewards, community, fairness, and values (Maslach & Leiter, 2005). The estimated prevalence of burnout among critical care nurses ranges from 25 to 80%, and the average severity is moderate to severe (Mealer, 2016). The widespread prevalence and severity of burnout among critical care nurses have resulted in critical care organizations calling for action. In 2016, the Critical Care Societies Collaborative (which includes the American Thoracic Society, the American Association of Critical Care Nurses, the American College of Chest Physicians, and the Society of Critical Care Medicine) created a working group to focus on the mental health and well-being of critical care providers (Kerlin et al., 2020). The National Academy of Medicine also recommended that to understand burnout fully, researchers and organizations must shift from evaluating burnout at a single point to measuring, developing, intervening, then remeasuring it over time (Kerlin et al., 2020).

Societal, cultural, structural, and organizational factors contribute to burnout (U.S. Department of Health and Human Services [HSS], 2022). Within these sectors, factors such as politicization of science and public health, health misinformation, lack of human-centered technology, lack of leadership support, barriers to mental health and substance use care, and the lack of flexibility, autonomy, and voice affect the healthcare worker and could lead to burnout (National Academy of Medicine, 2019). These factors do not always operate independently and could often amplify one another, which was why intervention must be multi-pronged. Strategies, initiatives, and policies have primarily focused on leadership, organizational culture, and magnet-designated hospitals to manage a system and individual factors associated with nursing shortages, yet they often fail to address the individual needs of nurses (Lee et al., 2019). While poor leadership has shown a positive correlation with intent to leave a position or the profession,

burnout was the most common reason for nurses' departure (Estryn-Behar et al., 2007). Nursing shortage and turnover has created another crisis in healthcare. It has become a global priority to reduce these shortages and address their cause. A large survey of nurses found that there is a 12% increase in nurses' turnover for each 1-unit increase in burnout (Kelly et al., 2021). The deleterious effects of burnout expand well beyond the individual level as institutions must bear the cost of absenteeism, high turnover, decreased quality of care, poor patient outcomes, increased healthcare-associated infections, and lower patient satisfaction (Alharbi et al., 2016; Kelly et al., 2021; Moss et al., 2016; Steinberg et al., 2017). High turnover rates among nurses come with a cost. According to a national healthcare retention and registered nurse staffing report in 2022, the national turnover rate for nurses is now 27.1% (NSI Nursing Solutions, 2022). In the past two years, the critical care sector has seen turnover rates of 18.7 and 27.5%, respectively. The average cost for turnover of a bedside RN is $46,100 to $90,000, resulting in lost hospital revenue of $5.2 to $9 million annually, conservatively (Kelly et al., 2021; NSI Nursing Solutions, 2022). Although these figures are average costs of replacing a nurse, an additional consideration not measured was the additional training and certifications critical care nurses must obtain for practice.

Burnout has also been positively associated with medical errors. "Medical errors are the third leading cause of death in the United States, resulting in more than 250,000 deaths per year" (Melnyk, Tan, Hsieh, Gawlick et al., 2021, p.177). Errors occur more frequently in critical care units and have been positively associated with stress, decreased quality of life, burnout, and poor physical and mental health among clinicians (Melnyk, Tan, Hsieh, Gawlick et al., 2021). Critical care nursing is a high-intensity, high-stress, high-stakes sub-specialty. It requires that nurses obtain specific competencies, additional education, increased variability, and can manage heavy

workloads at a moment's notice. Critical care nurses also carry higher burnout rates than general medicine nurses (Costa & Moss, 2018). Even before the onset of the COVID-19 pandemic, approximately 86% of critical care nurses reported experiencing burnout (Costa & Moss, 2018). The effects of burnout on critical care nurses and the subsequent impact on patient care and outcomes are endemic and require innovative interventions. A systematic review of 29 randomized control trials that tested clinician mental and physical well-being interventions found mindfulness, cognitive-behavioral therapy-based programming, gratitude practices, and deep breathing were effective interventions to decrease depression, anxiety, and stress (Melnyk, Tan, Hsieh, Gawlick et al., 2021). However, none of these interventions were based upon the identified needs or input from the nurses to which the interventions were applied.

Measuring Burnout Among Healthcare Providers

The Maslach Burnout Inventory (MBI; Mind Garden, 2018) was the most widely used instrument being used in 88% of burnout research publications. The MBI was initially published in 1981 and has evolved into five distinct versions measuring burnout among specific professional populations (Maslach et al., 2018). For this project, the MBI Human Services Survey for Medical Professionals was used. Burnout is a syndrome of three types of feelings assessed using different subscales: emotional exhaustion, depersonalization, and low personal accomplishment (Maslach et al., 2018). Emotional exhaustion is the central quality and most apparent manifestation of burnout (Maslach et al., 2001). Emotional exhaustion reflects the stress dimension of burnout and prompts actions of distancing oneself emotionally and cognitively from one’s work (Maslach et al., 2001). Emotional exhaustion was the most widely reported and analyzed dimension but solely focusing on this component did not allow an adequate picture of the burnout phenomenon. Depersonalization is the next subscale and occurs when a clinician

distances themselves from their patients by ignoring the qualities that make them unique and engaging people (Maslach et al., 2001). For a depersonalized clinician, patients' demands become more manageable when they become impersonal objects of their workflow. Distancing is often seen as the immediate reaction to exhaustion and a strong relationship between exhaustion and depersonalization was consistent throughout burnout research (Maslach et al., 2001). Reduced personal accomplishment is slightly more complex. A work situation with constant and overwhelming demands can erode a person's sense of effectiveness. When a clinician is exhausted or indifferent, it is difficult to feel a sense of accomplishment. Personal accomplishment is also closely related to a lack of relevant resources, whereas exhaustion and depersonalization are known to arise from work overload and social conflict (Maslach et al., 2001). For the purposes of this project, the MBI was used to identify the level of burnout among critical care nurses. While any level of burnout reported is significant, this baseline reporting assisted in guiding evaluation of program development and effectiveness.

Statement of the Problem

Burnout among nurses is at monumental levels, contributes to high levels of job dissatisfaction and turnover, and negatively impacts both patients and organizations. Some interventions existed in the literature to support burnout reduction programming among nurses; however, the literature failed to identify effective burnout reduction interventions based upon the specific needs of critical care nurses who faced unique stressors related to high patient acuity and other environmental considerations.

Purpose of the Project

This project explored the level of burnout among critical care nurses at a specific project site and identified their needs and potential strategies for mitigating burnout in the clinical

setting. Outcomes from this assessment informed future programming for the early identification and prevention of burnout among critical care nurses.

Need for the Project

There was a lack of literature about the burnout experience and identified needs of critical care nurses. In addition, the needs of nurses in this setting might be unique or not well received within the critical care specialty and by specific organizations. Although there were some promising burnout interventions in the literature, their applicability to the critical care setting and relevance to the identified needs of this subspecialty of nursing remained largely unexplored. Creating and implementing a comprehensive needs assessment tailored to a targeted nursing population and designing a subsequent program focused on burnout mitigation might help address this critical issue in health care.

Project Question

The following research question guided this scholarly project:

Q1 How will a needs assessment contribute to developing an evidence-based burnout reduction program for critical care nurses?

Objectives of the Project

Objectives for this scholarly project were as follows:

1. Complete a comprehensive literature review to create an evidence-based needs assessment for nurses in the critical care setting.
2. Administer the needs assessment to a group of currently practicing critical care nurses and analyze the findings.
3. Synthesize the findings from the needs assessment with best practices from the literature to develop a burnout reduction program for future implementation with critical care nurses.

Summary

The current status of burnout within the nursing profession is unsustainable. Without intervention, burnout risks the health and wellness of nurses, patients, and the public, and contributes to rising healthcare costs. While there is no uniform intervention for burnout, empowering nurses to identify and address their needs in a burnout prevention program specifically designed for the critical care setting was the call to action of this Doctor of Nursing Practice (DNP) scholarly project. Additionally, by understanding and identifying the etiology of burnout and developing a mitigation program with nurse input, we can assist in keeping critical care nurses at the bedside where their skills and expertise are most needed.

Definition of Terms

Burnout: Defined by the WHO (2019), burnout is "a syndrome conceptualized as resulting from chronic workplace stress that has not been successfully managed" (para. 4). It is typified by three dimensions: emotional exhaustion—"feelings of being emotionally overextended and exhausted by work"; depersonalization— "unfeeling and impersonal responses toward recipients of one's service, care, or treatment"; and personal accomplishment—"feelings of competence and successful achievement in one's work" (Mind Garden, 2018, para 3).

Critical Care Nurses/Nursing: A sub-specialty of nursing where delivery of care includes patients suffering from life-threatening illnesses or injuries while offering comfort and support to family members. To care for such vulnerable patients and their families in a highly technological environment, nurses require a broad but specialized knowledge base and sound decision-making skills to perform in high-stress environments (Nagel et al., 2016).

Posttraumatic Stress Disorder/Secondary Traumatic Stress Disorder: "Psychiatric disorder caused by exposure to a traumatic event or extreme stressor that is responded to with fear, helplessness, or horror" (Jun & Costa, 2020, p. 12). This could be caused by experiences a person witnessed or event they were confronted with that was perceived as a threat to themselves or others including actual death.

Needs Assessment: "Need refers to the gap or discrepancy between a present state (what is) and the desired state (what should be). The need is neither the present nor the future state; it is the gap between them" (Office of Migrant Education, 2001, p. 5). A needs assessment could be conducted to determine the needs for whom the organization or systems existed.

Resiliency/Resilience: "Resilience is required in response to various adversities, ranging from daily hassles (e.g., workplace difficulties) to major life events (e.g., spouse's death) that an individual must adapt to" (Arrogante & Aparicio-Zaldivar, 2017, p.111). It involves intrapersonal and environmental factors; intrapersonal characteristics include a disposition of control, altruism, responsiveness, self-confidence, and positivity; and environmental influences include peer and social support and a sense of well-being (Low et al., 2019).

CHAPTER II

LITERATURE SYNTHESIS AND THEORETICAL FRAMEWORK

This chapter discusses the findings from an integrated literature review and the historical background on the topic of interest. The literature identifies several major causative factors to burnout in the critical care setting as well as available interventions. This chapter also provides a detailed discussion of the theoretical framework for this project: the advancing research and clinical practice through close collaboration (ARCC).

Historical Background

In the 1970s, the term "burnout" was coined by American psychologist Herbert Freudenberger (Schaufelim, 2017). The term was initially borrowed from the illicit drug scene where it was used to describe the effects of chronic drug use (Schaufelim, 2017). However, after observation at St. Mark's Free Clinic in New York's East Village, Freudenberger used the term to describe the emotional depletion, loss of motivation, and reduced commitment among the volunteers at the clinic (Schaufelim, 2017). He defined burnout as "the consequences of severe stress and high ideals in helping professions" (“Depression: What is burnout,” 2020, para. 1). Despite burnout being initially identified among doctors and nurses as the "dark side of self-sacrifice," the term began appearing amongst overworked and stressed-out professionals, celebrities, and homemakers (“Depression: What is burnout,” 2020). Freudenberger's interest in burnout was primarily autobiographical as he suffered from burnout twice; thus, his credibility grew. His work on preventing and combatting burnout, among other accomplishments, led him

to be awarded the Gold Medal Award from the American Psychological Association in 1999 (Schaufelim, 2017).

Our understanding of burnout continued to progress in the early 1980s under the direction of Christina Maslach, an academic researcher and social psychologist at the University of California-Berkeley (Schaufelim, 2017). Initially, her awareness of burnout came after interviewing human services workers about how they dealt with their emotionally demanding jobs. Her research concluded that the workers had "developed negative perceptions and feelings about their clients or patients and that they experienced crises in professional competence as a result of this emotional turmoil" (Schaufelim, 2017, pp. 107-108). Maslach created the most widely used questionnaire for assessing burnout: the Maslach Burnout Inventory (MBI; (Schaufelim, 2017). The MBI was one of the most significant driving forces of research on burnout. Initially, the scientific community scoffed at burnout, claiming it to be a 'fad' or 'pseudoscientific' (Schaufelim, 2017). However, once the MBI was introduced, burnout publications increased by 64% from the 1980s to the 1990s and from the 1990s to the 2000s by 150% (Schaufelim, 2017). Freudenberger and Maslach further defined and paved two approaches for exploring burnout: one was practical while the other was scientific. The practical approach focused on assessment, prevention, and treatment while the scientific approach focused on research and theory (Maslach et al., 2001).

History of Burnout in Nursing

Burnout in nursing was first documented, albeit not defined, in 1953. In a case study published by Schwartz and Will, the low morale of a psychiatric nurse (with the pseudonym of Miss Jones) and its effect on her patients were documented (Muheim, 2013). The ward milieu was analyzed and it was observed that Miss Jones's low morale was related to "resistance to new

ideas by other staff members, feelings of neglect by the hospital, and rejection of her help by patients" (Muheim, 2013, p. 40). This behavior was defined as mutual withdrawal; as a nurse suffers from her psychological events, the patient's care is affected (Muheim, 2013). In the case study, symptoms of burnout were found to correspond to maladaptive coping strategies that promoted distancing from the patient as a short-term solution. However, without resolution, the process only compounded the feelings of burnout (Muheim, 2013). Despite being identified early in nursing in this case study, burnout did not become prevalent in the nursing literature until nearly 30 years later.

In 1975 and 1976, respectively, Freudenberger and Maslach published articles articulating the phenomenon of burnout based on the experience of people working in the human services sector including nurses (Muheim, 2013). Burnout was not initially studied as an individual stress response but rather as the "individual's relational transactions at the workplace such as imbalances between employee resources and job demands" (Muheim, 2013, p. 42). In the 1980s, the methodology of studying burnout shifted to include surveys and studying larger populations. This research was later used to develop research tools and designs (Muheim, 2013). In 1989, Cherniss published a long-term follow-up study that followed professionals throughout their careers; one of them was a nurse. Cherniss highlighted some central themes of burnout that still resound in the literature today: rewards, clarity, control, and feedback. This longitudinal study concluded that when professionals were motivated and given opportunities to utilize their skills effectively, they felt productive and successful in the workplace and thus mitigated burnout. The 1990s saw a shift in application from burnout beyond human services and education. There was also continued advancement of methodologies for burnout research (Muheim, 2013). It was not until the 2000s that prevention studies became prevalent in the

literature and recognized other disorders associated with burnout such as stress, depression, neurasthenia, anxiety, and chronic fatigue (Muheim, 2013). Interventions and continued research on burnout should be prioritized to support the critical care workforce for the remainder of the pandemic as well as post-pandemic (Guttormson et al., 2022).

Literature Review

Methodology

To examine the nature of burnout among critical care nurses and known protective factors, a comprehensive literature search was conducted between October 2021 and June 2022. The following databases were accessed: Cumulative Index to Nursing and Allied Health Literature (CINAHL), PubMed, and PsychINFO. Search terms included critical care nursing, hardiness, burnout professional, resilience professional, and burnout occupational. The Boolean operator "AND" was used for the following terms: critical care nursing, hardiness, and burnout professional; critical care nursing, resilience professional, and burnout occupational; and critical care nursing and burnout occupational. Search criteria included English language, publication years of 2016-2022, critical care setting, and full-text articles except for PsychINFO as this is an abstract database. Studies were excluded if their primary demographics were solely based upon the pediatric population, physicians, not in the English language, outside of the 2016-2022 publication range, or not within the critical care setting. A total of 142 articles initially met inclusion criteria. Following the removal of duplicates (n= 11), 131 articles were screened independently by titles and abstracts; in some cases, the complete text was screened for eligibility. The following 29 articles met eligibility criteria and were included in the review: four systematic reviews (Dacar et al., 2019; Friganović et al., 2019; Khatatbeh et al., 2021; Pollock et al., 2020), four randomized control trials (Maricuţoiu et al., 2016; Mealer et al., 2014; Profit et

al., 2021; Steinberg et al., 2017), 11 observational studies (Arrogante & Aparicio-Zaldivar, 2017; Friganović & Selič, 2020; Hiler et al., 2018; Johnson et al., 2022; Lee et al., 2019; Mohr et al., 2021; Monroe et al., 2020; Ntantana et al., 2017; Siswoyo et al., 2021; Swamy et al., 2020; Vermeir et al., 2018), eight descriptive studies (Guirardello, 2017; Kelly et al., 2021; Kim & Yeom, 2018; Lou et al., 2021; Mealer, Jones et al., 2017; Melynk, Tan, Hsieh, & Gallagher-Ford, 2021; Purvis et al., 2019; Vasconcelos & Martino, 2018), and two qualitative studies (Jackson et al., 2018; Mealer, Hodapp et al., 2017). A single article with a publication date of 2014 was also located through Google Scholar that directly addressed the gap in the literature about burnout interventions and was included for its high relevancy to the project. In addition, a burnout prevention program administered by the American Nurses Association (2022) and a recent legislative act pertaining to clinician burnout were also reviewed and integrated into this review of the literature. Appendix A demonstrates the Preferred Reporting Items for Systematic Reviews and Meta-Analyses flowchart for this search of the literature. The table of evidence with a summary of each article can be reviewed in Appendix B.

Synthesis

Burnout has become an occupational hazard that could result in permanent damage and is more prevalent in hospital nurses than in any other profession (Steinberg et al., 2017). Critical care nurses are at a significantly higher risk of burnout because of their repeated and prolonged exposure to a high-intensity environment, high patient acuity, high workload, exposure to unexpected patient death, and conflicts with patients and other staff (Jackson et al., 2018; Kim & Yeom, 2018; Melynk, Tan, Hsieh, & Gallagher-Ford, 2021). Due to repeated exposure to these distressing situations, emotional detachment is often seen as a form of resiliency for survival in this environment. Ntantana et al. (2017) considered it was not the stressors per se that induced

burnout but rather the quality of the defense mechanism to deal with the stressors. As a learned trait, nurses develop emotional and cognitive barriers in the form of disengagement, depersonalization, and humor to deal with their experiences (Jackson et al., 2018). However, nurses are not the only ones who feel this effect. In a nationwide study, intensive care unit (ICU) sites with high levels of burnout among staff had longer than expected patient lengths of stay compared to sites with low burnout reported (Mohr et al., 2021).

Manifestations of Burnout

Burnout is not one symptom and does not manifest in the same way across individuals. Instead, burnout has become an umbrella term for several different ailments. While the literature analyzed burnout independently and typically used the MBI to measure this phenomenon, it was well researched as being present in other symptoms/syndromes. Burnout might manifest as a set of physical symptoms that include physical and emotional exhaustion, anxiety, irritability, emotional instability, chronic fatigue, insomnia, dizziness, cardiopulmonary diseases, musculoskeletal disorders, headaches, hypertension, gastritis, stomach ulcers, lack of appetite and emotional instability (Khatatbeh et al., 2021; Vasconcelos & Martino, 2018). Additionally, burnout might contribute to mental disorders such as alcohol abuse, anxiety, depression, moral distress, compassion fatigue, PTSD, secondary traumatic stress disorder, and suicidal ideation (Arrogante & Aparicio-Zaldivar, 2017; Jackson et al., 2018). Other associated aspects of burnout include inefficiency, unexplained nursing turnover, reduced organizational loyalty, disengagement, absenteeism, and poor work performance (Arrogante & Aparicio-Zaldivar, 2017). Most of the above manifestations of burnout among healthcare providers were shown to negatively affect patient care including low patient satisfaction scores, increased medical errors,

higher rates of healthcare-associated infections, and higher 30-day mortality rates (Arrogante & Aparicio-Zaldivar, 2017).

Dimensions of Burnout

The MBI dimensions are totaled individually and cannot be combined into a totaled number; therefore, the scales are evaluated separately. Of the three dimensions of burnout, emotional exhaustion is the most closely associated with burnout and strongly correlates with an intention to leave a current healthcare position (Arrogante & Aparicio-Zaldivar, 2017; Lee et al., 2019). Emotional exhaustion and job satisfaction are also inversely related (Ntantana et al., 2017). Additionally, the emotional exhaustion dimension also consistently reports Cronbach alpha estimates (Profit et al., 2021). Due to this, burnout mitigation interventions most commonly target the emotional exhaustion dimension.

Psychological and Quality of Life Impacts

The repeated and traumatic exposure to end-of-life issues, artificial prolongation of life, post-mortem care, and painful and complex medical procedures on patients predispose critical care nurses to psychological disorders such as PTSD, anxiety, depression, and burnout (Mealer, Jones et al., 2017). Studies have shown that up to 29% of critical care nurses have symptoms of PTSD, 18% met the diagnostic criteria for PTSD, and 98% had symptoms consistent with burnout (Melnyk, Tan, Hsieh, Gawlick et al., 2021). Nurses who worked in medical ICUs appeared to be especially susceptible to burnout. For instance, nurses who worked in an ICU other than a medical ICU were 18%-50% less likely to experience PTSD (Mealer, Jones et al., 2017). In a study by Melnyk, Tan, Hsieh, Gawlick et al. (2021), 40% of CCNs reported depressive symptoms and more than 50% reported anxiety systems; these rates were significantly increased from previous studies.

Nurses also showed psychological strain on their overall quality of life and spirituality. In a systematic review, 16 of 21 studies found a negative correlation between nurses' burnout and their quality of life (Khatatbeh et al., 2021). While not every nurse participated in spiritual well-being, one descriptive study suggests that nurses with lower levels of spiritual belief are at a greater risk of experiencing burnout (Kim & Yeom, 2018). Additionally, spiritual well-being was positively correlated with end-of-life experience and education (Kim & Yeom, 2018). Burnout among critical care nurses is multifaceted and affects several layers of their personal and professional lives. Interventions focusing on identifying and mitigating psychological distress require further research and intervention implementation.

Moral Distress

Moral distress is a common yet often overlooked clinical feature of burnout. Similar to burnout, moral distress can affect psychological health, quality care, retention, and quality of interpersonal interactions (Dacar et al., 2019; Hiler et al., 2018). Moral distress occurs when a nurse knows the right actions are morally correct but cannot complete them because the already intense workload in the ICU would increase further (Siswoyo et al., 2021). Moral distress manifests into feelings of being emotionally and physically tired and the physical and psychological pressures rise to a level where it eventually leads to burnout. Furthermore, moral distress leads to decreased job satisfaction, burnout, and psychological distress (Hiler et al., 2018). Interventions focused on formal support from nursing leadership should include a safe work environment, organized debriefings, peer support, and staff education on identifying and coping with moral distress (Dacar et al., 2019). Given its close association with burnout, moral distress should be promptly identified as a precursor of burnout and interventions should be all-encompassing to prevent its progression.

Resiliency

Burnout and resiliency were often simultaneously explored in the literature as the two concepts are closely related. Resiliency has two core concepts: adversity and positive adaptation (Arrogante & Aparicio-Zaldivar, 2017). Some nurses develop an adaptive resiliency mechanism to thrive in high-stress environments and is a potent mediator to burnout. Additional research suggested resilience buffers moral distress and burnout (Arrogante & Aparicio-Zaldivar, 2017). In two literature reviews, resiliency was found as a quality necessary to succeed due to the adverse conditions faced in the critical care setting (Arrogante & Aparicio-Zaldivar, 2017; Jackson et al., 2018). The concept of resiliency was also used to explain why critical care nurses could bounce back after providing care for patients in critical condition and being highly exposed to traumatic experiences (Arrogante & Aparicio-Zaldivar, 2017). Critical care nurses are routinely faced with high levels of morbidity and mortality. Due to the high-stress environment and rapidly changing patient workload, nurses typically are not allotted time to process death or other stressful situations, making resiliency a necessary trait. Resilience is a defense mechanism that often manifests through humor, suppression, anticipation, sublimation, and exhaustion (Ntantana et al., 2017). When there is a lack of buffering that resiliency provides, emotional exhaustion prevails.

The literature's most significant and valuable takeaway was resiliency could be learned, suggesting anyone could develop this trait (Jackson et al., 2018; Mealer et al., 2014). Individual characteristics have been associated with higher resilience such as having children, the number of years practicing in an ICU setting, and the type of degree earned (Mealer, Jones et al., 2017). The work environment influences the ability to maintain resiliency (Mealer, Jones et al., 2017). Resiliency-based interventions were shown to be successful, especially interventions

underpinned by cognitive-behavioral theory. Still, the interventions were often formulated based on theory or the literature and not the unmet needs of the population for which they were designed.

Work Environments and Leadership Styles

Negative healthcare environments were another consistent theme in the literature as a causative factor for burnout. There was a causal relationship between burnout, job satisfaction, and poorly rated work environments (Kelly et al., 2021; Mohr et al., 2021). In this regard, it was known as occupational burnout. Alternatively, burnout was inversely related to appropriate staffing, social and managerial support, salary, decreased working hours, meaningful recognition, and effective decision-making (Kelly et al., 2021; Khatatbeh et al., 2021). What remained less apparent in the literature was whether poor staffing caused burnout or if burnout caused inadequate staffing. Both options remained a significant point of contention within the literature and the current nursing workforce. However, when authentic leadership and meaningful recognition were present, they were a countervailing force against burnout (Kelly et al., 2021). While burnout was often thought to be a personal experience, organizational involvement in the form of poor professional support, elevated organizational risk factors (e.g., ethical issues, heavy workload, low job control), inadequate staffing, and inadequate pay were also significant contributors to overall job dissatisfaction and intent to leave (Khatatbeh et al., 2021; Vermeir et al., 2018).

Leadership styles and communication were common themes investigated in the literature. A known characteristic of retention and nurse satisfaction was having authentic leadership (Monroe et al., 2020). Authentic leadership was shown to have a direct, positively correlated role in a healthy work environment; in turn, it had a negative effect on the emotional exhaustion

dimension of burnout (Lee et al., 2019). Organizations should focus on developing authentic leaders to assist in mitigating causative factors related to intent to leave, increase the attrition of highly skilled critical care nurses, and identify known precursors of intent to leave such a burnout. When critical care nurses see that hospital leaders and policy makers are invested in their well-being, there are fewer medical errors and better patient outcomes (Melynk, Tan, Hsieh, Gawlick et al., 2021). An environment with positive relationships, appropriate staffing, meaningful recognition, effective decision-making, and support teams contributes to a sense of joy in the workplace. Fostering a healthy work environment with open communication between leadership and staff is an untapped approach for mitigating burnout (Kelly et al., 2021).

Retention

The United Stated has an estimated nursing turnover rate of 13% to 20% annually (Mealer, Jones et al., 2017). The turnover of nurses continues to be a significant outcome of burnout in nursing. Turnover can negatively impact medication errors, patient falls, staff morale, group cohesion, and patient morbidity (Mealer, Jones et al., 2017). Identification of causation is necessary for the retention of highly skilled nurses in critical care units. Nurses with high patient loads have a 23% increased incidence of burnout and 48% of nurses reportedly left their jobs due to poor staffing (Monroe et al., 2020). These modifiable causes have been historically ignored by organizations and require significant interventions to improve the attrition of skilled nurses.

Demographic Associations

Several studies suggested a predisposing factor to burnout was younger age and fewer years of experience in critical care. Younger nurses in the Millennial Generation (ages 21-33 years) were found to have severe burnout compared to their senior counterparts in Generation X (ages 34-49) or the Baby Boomer (ages 50-65) generation (Kelly et al., 2021). Kim and Yeom

(2018) validated similar findings related to age. The tendency for younger nurses to be more prone to experiencing burnout might be related to less advanced problem-solving ability, less developed work skills, and low usage of coping skills (Lee et al., 2019). With this knowledge, mitigation programs should be initiated at the undergraduate level and healthcare organizations to assist in providing new graduate nurses the skills and knowledge to identify and mitigate burnout.

Impact of Coronavirus Disease-19

Amid the Coronavirus Disease-19 (COVID-19) pandemic, the phenomenon of burnout has taken center stage. While burnout was present well before the pandemic, nursing during the pandemic was presented with unforeseen personal and professional challenges. In the initial stages of the COVID-19 pandemic, the rates of PTSD, anxiety, depression, and burnout had been predicted to rise given the constant fears of transmission and the availability of personal protective equipment and ventilators (Melynk, Tan, Hsieh, & Gallagher-Ford, 2021). The COVID-19 pandemic placed immense strain on frontline healthcare workers and disproportionately impacted nurses in intensive care units (Guttormson et al., 2022). Addressing mental well-being during an acute and ongoing event created significant challenges and "understanding the relationship between levels of burnout in the workforce and patient outcomes could provide valuable evidence that directs ICU improvement efforts, which may be particularly salient during the COVID-19 pandemic" (Mohr et al., 2021, p. 436). For programming to be successful during an ongoing pandemic, it must be easily malleable and directly address the identified causes of burnout and wellness disruption based on the needs of the nursing populations most affected including those in critical care.

Burnout Interventions

Existing interventions reside at both the individual and organizational levels. Individual-directed interventions have included cognitive-behavioral measures, mindfulness training, and resiliency education (Lee et al., 2019). A recent meta-analysis suggested these interventions typically only impacted the emotional exhaustion dimension of burnout (Lee et al., 2019). However, mindfulness interventions have been shown to buffer nurses from burnout and promote work and life satisfaction. Mindfulness programming varied considerably in the literature with timeframes from one to two days to 12 weeks and weekly sessions lasting from 30 minutes to two hours. Mindfulness was shown to be influential based on the frequency of practice by the nurse (Mealer et al., 2014). Despite potential or known low participation rates, mindfulness-based interventions might indirectly benefit other workers and the organization even with a limited number of participants (Steinberg et al., 2017). When programing is made feasible, it might improve resiliency and psychological disorders. Still, the interventions lacked input from the population they were trying to serve so recall and retention were often lost.

In a qualitative project by Jackson et al. (2018), managing exposure to workplace adversity became the focus of addressing burnout and resiliency. Interviews were open-ended for 60-90 minutes. Participants were asked ‘what resilience meant to them as a nurse.’ Other findings found debriefings were a component of resiliency and reduced burnout. The study concluded that workplace adversity was negatively perceived by the patient and decreased the participant’s effectiveness as a nurse. The study suggested that using a technique such as managing exposure to identify workplace adversity, which subsequently manifested into burnout and resilience, was effective. Once workplace adversity was identified, specific concepts were used to protect against advancement toward burnout. This study had several limitations as it was

limited to one institution and a homogenous group. However, this was the closest study in the literature that identified the input and needs of critical care nurses.

One particularly promising intervention was the web-based, computer-based programming implementation of the science of enhancing resilience (WISER). This computer-based program was in response to the need for innovative interventions that could be delivered on-demand to busy healthcare workers. The WISER is an online module platform where healthcare workers would participate in several modules focused on defining and building resiliency. It was associated with improved work-life integration and depression at one and six months (Profit et al., 2021). One of the most attractive features of WISER is it is a free program. However, the program is limited to addressing only the emotional exhaustion dimension of burnout. Further interventions are warranted to address the personal accomplishment and depersonalization dimensions.

Organizational-directed interventions are changes in task restructuring, work evaluation and supervision, increased job control, and participation in decision-making. Emerging literature suggested organizational efforts decreased psychological distress symptoms and healthcare workers were less likely to quit (Lou et al., 2021; Mohr et al., 2021). Clinicians who received communication training were less likely to experience burnout (Monroe et al., 2020). Similarly, 90% of nurses in a cross-sectional survey reported that effective communication was the most crucial factor for a healthy work environment and was linked with decreased compassion fatigue (Monroe et al., 2020). In 2022, the ANA recognized that 84% of registered nurses were experiencing burnout, 79% of intensive/critical care nurses reported feelings of exhaustion, and only 42% felt their mental health was valued by their employer. The ANA partnered with SE Healthcare to offer an incentive to ANA members that included four months of complimentary

access to burnout prevention programming from May to August 2022. The program offered 22 contact hours including burnout prevention videos, audio from nurses experiencing burnout, matching a nurse's needs to immediate resources, and a survey to identify nurses' top stressors in their day-to-day nursing practice (ANA, 2022). Nearly 7,000 ANA members took advantage of this free programming during the trial period. Continued programming will be offered to ANA members through SE Healthcare at two dollars per month (ANA, 2022).

Societal-based interventions are created by improving policy. There is a lack of engagement at the state and federal levels to address clinician burnout awareness and intervention support. However, a recent societal-based intervention was the Dr. Lorna Breen Health Care Provider Protection Act (2022). This law was established to obtain grants for training healthcare professionals in evidence-based strategies to reduce suicide, burnout, mental health condition, and substance abuse. Multidimensional interventions addressing critical care nurses' environment, culture, and mental and physical needs are more likely to prevent and treat burnout and its associated syndromes. Therefore, additional policies and interventions within in the legislature should continue to be encouraged and supported.

Summary of Integrated Literature Search

Burnout is not a new phenomenon. Despite the emergence of the term in the 1980s, the impact remains significant in health care. Current literature expanded on the multiple causative factors and outcomes related to burnout and addresses several interventions. However, specific interventions based on critical care nurses' identified needs are lacking. In light of the recent Coronavirus pandemic, burnout among critical care nurses is of increasing concern. Burnout has quickly become a blanket term for many other psychological syndromes and is a known contributor to nurses leaving the bedside. Due to its complexity, isolating burnout factors and

creating an intervention has become challenging. There continues to be a call for action to mitigate the increased departure of nurses leaving the bedside due to burnout. What exists in the literature is a uniform approach and what appears to be lacking is the consideration of what nurses need.

Theoretical Framework

The advancing research and clinical practice through close collaboration (ARCC) model is an evidence-based, system-wide model to advance evidence-based practice (EBP) implementation and sustainability. The model supports EBP mentorship, education, application, and inquiry toward sustainability and organizational change to improve clinician and patient outcomes. Further description of the ARCC model and its application to this scholarly project are provided below.

In 1999, nurse scientist Bernadette Melnyk created the ARCC model; it has been modified several times over the past decade, most recently in 2017 (Rycroft-Malone & Bucknall, 2010). The model's creation was part of a "strategic planning initiative to unify research and clinical practice to advance the evidence-based practice (EBP) within an academic medical center for the ultimate purpose of improving health care quality and patient outcomes" (Melnyk & Fineout-Overholt, 2019, pp. 398-399). Unique to this model is it is intertwined with control theory (CT) and cognitive-behavioral theory (CBT). Following the ARCC conceptualization, advanced practice nurses and point-of-care nurses were surveyed about the barriers and facilitators of EBP. The survey results, CT, and CBT were reviewed and synthesized to formulate the critical constructs of the ARCC model (Rycroft-Malone & Bucknall, 2010).

Conceptual Framework Guiding the Advancing Research and Clinical Practice Through Close Collaboration Model

Control theory "contends that a discrepancy between a standard or goal (e.g., system-wide implementation of EBP) and a current state (e.g., the extent to which an organization is implementing EBP) should motivate behaviors in individuals to reach the goal" (Melnyk & Fineout-Overholt, 2019, p. 399). However, multiple barriers to EBP implementation exist such as a lack of EBP mentors and champions, inadequate EBP knowledge and skills, devaluation of EBP, perceived lack of authority for change, and nurse leader manager resistance (Melnyk & Fineout-Overholt, 2019). To contend with these barriers, the ARCC uses EBP mentors. Evidence-based practice mentors have in-depth knowledge and skills at the individual and organizational levels to facilitate and sustain EBP.

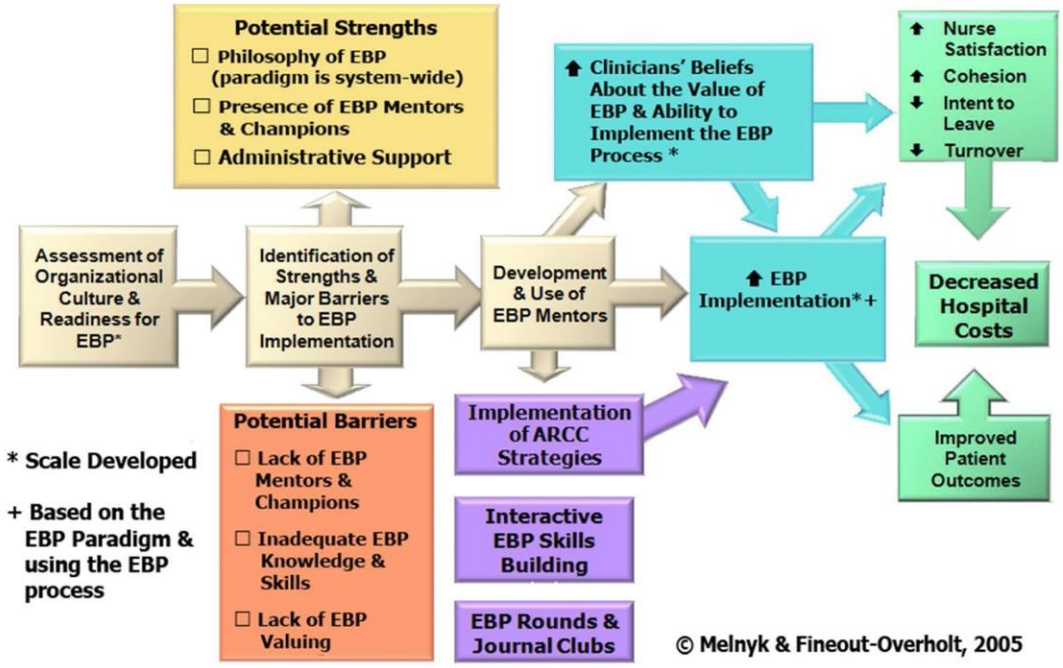
Cognitive-behavioral theory was also used in the ARCC "to guide behavioral change in individual clinicians toward EBP" (Melnyk & Fineout-Overholt, 2019, p. 400). Cognitive-behavioral theory considers individual, social, and environmental influences that affect clinician cognition, learning, emotions, and behavior (Beck, 1979; Melnyk & Fineout-Overholt, 2019). The foundation of CBT rests upon an individual's behaviors and emotions and how these determine their thinking process and model the person's beliefs. As a tenet of the ARCC, when clinicians believe in the value of EBP and their innate ability to implement EBP, there is a greater likelihood of application. Evidence-based practice mentors work with point-of-care clinicians to strengthen their beliefs and assist in implementation through evidence-based decision-making (Melnyk & Fineout-Overholt, 2019).

Description of the Conceptual Framework Guiding the Advancing Research and Clinical Practice Through Close Collaboration Model and Rationale for Use in This Project

The ARCC model (see Figure 1) provides healthcare organizations with a conceptual model to guide system-wide implementation and support the sustainability of EBP. Reducing nurse burnout is a multifactorial issue that would benefit from a well-developed model such as the ARCC. Unfortunately, some clinicians deliver their care based upon tradition, outdated policies and procedures, and information learned years before in their educational program (Melnyk, Tan, Hsieh, & Gallagher-Ford, 2021). This approach is likely shared among healthcare administrative teams, which is relevant to this project as the sector that most commonly leads burnout reduction initiatives in the clinical setting. What is also known is that "nurses' engagement with EBP has the potential to decrease burnout, improve job satisfaction and assist in meeting the Quadruple Aim (reducing costs, improving population health, patient experience, and team well-being)" (Melnyk, Tan, Hsieh, & Gallagher-Ford, 2021, p. 273). No such explicit literature exists about using the ARCC in a burnout reduction program or as the foundation for a needs assessment. Conducting a needs assessment informed by the ARCC model allows nurses to actively participate in a directed change toward an EBP-based intervention on their behalf. The nurses become the key change agents and facilitators of EBP.

Figure 1

The Advancing Research and Clinical Practice with Close Collaboration Model



Source. Melnyk et al. (2017).

Central to the ARCC model is the presence and role of EBP mentors. Melnyk et al. (2017) suggested that clinicians' EBP belief, EBP implementation, and movement of organization culture toward EBP increased when a 12-month project was implemented using the ARCC as the guiding framework. However, the culture and environment must support a high-quality, evidence-based change to be sustainable. There are several EBP models; however, most are process models that outline the steps of EBP or the sequence of conducting an EBP project (Melnyk et al., 2017). The ARCC is a system-wide model that introduces, advances, and sustains EBP in health care using EPB mentors across five stages as illustrated in Figure 1.

Barriers and Facilitators to Implementing the Advancing Research and Clinical Practice with Close Collaboration Model

When a call for change is initiated in a healthcare setting, there is not always an enthusiastic response. The ARCC requires cultural change and a shift in paradigm to one that fosters and sustains EBP. However, effective change takes time and requires persistence; it is often perceived as a barrier to implementation (Rycroft-Malone & Bucknall, 2010). As with any change, investment is needed. A facility must commit to identifying, educating, and supporting an EBP cadre whose effectiveness should be measured through outcomes evaluation. Another barrier to implementation is the facility's ability to collect and interpret outcomes evaluations (Rycroft-Malone & Bucknall, 2010).

An ARCC implementation cannot be viewed as an expense but rather as an investment. Successful implementation of the ARCC "promises long-term gains in quality outcomes and clinician satisfaction that must be considered" (Rycroft-Malone & Bucknall, 2010, p. 181). The most significant facilitator of the ARCC model is the EBP mentor. These mentors are vital to the success of this model and the long-term longevity of EBP in the healthcare landscape. Evidence-based practice mentors drive the model’s implementation and sustainability. The like-mindedness of EBP mentors to that of the administrators and point of care providers encourages data transparency and fosters collaborative practice, creating optimal outcomes for clinicians and patients (Rycroft-Malone & Bucknall, 2010).

Strengths and Weaknesses of the Advancing Research and Clinical Practice with Close Collaboration Model

The ARCC is a broad model and is generally accepted among clinicians. As this model is clinician-driven, an essential piece is no matter the professional tenure, any clinician can be an

active participant and contribute to quality patient outcomes (Rycroft-Malone & Bucknall, 2010). The ARCC is versatile and can be applied to tertiary care, primary care, long-term care, and community and public health (Rycroft-Malone & Bucknall, 2010). Limitations of the model include a lack of literature, especially randomized control trials, to establish the efficacy of the suggested interventions across various healthcare settings (Rycroft-Malone & Bucknall, 2010).

Application of the Advancing Research and Clinical Practice with Close Collaboration Model to This Project

The first step of the ARCC is an organizational assessment of culture and readiness. This first step identifies if sufficient resources and support are allocated to support the work toward EBP, the progress of advancing EBP, and the overall implementation of EBP (Melnyk & Fineout-Overholt, 2019). This step is used to identify and endorse primary stakeholders including leaders, administrators, and point-of-care clinicians. Organizational culture and readiness assessment can be determined using the Organization Culture and Readiness Scale for System-Wide Integration of Evidence-Based Practice (OCRSIEP; Melnyk & Fineout-Overholt, 2019). This validated scale provides organizational characteristics such as the strengths and opportunities for fostering EBP within the chosen healthcare setting (Melnyk & Fineout-Overholt, 2019). However, the OCRSIEP was not utilized in this project. The setting of this project occurred in a magnet-recognized facility—the Medical Center of the Rockies. This designation means nurses, in collaboration with the interprofessional team, flourish by setting the standard for excellence through leadership, scientific discovery, and dissemination and implementation of new knowledge (American Nurses Credentialing Center, n.d.). Magnet hospitals foster improvements and projects based upon ever-evolving evidence-based practice, which maintains that facilities are in a state of constant readiness. In addition, the primary

investigator was asked by leadership in the critical care units at the project site to pursue this scholarly project topic. Hence, a high state of readiness and receptivity was already evident.

The second step of the ARCC model is the identification of strengths and significant barriers to EBP implementation. Per Melnyk and Fineout-Overholt (2019), potential strengths include the philosophy of the EBP paradigm, the presence of EBP mentors and champions, and administrator and leader support. Potential barriers include a lack of EBP mentors and champions, inadequate EBP knowledge and skills, and lower beliefs about the value of EBP and the ability to implement it (Melnyk & Fineout-Overholt, 2019). Barriers and facilitators at the project site are discussed in more detail later in this chapter.

The third step of the ARCC model is identifying and developing EBP mentors. Evidence-based practice mentors are healthcare providers such as advanced practice nurses, transdisciplinary clinicians, and baccalaureate-prepared nurses who have in-depth knowledge and skills for EBP implementation and understand individual and organizational change strategies (Melnyk & Fineout-Overholt, 2019; Rycroft-Malone & Bucknall, 2010). Their role is to shift traditional practice to EBP-guided practice, conduct EBP implementation, generate and integrate practice-based data to facilitate changes in clinician behaviors to change the organizational culture, and mitigate and remove barriers commonly encountered by clinicians attempting to implement EBP (Rycroft-Malone & Bucknall, 2010). Evidence-based practice mentors play a pivotal role in the success of the ARCC model and EBP implementation. Melnyk and Fineout-Overholt (2019) expanded the EBP mentor role description to include an ongoing assessment of the organization's capacity to sustain an EBP culture; conducting interactive group workshops and one-on-one mentoring; stimulating, facilitating, and educating staff toward a culture of EBP; role modeling EBP; conducting ARCC EBP strategies such as EBP rounds,

journal clubs, webpages, newsletters, and fellowship programming; assisting in the generation of internal evidence through outcome management and EBP projects; facilitating staff involvement in research; using evidence to foster best practice, and collaborating with interdisciplinary professionals to advance and sustain EBP. "The role of EBP mentors and their impact on healthcare systems and EBP is also being investigated as they are likely to be the key to the sustainability of the EBP in organizations" (Melnyk & Fineout-Overholt, 2019, p. 402). To assess the belief in EBP and the clinician's ability to implement it, the EBP beliefs (EBPB) scale was used. However, as with the OCRSIEP scale, this project was done in a magnet-accredited hospital; EBP readiness and belief were high among the staff per the primary investigator's observation and professional experience at the facility.

While the setting for this project did not have EBP mentors by name, the UEXCEL program at MCR was its equivalent. The UEXCEL program "believes patient outcomes are improved when care is delivered by a professional nurse workforce that is highly skilled, motivated towards continued learning, committed to the mission and goals of the organization, and dedicated to furthering the profession of nursing" (UCHealth, 2022, para 1). The UEXCEL program challenges nurses to obtain a higher certification and be a part of a clinical advancement program that requires an EBP project and facilitation of EBP dissemination including journal clubs. The key to strong, sustainable EBP implementation is the mentors that enhance clinician beliefs in the value of EBP, which ultimately results in higher implementation (Melynk, Tan, Hsieh, & Gallagher-Ford, 2021). In addition to the UEXCEL program, the UCHealth system created a team of specialized nurses in 2021 trained to provide mentorship to registered nurses working in a hospital for the first time (Cotton, 2022). These nurses were designated as clinical education resource nurses and were scheduled to work nights and weekends to provide additional

support for new nurses, especially those entering health care during a pandemic, which carried additional challenges as supported by the literature (Cotton, 2022). Despite this program being designated for new nurses, it has the potential to be expanded to all nurses and could play a key role in the development of burnout mitigation programming. Nurses in both the UEXCEL and clinical education resource nurse programs at the project site are equivalent to the mentors driving EBP in the ARCC model.

The fourth step of the ARCC model is the process where organizations implement the EBP, which entailed implementing the needs assessment and developing a proposed burnout mitigation program for this scholarly project. The common factor, burnout, should be identified and mitigated (Melynk, Tan, Hsieh, & Gallagher-Ford, 2021). To achieve these results, the needs assessment was provided to the critical care nurses of two critical care units at the Medical Center of the Rockies: the cardiac ICU and the surgical ICU. After closing the assessment, the results were analyzed and disseminated among the stakeholders. Following the analysis of the results, the findings were used to guide the development of a burnout reduction program for future use with critical care nurses.

The fifth and final step of the ARCC model is the evaluation of the outcomes from the burnout reduction program including increased nurse satisfaction and cohesion with a decreased intent to leave and turnover rate among critical care nurses. Patient outcomes and hospital ICU costs could be evaluated in the long term. This step was not completed until after the scholarly project had ended and would only be possible if the project site decided to adopt and test the proposed burnout reduction program. Since the ARCC model is system-wide, further testing would be needed to determine if conducting additional needs assessments was required before expanding burnout reduction programming to other units in the hospital outside of critical care.

CHAPTER III

METHODOLOGY

This chapter discusses the overall methodology of this Doctor of Nursing Practice (DNP) project including details of the project's design, setting, sample, and instrumentation. Furthermore, critical components of the project, data analysis, and ethical considerations are reviewed.

Design

This DNP project was a descriptive, cross-sectional, single-center design. A needs assessment was developed and administered to critical care nurses at a single organization using evidence-based articles from an extensive literature review and an existing validated instrument. The results were analyzed to identify the needs of this group of critical care nurses and explore variables associated with their perceptions of burnout. Furthermore, the literature compared the results to available interventions for reducing burnout and promoting retention among critical care nurses. This analysis led to a proposed burnout prevention program for critical care nurses that might be tested at the project site or applied to other organizations in the future.

This DNP project was formatted so the methodology was easily reproducible and might be used in other critical care units. The external validity was predicted to be strong given the consistency of the methods used. This project used the results from the needs assessment to guide the development of future interventions to mitigate burnout. While the needs assessment was generalized and malleable enough to be easily reproducible, the proposed burnout mitigation program was specific to the Medical Center of the Rockies. It could be beneficial in identifying

care process deficiencies, workflow issues, or needs for further or advanced education that might be useful to the project site.

Setting

This DNP project was conducted at the Medical Center of the Rockies (MCR), located 50 miles north of Denver in Loveland, Colorado. Loveland has a population of 76,378 (U.S. Census Bureau, 2021). The MCR is a level 1 trauma, 166-bed regional medical center specializing in trauma and cardiac care; it serves patients from northern Colorado, southern Wyoming, and western Nebraska (UCHealth, 2022). As one of eight hospitals in Colorado, MCR holds the prestigious magnet designation. This designation is achieved by exemplifying five principles: "transformational leadership, structural empowerment, exemplary professional practice, new knowledge, innovations and improvements, and empirical outcomes" (UCHealth, 2016, para 5). The MCR has two adult intensive care units: surgical and cardiac. These two critical care units were the sites for the DNP project. These units collectively employed an estimated 85 employees of which 65 were registered nurses (RNs) holding either an associate degree or a Bachelor of Science in Nursing.

Sample

The sample included all RNs in the above-mentioned critical care units at MCR with a projected participation rate of 30% across both units (n = 20). Inclusion criteria were MCR-employed RNs who worked a minimum of 24 hours or more per week in the surgical or cardiac ICU and had been in their current position for at least one year. Exclusion criteria were travel/contract or float pool RNs, those working in the ICU for less than one year, or those working less than 24 hours per week. Recruitment of survey participants included an email introduction from the primary investigator outlining the project and its mission and an

introduction of the project in a monthly staff meeting before the project launch. An investigator-funded optional participation raffle for three $50 gift cards to Target, Scheels, and Starbucks were offered to all participants upon completing the needs assessment survey.

Project Mission, Vision, and Objectives

The mission was to explore the needs of critical care nurses and potential strategies for mitigating burnout in the clinical setting using a needs assessment.

The vision was to use the outcomes from the project to propose future interventions for the early identification and prevention of burnout among critical care nurses at the project site that would be generalizable to other organizations to address this global issue in health care.

The objectives of this project were as follows:

1. Complete a comprehensive literature review to create an evidence-based needs assessment for nurses in the critical care setting.
    - Synthesize the literature to identify the potential needs of critical care nurses and strategies for reducing burnout
    - Evaluate existing needs assessment templates and select one to integrate the literature findings into an electronic data collection tool using Qualtrics survey software. To establish the level of burnout among the sample, include a valid and reliable instrument in the form of the Maslach Burnout Inventory – Human Services Survey for Medical Personnel (MBI-HSS [MP)]) in the developed needs assessment
    - Pilot test the needs assessment on a minimum of two RNs to check for usability and functionality before initiating data collection with participants

2. Administer the needs assessment to a group of practicing critical care nurses and analyze the findings.
    - Recruit participants who met the inclusion criteria through email and face-to-face communication about the project
    - Administer the electronic needs assessment via organizational email
    - Export the collected data from Qualtrics into Statistical Package for the Social Sciences (SPSS) software for descriptive analyses
3. Synthesize the findings from the needs assessment with best practices from the literature to develop a burnout reduction program for future implementation with critical care nurses.
    - Compare and contrast the needs assessment findings with trends identified within the literature to identify potential variables positively correlated with burnout reduction
    - Develop a burnout reduction program tailored to the reported needs of the critical care nurses of MCR that is appropriate for future implementation/ testing
    - Disseminate the proposed burnout reduction program to stakeholders at MCR's critical care units

Project Plan

The critical components for this DNP scholarly project included:

- Assembly of a committee for guidance and review of the project. This committee included two doctoral-prepared faculty members from the School of Nursing at the University of Northern Colorado (UNC), a doctoral-prepared faculty member

at UNC from a department outside of the School of Nursing, and a doctoral-prepared clinical nurse specialist with critical care expertise from the project site.

- Presentation of the proposal through a written document and a PowerPoint presentation to the project committee for approval.
- Obtain written permission from the project site to recruit their nursing staff to participate in the project (see Appendix C).
- Obtain approval from the Institutional Review Board (IRB) at UNC (see Appendix D).
- Create an online needs assessment that includes the MBI-HSS (MP) instrument using Qualtrics survey software and pilot testing it on at least two volunteers for functionality and usability.
- Determine scheduling of ICU staff meetings to allow for a face-to-face introduction of the DNP project and to encourage participation among the staff nurses.
- With the assistance of the clinical nurse specialist on the committee and the managers of the critical care units proposed for this project, compile an email list of currently practicing staff RNs.
- Administer the survey via email to RNs in the two ICUs at the project site with a goal of a 30% response rate over two weeks. Weekly email reminders were sent to the group to encourage participation until at least 30% of the invited participants had completed the survey.

- Collect and review the results of the returned surveys. Apply descriptive statistical procedures to the responses with the assistance of the project advisors and the Social Research Lab at UNC.
- Compare/contrast the survey findings to the themes identified in the literature review to determine the most salient variables of burnout and potential interventions for addressing this phenomenon.
- Synthesize the survey results and literature to create a proposed burnout reduction program tailored to the needs of the critical care nurses at MCR and disseminate the findings to the project site stakeholders program.
- Finalize the written project and orally defend it to the project committee using a PowerPoint presentation via live video streaming (Zoom) and publish the completed project to UNC's thesis and doctoral projects repository.

Instrumentation

Instrumentation for this project was a needs assessment created by the primary investigator and administered online using Qualtrics survey software. The title page of the needs assessment included a brief synopsis of the project and language about a non-signature informed consent. Brief demographic data (age, years as an RN, years as an ICU RN, and employment status) were collected. The needs assessment development began with a review of comparable surveys to determine the formatting and question style typical of this data collection tool. In addition, the MBI-HSS (MP) was included in the needs assessment as an established, reliable, and valid tool for measuring the presence of professional burnout among healthcare providers. Remote licenses for online use of the MBI Remote Online Survey and MBI-HSS (MP) were purchased through an online validated vendor (see Appendices E and F). The MBI-HSS (MP) is

a 22-item survey that covers the three dimensions of burnout: emotional exhaustion, depersonalization, and a low sense of reduced personal accomplishment. Each subscale has a series of questions with 7-level scale frequency ratings ranging from the choice of *never* to *every day* (Mohr et al., 2021; National Academy of Medicine, 2022b). Emotional exhaustion (nine items), depersonalization (five items), and personal accomplishment (eight items) were measured on this 7-point scale with a higher score indicating higher levels of burnout (Maslach et al., 2018). Cronbach's alpha for the MBI was 0.90 for emotional exhaustion, 0.79 for depersonalization, and 0.71 for personal accomplishment (Maslach et al., 2018). The estimated time to complete the survey was 10-15 minutes.

A comprehensive review of the literature related to knowledge of burnout, causative factors of burnout, and interventions for burnout in critical care was completed (see Chapter II). In addition to the MBI-HSS (MP), these literature findings guided the creation of a 29-item needs assessment addressing the following areas: (a) determining if critical care nurses at MCR self-reported burnout and to what degree; (b) identifying the causative factors of burnout; (c) what interventions, if any, are currently offered at MCR to mitigate burnout; and (d) what needs are currently not being addressed or met. The needs assessment primarily consisted of close-ended questions with ordinal data variables as potential responses. There was one "select all that apply with an 'other' open-ended option" that had a 150 character limit that allowed the nurses to share additional information. Additionally, two open-ended questions were provided with a 150-character limit. Before the needs assessment was deployed, it was reviewed by the co-chairs of the committee and pilot tested by at least two critical care RN volunteers. A copy of the needs assessment is provided in Appendix G.

Analysis

The data for this DNP scholarly project were compiled, reviewed, and disseminated in aggregate form. Data analyses procedures were as follows:

- Following the closure of the needs assessment, the quantitative data were exported from Qualtrics into SPSS software, where the data were synthesized and analyzed using descriptive statistics under the direction and assistance of the committee co-chairs and the Social Research Lab.
- Free-text replies were compiled into an Excel spreadsheet and reviewed, categorized, and interpreted by the primary researcher under the supervision of the project co-chairs for inclusion in the overall analyses.

Duration of the Project

Following written permission from the project site (see Appendix C) and approval of the project proposal by the scholarly project committee, the project obtained approval from the University of Northern Colorado IRB (see Appendix D). The DNP project required close collaboration and assistance from MCR's Director of Critical Care. To initiate participant recruitment, the primary investigator presented the project to the ICU staff during team meetings within two to three weeks of IRB approval. In addition, an email was sent to each RN in both ICUs within three weeks of IRB approval being received informing them of the purpose of the scholarly project, the intention of the needs assessment, anticipated time expenditure, and the optional participation raffle. Data collection was anticipated to be three weeks but was extended until at least a 30% response rate was achieved. If participation was not optimal, the primary investigator presented to the ICUs before/during/after the scheduled shifts for encouragement of completion. Refreshments were offered to everyone regardless of participation in the survey.

Following the closure of the needs assessment, an additional two weeks were allotted for statistical analysis and review. Findings from the analysis are detailed in Chapter IV of the written project, followed by developing an evidence-based burnout mitigation plan in Chapter V, which took another six weeks to complete. The written project was finalized and disseminated to the project committee and orally defended. Following approval from the committee, the project was to UNC's Graduate School and Theses and Dissertation Repository for publishing. This project took 7 weeks to complete.

Ethical Considerations

As previously stated, IRB approval was obtained before recruitment or survey procedures begin. Participants were informed that their confidentiality would be carefully maintained to obtain valid and quality results. Information gathered was de-identified and stored electronically on a password-protected computer and a professional Qualtrics account. Internet addresses were not collected. Data were reported in aggregate form to the primary investigator. The data were only shared with the primary investigator, project co-chairs, and Social Research Lab staff via UNC's secure networks. A non-signature informed consent (see Appendix H) was electronically obtained at the start of the needs assessment. Participants might withdraw their participation at any time during the survey session without recourse. An opening disclosure warned the participant of the sensitive nature of burnout and the types of questions in the needs assessment. Any inquiries from a participant to the primary investigator were managed via secure email communications under the guidance of the project co-chairs. There was no compensation for participation but participants had the option to enroll in a raffle for one of three $50 gift cards after completing the survey. The option to enroll in the raffle occurred at the end of the survey where participants might enter their email address. The participants' email addresses and survey

responses remained separate so each participant's survey responses remained confidential. While the presumed risk of participation was minimal, stress related to burnout in the critical care setting was prominent and might have hinder the participant's completion of the needs assessment. Participants were instructed to contact the primary investigator immediately if any such harm was perceived or created. If this occurred, participants were directed to the counseling center at their institution. Furthermore, the following resources were also provided: the National Suicide Preventions Lifeline; the National Alliance on Mental Illness; and dialing 211 to be connected to resources for mental health. Benefits of participation were minimal but included a possible contribution to burnout mitigation planning and nursing science.

Summary

The methodology of this project provided a straightforward, concise, and easily reproducible method of execution for this project and subsequent projects. The survey instrument was guided by the Maslach Burnout Inventory with additional questions to assist in identifying the needs of critical care nurses. This level one, multi-ICU site allowed for greater applicability of and use of this survey to potentially guide further needs assessments and research of similar cause. Additionally, analysis of the needs assessment survey results assisted in guiding change to current practices and development of new program for burnout mitigation.

CHAPTER IV

RESULTS AND DATA ANALYSIS

This chapter presents the data analyses and results of the first two objectives of the DNP project focused on critical care nurses' needs in relation to occupational burnout using a needs assessment. The third project objective entailing recommendations to the project site is discussed in Chapter V. Data collected were analyzed in aggregate form and descriptive statistics were completed using Microsoft Excel. Statistical analyses were guided by the project co-chairs and the Social Research Lab at the University of Northern Colorado.

Results

Objective 1

This objective was to complete a comprehensive literature review to create an evidence-based needs assessment for nurses in the critical care setting. A brief survey was created after an extensive literature review that revealed commonalities and practice gaps. As discussed in Chapter II and presented in Appendix A (Preferred Reporting Items for Systematic Reviews and Meta-Analyses diagram), 131 articles were screened by title, abstracts, and, in some cases, full text to determine eligibility. Twenty-nine articles met eligibility criteria and were selected for inclusion. Of the 29 selected sources, eight reported on resiliency prevention and training, five reported on organizational change and workplace climate, four reported on mental health resources, four reported on leadership, three reported on autonomy, and two reported on early education for prevention. The remaining articles reported multiple foci such as support for end-of-life care, formal rewards, computer-based education, moral distress, and salary considerations.

The primary investigator created an initial draft of the needs assessment including the 22-question Maslach Burnout Inventory-Human Services Survey (MBI-HSS) for Medical Personnel (MP). The Maslach Burnout Inventory (MBI) is the most widely used instrument for burnout, appearing in 88% of burnout-related publications (Mind Garden, 2018). The survey began with basic demographic questions to assist in filtering participation based on the project inclusion criteria. The MBI-HSS (MP) included 22 Likert-scale questions ranging from *never* (0) to *every day* (6). At the end of the needs assessment, there were three qualitative questions: one was *select all that applies* with an option for an 'other' text-based response and two questions with an open-text response with a 150-character limit. The three qualitative questions were created based on recommendations from the MBI-HSS (MP) authors and prominent themes from the literature. For example, the *select all that apply* question was created from common interventions found within the literature synthesis.

The initial needs assessment draft was revised and approved by the project co-chairs. Once approved by the project team following the proposal defense, a final draft was submitted as an attachment to the IRB for approval. After IRB approval (see Appendix D), the survey was transcribed into an electronic version using Qualtrics Survey Software. The electronic survey was then pilot tested by five non-project site RNs. Pilot testing revealed the estimated time for completion was appropriate (approximately 10 minutes) and several spelling errors were identified and corrected. Following final revisions, the survey was published.

Objective 2

Objective 2 was to administer the needs assessment to a group of currently practicing critical care nurses and analyze the findings.

Participant Recruitment and Administration of Survey

The recruitment of survey participants was multi-faceted. First, an initial recruitment email was sent to two ICU managers at the project site who dispersed the email to their cardiac and surgical critical care RN staff. Shortly after, the primary investigator further introduced the project to both ICUs at their staff meetings. Following the staff meetings, a follow-up email was sent to the ICU RNs that included a QR code and a direct link to the survey. Due to timing, the cardiac ICU received the email to participate in the survey one week before the surgical ICU. This staggered start allowed for closer monitoring of potential survey issues. None were identified and a week later, the survey was released to the surgical ICU RNs. To encourage engagement, the primary investigator attended eight morning and evening shift change meetings over a period of two and a half weeks. Refreshments were provided at several of these meetings. Two and a half weeks after the survey started, an email was sent to the ICU RNs thanking them for their participation and notifying them that the survey was closed.

Electronic informed consent was obtained at the start of the survey (see Appendix E). A total of 52 responses were recorded; two surveys were excluded from data analysis due to incomplete or partial responses. An additional three were excluded as they could not progress in the survey due to not meeting the inclusion criteria programmed into the demographic questions. A total of 47 surveys were included in the data analysis.

Statistical Analysis Procedures

The collected data were exported from Qualtrics into an Excel spreadsheet. Under the guidance of the Social Research Lab, the data were cleaned and organized. Quantitative data were translated into nominal categorical data sets and basic descriptive statistical analyses were completed. Open-text responses were organized within an Excel spreadsheet and categorized by

the primary investigator into tentative themes. These themes were reviewed and refined in collaboration with the project co-chairs.

Sample Description

Basic demographic information of the 47 participants is provided in Table 1. Demographic analysis revealed the sample was primarily between 30-39 years of age, had greater than 10 years of experience as an RN of which one to five years were spent in the ICU, and overwhelmingly worked full-time.

Table 1

Poll Participant Demographics

Sample Characteristics	*n*	%
Age		
20-29	8	17.02
30-39	22	46.81
40-49	12	25.53
50-59	4	8.51
Greater than 60	1	2.13
Years Practicing as RN		
1-5	12	25.53
6-10	15	31.91
Greater than 10	20	42.55
Years as RN in ICU		
1-5	22	45.81
6-10	11	23.40
Greater than 10	14	29.79
Employment Status		
Full-time (36hrs/week)	42	89.36
Part-Time (24hrs/week)	5	10.64

Note: $N = 47$. Abbreviations: RN, Registered Nurse; ICU, Intensive Care Unit

Maslach Burnout Inventory

The MBI-HSS (MP) scoring was not based on an aggregate number. Instead, three-scale scores were calculated and interpreted separately. Therefore, scores could not be combined for a total to form a "burnout" score. There are two methods for scoring the MBI: sum or average. For ease of interpretation, the average method was used under the guidance of the Social Research Lab. Each question within the MBI was assigned to a burnout dimension: Emotional Exhaustion, Depersonalization, and Personal Accomplishment. The numbers associated with each dimension were totaled and averaged using Excel software. The MBI-HSS (MP) was interpreted as a group to remain consistent with the project objectives and questions. Scores were interpreted as absolute values, meaning the mean scale scores should be viewed as how they would fall on the 7-point Likert scale.

Additionally, higher scores on the Emotional Exhaustion and Depersonalization scales represented a higher degree of burnout, while lower scores on the Personal Accomplishment scale indicated a higher degree of burnout. According to the data provided, participants reported experiencing Emotional Exhaustion on average once a month to a few times a month (2.90). Participants scored low in Depersonalization (1.85), meaning they experienced symptoms/thoughts of Depersonalization a few times a year to once a month or less. Finally, with a score of 4.43, participants reported feelings of Personal Accomplishment once a week to a few times a week.

Qualitative Questions

The first qualitative question included a *select all that apply* response pertaining to the types of programming respondents thought would mitigate burnout. Five options were offered with the sixth option being an *other* text response with a 150-character limit. As seen in Table 2,

there were 81 responses from 47 participants. Of these options, “wellness offerings” was the most selected response (59.57%). Examples provided to the participants in this category were yoga classes and passes to local attractions. As discussed further below, there was also a positive response rate to the 'other' option.

Table 2

Requested Burnout Mitigation Programming

Programming	%
Application-based mental health access	21.28
In-person training/De-briefing sessions	14.89
Computer-based education	2.13
Peer/mentor support groups	27.66
Wellness offerings	59.57
Other	46.80

n = 81 responses

In conjunction with the *select all that apply* options, respondents were able to identify additional programming for burnout mitigation. There were two resounding themes: organizational change and the need for self-care. Organizational change recommendations included salary considerations, increased staffing, support for retirement and paid time off, and improved workplace culture. Identified needs within the self-care theme included physical activity, socialization outside of work, and the ability to be with family.

The next question asked respondents, "What gets in the way of your wellness?" Open-text responses were again reviewed for consistency and three themes were identified:

organizational support, outside obligations, and time management. Consistent responses for organizational support included inability/lack of resources for mental and physical care, unsupportive leadership, workplace culture, and lack of appropriate staffing. Response themes for outside obligations mentioned family and financial stressors. The strongest theme was time management (including lack of time) in both work and personal life settings.

The final survey question asked participants, "What keeps you from working efficiently?" Two themes were identified: lack of organizational support and inability for self–care. Consistencies within the organizational support theme included inadequate resources (e.g., supplies, equipment, etc.), unsupportive leadership, lack of appropriate staffing, and increased workload demands. Lastly, the theme for the inability for self-care included feelings of burnout, lack of sleep, exhaustion, and anxiety/stress.

Analysis of Project Question

The following question guided this scholarly project:

Q1 How will a needs assessment contribute to developing an evidence-based burnout reduction program for critical care nurses?

The question was answered using a systematic literature review to create a needs assessment that primarily consisted of a reliable and validated instrument with several evidence-based open-text questions. Using synthesized data from the survey and literature, burnout reduction programming based on the needs of the critical care nurses at the project site are proposed in the next chapter of this written project along with a plan for presenting these findings to the staff and critical care leadership at the project site.

Summary

The results and analysis of the needs assessment provided intriguing results. While burnout existed among the participants, it was at a relatively low level. The results showed

higher levels of Lack of Personal Accomplishment than the other two dimensions of Emotional Exhaustion and Depersonalization for this small sample of critical care nurses in the cardiac and surgical ICUs. Both organizational and personal needs existed within the surveyed population and subsequent interventions should be tailored accordingly.

CHAPTER V

DISCUSSION

This chapter summarizes this scholarly project including results interpretation, limitations, and recommendations for future practice in the form of a proposed burnout mitigation program in fulfillment of the third objective. The project has met the purpose and all three objectives of the project and reflects *The Essentials of Doctoral Education in Advanced Nursing Practice* published by the American Association of Colleges of Nursing (AACN, 2006). The *EC as PIE Framework: Five Criteria for Executing a Successful DNP Final Project* (Waldrop et al., 2014) is used in this chapter to illustrate the alignment of this project with the *Essentials*.

Project Summary

This DNP scholarly project aimed to explore the burnout level among critical care nurses at the Medical Center of the Rockies (MCR) and identify their needs and potential strategies for mitigating burnout in the clinical setting using a needs assessment. An extensive literature review was performed focusing on the presence of burnout among critical care nurses, available interventions for burnout mitigation, and burnout evaluation techniques and instrumentation. Based on the literature, a needs assessment was created by the primary investigator and participants were recruited using both electronic and in-person tactics. The collected needs assessment data were synthesized with the literature and used to guide the development of burnout mitigation programming for critical care nurses as described in further detail below. A total of 47 responses over a three-week-long data collection period met the inclusion criteria for

analysis. Once approved by the scholarly project team, the final burnout mitigation plan was presented to project site participants and stakeholders.

Conclusions

Based on the needs assessment results, which primarily consisted of the Maslach Burnout Inventory-Human Services Survey for Medical Personnel, it was determined the project site's critical care nurses showed low levels of burnout overall. In the burnout dimension of Emotional Exhaustion, the average score fell in the middle of the Likert scale, indicating most participants experienced emotional exhaustion a few times a month. The lowest average on the scale was Depersonalization. Most nurses found this dimension to be present once a month or less. Finally, Personal Accomplishment was found to have the highest average. Per the survey scoring scales, this average identified that most nurses felt personal accomplishment about once a week. While the overall level of reported burnout was low, this could be an optimal opportunity to assess current burnout mitigation programming including integrating prevention strategies.

The open-ended questions were the most revealing portion of the needs assessment as they identified several important consistencies among the critical care nurses in the sample. The first consistency was many nurses reported a lack of organizational support that contributed to their feelings of burnout. This lack of support included salary, staffing, leadership, and workplace culture issues. Additionally, a lack of self-care was consistently mentioned by participants as being problematic. While some respondents reported a personal ability to facilitate self-care activities, others mentioned not having the time, money, or resources to engage in this important burnout prevention and mitigation strategy.

Limitations

This DNP scholarly project had several limitations. While the overall number of participants exceeded the anticipated number, the sample size was still too small to generalize the results among other ICUs outside the project site. Although the needs assessment evaluated burnout, potential participants already experiencing burnout might not have wanted to participate or might have already resigned from the project site, especially during the peak of the COVID-19 pandemic in 2020-2021 when nurse turnover was elevated nationally. Additionally, during the needs assessment data collection period, the project site launched its own survey evaluating staffing ratios and quality outcomes. Competing multiple surveys could have prompted confusion or survey disengagement. Another limitation was the proposed burnout mitigation plan was not implemented and evaluated due to time constraints so its merit and efficacy remain unknown.

Recommendations for Future Practice

The primary recommendation for future practice would be the implementation of multi-faceted, evidence-based, and tailored burnout mitigation programming among critical care nurses at the project site. This process would reflect the fourth step of advancing research and clinical practice through close collaboration (ARCC) model (Melnyk & Fineout-Overholt, 2019) described in Chapter II, Evidence-Based Practice (EBP) implementation. This step encompassed two facets of this project. First, an evidence-based burnout scale was utilized to identify the level of burnout among a sample of critical care nurses as part of a needs assessment. Second, following the successful defense of this scholarly project, recommendations regarding burnout reduction programming will be disseminated to stakeholders at MCR including the Chief Nursing Officer, Critical Care Director, ICU managers, Critical Care Clinical Nurse Specialist,

and any interested project participants. The ARCC model was based upon system-wide change but is malleable enough to be applied within individual hospital units, entire hospitals, or across corporations. Further evaluation is needed to determine if additional needs assessments are required before expanding burnout reduction programming to other units in the hospital outside of critical care.

Any proposed mitigation program should be underpinned by the emergent healthcare workforce burnout literature. For example, in October of 2022, the National Academy of Medicine (NAM, 2022b) released the *National Plan for Health Workforce Well-Being.* Objectives from the national plan focus on supporting mental health and reducing stigma, recruitment, and retention of a diverse and inclusive workforce; creating and sustaining a positive workplace; and investing in measurement and assessment strategies as part of research to decrease healthcare work burnout (NAM, 2022b). The NAM provides resources to team members for developing programming for healthcare worker burnout mitigation. This resource—in conjunction with others such as the AACN's (2006) well-being initiative, free-online programming from the American Nurses Association (2022), and the U.S. Surgeon General's (HHS, 2022) advisory on healthcare worker burnout—should be integrated into burnout mitigation programming.

Objective Three Results: Proposed Burnout Mitigation Programming

The third objective of this scholarly project was to synthesize the findings from the needs assessment with best practices from the literature to develop a burnout reduction program for future implementation with critical care nurses at the project site. The proposed plan is described below.

Organizational Support

To mitigate burnout, the health care organization could implement evidence-based policies, programs, and solutions that address the identified needs of critical care nurses. One of the first steps in addressing the needs of the critical care nurses at MCR is creating an open forum with easier accessibility to unit leadership and upper management for discussion of salary, staffing, equipment, supplies, and workplace culture. By fostering open communication with participatory management, the processes, workflows, and organizational culture might improve (HSS, 2022). Additionally, the U.S. Surgeon General's advisory committee recommends that employees be shown their value through organizational recognition of work-life demands including ensuring living competitive wages, providing affordable healthcare coverage (including mental health and substance abuse benefits), periodic review of staff workloads and hours, and hazard or retention pay opportunities (HSS, 2022). Promoting family-friendly policies such as paid parental leave and support for child and elder care are also identified as effective strategies for reducing burnout among healthcare workers (HSS, 2022).

An identified need from the needs assessment was the ability for staff to request time off and have a rest break during their shift. This problem was addressed in an ICU at Cleveland Clinic in 2017 using a creative and cost-effective approach (Cleveland Clinic, 2020). While no single unit could afford a nurse to circulate to allow for lunches, the hospital combined full-time equivalencies from each unit to create a circulator nurse. The addition of the circulator nurse enabled the other nurses to have a lunch or break during their shift consistently. After the circulator role was created, meal cancellation occurrences dropped by 53%, thus reducing incremental overtime (Cleveland Clinic, 2020). Identifying a consistent and cost-efficient

process for relief from work, whether for paid time off or a lunch break during a shift, should be further investigated at the project site.

Finally, burnout and resiliency are closely related concepts. Resiliency is a potent mediator to burnout; therefore, mitigation programming should be created around this concept. In the literature, resiliency education was most effectively delivered in conjunction with cognitive-behavioral therapy and mindfulness training (Arrogante & Aparicio-Zaldivar, 2017; Beck, 1979; Lee et al., 2019; Maricuţoiu et al., 2016; Melnyk & Fineout-Overholt, 2019). It is suggested that the project site consider offering resiliency education to critical care nurses. However, in-person and computer-based training were not well-received modes of delivery for this intervention based on the needs assessment responses. Instead, project participants showed more interest in application-based, wellness offerings, and peer/mentor support, all of which are potential routes for delivery of resiliency training. In addition, occupational distress and burnout should be periodically measured at the project site for acute presentation, overall well-being, and recovery. Engagement, wellness, and needs assessments should be considered prior to and after burnout interventions are implemented to determine efficacy.

Facilitate Opportunities for Self-Care

An identified need in the assessment was the lack of opportunity, benefit, or wherewithal to engage in regular self-care. Self-care is imperative to reduce the effects of stress in a rapidly changing environment to prevent the progression toward burnout (Halm, 2017). Self-care resources should be readily available to staff on- and off-site for personal and work-related crises. The participants in this project identified the most requested forms of self-care were wellness offerings such as yoga or admission to local attractions. Attainment of these offerings can occur through community outreach such as sponsorship from local vendors.

Additionally, 83% of hospitals have workplace wellness programs (Centers for Disease Control and Prevention, 2020). If the project site offers a wellness program, barriers to access should be reviewed and outreach regarding its existence and amenities should be disseminated among staff. If the project site does not have a wellness program, further investigation into its creation and implementation should be completed.

Mentoring Programs

To create sustainable burnout mitigation programming, an EBP mentor support program should be created. According to the ARCC framework, EBP mentors are the cornerstone to successful program implementation and sustainability. (Melnyk & Fineout-Overholt, 2019). One rationale for using the ARCC model as the guiding framework for this scholarly project was its use of EBP mentors. If the project site seeks the implementation of suggested burnout mitigation interventions, EBP mentors would be the key drivers of this change. While the project site currently has UEXCEL nurses (see Chapter I), their roles would need to be expanded to include education on successful EBP implementation, sustainability, and peer-to-peer support strategies surrounding burnout mitigation.

An example of EBP mentors providing peer-to-peer support is the Caring4Collegues program out of a Cincinnati-based hospital system (Cheney, 2022). Volunteers are comprised of physicians, advanced practice providers, and RNs trained by a committee of mental health professionals. These volunteers have peer-to-peer sessions with struggling healthcare workers who can then receive peer support and be guided to appropriate mental health resources, which has improved burnout levels among staff (Cheney, 2022).

Delivery of Interventions

Burnout in health care is a progressive phenomenon in an ever-evolving environment. This requires that interventions and the implementation processes be multi-faceted. In terms of programming implementation, nearly two-thirds of participants at the project site identified wellness offerings as their highest need. Although many of the examples of wellness offerings focused on individual needs, programming at an organizational level must also be considered. As stated above, burnout programming offered in-person or via computer was not well received. Application-based and peer/mentor support were of greater interest among the sample; thus, the organization should prioritize these program delivery options. Understanding the delivery routes preferred by the population served will enhance implementation and sustainability.

Reflection

The Essentials of Doctoral Education for Advanced Nursing Practice are criteria that must be fulfilled to meet the degree requirements of the Doctor of Nursing Practice (AACN, 2006). This DNP project specifically demonstrated ties to DNP Essential III: Clinical Scholarship and Analytical Methods for Evidence-Based Practice. Essential III requires the scholar to acknowledge a problem through inquiry and then propose solutions to the problem through the scholarship of application (AACN, 2006). The requirements of such application include translating research into practice and disseminating and integrating the new knowledge (AACN, 2006).

Additionally, five scholarly project criteria were defined by the AACN (2006) and the National Organization of Nurse Practitioner Faculties (2007); they are represented by the acronym EC as Pie (E= Enhances; C=Culmination; P= Partnerships; I=Implements; E=

Evaluates; Waldrop et al., 2014). The following section discusses how each of the five criteria of EC as PIE was met by this DNP scholarly project.

Enhance

This criterion aims to enhance a new or existing policy and potentially improve health or practice outcomes (Waldrop et al., 2014). An identified gap in the literature was that while interventions exist for burnout, there was a lack of evidence showing the development of interventions based on the identified needs of the population the intervention intends to serve. This DNP project involved the creation of a needs assessment to first identify the level of burnout among critical care nurses and then explore their needs and barriers to wellness. Data gathered in this project were used to develop programming intended to decrease burnout among critical care nurses at the project site.

Culmination

For this criterion to be met, a change must be proposed that is timely, reproducible, and sustainable (Waldrop et al., 2014). This project came at a time when the rate of nurse burnout is at an all-time high, making it timely and relevant. In terms of sustainability, the upfront costs of the proposed changes will be returned through reduced nurse turnover and increased job satisfaction and performance, which will contribute to long-term cost savings. The primary investigator became an expert on the topic of burnout. This was achieved by an extensive literature analysis and by developing a needs assessment incorporating the highly reproducible and validated MBI-HSS (MP) instrument. Project organization, implementation, and change application were guided by the ARCC model, which further aided reproducibility.

Partnerships

Partnerships are vital for successful change (Waldrop et al., 2014). Proposing a project within this population required the approval of the director of critical care, the support of the ICU managers, and the participation of ICU nurses. After data analysis and dissemination of the findings, the proposed mitigation program will require the input of multiple organizational stakeholders and participants at the project site before it can be implemented. For example, human resources must be consulted before employee benefits can be critically examined. Many of the recommendations will require a financial commitment from the organization, necessitating partnership with the chief financial officer and others. Due to the societal, cultural, structural, and organizational factors contributing to burnout among health workers, engagement in interprofessional and interdisciplinary partnerships is vital to create sustainable change.

Implement

Implementation, application, and translation of evidence into practice were cornerstone features of this DNP scholarly project (Waldrop et al., 2014). Evidence gathered from the literature and needs assessment allowed for burnout analysis and identified critical care nurses' needs at the project site. Data were synthesized into an evidenced-based burnout mitigation plan. The plan was distributed to the DNP committee for feedback and approval during the project defense. Primary recommendations for future practice were multi-focal and reflected the best practices from the literature and the specific needs identified by the participants.

Evaluate

Evaluation of interventions and programs is required in health care, practice, and policy (Waldrop et al., 2014). Evaluation is imperative for change and existed in multiple phases of this DNP scholarly project. Current healthcare worker wellness and needs were evaluated using a

needs assessment. Analysis of these results revealed several consistencies found throughout the literature. One such request, appropriate staffing, satisfied both the practice and policy domains of evaluation. Evaluation of this finding reflected that a change for healthcare worker and patient safety should be addressed, requiring action at least at the hospital level and potentially at state or national legislative levels.

Summary

Using a needs assessment, burnout and wellness needs were identified among a small sample of critical care nurses located within a single organization in northern Colorado. The information provided assisted in guiding burnout mitigation programming focused on resiliency education, improved staffing ratios and support, transparent leadership, time management strategies, and self-care advocacy prompting organizational change. With the ongoing pandemic and continued staffing shortages, it is imperative to assess and address the needs of healthcare workers and adapt burnout mitigation programming appropriately. Burnout is an occupational phenomenon that requires timely and evidence-based assessments and interventions for mitigation to improve both nursing and patient outcomes.

REFERENCES

Alharbi, J., Wilson, R., Woods, C., & Usher, K. (2016). The factors influencing burnout and job satisfaction among critical care nurses: A study of Saudi critical care nurses. *Journal of Nursing Management, 24*(6), 708-717. https://doi.org/10.1111/jonm.12386

American Association of Colleges of Nursing. (2006). *The essentials of doctoral education for advanced nursing practice*. https://www.aacnnursing.org/Portals/42/Publications/DNPEssentials.pdf

American Nurses Association. (2022). *SE healthcare burnout prevention program*. https://www.nursingworld.org/membership/member-benefits/se-healthcare-burnout-prevention-program/

American Nurses Credentialing Center. (n.d.). *ANCC magnet recognition program*. https://www.nursingworld.org/organizational-programs/magnet/

Arrogante, O., & Aparicio-Zaldivar, E. (2017). Burnout and health among critical care professionals: The mediational role of resilience. *Intensive & Critical Care Nursing, 42*, 110-115. https://doi.org/10.1016/j.iccn.2017.04.010

Awan, S., Diwan, M. N., Aamir, A., Allahuddin, Z., Irfan, M., Carano, A., Vellante, F., Ventriglio, A., Fornaro, M., Valchera, A., Pettorruso, M., Martinotti, G., Di Giaggantonio, M., Ullah, I., & De Berardis, D. (2022). Suicide in healthcare workers: Determinants, challenges, and the impact of COVID-19. *Frontiers in Psychiatry, 12,* 792925-792925. https://doi.org/10.3389/fpsyt.2021.792925

Beck, A. T. (Ed.). (1979). *Cognitive therapy of depression*. Guilford Press.

Centers for Disease Control and Prevention. (2020). *Workplace health promotion*. https://www.cdc.gov/workplacehealthpromotion/features/hospital-employees-health.html

Cheney, C. (2022, Sept 7). *Healthcare worker peer support: "We can have a conversation and walk alongside them"*. https://www.healthleadersmedia.com/clinical-care/healthcare-worker-peer-support-we-can-have-conversation-and-walk-alongside-them

Cherniss, C. (1989). Burnout in new professionals: A long-term follow-up study. *Journal of Health and Human Resources Administration, 12*(1), 11-24.

Cleveland Clinic. (2020). *Staffing strategy ensures nursing caregivers can take a break*. https://consultqd.clevelandclinic.org/give-me-a-break-staffing-strategy-ensures-nurses-take-breaks/

Costa, D. K., & Moss, M. (2018). The cost of caring: Emotion, burnout, and psychological distress in critical care clinicians. *Annals of the American Thoracic Society, 15*(7), 787-790. https://doi.org/10.1513/AnnalsATS.201804-269PS

Cotton, C. B. (2022). *UCHealth works to combat nurse burnout through new program*. https://www.thedenverchannel.com/news/local-news/uchealth-works-to-combat-nurse-burnout-through-new-program#:~:text=Last%20fall%2C%20UCHealth%20created%20a,provide%20support%20for%20new%20nurses

Dacar, S. L., Covell, C. L., & Papathanassoglou, E. (2019). Addressing moral distress in critical care nurses: A systemized literature review of intervention studies. *Connect, 13*(2), 71-89. https://doi.org/10.1891/1748-6254.13.2.71

Davidson, J. E., Proudfoot, J., Lee, K., & Zisook, S. (2019). Nurse suicide in the United States: Analysis of the center for disease control 2014 national violent death reporting system dataset. *Archives of Psychiatric Nursing, 33*(5), 16-21. https://doi.org/10.1016/j.apnu.2019.04.006

Depression: What is burnout? (2022). https://www.ncbi.nlm.nih.gov/books/NBK279286/

Dr. Lorna Breen Health Care Provider Protection Act, PL. 117-105 (2022).

Estryn-Behar, M., van der Heijden, B., Oginska, H., Camerino, D., Le Nezet, O., Conway, P. M., Fry, C., Hasselhorn, H. M., & NEXT Study Group. (2007). The impact of social work environment, teamwork characteristics, burnout, and personal factors upon intent to leave among European nurses. *Medical Care, 45*(10), 939-950. https://doi.org/10.1097/MLR.0b013e31806728d8

Friganović, A., & Selič, P. (2020). Levels of burnout syndrome in Croatian critical care nurses: A cross-sectional study. *Psychiatria Danubina, 32*(Suppl 4), 478.

Friganović, A., Selič, P., Ilić, B., & Sedić, B. (2019). Stress and burnout syndrome and their associations with coping and job satisfaction in critical care nurses: A literature review. *Psychiatria Danubina, 31*(Suppl 1), 21.

Guirardello, E. D. B. (2017). Impact of critical care environment on burnout, perceived quality of care and safety attitude of the nursing team. *Revista Latino-Americana De Enfermagem, 25*, e2884. https://doi.org/10.1590/1518-8345.1472.2884

Guttormson, J. L., Calkins, K., McAndrew, N., Fitzgerald, J., Losurdo, H., & Loonsfoot, D. (2022). Critical care nurse burnout, moral distress, and mental health during the COVID-19 pandemic: A united states survey. *Heart & Lung, 55*, 127-133. https://doi.org/10.1016/j.hrtlng.2022.04.015

Haddad, L. M., Annamaraju, P., & Toney-Butler, T. J. (2022, February 22). *Nursing shortage.* https://www.ncbi.nlm.nih.gov/books/NBK493175/

Halm, M. (2017). The role of mindfulness in enhancing self-care for nurses. *American Journal of Critical Care, 26*(4), 344-348. https://doi.org/10.4037/ajcc2017589

Hiler, C. A., Hickman, R. L., Reimer, A. P., & Wilson, K. (2018). Predictors of moral distress in a US sample of critical care nurses. *American Journal of Critical Care, 27*(1), 59-66. https://doi.org/10.4037/ajcc2018968

Jackson, J., Vandall-Walker, V., Vanderspank-Wright, B., Wishart, P., & Moore, S. L. (2018). Burnout and resilience in critical care nurses: A grounded theory of managing exposure. *Intensive & Critical Care Nursing, 48*, 28-35. https://doi.org/10.1016/j.iccn.2018.07.002

Johnson, L., Hardwick, K., Shand, S., & Grant, E. (2022). The development and evaluation of the Leeds Clinical and Health Psychology department COVID-19 staff support service. *Professional Psychology: Research and Practice, 53*(1), 99–108. https://doi.org/10.1037/pro0000433

Jun, J., & Costa, D. K. (2020). Is it me or you? A team approach to mitigate burnout in critical care. *Critical Care Nursing Clinics of North America, 32*(3), 395.

Kelly, L. A., Johnson, K. L., Bay, R. C., & Todd, M. (2021). Key elements of the critical care work environment associated with burnout and compassion satisfaction. *American Journal of Critical Care, 30*(2), 113-120. https://doi.org/10.4037/ajcc2021775

Kerlin, M. P., McPeake, J., & Mikkelsen, M. E. (2020). Burnout and joy in the profession of critical care medicine. *Critical Care, 24*(1), 98. https://doi.org/10.1186/s13054-020-2784-z

Khatatbeh, H., Pakai, A., Al-Dwaikat, T., Onchonga, D., Amer, F., Prémusz, V., & Oláh, A. (2021). Nurses' burnout and quality of life: A systematic review and critical analysis of measures used. *Nursing Open, 9*(3), 1564-1574. https://doi.org/10.1002/nop2.936

Kim, H. S., & Yeom, H. (2018). The association between spiritual well-being and burnout in intensive care unit nurses: A descriptive study. *Intensive & Critical Care Nursing, 46,* 92-97. https://doi.org/10.1016/j.iccn.2017.11.005

Lee, H., Chiang, H., & Kuo, H. (2019). Relationship between authentic leadership and nurses' intent to leave: The mediating role of work environment and burnout. *Journal of Nursing Management, 27*(1), 52-65. https://doi.org/10.1111/jonm.12648

Li, P., Kuang, H., & Tan, H. (2021). The occurrence of post-traumatic stress disorder (PTSD), job burnout and its influencing factors among ICU nurses. *American Journal of Translational Research, 13*(7), 8302-8308.

Lou, N. M., Montreuil, T., Feldman, L. S., Fried, G. M., Lavoie-Tremblay, M., Bhanji, F., Kennedy, H., Kaneva, P., Drouin, S., & Harley, J. M. (2021). Evaluations of healthcare providers' perceived support from personal, hospital, and system resources: Implications for well-being and management in healthcare in Montreal, Quebec, during COVID-19. *Evaluation & the Health Professions, 44*(3), 319-322. https://doi.org/10.1177/01632787211012742

Low, R., King, S., & Foster-Boucher, C. (2019). Learning to bounce back: A scoping review about resiliency education. *The Journal of Nursing Education, 58*(6), 321-329. https://doi.org/10.3928/01484834-20190521-02

Maricuţoiu, L. P., Sava, F. A., & Butta, O. (2016). The effectiveness of controlled interventions on employees' burnout: A meta-analysis. *Journal of Occupational and Organizational Psychology, 89*(1), 1-27. https://doi.org/10.1111/joop.12099

Maslach, C., Jackson, S. E., Leiter, M. P., Schaufeli, W. B., & Schwab, R. L. (2018). *Maslach burnout inventory manual: Fourth edition*. Mind Garden. https://transform.mindgarden.com/document/doc.php?date=July+14%2C+2022&quantity=1&inst=mbi4thed-s&id=892683&sig=b382ef60

Maslach, C., & Leiter, M. P. (2005). Reversing burnout: How to rekindle your passion for your work. *Stanford Social Innovation Review, 3*(4), 42.

Maslach, C., Schaufeli, W. B., & Leiter, M. P. (2001). Job burnout. *Annual Review of Psychology, 52*(1), 397-422. https://doi.org/10.1146/annurev.psych.52.1.397

Mealer, M. (2016). Burnout syndrome in the intensive care unit. Future directions for research. *Annals of the American Thoracic Society, 13*(7), 997-998. https://doi.org/10.1513/AnnalsATS.201604-280ED

Mealer, M., Burnham, E. L., Goode, C. J., Rothbaum, B., & Moss, M. (2009). The prevalence and impact of posttraumatic stress disorder and burnout syndrome in nurses. *Depression and Anxiety, 26*(12), 1118-1126. https://doi.org/10.1002/da.20631

Mealer, M., Conrad, D., Evans, J., Jooste, K., Solyntjes, J., Rothbaum, B., & Moss, M. (2014). Feasibility and acceptability of a resilience training program for intensive care unit nurses. *American Journal of Critical Care, 23*(6), e97-e105. https://doi.org/10.4037/ajcc2014747

Mealer, M., Hodapp, R., Conrad, D., Dimidjian, S., Rothbaum, B. O., & Moss, M. (2017). Designing a resilience program for critical care nurses. *AACN Advanced Critical Care, 28*(4), 359–365. https://doi.org/10.4037/aacnacc2017252

Mealer, M., Jones, J., & Meek, P. (2017). Factors affecting resilience and development of posttraumatic stress disorder in critical care nurses. *American Journal of Critical Care, 26*(3), 184-192. https://doi.org/10.4037/ajcc2017798

Melnyk, B. M., & Fineout-Overholt, E. (2019). *Evidence-based practice in nursing and healthcare: A guide to best practice* (4th ed.). Wolters Kluwer.

Melnyk, B. M., Fineout-Overholt, E., Giggleman, M., & Choy, K. (2017). A test of the ARCC© model improves implementation of Evidence-Based practice, healthcare culture, and patient outcomes. *Worldviews on Evidence-Based Nursing, 14*(1), 5-9. https://doi.org/10.1111/wvn.12188

Melnyk, B. M., Tan, A., Hsieh, A. P., & Gallagher-Ford, L. (2021). Evidence-based practice culture and mentorship predict EBP implementation, nurse job satisfaction, and intent to stay: Support for the ARCC© model. *Worldviews on Evidence-Based Nursing, 18*(4), 272-281. https://doi.org/10.1111/wvn.12524

Melnyk, B. M., Tan, A., Hsieh, A. P., Gawlick, K., Arslanian-Engoren, C., Braun, L. T., Dunbar, S., Dunbar-Jacob, J., Lewis, L. M., Milian, A., Orsolini, L., Robbins, L. B., Russell, C., Tucker, S., & Wilbur, J. (2021). Critical care nurses' physical and mental health, worksite wellness support, and medical errors. *American Association of Critical-Care Nurses, 30*(3), 176–184. https://doi.org/10.4037/ajcc2021301

Mind Garden. (2018). *Maslach burnout toolkit for human services*. https://www.mindgarden.com/documents/Maslach-Burnout-Toolkit-for-Human-Services-Intro-Sheet.pdf

Mohr, D. C., Swamy, L., Wong, E. S., Mealer, M., Moss, M., & Rinne, S. T. (2021). Critical care nurse burnout in veterans' health administration: Relation to clinician and patient outcomes. *American Journal of Critical Care, 30*(6), 435-442. https://doi.org/10.4037/ajcc2021187

Monroe, M., Morse, E., & Price, J. M. (2020). The relationship between critical care work environment and professional quality of life. *American Journal of Critical Care, 29*(2), 145-149. https://doi.org/10.4037/ajcc2020406

Moss, M., Good, V. S., Gozal, D., Kleinpell, R., & Sessler, C. N. (2016). An official critical care societies collaborative statement-burnout syndrome in critical care health-care professionals: A call for action. *Chest, 150*(1), 17.

Muheim, F. (2013). Burnout: History of a phenomenon. In S. Bährer-Kohler (Ed.), *Burnout for experts* (pp. 37-46). Springer. https://doi.org/10.1007/978-1-4614-4391-9_3

Nagel, Y., Towell, A., Foxall, F., & Nel, E. (2016). The emotional intelligence of registered nurses commencing critical care nursing. *Curationis, 39*(1), 1-7. https://doi.org/10.4102/curationis.v39i1.1606

National Academy of Medicine. (2019). *Factors affecting Clinician Well-Being and Resilience. Conceptual Model 3.15*. https://nam.edu/initiatives/clinician-resilience-and-well-being/conceptual-model-3-15/

National Academy of Medicine. (2022a). *National plan for health workforce well-being*. https://nam.edu/initiatives/clinician-resilience-and-well-being/national-plan-for-health-workforce-well-being/

National Academy of Medicine. (2022b). *Valid and reliable survey instruments to measure burnout: Maslach burnout inventory-human services survey (MBI-HSS) for medical personnel*. https://nam.edu/valid-reliable-survey-instruments-measure-burnout-well-work-related-dimensions/

National Organization of Nurse Practitioner Faculties. (2007). *NONPF recommended criteria for NP scholarly projects in the practice doctorate program*. https://cdn.ymaws.com/www.nonpf.org/resource/resmgr/imported/scholarlyprojectcriteria.pdf

NSI Nursing Solutions. (2022). *2022 NSI national health care retention & RN staffing report*. https://nsinursingsolutions.com/Library.php

Ntantana, A., Matamis, D., Savvidou, S., Giannakou, M., Gouva, M., Nakos, G., & Koulouras, V. (2017). Burnout and job satisfaction of intensive care personnel and the relationship with personality and religious traits: An observational, multicenter, cross-sectional study. *Intensive & Critical Care Nursing, 41*, 11-17. https://doi.org/10.1016/j.iccn.2017.02.009

Office of Migrant Education. (2001). *Comprehensive needs assessment* [PDF]. https://www2.ed.gov/admins/lead/account/compneedsassessment.pdf

Pollock, A., Campbell, P., Cheyne, J., Cowie, J., Davis, B., McCallum, J., McGill, K., Elders, A., Hagen, S., McClurg, D., Torrens, C., & Maxwell, M. (2020). Interventions to support the resilience and mental health of frontline health and social care professionals during and after a disease outbreak, epidemic or pandemic: A mixed methods systematic review. *Cochrane Database of Systematic Reviews, 11*, CD013779.

Profit, J., Adair, K. C., Cui, X., Mitchell, B., Brandon, D., Tawfik, D. S., Rigdon, J., Gould, J. B., Lee, H. C., Timpson, W. L., McCaffrey, M. J., Davis, A. S., Pammi, M., Matthews, M., Stark, A. R., Papile, L. A., Thomas, E., Cotton, M., Khan, A., & Sexton, J. B. (2021). Randomized controlled trial of the "WISER" intervention to reduce healthcare worker burnout. *Journal of Perinatology, 41*(9), 2225-2234. https://doi.org/10.1038/s41372-021-01100-y

Purvis, T. E., Saylor, D., & Neurocritical Care and Chaplaincy Study Group. (2019). Burnout and resilience among neurosciences critical care unit staff. *Neurocritical Care, 31*(2), 406-410. https://doi.org/10.1007/s12028-019-00822-4

Rycroft-Malone, J., & Bucknall, T. (2010). *Models and frameworks for implementing evidence-based practice: Linking evidence to action*. Wiley-Blackwell.

Schaufelim, W. B. (2017). Burnout: A short socio-cultural history. In S. Neckel, A. Schaffner, & G. Wagner (Eds.), *Burnout, fatigue, exhaustion* (pp.105-127). SpringerLink. DOI 10.1007/978-3-319-52887-8_5

Siswoyo, S., Muhammad Nur, K., & Ulya, F. (2021). The relationship between moral distress with level of burnout on nurses in intensive care room at the Dr. Soebandi Hospital Jember. *NurseLine Journal, 5*(2), 273-278. doi:10.19184/nlj.v5i2.16226

Steinberg, B. A., Klatt, M., & Duchemin, A. (2017). Feasibility of a mindfulness-based intervention for surgical intensive care unit personnel. *American Journal of Critical Care, 26*(1), 10-18. https://doi.org/10.4037/ajcc2017444

Swamy, L., Mohr, D., Blok, A., Anderson, E., Charns, M., Wiener, R. S., & Rinne, S. (2020). Impact of workplace climate on burnout among critical care nurses in the veterans health administration. *American Journal of Critical Care, 29*(5), 380-389. https://doi.org/10.4037/ajcc2020831

UCHealth. (2016). *MCR achieves second Magnet designation*. https://www.uchealth.org/today/mcr-achieves-second-magnet-designation/#:~:text=Medical%20Center%20of%20the%20Rockies'%20magnet%20Program%20Director%20Bab%20Ochsner,named%20MCR%20a%20Magnet%20hospital

UCHealth. (2022). *UCHealth Medical Center of the Rockies.* https://www.uchealth.org/locations/uchealth-medical-center-of-the-rockies/

U.S. Census Bureau. (2021). *Quickfacts: Loveland city, Colorado*. https://www.census.gov/quickfacts/lovelandcitycolorado

U.S. Department of Health and Human Services. (2022). *Addressing health worker burnout: The U.S Surgeon General's advisory on building a thriving health workforce*. https://www.hhs.gov/sites/default/files/health-worker-wellbeing-advisory.pdf

Vasconcelos, E. M. D., & Martino, M. M. F. D. (2018). Predictors of burnout syndrome in intensive care nurses. *Revista Gaúcha De Enfermagem, 38*(4), e65354-e65354. https://doi.org/10.1590/1983-1447.2017.04.65354

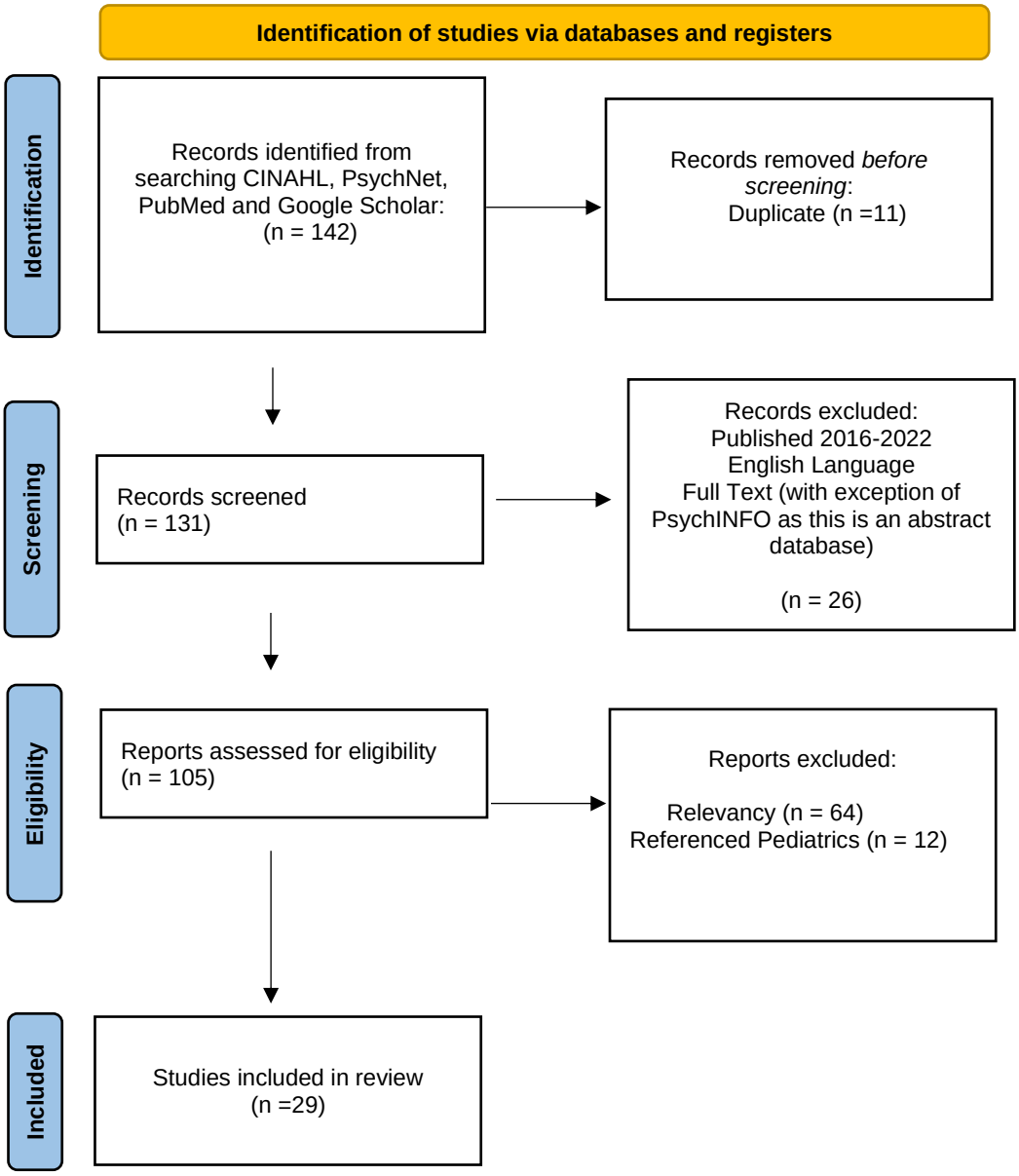
Vermeir, P., Blot, S., Degroote, S., Vandijck, D., Mariman, A., Vanacker, T., Peleman, R., Verhaeghe, R., & Vogelaers, D. (2018). Communication satisfaction and job satisfaction among critical care nurses and their impact on burnout and intention to leave: A questionnaire study. *Intensive & Critical Care Nursing, 48*, 21-27. https://doi.org/10.1016/j.iccn.2018.07.001

Waldrop, J., Caruso, D., Fuchs, M. A., & Hypes, K. (2014). EC as PIE: Five criteria for executing a successful DNP final project. *Journal of Professional Nursing, 30*(4), 300-306. https://doi.org/10.1016/j.profnurs.2014.01.003

World Health Organization. (2019, May 28). *Burn-out an "occupational phenomenon": International Classification of Diseases*. https://www.who.int/news/item/28-05-2019-burn-out-an-occupational-phenomenon-international-classification-of-diseases

APPENDIX A

PREFERRED REPORTING ITEMS FOR SYSTEMATIC REVIEWS AND META-ANALYSES DIAGRAM


Identification of studies via databases and registers
Identification
Records identified from searching CINAHL, PsychNet, PubMed and Google Scholar: (n = 142)
Records removed *before screening*: Duplicate (n =11)
Screening
Records screened (n = 131)
Records excluded: Published 2016-2022 English Language Full Text (with exception of PsychINFO as this is an abstract database) (n = 26)
Eligibility
Reports assessed for eligibility (n = 105)
Reports excluded: Relevancy (n = 64) Referenced Pediatrics (n = 12)
Included
Studies included in review (n =29)

APPENDIX B

TABLE OF EVIDENCE

Table B.1

Table of Evidence

Author (Year)	Purpose	Theory Framework	Design	Setting Sample	Survey/ Instruments	Findings	Implications for Practice	Grade Level of Evidence
Arrogante & Aparicio-Zaldivar., (2017)	Determine relationships between burnout and health in critical care professionals Determine demographic differences in psychological values.	Mediation Model	Descriptive	ICU in Madrid, Spain n= 52 critical care professionals (nurses= 30, physicians=8, CNAs= 14)	Connor – Davidson Resilience Scale Resiliency assessment Higher score (0-100) = greater resilience; Resilience present with score >80. Maslach Burnout Inventory (MBI) Gold Standard; 22 questions, seven-point Likert scale; three subscales: emotional exhaustion (EE), depersonalization (DP) and personal accomplishment (PA); Measures are assessed independently Short Form – 12 Health Survey 12-items; Higher scores reflect greater physical/mental health levels	No demographic differences were reported Resiliency reduces the impact of burnout syndrome	Resiliency works as a buffer in minimizing the negative outcomes of workplace stress. Resiliency education and interventions to prevent burnout could increase quality of care, patient satisfaction and decrease medical errors. Further research should be obtained in a larger center study and consideration of results as the measures were self-reported	Moderate

Table B.1 Continued

Author (Year)	Purpose	Theory Framework	Design	Setting Sample	Survey/ Instruments	Findings	Implications for Practice	Grade Level of Evidence
Dacar et al., (2019)	Addressing moral distress (MD) is critical care nurses; review of intervention studies	Grounded theory/3D model, 4A model	Systematic Review	n= 7 studies 289 critical care nurses (160 in intervention group, 129 in control group) were represented in the seven studies.	Moral Distress Scale-Revised: measures 21-items using a 5-point Likert scale and three questions.	Majority of studies used a teaching workshop on how to identify MD and provide tools to cope; one study had an on-call consultation service. Two studies showed improvements in MD in post intervention assessment. There was no relation found between MD and intent to leave	Offering workshops and educating on MD participants gain confidence, increased job satisfaction, and communication skills. More research is needed to determine the causative factors of MD and how to mitigate them.	High

Table B.1 Continued

Author (Year)	Purpose	Theory Framework	Design	Setting Sample	Survey/ Instruments	Findings	Implications for Practice	Grade Level of Evidence
Friganovic & Selic, (2020)	Assess burnout in critical care nurses and determine associate with demographic features.	None Reported	Cross-Sectional	Five Croatian Hospitals n= 620 critical care nurses	Sociodemographic survey Maslach Burnout Inventory (MBI) Gold Standard; 22 questions, seven-point Likert scale; three subscales: emotional exhaustion (EE), depersonalization (DP) and personal accomplishment (PA); Measures are assessed independently	Inadequate patient safety and medical errors contribute to burnout Improving work conditions may reduce burnout in critical care settings Nurses were found to have high emotional exhaustion, 22.1%; depersonalization, 7.9% and low personal accomplishment, 34.5%. Emotional exhaustion and personal accomplishment levels did not differ by gender. Men found higher levels of depersonalization than women Lower personal accomplish was found in nurses working 5-10 years	Supportive measures should be implemented early on within nursing education to mitigate burnout Focus personal accomplishment programming to nurses within 5-10 years of working.	Moderate

Table B.1 Continued

Author (Year)	Purpose	Theory Framework	Design	Setting Sample	Survey/ Instruments	Findings	Implications for Practice	Grade Level of Evidence
Friganovic et al., (2019)	Review of literature examining nurses' stress and the incidence of burnout syndrome in critical care nurses Determine associations between coping mechanism and job satisfaction	None Reported	Systematic Review	n= 29 22 cross- sectional, two longitudinal, and five qualitative design	Maslach Burnout Inventory in combination with other scales were used 16 of the studies. Four studies solely used Maslach.	Coping mechanisms influence the occurrence of burnout. Nurses who work in highly dependent and demanding wards are more exposed to burnout Moderate-high levels of burnout = ambivalence with their jobs. Causative factors included payment and work conditions. Higher job satisfaction showed moderate levels of emotional exhaustion and no intent to leave their current position Limited nurse autonomy, poor physician-nurse relationships, and limited control over practices increased emotional exhaustion.	Not many qualitative methods exist on burnout in critical care. Very few studies exist to approach application of coping mechanism in burnout mitigation Nurse education must evolve to include more competencies for coping and greater autonomy. Hospitals should provide programming for burnout prevention.	High

Table B.1 Continued

Author (Year)	Purpose	Theory Framework	Design	Setting Sample	Survey/ Instruments	Findings	Implications for Practice	Grade Level of Evidence
Guirardello., (2017)	Review of environment of practice in critical care and its relation to safety attitude, perceived quality of care and burnout	None Reported	Cross-sectional	Three Intensive care units of Academic Center Campinas, State of Sao Paulo n= 114 nurses/nursing technicians	Nursing Work Index-Revised: measured perception of work environment; 15-item, four subscales, four-point Likert scale Safety Attitudes Questionnaire-Short Form (2006): measures safety attitudes; 41-item, eight-domain, five-point Likert scale Maslach Burnout Inventory (MBI) Gold Standard; 22 questions, seven-point Likert scale; three subscales: emotional exhaustion (EE), depersonalization (DP) and personal accomplishment (PA); Measures are assessed independently Characterization form collected basic demographic information	77.2% rated quality of care as good and very good, 15% 71.9% were satisfied with their work. 68.42% reported adequate staffing, 59.65% reported adequate resources to do their job. Low intent to leave was reported. Significant correlation between quality of care and teamwork, safety, and job satisfaction. Length of experience was weakly correlated to safety climate, perception of unit and hospital management and job satisfaction. Low level of emotional exhaustion and feelings of depersonalization, moderate level of personal accomplishment.	When staff have more autonomy, proper staffing, and resources their job satisfaction, perception of safety and patient care increased while intent to leave decreases. Autonomy also leads to decreased levels of emotional exhaustion	LOW/MODERATE

Table B.1 Continued

Author (Year)	Purpose	Theory Framework	Design	Setting Sample	Survey/ Instruments	Findings	Implications for Practice	Grade Level of Evidence
Hiler et al., (2018)	Explore the relationship among moral distress, practice environment and patient safety	None reported	Descriptive	n= 328 Critical care nurses,' nation wide with at least one year working in an adult ICU Participants were recruited through an AACN newsletter/social media for 4 weeks. To achieve statistical power: 191 participants were required	Demographic Survey Moral Distress Scale-Revised (MDS-R) 21-item scale that measures the frequency and intensity of moral distress; Likert scale with separate scores for frequency and intensity; higher scores indicated greater frequency of morally distressing situations encountered Practice Environment Scale of the Nursing Work Index (PES-NWI) 31 items, five factor instrument; measures nurses' perceptions of the practice environment; Likert scale; Higher score indicates strong agreement with perceived practice environment containing a specific characteristic	Predictors of moral distress: job satisfaction, participant's age, and practice environment Moral distress was most frequency with care that is futile and family prolonging life Moral distress has negative effects on intent to leave and job satisfaction.	Providing proper resources and staffing can maintain job satisfaction and lessen intent to leave Employees employed in national recognized units such as Beacon award of excellence, experience less moral distress.	Low

Table B.1 Continued

Author (Year)	Purpose	Theory Framework	Design	Setting Sample	Survey/ Instruments	Findings	Implications for Practice	Grade Level of Evidence
Jackson et al., (2017)	Understand nurse burnout and resiliency in critical care nurses	None Reported	Qualitative (Grounded Theory)	Medical- Surgical ICU in large urban teaching hospital in Canada n= 11 Critical Care Nurses (CCN)	Open ended interviews Interviewed once for duration of 60-90 minutes; Question: Meaning of resiliency?	Workplace adversity has a negative effect on staff. BO and resilience exist on the same continuum Dimensions of managed exposure; protecting (emotional and cognitive barriers in place), Processing (shared experiences), Decontaminating (remove influence), Distancing (away from worksite)	Resilience could be a countermeasure for burnout in critical care nurses but requires more research Managing exposure allows for staff to identify workplace adversity and respond. Informal debriefing after event rather than formal debriefing. Experiences as nursing students were foundational to building resiliency	Low

Table B.1 Continued

Author (Year)	Purpose	Theory Framework	Design	Setting Sample	Survey/ Instruments	Findings	Implications for Practice	Grade Level of Evidence
Johnson et al., (2022)	Evaluation of staff support services offered to healthcare clinicians during the COVID-19 pandemic	None Reported	Quasi-Experimental	Two Large Academic Center in England n= 458 sessions Three- hundred and ninety-four unique individuals	Drop in support service with post-visit, anonymous electronic survey	Across 18 weeks 458 participates were seen by support staff; 69% were drop-in sessions, 29% over the telephone, 1% were email inquiries. Reasons for initiating services: work-related stress, pre/post psychological difficulties, emotional support, inability to initiate coping strategies, self-harm or addiction support, anxiety, sleeping difficulties. Social support including burnout. COVID-19 anxiety was common theme and mentioned in 243 sessions. Burnout became a central theme in later months	Work-related stress was most common reason for seeking assistance. Clinical psychologist and staff counselors are a great benefit to healthcare workers, especially during an pandemic Psychological first aid should be implemented	Moderate

Table B.1 Continued

Author (Year)	Purpose	Theory Framework	Design	Setting Sample	Survey/ Instruments	Findings	Implications for Practice	Grade Level of Evidence
Khatatbeh et al., (2021)	Examine and review available literature on the relationship between burnout and quality of life in nurses.	None Reported	Systematic Review	21 studies were identified from 2009-2021 Mesh terms used: (nurses), AND (burnout, professional), AND (quality of life) Databases used: CINAHL, PubMed, Medline, Psychology and Behavioral Sciences Collection and Google Scholar.	Maslach Burnout Inventory (MBI) Gold Standard; 22 questions, seven-point Likert scale; three subscales: emotional exhaustion (EE), depersonalization (DP) and personal accomplishment (PA); Measures are assessed independently Copenhagen Burnout Inventory (CBI) 19 Likert scale items; 3 measurements: work-related burnout, client-related burnout , and personal burnout. Oldenburg Burnout Inventory (OLBI) Similar to MBI; 16 Likert based questions Measures exhaustion and disengagement from work Shirom-Melamed Burnout Questionnaire (SMBQ) 12 item questionnaires; Measures emotional exhaustion, physical fatigue, and cognitive wo-out. Quality of Life Scales WHOQOL Developed by the WHO; 100 Likert scored items; measures physical health, psychological health, social relationships, environment, level of independence and spirituality. WHOQOL-BREF	Of the twenty-one applicable studies, prominent levels of burnout were attributed to challenging work conditions and working environments. Nurses who work in the night or alternate shifts have higher burnout due to sleep disturbances. Burnout negatively affects quality of life. Burnout is multifactorial but includes low job satisfaction, high workload, poor compensation, low quality of life and need for managerial support	There is adequate evidence to support that burnout affects quality of life; low quality of life can affect patient care. It is imperative to examine interventions to prevent BO and improve nurses' quality of life. Systematic changes such as counseling session, monetary increases or bonuses, and increased managerial support may improve job satisfaction and quality of life. Limitations: A majority of the studies have small sample sizes. Additional research needs to be completed with larger sample sizes.	High

		Abbreviated WHOQOL scale; 26 Likert scored items; measures physical health, psychological health, social relationships, and environment. Short-Form Health Survey (SF-36) Measures 36 items related to burnout: physical and psychological domains; physical domains: working, overall health, role, and pain; mental health domains: vitality, social functioning, emotional role, and psychological health. Professional Quality of Life Scale 30- item Likert scale; assesses QOL; measures compassion satisfaction, burnout, and secondary traumatic stress

Table B.1 Continued

Author (Year)	Purpose	Theory Framework	Design	Setting Sample	Survey/ Instruments	Findings	Implications for Practice	Grade Level of Evidence
Kim & Yeom., (2018)	Determine if there is a relationship between spiritual well-being and burnout in ICU nurses	None Reported	Descriptive	Three university hospitals in metro Seoul, South Korea n=318 ICU nurses	Spiritual Well-Being Scale (SWBS) 20 five-point Likert items; 10 items each on religious and existential well-being Burnout Scale by Pines and Kanner 20 items; Measures physical burnout (6), emotional burnout (7), and psychological burnout (7)	Physical burnout scores were the highest Burnout levels were highest in nurses <30 and with <5 years' experience. Burnout was high in nurses who didn't receive hospice/end of life training Lower levels of spiritual well-being are associated with higher levels of burnout	Enhanced spiritual well-being may be a protective factor for burnout. Younger nurses, nurses with less experience and nurses without hospice/EoL training are at a greater risk for burnout	Moderate

Table B.1 Continued

Author (Year)	Purpose	Theory Framework	Design	Setting Sample	Survey/ Instruments	Findings	Implications for Practice	Grade Level of Evidence
Lee et al., (2019)	Determine if authentic leadership mitigates effects of working environment, burnout and nurses' intent to leave.	Framework derived from concepts of authentic leadership, work environment and the emotional exhaustion component of burnout.	Descriptive	Three Taiwanese hospitals n= 946 nurses	Practice Environment Scale of the Nursing Work Index (PES-NWI) 31 Items four-point Likert scale measuring five factors Maslach Burnout Inventory (MBI) Gold Standard; 22 questions seven-point Likert scale; three subscales: emotional exhaustion (EE), depersonalization (DP) and personal accomplishment (PA); Measures are assessed independently Intent to Leave Job Questionnaire (ITL) Five-item; Five-point Likert Scale Authentic Leadership Questionnaire (ALQ) Four dimensions over 16 items; five-point Likert Scale *All scale except ITL were translated to a "Chinese version" with comparable Cronbach alpha	Authentic leadership had positive effect on work environment and negative effect on emotional exhaustion. Work environment and emotional exhaustion mediated authentic leadership on intent to leave and was highest among junior nurses (<3 years' experience);Emotional exhaustion mediated authentic leadership on intent to leave among senior nurses (>3 years' experience) Healthy work environment decreased burnout and intent to leave Emotional exhaustion was most strongly correlated with intent to leave.	Authentic leadership is molded from the leader's values. Effective leaders will need to adopt different leadership methods. Senior nurses are more adaptable to their environment compared to junior nurses.	Moderate

Table B.1 Continued

Author (Year)	Purpose	Theory Framework	Design	Setting Sample	Survey/ Instruments	Findings	Implications for Practice	Grade Level of Evidence
Lou et al., (2021)	Evaluation of the availability, utilization, and effectiveness of personal, hospital and system resources in mitigating stress related to COVID - 19	None Reported	Cross-Sectional	University affiliated tertiary hospital Quebec, Canada n= 119 (64 nurses, 55 physicians)	Available resources were rated by the staff as available and used, available and not utilized and not available. Depression, Anxiety and Stress Scale: 21-item, four-point Likert scale Maslach Burnout Inventory (MBI) Gold Standard; 22 questions, seven-point Likert scale; three subscales: emotional exhaustion (EE), depersonalization (DP) and personal accomplishment (PA); Measures are assessed independently Intention to Quit: Two-item questionnaire.	The most useful personal resource was family (78%;91%), being in nature (86%:71% and hobbies (76%;81%) Most helpful hospital resource was a safe environment, resilience training (93%;81%) personal protective equipment and colleague support(95%;86%). Counseling services were listed as available but underutilized The most helpful systems resource was job protection and clear communication regarding COVID-19 More available hospital resources were linked to lower levels of psychological distress, burnout and intentions to quit.	Overall, the most available and useful resources were hospital, not personal. Availability of hospital resources decrease psychological stress symptoms and employees were less likely to quit. Identification of needs from staff to create resources that would be utilized needs to be defined further	LOW

Table B.1 Continued

Author (Year)	Purpose	Theory Framework	Design	Setting Sample	Survey/ Instruments	Findings	Implications for Practice	Grade Level of Evidence
Maricutoiu et al., (2016)	Effectiveness of burnout interventions focused on the employee.	None Reported	Meta-Analysis	n= 47 studies Studies had to contain a control group to be included	37/47 research studies used Maslach Burnout Inventory (MBI) Multiple other studies used a variety of scales but were not found to be statistically different between the studies that used the MBI.	Intervention types: cognitive behavioral interventions (CBT), relaxation interventions, interpersonal skills, and role related interventions. Other methods were organization change, keeping a diary and alpha brain-wave activity No significant effects on depersonalization or personal accomplishment Interventions statistically significant for reduction in emotional exhaustion; relaxation techniques, hard skills and CBT Interventions that last 1-2 months had greatest effect on emotional exhaustion and depersonalization. Group interventions were found have stronger effects on emotional exhaustion.	High quality interventions are scarce. Scales and interventions are significantly correlated to Emotional Exhaustion Moderator variables play a role in effectiveness in relaxation interventions.	High

Table B.1 Continued

Author (Year)	Purpose	Theory Framework	Design	Setting Sample	Survey/ Instruments	Findings	Implications for Practice	Grade Level of Evidence
Mealer (2017a)	Would mindfulness-based cognitive therapy (MBCT) resilience interventions reduce burnout syndrome in an intensive care (ICU) unit?	None reported	Qualitative One-hour focus group interviews obtained between Sept- Nov 2016	Medical, surgical, neuro-trauma, burn-trauma, critical care, and progressive care inpatient units. n= 33 nurses Purposive sampling of critical care nurses who are members of the AACN	Priori focus-group questions about the MBCT in the ICU context; participants were introduced to MBCT, given instructions then proceeded to the interview.	Barriers to adherence of MBAT (childcare, mental exhaustion, timing of meetings) Incentives for adherence (hybrid courses, podcasts, shortened 'homework') Preferred qualifications for instructors (Preferred instructor with ICU experience, consistent instructor) Didactic Content (Work specific and include burnout syndrome triggers)	An eight-week MBCT program may reduce burnout syndrome, decrease turnover, and increased quality of care in the ICU. However, barriers, concerns, and implementation need to be addressed based upon the ICU clinicians it affects.	LOW

Table B.1 Continued

Author (Year)	Purpose	Theory Framework	Design	Setting Sample	Survey/ Instruments	Findings	Implications for Practice	Grade Level of Evidence
Mealer et al., (2017b)	Identify factors that affect resilience and development of post-traumatic stress disorder (PTSD) in critical care nurses	None Reported	Quantitative	Mixed Intensive Care Units n= 744 critical care nurses	Post-traumatic diagnostic scale Highly correlated with clinician adminstered PTSD scale; measures PTSD symptoms severity CD-RISC Resiliency assessment Higher score (0-100) = greater resilience; Resilience present with score >80.	Higher levels of personal confidence, 28% less likely to experience PTSD; Higher levels of leadership, 21% less likely to experience PTSD; Higher levels of perseverance, 11% less likely to experience PTSD Nurses with children, 40% less likely to experience PTSD As years of experience increase, 3% increase less likely to experience PTSD Nurses with degrees higher than a bachelors are 18% more likely to experience PTSD Setting: Compared to MICU nurses: CTICU was 18%, CICU was 35%, Other specialty ICUs were 50% less likely to experience PTSD	At the time of this publication there were no large, randomized trials to determine resilience training efficacy among critical care nurses There are significant predictors of PTSD, but not all are modifiable Certain intensive care units carry a heavier burden of PTSD. This needs further exploration. Organizations need to support research towards identifying risks of PTSD and resiliency interventions	Moderate

Table B.1 Continued

Author (Year)	Purpose	Theory Framework	Design	Setting Sample	Survey/ Instruments	Findings	Implications for Practice	Grade Level of Evidence
Mealer et al., (2014)	12-week multimodal resiliency training feasibility for ICU nurses	None reported	Single-Center, randomized control study	Academic Institution: medical, surgical, burn, and cardiac ICUs n= 27	Connor – Davidson Resilience Scale Resiliency assessment Higher score (0-100) = greater resilience; Resilience present with score >80. Post-traumatic diagnostic scale Highly correlated with clinician adminstered PTSD scale; measures PTSD symptoms severity Hospital Anxiety and Depression Scale Indicates presence of anxiety and depression; 14-item scale; score of eight indicates a person with a history of anxiety and/or depression. Maslach Burnout Inventory (MBI) Gold Standard; 22 questions, seven-point Likert scale; three subscales: emotional exhaustion (EE), depersonalization (DP) and personal accomplishment (PA); Measures are assessed independently Client/Patient Satisfaction Questionnaire - 8 Eight- item, four-point Likert measure of satisfaction; higher scores indicate greater satisfaction.	100% of the ICU nurses were positive for anxiety; 77% were positive for symptoms of depression Burnout: 81% positive for emotional exhaustion, 77% positive for depersonalization, 77% in decrease in personal accomplishment - 44% met criteria for PTSD - PTSD, burnout syndrome, resiliency, and symptoms of anxiety or depression did not differ significantly between the two groups. 4 main themes: patient centric, cognitive processing, work structure, and workplace relationships. Intervention group had significant reduction in sx of depression Both groups had reduction in PTSD symptoms and improved resilience scores	Resilience training is feasible and accepted among ICU nurses Establishment of supportive professional network with monthly booster meetings Scheduled counseling sessions rather than reactive sessions Limitations: a multi-center randomized control trial is needed to determine greater reliability of the intervention.	High

Table B.1 Continued

Author (Year)	Purpose	Theory Framework	Design	Setting Sample	Survey/ Instruments	Findings	Implications for Practice	Grade Level of Evidence
Melynk et al., (2021)	1. Quantify critical care nurses' (CCN) levels of physical and mental health. 2. Is there a relationship between CCNs physical and mental health and medical errors? 3. Is there an association between CCNs worksite wellness and their physical and mental health?	None Reported	Descriptive Data was collected from August 2018 to August 2019	Members of the AACN whose primary role is in clinical practice. n= 771	Demographic Survey Patient Health Questionnaire - 2 Screening for depressive symptoms in last two weeks; four-point Likert scale Generalized Anxiety Disorder Questionnaire - 2 Screening for anxiety symptoms in the past two weeks; four-point Likert scale PSS-4 Perceived Stress Scale Four questions to measure perception of stress; Higher scores= higher perceived stress Professional Quality of Life Scale Measurement of stress perception; four questions; five-point Likert Scale Survey Question - Assessment of wellness in workplace, "How supportive is your work environment of personal wellness?"; Five-point Likert scale Survey Question - Number of medical errors made in the past 5 years; Options: one to two, three to five, or more than five.	A majority of CCNs (61%) reported suboptimal physical health and higher levels of mental health issues (51%). CCNs reported symptoms of depression (39.5%), anxiety (53.2%), and stress (39.8%). Nurses who reported worse health perceptions comparatively, had a 31% to 62% higher chance of making a medical error. . Nurses with better physical and mental health had higher rates of perceived support and wellness in the workplace. (55.8%, 67.3%, respectively) Higher perceived workplace wellness was also positively associated with better mental health (67.3%), lower presence of depressive symptoms (79.6%), anxiety symptoms (71.7%), and stress (77.0%) as well as better professional quality of life (69.9%).	Physical and mental health interventions should be offered to RNs to decrease incidence of burnout. Workplace wellness should be defined, and validated tools should be used to assess current workforce's workplace satisfaction to improve burnout.	Moderate

Table B.1 Continued

Author (Year)	Purpose	Theory Framework	Design	Setting Sample	Survey/ Instruments	Findings	Implications for Practice	Grade Level of Evidence
Mohr et al., (2021)	Determine burnout clusters and associations with patient and clinician outcomes	None	Quantitative	111 Veteran Health Administration intensive care units from 2013-2017 N= 23.44 (mean) survey respondents annually	All Employee All Employee Survey Census survey conducted annually MBI (modified) -2 single item statements about depersonalization and emotional exhaustion - 2 experiences once a week = burnout	- The mean Burnout rates across five years totaled at low (19.2%), medium (37.0%) and high (59.3%). Burnout cluster and geographic location – higher in western US Best places to work index and intent to turnover were associated with lower burnout. Complexity, 30-day mortality rate minus expected length of stay was associated with burnout Magnet status was negatively associated with burnout. Employee satisfaction was lowest in medium and high burnout clusters. Higher intention for turnover in high burnout cluster	- Sites with high burnout were not associated with increased mortality, length of stay or ICU complexity. Organizational climate is a predictor for burnout. Organizational solutions > individual solutions	High

Table B.1 Continued

Author (Year)	Purpose	Theory Framework	Design	Setting Sample	Survey/ Instruments	Findings	Implications for Practice	Grade Level of Evidence
Monroe et al., (2020)	Evaluation of critical care work environment and effect on the quality of life including burnout and secondary traumatic stress (STS)	Theoretical model of compassion satisfaction and compassion fatigue	Cross Sectional	Four adult critical care ICUs at a magnet facility Trauma/surgical n= 68 Neurological n= 17 Medical n= 54 Cardiac n=69 ICU Float n= 11 Total n= 219	Demographic Survey Professional Quality of Life Scale 30- item Likert scale; assesses QOL; measures compassion satisfaction (CS), burnout and secondary traumatic stress Healthy Work Environment Assessment 18 item Likert scale of improvement, good or excellent rating	CS and burnout t scores were average (52 and 55.3, respectively); STS was high (63) Skilled communication, true collaboration, effective decision-making meaningful recognition, authentic leadership resulted as good and was shown to be positively correlated with CS Staffing resulted as needs improvement. - Authentic leadership is significantly negatively correlated with STS and burnout - Appropriate staffing and meaningful recognition decrease STS.	These particular ICUs have a healthy work environment and could be modeled for other ICUs Strong leadership is a key to retention and satisfaction Appropriate staffing and having authentic leadership are key components to a health work environment. Leadership should be a priority among change in the ICUs to increase compassion satisfaction, decreased burnout and decreased secondary traumatic stress.	Moderate

Table B.1 Continued

Author (Year)	Purpose	Theory Framework	Design	Setting Sample	Survey/ Instruments	Findings	Implications for Practice	Grade Level of Evidence
Ntantana et al., (2017)	Identify if personality, religiosity, and job satisfaction influence burnout in the ICU	None Reported	Cross-Sectional	18 Greek ICU departments from 17 hospitals in eight cities n= 149 ICU Physicians n= 320 ICU nurses	Maslach Burnout Inventory (MBI) Gold Standard; 22 questions, seven-point Likert scale; three subscales: emotional exhaustion (EE), depersonalization (DP) and personal accomplishment (PA); Measures are assessed independently Eysenck Personality Questionnaire (EPQ) Measures three domains of personality; neuroticism, psychoticism, and extraversion; eighty-four entries with yes/no responses Spiritual/Religious Attitudes Questionnaire (SpREUK) 15 items on five-point Likert scale; Covers three religious' dimensions: search for support, trust in a higher guidance and reflection	Burnout was present in 32.8% of participants. Nurses>physicians Predictors of exhaustion: Neuroticism = positive predictor, extraversion= negative predictor Job satisfaction was inversely related to EE. (Nurses 63.4%, Physicians 80.8%) High EE and DP are associated with low job satisfaction and low satisfaction in end-of-life care. - Neurotic individuals are emotionally unstable and are prone to increased psychological stress. - Religion and EE were found not to be related. - The primary interferences with EE are job satisfaction, satisfaction with EoL, and decisions and isolation after EoL care.	- Identification of type of personality may assist in preventative measures of burnout End of life training may assist in reducing EE among ICU nurses Three factors are associated with EE; job satisfaction, satisfaction with end of life care, and decisions and isolated feelings after end of life care.	Moderate

Table B.1 Continued

Author (Year)	Purpose	Theory Framework	Design	Setting Sample	Survey/ Instruments	Findings	Implications for Practice	Grade Level of Evidence
Pollock et al., (2020)	Assess the effectiveness of interventions that support the resiliency and mental health of frontline workers during and after a disease outbreak Determine what barriers exist that may hinder the implementation of these interventions	None Reported	Systematic Review	Sixteen studies focused on implementation of an intervention to support the resiliency of frontline workers during disease outbreaks Nine studies were descriptive Seven studies were qualitative n= 2 SARS n= 9 Ebola n= 1 MERS n= 4 COVID-19 Articles were chosen from the year 2002 and on.	Assessment of bias; Cochrane 'Risk of bias' tool. Methodological limitations; Critical Appraisal Skills Program qualitative study tool for qualitative studies, or Ways of Evaluating Important and Relevant Data tool, for descriptive studies Barriers and facilitators were extracted using the Consolidated Framework of Implementation Research GRADE-CERQual was used to assess confidence in findings	There is low-certainty evidence that exists about interventions for the psychological first aid of front-line workers. Seventeen key findings were identified with low to moderate confidence. There is a lack of quantitative and qualitative evidence pre/post disease outbreak that assists in guiding interventions. No studies solely focused on addressing daily needs of participants	Seventeen findings were reported. Moderate Complexity: Flexible interventions to meet local needs; lack of awareness of employee's needs was a barrier to implementation; effective communication; positive environment; resource constraints (time, supplies); beliefs about the intervention either facilitated or created a barrier Low confidence: Interventions with low level of complexity were easier to implement; associated costs were seen as a barrier to implementation; incentive and rewards for engagement; training to assess readiness; individual personal characteristics; implementation champions; debriefing	High

Table B.1 Continued

Author (Year)	Purpose	Theory Framework	Design	Setting Sample	Survey/ Instruments	Findings	Implications for Practice	Grade Level of Evidence
Purvis & Saylor., (2019)	Characterize resiliency and burnout in a neuro critical care unit (NCCU)	None reported	Cross-Sectional	Neuroscience critical care unit Tertiary care center n= 65 nurses(75%) , nurse practitioners, fellows	Qualtrics: thirty-three-item survey Abbreviated Maslach Burnout Inventory - Higher scores on the subsections indicated higher level of the characteristic (emotional exhaustion, depersonalization, and personal accomplishment (0-18) Connor – Davidson Resilience Scale Resiliency assessment Higher score (0-100) = greater resilience; Resilience present with score >80. Categorical variables were compared via Chi-square test. Continuous variables were assessed using a Mann-Whitney U test or independent samples t test.	Longer time working in the NCCU = higher emotional exhaustion. Older age = higher resiliency	Several studies contradict that tenure leads to high emotional exhaustion. Contributors could be unit specific vs overall life experience. Data should be used to assist in further developing interventions to identify potential burnout and low resiliency	Moderate

Table B.1 Continued

Author (Year)	Purpose	Theory Framework	Design	Setting Sample	Survey/ Instruments	Findings	Implications for Practice	Grade Level of Evidence
Siswoya et al., (2021)	Is there a relationship between moral distress (MD) and burnout	None Reported	Quantitative	Intensive Care Unit India n=47 nurses	Moral Distress Scale-Healthcare Professionals: Twenty-Seven statement items Maslach Burnout Inventory (MBI) Gold Standard; 22 questions, seven-point Likert scale; three subscales: emotional exhaustion (EE), depersonalization (DP) and personal accomplishment (PA); Measures are assessed independently	Positive relationship between MD and burnout. Low to moderate levels of MD was reported Low to moderate levels of burnout was reported. Culture and environment could be reason for low reports of MD and burnout	Healthy work environment, among other factors, could results in lower MD and burnout.	LOW

Table B.1 Continued

Author (Year)	Purpose	Theory Framework	Design	Setting Sample	Survey/ Instruments	Findings	Implications for Practice	Grade Level of Evidence
Steinberg at al., (2017)	8-week mindfulness-based intervention (MBI) to increase resiliency and decrease stress in the workplace among critical care staff.	None Reported	Quantitative	Large academic medical center surgical ICU Intervention and wait-list control group N= 32 individuals	Assessments: 1-week pre/post intervention Maslach Burnout Inventory (MBI) Gold Standard; 22 questions, seven-point Likert scale; three subscales: emotional exhaustion (EE), depersonalization (DP) and personal accomplishment (PA); Measures are assessed independently Professional Quality of Life Scale Measurement of stress perception; four questions; five-point Likert Scale 9 item Utrecht Work Engagement Scale (UWES) measures work engagement, work ability, and quality of life (QoL) Questionnaire on life satisfaction - 4 questions - health, capacity for work, ability to perform ADLs, QOL. Biological levels of stress measured: *a*-amylase levels	97% retention rate overall. 100% in the intervention group Weekly meeting attendance rate was 90% Nurses planning to leave their position, 9% compared to 4%, hospital average UWES scores increased from first and second assessments in intervention group Emotional exhaustion and burnout scores were negatively correlated with dedication. QoL scales: participants were healthy and satisfied with their QoL. Negative association between work engagement and intent to leave. Levels of work stress had no self-reported change, but salivary a-amylase levels showed a decrease in response to stressors.	Study included nurses, patient care techs, assistant, family support coordinator, Chaplin, janitor, pharmacists, and unit clerks. Interventions directed to turnover reduction impacted others and the organization indirectly. MBI interventions are feasible but require large scale studies to accurately clinically correlate Changes should occur at organizational level	Moderate

Table B.1 Continued

Author (Year)	Purpose	Theory Framework	Design	Setting Sample	Survey/ Instruments	Findings	Implications for Practice	Grade Level of Evidence
Swamy et al., (2020)	Evaluate the frequency of burnout among critical care nurses across a national health system	Conceptual Model	Observational	Setting Ninety-four VA intensive care units n= 2352 (2017) n= 2191 (2016) Site characteristic: urban versus non-urban, academic teaching hospital affiliations, overall quality, and ICU complexity.	Annual Employee Survey (AES) 52 questions on five-point Likert scale, measuring perceptions of workload, staffing, patient experiences, relationships within cohort, and leadership; Annual census survey given to all active VA employees; intertwined with the Maslach burnout inventory.	From the 2017 survey, 33.9% of nurses met criteria for burnout. There are multiple variables that were significantly associated with burnout: workplace climate, urban location, star rating, and VA tenure. Workplace climate was strongest predictor of burnout	Workplace climate is reflective of an employee's emotional and psychological well-being. Interventions to promote ICU nurse wellbeing need to consider systemic changes to the workplace climate. In contrast, individual demographic characteristics were not associated with ICU nurse burnout.	High/Moderate

Table B.1 Continued

Author (Year)	Purpose	Theory Framework	Design	Setting Sample	Survey/ Instruments	Findings	Implications for Practice	Grade Level of Evidence
Vasconcelos & Figueiredo De Martino., (2018)	Identify prevalence and predictors of burnout in intensive care nurses	None Reported	Cross-Sectional	Large Academic Center Brazil n= 91	Sociodemographic survey Maslach Burnout Inventory (MBI) Gold Standard; 22 questions, seven-point Likert scale; three subscales: emotional exhaustion (EE), depersonalization (DP) and personal accomplishment (PA); Measures are assessed independently	85.7% did not experience burnout. Nurses with burnout: 20–29-year-olds, 20.7%; single (17.5), no physical activity, 14.9%, worked in ICU 2-3 years, 30.8%, did not participate in hospital training, 17.9% Nurses who took less time off (reported as holiday) were3.92 times more likely to experience burnout.	Further research is necessary to determine correlation between burnout and listed variable. Time off and burnout are inversely related.	Moderate

Table B.1 Continued

Author (Year)	Purpose	Theory Framework	Design	Setting Sample	Survey/ Instruments	Findings	Implications for Practice	Grade Level of Evidence
Vermeir et al., (2018)	Identify the relationship between communication and job satisfaction and its association on intent to leave and burnout among ICU nurses	None Reported	Cross-Sectional	Three Flemish Hospitals in Belgium n= 303 ICU nurses	Communication Satisfaction Questionnaire: Eight Dimensions, Five questions Seven-point Likert scale. Turnover Intention Scale: Four yes/no questions Maslach Burnout Inventory (MBI) Gold Standard; 22 questions, seven-point Likert scale; three subscales: emotional exhaustion (EE), depersonalization (DP) and personal accomplishment (PA); Measures are assessed independently Job Satisfaction Scale: measured using a visual analogue scale, 0-10 - Rating of </= 5 was considered dissatisfaction	Increased job satisfaction leads to lower intent to leave, burnout and lower absenteeism. May also be correlated with patient outcomes. Nurses with low intent to leave had higher scores in communication dimensions. Nurses at risk for burnout had lower scores on communication dimensions Communication gap identified between upper management and bedside workers There is a moderate correlation with communication and turnover and burnout	High scores for communication is associated with job satisfaction, intent to leave and burnout. Optimization of communication should be invested at the unit and hospital-wide level. Burnout leads to poor communication and can affect patient care and overall outcomes	Moderate

APPENDIX C

PERMISSION TO SURVEY

Kellie White MSN, RN, CPHQ
Nurse Director of Acute Care & ICU
Medical Center of the Rockies
xxxxxxxxxxxxx
kellie.white@uchealth.org

To Whom It May Concern

Leighann Brock has my permission to survey the staff in the critical care departments at Medical Center of the Rockies. Please let me know if further information is needed.

Thank you

Kellie White MSN, RN, CPI-IQ

APPENDIX D

INSTITUTIONAL REVIEW BOARD APPROVAL

UNIVERSITY OF
NORTHERN COLORADO

Institutional Review Board

Date:	07/25/2022
Principal Investigator:	Erin Christiansen
Committee Action:	**IRB EXEMPT DETERMINATION – New Protocol**
Action Date:	07/25/2022
Protocol Number:	2207040818
Protocol Title:	IRB Application IMPROVING HEALTHCARE FOR ADULT PATIENTS WITH DUAL DIAGNOSES OF CHRONIC PAIN AND OPIOID USE DISORDER
Expiration Date:	

The University of Northern Colorado Institutional Review Board has reviewed your protocol and determined your project to be exempt under 45 CFR 46.104(d)(702) for research involving

Category 2 (2018): EDUCATIONAL TESTS, SURVEYS, INTERVIEWS, OR OBSERVATIONS OF PUBLIC BEHAVIOR. Research that only includes interactions involving educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior (including visual or auditory recording) if at least one of the following criteria is met: (i) The information obtained is recorded by the investigator in such a manner that the identity of the human subjects cannot readily be ascertained, directly or through identifiers linked to the subjects; (ii) Any disclosure of the human subjects' responses outside the research would not reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, educational advancement, or reputation; or (iii) The information obtained is recorded by the investigator in such a manner that the identity of the human subjects can readily be ascertained, directly or through identifiers linked to the subjects, and an IRB conducts a limited IRB review to make the determination required by 45 CFR 46.111(a)(7).

You may begin conducting your research as outlined in your protocol. Your study does not require further review from the IRB, unless changes need to be made to your approved protocol.

As the Principal Investigator (PI), you are still responsible for contacting the UNC IRB office if and when:

UNIVERSITY OF
NORTHERN COLORADO

Institutional Review Board

- You wish to deviate from the described protocol and would like to formally submit a modification request. Prior IRB approval must be obtained before any changes can be implemented (except to eliminate an immediate hazard to research participants).
- You make changes to the research personnel working on this study (add or drop research staff on this protocol).
- At the end of the study or before you leave The University of Northern Colorado and are no longer a student or employee, to request your protocol be closed. *You cannot continue to reference UNC on any documents (including the informed consent form) or conduct the study under the auspices of UNC if you are no longer a student/employee of this university.
- You have received or have been made aware of any complaints, problems, or adverse events that are related or possibly related to participation in the research.

If you have any questions, please contact the Research Compliance Manager, Nicole Morse, at 970-351-1910 or via e-mail at nicole.morse@unco.edu. Additional information concerning the requirements for the protection of human subjects may be found at the Office of Human Research Protection website - http://hhs.gov/ohrp/ and https://www.unco.edu/research/research-integrity-and-compliance/institutional-review-board/.

Sincerely,

Nicole Morse
Research Compliance Manager

University of Northern Colorado: FWA00000784

APPENDIX E

LICENSE FOR USE OF VALIDATED TOOL

Permission for Leighann Brock to reproduce 75 copies within three years of June 30, 2022

Maslach Burnout Inventory™

Instruments and Scoring Keys

Includes MBI Forms:
Human Services - MBI-HSS
Medical Personnel - MBI-HSS (MP)
Educators - MBI-ES
General - MBI-GS
Students - MBI-GS (S)

Christina Maslach
Susan E. Jackson
Michael P. Leiter
Wilmar B. Schaufeli
Richard L. Schwab

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To Whom It May Concern,

The above-named person has made a license purchase from Mind Garden, Inc. and has permission to administer the following copyrighted instrument up to that quantity purchased:

Maslach Burnout Inventory forms: Human Services Survey, Human Services Survey for Medical Personnel, Educators Survey, General Survey, or General Survey for Students.

The three sample items only from this instrument as specified below may be included in your thesis or dissertation. Any other use must receive prior written permission from Mind Garden. The entire instrument form may not be included or reproduced at any time in any other published material. Please understand that disclosing more than we have authorized will compromise the integrity and value of the test.

Citation of the instrument must include the applicable copyright statement listed below.

MBI - Human Services Survey for Medical Personnel - MBI-HSS (MP):

I feel emotionally drained from my work.
I have accomplished many worthwhile things in this job.
I don't really care what happens to some patients.

Sincerely,

Robert Most
Mind Garden, Inc.
www.mindgarden.com

APPENDIX F

APPROVAL FOR REMOTE ONLINE USE OF VALIDATED TOOL: MASLACH BURNOUT INVENTORY—HUMAN SERVICES SURVEY FOR MEDICAL PERSONNEL

Approval for Remote Online Use of a Mind Garden Instrument

Effective date is July 11, 2022 for:

Leighann Brock

You submitted your Application for Remote Online Use at 2:55 pm EDT on July 07, 2022.

Remote online use of the Mind Garden instrument stated below is approved for the person on the title page of this document.

Your name:

Leighann Brock

Email address:

broc2461@bears.unco.edu

Company/institution:

University of Northern Colorado

Mind Garden Sales Order or Invoice number for your license purchase:

LMOZJKZZO

The name of the Mind Garden instrument you will be using:

MBI Remote Online Survey

Please specify the name of and web address for the remote online survey website you will be using and describe how you will be putting this instrument online:

https://unco.qualtrics.com The survey will be created and directed emailed to a set population for completion. For this project it is ICU nurses.

The Remote Online Survey License is a data license for research purposes only. This license grants one permission to collect and disclose (a) item scores and scale scores, (b) statistical analyses of those scores (such as group average, group standard deviation, T-scores, etc.) and (c) pre-authorized sample items only, as provided by Mind Garden, for results write-up and publication.

The instrument items, directions, manual, individual report, group report, and any other descriptive information available through Mind Garden is the intellectual property of the copyright holder and can be used only with purchase or written permission from Mind Garden.

added 13 September 2018

Conditions of Use

Question	Answer
I will administer this Mind Garden instrument for research purposes only.	I agree to this condition.
I will **not** send Mind Garden instruments in the text of an email or as a PDF file to survey participants.	I agree to this condition.
I will put the instrument copyright statement (from the footer of my license document; includes the copyright date, copyright holder, and publisher details) on every page containing questions/items from this instrument.	I agree to this condition.
I will send screenshots of my online survey to info@mindgarden.com so that Mind Garden can verify that the copyright statement appears.	I agree to this condition.
I will compensate Mind Garden, Inc. for each license use; one license is used when a participant first accesses the online survey.	I agree to this condition.

I will track my license use.	I agree to this condition.
Once the number of administrations reaches the number purchased, I will purchase additional licenses or the survey will be closed to use.	I agree to this condition.
I will remove this online survey at the conclusion of my data collection and I will personally confirm that it cannot be accessed.	I agree to this condition.

I agree to abide by each of the conditions stated above

Your name (as electronic signature):	Leighann Brock

APPENDIX G

SURVEY INSTRUMENT

Please answer the following demographic questions

1. Please indicate your age group
    a. 20-29
    b. 30-39
    c. 40-49
    d. 50-59
    e. Greater than 60
2. Years as a Registered Nurse (RN)
    a. Less than 1
    b. 1-3
    c. 4-6
    d. 7-9
    e. Greater than 10
3. Years as a RN in an Intensive Care Unit
    a. Less than 1
    b. 1-3
    c. 4-6
    d. 7-9
    e. Greater than 10
4. Employment Status
    a. Full Time (36 or more hours/week)
    b. Part-Time (24 or more hours/week)
    c. Other

MBI Human Services Survey for Medical Personnel

How often:	0	1	2	3	4	5	6
	Never	A few times a year or less	Once a month or less	A few times a month	Once a week	A few times a week	Every day

0-6 Statements:

1. _____ I feel emotionally drained from my work.

2. _____ I feel used up at the end of the workday.

3. _____ I feel fatigued when I get up in the morning and have to face another day on the job.

4. _____ I can easily understand how my patients feel about things.

5. _____ I feel I treat some patients as if they were impersonal objects.

6. _____ Working with people all day is really a strain for me.

7. _____ I deal very effectively with the problems of my patients.
8. _____ I feel burned out from my work.
9. _____ I feel I'm positively influencing other people's lives through my work.
10. _____ I've become more callous toward people since I took this job.
11. _____ I worry that this job is hardening me emotionally.
12. _____ I feel very energetic.
13. _____ I feel frustrated by my job.
14. _____ I feel I'm working too hard on my job.
15. _____ I don't really care what happens to some patients.
16. _____ Working with people directly puts too much stress on me.
17. _____ I can easily create a relaxed atmosphere with my patients.
18. _____ I feel exhilarated after working closely with my patients.
19. _____ I have accomplished many worthwhile things in this job.
20. _____ I feel like I'm at the end of my rope.
21. _____ In my work, I deal with emotional problems very calmly.
22. _____ I feel patients blame me for some of their problems.

1. What programming would assist in decreasing burnout for you? (Select all that apply)
    - Application based mental health access (Noom, Headspace, Moodkit)
    - In-person training/de-briefing sessions
    - Computer-based education
    - Peer/Mentor support groups
    - Wellness offerings (yoga classes, passes to local attractions)
    - Other: (150-character max
2. What gets in the way of your wellness?
3. What keeps you from working efficiently?

APPENDIX H

CONSENT FORM

UNIVERSITY OF
NORTHERN COLORADO

Informed Consent Form for Participation in Research

Title of Research Study: NEEDS ASSESSMENT IN ICU REGISTERED NURSES FOR CREATION OF BURNOUT MITIGATION INTERVENTION

Researcher: Leighann Brock, AGACNP-BC, Doctor of Nursing Practice Student, University of Northern Colorado (UNC) School of Nursing
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Procedures: You are invited to participate in a research study to identify the needs of ICU Registered Nurses to identify causative factors of burnout and create a potential program based upon identified needs. The survey will take 10-15 minutes and is a total of 31 questions. The information of this survey will be collected in aggregate form and compared to the existing literature to help guide the creation of a burnout mitigation intervention for ICU nurses. The survey is confidential; no identifying information (name or specific practice unit) will be collected. Your responses will not be linked to your email address or IP location by the researcher. The de-identified data collected from this poll will be stored according to UNC's data security procedures. Upon completing the survey, you may submit your email address to participate in a drawing for one of three $50 gift cards to Scheels, Target, or Starbucks. Including your email address will not be associated with your survey responses. Selected recipients of the participation raffle will be notified via email following the closure of the survey. This research project has received approval from the UNC Institutional Review Board in the Office of Research and Sponsored Programs.

Note: The survey will be conducted on the Qualtrics platform and may have their own specific privacy policies. You should be aware that these web services may be able to link your responses to your ID in ways that are not bound by this consent form and the data confidentiality procedures used in this study. If you have concerns, you should consult these services directly.

Questions: If you have any questions about this research project, please contact the primary researcher, Leighann Brock AGACNP-BC, at broc2461@bears.unco.edu. If you have any concerns about your selection or treatment as a research participant, please contact Nicole Morse, Research Compliance Manager, the University of Northern Colorado, at nicole.morse@unco.edu or 970-351-1910.

Voluntary Participation: Please understand that your participation is voluntary. You may decide not to participate in this study, and if you begin participation, you may still decide to stop and withdraw at any time. Your decision will be respected and will not result in the loss of benefits to which you are otherwise entitled.

Please take all the time you need to read through this document and decide whether you would like to participate in this research study. If you decide to participate, completing the research procedures indicates your consent.